Western San Bernardino County Distribution System Infrastructure Protection Program

VOLUME I

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT | SCH NO. 2014111071

MAY 2020

The Metropolitan Water District
of Southern California
700 North Alameda Street
Los Angeles, CA 90012

Metropolitan Report 1626

Western San Bernardino County Distribution System Infrastructure Protection Program Draft Environmental Impact Report SCH No. 2014111071 Metropolitan Report 1626

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Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
AB	Assembly Bill
ACM	asbestos-containing material
ACOE	U.S. Army Corps of Engineers
AEC	Advantage Environmental Consulting LLC
ALUCP	Airport Land Use Compatibility Plan
AQMP	air quality management plan
BFSA	Brian F. Smith and Associates Inc.
bgs	below ground surface
BLM	Bureau of Land Management
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGP	Construction General Permit
CIP	Capital Investment Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNMP	Construction Noise Management Plan
CNPS	California Native Plant Society
CO	carbon monoxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
EFD	Escondido Fire Department
EIR	Environmental Impact Report
EM	electromagnetic
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
ESL	environmental screening level
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GHG	greenhouse gas
GIS	geographic information system
GWP	global warming potential
HABS	Historic American Buildings Survey
HAP	hazardous air pollutant
HCP	habitat conservation plan

Acronym/ Abbreviation	Definition
HMMD	Hazardous Materials Management Division
HMMP	hazardous material management plan
HRI	Historic Resources Inventory
Hz	hertz
I	Interstate
IFC	International Fire Code
ips	inches per second
LBP	lead-based paint
L_{dn}	day–night average sound level
L_{eq}	equivalent continuous sound level
L_{max}	maximum sound level
LOS	level of service
LST	localized significance threshold
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
mg/kg	milligrams per kilogram
MHCP	Multiple Habitat Conservation Program
MLD	most likely descendant
MS4	municipal separate storm sewer system
MSCP	Multiple Species Conservation Program
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
O_3	ozone
OSHA	Occupational Safety and Health Act
PCE	passenger car equivalent
PDF	project design feature
Phase 1 ESA	Phase 1 environmental site assessment
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PPV	peak particle velocity
PRA	Paleontological Resource Assessment
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SAM	Site Assessment and Mitigation
SAP	Specific Alignment Plan
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments

Acronym/ Abbreviation	Definition
SCAQMD	South Coast Air Quality Management District
SGI	Southwest Geophysics Inc.
SO_2	sulfur dioxide
SR	State Route
SRA	state responsibility area
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	Traditional Cultural Place
TCR	tribal cultural resource
TPH	total petroleum hydrocarbons
Upper SAR HCP	Upper Santa Ana River Habitat Conservation Plan
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration velocity decibel
VMT	vehicle miles traveled
VOC	volatile organic compound
WPCP	water pollution control plan

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Executive Summary

E.1 Overview of the Proposed Program

The Metropolitan Water District of Southern California (Metropolitan) is proposing the design, construction, operation, and maintenance of Capital Investment Plan (CIP) projects and preparation and implementation of an Operations and Maintenance (O&M) Manual (see Appendix A) for the conveyance and distribution system within its Western San Bernardino County Operating Region (proposed program). The proposed program, which is identified as the Distribution System Infrastructure Protection Program (DSIPP, or proposed program), is a comprehensive assessment effort that identifies, prioritizes, and executes needed surface infrastructure protection projects for Metropolitan's conveyance and distribution system. The scope of the program only includes those projects that could be identified from visual inspection of the surface or accessed from manholes at the surface and does not include projects related to the rehabilitation or replacement of subsurface pipelines.

For this program, Metropolitan divided its service area into operating regions based on geographic areas and roughly following county lines. The DSIPP is being implemented in phases by operating region: Phase 1 includes the operating regions of Orange and Western San Bernardino counties; Phase 2 includes the operating regions of Los Angeles and Riverside/San Diego counties; and Phase 3 encompasses San Bernardino County's outlying areas. The subject of this program environmental impact report (PEIR) is the Western San Bernardino County Operating Region. Metropolitan's operating regions are generally located within the boundaries of each county, but may also include areas that extend slightly beyond the county boundaries.

In order to ensure continued water supply reliability, Metropolitan is proposing to implement a comprehensive program to (1) design, construct, operate, and maintain CIP infrastructure projects that address surface infrastructure maintenance and protection needs, and (2) prepare and implement an O&M Manual for execution of routine O&M activities. Under the DSIPP, this programmatic California Environmental Quality Act (CEQA) document is being prepared for proposed CIP projects and O&M activities, and long-term programmatic regional permits will be obtained for work within regulated waters to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

There are two components to the proposed program: CIP projects and O&M activities. The two components of the proposed program are described below:

- **CIP Projects**: CIP infrastructure projects generally consist of repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems that threaten system reliability. Examples of proposed CIP infrastructure projects include patrol road upgrades (e.g., paving); installation of engineered

erosion control structures (e.g., grouted riprap or channel lining); and slope stabilization measures. CIP projects typically require engineering design and would be conducted on a one-time basis. Once a CIP project is built, it would then require implementation of O&M activities to maintain the structure.

- **O&M Activities**: O&M activities within the Western San Bernardino County Operating Region are currently ongoing; however, the O&M Manual would develop a formalized plan that would provide a systematic and scheduled approach to these maintenance activities and would serve as a comprehensive guide for the maintenance of existing water conveyance and distribution system infrastructure. The O&M Manual would describe routine and single-occurrence maintenance activities and provide a schedule for routine inspection and maintenance of patrol roads and pipeline appurtenant structures. Routine and single-occurrence O&M activities are described below.
    - Routine O&M activities are preventive in nature and include, on a regular basis, standard practices that detect and correct minor issues that may eventually lead to damage or loss of surface infrastructure. Types of routine O&M activities include regular patrols and visual inspections of patrol roads and aboveground appurtenant structures; maintenance of patrol roads (e.g., minor grading, vegetation maintenance, low water crossing and culvert maintenance); routine facility maintenance, repair, and replacement (e.g., cleaning of equipment and structures, graffiti removal, coating of structures, vegetation maintenance, repair/installation of security fencing/signage); pipeline shutdowns and dewatering; and emergency procedures. The O&M component of the proposed program would address all routine, ongoing O&M activities for currently constructed structures, as well as the long-term O&M activities for structures proposed under the CIP component of this program.
    - Single-occurrence O&M activities are conducted on a one-time basis and would include repair, rehabilitation, or replacement of existing structures to support the continued maintenance of existing pipelines and appurtenant pipeline structures. Examples of single-occurrence O&M activities include patrol road structural repairs, and could include the installation of low water crossings including Arizona crossings, culverts, and/or bridges. Single-occurrence O&M activities may require design engineering; however, the project design is typically not as complex as the CIP projects discussed above. Following construction of the structures, long-term maintenance would occur as described in the O&M Manual under routine O&M.

The proposed design, construction, and operation of the CIP infrastructure projects and the preparation and implementation of the O&M Manual considered together are referred to as the proposed program.

E.2 Overview of the Western San Bernardino County Operating Region

The Western San Bernardino County Operating Region comprises Metropolitan's conveyance and distribution system pipelines and appurtenant structures, right-of-way, and patrol roads within western San Bernardino County, California. The Western San Bernardino County Operating Region includes 74 miles of pipeline, 392 pipeline structures, and approximately 50 miles of patrol roads. As shown in Table E-1, the Western San Bernardino County Operating Region pipeline and patrol road system extends through San Bernardino County and 10 cities. The cities are as follows:

- Chino Hills
- Fontana
- Highland
- Montclair
- Ontario
- Rancho Cucamonga
- Redlands
- Rialto
- San Bernardino
- Upland

Metropolitan's right-of-way within the Western San Bernardino County Operating Region extends through multiple parcels. All currently identified CIP project locations, and the Assessor's Parcel Numbers in which that work would occur, are listed in Appendix B (CIP Project Locations) to this PEIR.

To support operation of the conveyance and distribution pipelines within the Western San Bernardino County Operating Region, Metropolitan also maintains a complex system of aboveground appurtenant pipeline structures and a system of patrol roads. The activities performed under the proposed program would occur at these structures and along the patrol roads, which are collectively referred to as "associated infrastructure" in this PEIR.

Table E-1 summarizes information about the pipelines within Metropolitan's conveyance and distribution system that are included in the Western San Bernardino County Operating Region.

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Table E-1. Summary of Western San Bernardino County Operating Region Pipelines

Pipeline	Local Jurisdiction	Year of Construction	Length (Miles)	Flow		Inner Diameter (Inches)		Overview
				From	*To*	*Min*	*Max*	*Description*
Inland Feeder	Cities of San Bernardino, Highland, Redlands; unincorporated area in San Bernardino County	1960s–1990s	29	Department of Water Resources Devil Canyon facility	Diamond Valley Lake	144	168	The purpose for the Inland Feeder is to transport water from the State Water Project at Devil Canyon to Diamond Valley Lake or Lake Mathews. It provides system reliability and water quality by enabling Metropolitan to divert large volumes of water (when available) from Northern California and deposit it in surface storage reservoirs for use during dry periods or emergencies. It also blends water that is lower in salinity with water that is higher in salinity to improve water quality.
Etiwanda Pipeline	Cities of Fontana and Rancho Cucamonga	1993	6.5	Turnout structure on the Rialto Pipeline at Rialto Station 3667+14	Upper Feeder at Station 1081+03	144	144	The Etiwanda Pipeline connects the Rialto Pipeline with the Upper Feeder to provide the Upper Feeder with State Water Project water.
Rialto Pipeline	Cities of Upland, Rancho Cucamonga, Fontana, Rialto, San Bernardino; unincorporated area in San Bernardino County	1975	29	California Department of Water Resources Devil Canyon facility	San Dimas facility	96	135	The Rialto Pipeline transports East Branch California State Water Project water into Metropolitan's supply and distribution system. The Rialto Pipeline is the sole source of water to the Etiwanda Pipeline. The Rialto Pipeline supplies untreated water to a number of service connections for both groundwater replenishment and domestic purposes prior to arriving at the Live Oak Reservoir. The Rialto Pipeline can deliver water into the Live Oak Reservoir for storage or bypass the reservoir. The pipeline continues westerly from the Live Oak Reservoir and interconnects with the La Verne Pipeline near the Glendora Tunnel.
Upper Feeder	Cities of Montclair, Ontario, Rancho Cucamonga, Fontana; unincorporated area in San Bernardino County and Jurupa Valley	1933–1941	63	Lake Mathews Forebay Outlet Tower	Eagle Rock Control Tower at Station 3319+08	84	140	The Upper Feeder delivers a blend of untreated water from the Colorado River Aqueduct and the State Water Project to the Weymouth Treatment Plant. This feeder also supplies water to a number of service connections for groundwater storage and replenishment.
Yorba Linda Feeder	City of Chino Hills	1975	18	La Verne Pipeline at Station 118+18 near the Upper Feeder Junction Structure	Robert B. Diemer Water Treatment Plant	96	121	The Yorba Linda Feeder can deliver water from the State Water Project or the Colorado River Aqueduct, or a blend of both waters to the Robert B. Diemer Water Treatment Plant.

Notes: min = minimum; max = maximum.
Sources: Metropolitan 2005, 2008, 1997.

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E.3 Proposed Program Objectives

The proposed program objectives are as follows:

- Maintain access to pipelines and appurtenant structures to conduct necessary maintenance to ensure reliability of the water supply conveyance and distribution system.
- Address associated infrastructure issues that threaten the reliability and/or security of the conveyance and distribution system and water supply to Metropolitan's service area by implementing proposed infrastructure protection projects.
- Provide a systematic and scheduled approach to ongoing routine maintenance activities.
- Obtain regional permits that provide long-term permitting approval and streamline environmental clearance processes for maintenance projects in regulated waters.
- Streamline environmental clearances and enable Metropolitan to implement proposed CIP projects and critical O&M activities in a timely manner, especially for those projects in environmentally sensitive or regulated areas.

E.4 Program Description

E.4.1 Description of Proposed CIP Projects

The proposed CIP projects generally consist of repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems that threaten system reliability. A list of the proposed CIP projects identified in the Western San Bernardino County DSIPP Assessment Report is included in Appendix B. It should be noted that the proposed program description for CIP infrastructure projects only includes design and construction of the projects; O&M activities following construction of CIP projects would be covered under the O&M component of this program description.

Table E-2 summarizes the proposed CIP project types identified in the Western San Bernardino County DSIPP assessment, including activity duration and equipment.

Table E-2. Summary of Western San Bernardino County Operating Region DSIPP Proposed CIP Projects

CIP Activity Code No.	Activity	Typical Duration	Typical Equipment Needs
1	Patrol road improvements and paving	1–3 days	Tractor, loader, backhoe, excavator, dump truck, motor grader, roller, paver, water truck
2	Engineered erosion control	Up to 2 weeks	Blade, loader, excavator, dump truck, water truck
3	Slope stabilization	Up to 4 weeks	Dozer, loader, backhoe, blade, dump truck, water truck

Patrol Road Improvements and Paving

Metropolitan maintains approximately 50 miles of paved and unpaved patrol roads within the Western San Bernardino County Operating Region. Some patrol roads are subject to repeated and severe erosion and become impassable due to ruts, potholes, and gullies caused by erosion. In certain locations, unpaved roads or deteriorated paved roads would be paved or repaved to reduce the frequency and magnitude of maintenance issues. Additionally, in areas where existing patrol roads are narrow, road widening to Metropolitan's existing maximum road width (generally a 16-foot-wide patrol road, with 4-foot buffers on either side, for a total of 24 feet in width) would occur. Paving/road-widening activities would include grading of the road to a maximum of 16 feet in width; removal of old, damaged paving; vegetation removal; placement and compacting of base material; and placement of the asphalt or concrete paving materials.

Erosion can also occur in the vicinity of aboveground appurtenant pipeline structures and result in damage to these structures. In these cases, paving would be performed around these structures to reduce the potential for damage and reduce the need for future routine vegetation maintenance, erosion control, and replacement of structures. The paving would be restricted to a 20-foot radius (maximum) around the structure and would consist of reinforced concrete paving or concrete in previously disturbed and maintained areas.

There are 13 identified CIP projects in the Western San Bernardino County Operating Region. Of the 13 CIP projects, 8 involve patrol road grading, grading and paving, or paving around manhole structures, which are generally already disturbed and are maintained as part of current operations. Maintaining patrol roads and controlling water runoff through the maintenance of the patrol roads is a critical function of the DSIPP. Because this type of project is so prevalent, it can be assumed to occur throughout the Western San Bernardino County Operating Region.

Engineered Erosion Control

Engineered erosion control would consist of the installation of permanent structures or repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls, necessary to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. This type of proposed CIP project, which typically requires engineering design, is intended to prevent excess sediment deposition and accelerated erosion in features that convey creek flows and/or stormwater flows without impeding or accelerating the flows. The discharge points where stormwater is directed from the constructed feature into a water body would be stabilized with concrete, ungrouted riprap, or by other feasible methods, as necessary.

Slopes adjacent to Metropolitan's structures or Metropolitan structures adjacent to patrol roads would be stabilized with retaining walls, secant walls, gabions, or concrete structure protection to

minimize erosion-related issues, which can undermine aboveground structures and patrol roads and threaten the integrity of Metropolitan's system.

In addition, portions of Metropolitan's pipeline system extend beneath creeks, drainages, or other areas of concentrated flows. The natural cover over the pipelines scours over time and eventually there is potential for pipeline exposure. Additional erosion and scour once the pipeline is exposed can result in corrosion and pipe failure. Where pipe exposure, potential pipe exposure, or lack of significant cover has been identified, Metropolitan would provide additional soil cover (where erosion is slower), construct level control structures, or protect the pipeline in place with a concrete covering.

Of the approximately 13 CIP projects in the Western San Bernardino County Operating Region, approximately 12 involve engineered erosion control. These projects typically are located near patrol roads and are needed because the integrity of the patrol road is compromised. In other cases, the bottom of a channel or the bank of a channel has eroded, and engineered erosion control is necessary to prevent further erosion from occurring. This is of particular concern when the erosion is destabilizing an area where there is an underground pipeline and the pipeline will become or already has become exposed. In other cases, there is erosion around blowoff structures, pump wells, or manholes that needs to be repaired so the manhole does not sustain damage.

Slope Stabilization

Slope stabilization projects are proposed where instability presents an appreciable risk to the safety and continuity of the Metropolitan pipeline system. Erosion may also be an issue in areas where larger drainages or washes that convey large quantities of flow are present. These locations typically require annual repair work that may be significantly minimized through the construction of drainage improvements or stabilization structures. In several areas, Metropolitan has noted small to medium-sized gullies that are progressively getting larger through a combination of waterfall erosion (at the head of the gully from cascading water) and landslide erosion along gully banks. In other locations, the occurrence of previous slides or slope failures indicates that the areas may be vulnerable in the future. The slope repair design would include regrading and compacting of the slope, rock slope protection, soil cement, anchors, tie-backs, stepped retaining walls, or a combination of methods.

Of the approximately 13 CIP projects, 4 involve slope stabilization. These projects typically involve bank protection, addition of fill to shore up undermined structures, construction of curbs or retaining walls, and addition of riprap and other materials to stabilize slopes. General locations of these types of projects include slopes above manholes and patrol roads, as well as other Metropolitan aboveground facilities that are at risk from erosion due to unstable slopes.

E.4.2 Description of Proposed O&M Activities

Metropolitan's proposed O&M activities are conducted on a regular and ongoing basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. These activities are currently ongoing within the Western San Bernardino County Operating Region; however, the Draft O&M Manual (Appendix A) establishes a formalized plan that would provide a systematic and scheduled approach to these maintenance activities and would serve as a comprehensive guide for the maintenance of existing water conveyance and distribution infrastructure. For the purposes of this CEQA document, O&M activities are divided into two categories: routine O&M activities and single-occurrence O&M activities.

Routine O&M activities do not require extensive engineering or involve the construction of new facilities. They are repeated, routine activities that occur and will continue to occur at regular intervals to maintain patrol roads and other infrastructure in good condition. These activities include patrols and visual inspections; patrol road maintenance; maintenance/cleanout of drainage features; facility maintenance, repair, and replacement; vegetation management/maintenance; and other activities such as pipeline shutdowns/dewatering and emergency work.

Single-occurrence O&M activities would typically be conducted on a one-time basis and would include repair, rehabilitation, or replacement of existing structures to support the continued operation and maintenance of existing pipelines and appurtenant pipeline structures. This includes reestablishment of access to structures through repair and rehabilitation of the patrol roads. In the Western San Bernardino County Operating Region, single-occurrence O&M activities are primarily limited to patrol road structural repairs, and would include installation of low water crossings such as Arizona crossings, culverts, and/or bridges. All proposed O&M activities within the Western San Bernardino County Operating Region are described in the Western San Bernardino County Operating Region O&M Manual. The O&M Manual describes the range of O&M activities that are performed on a regular basis to ensure the continued safety and reliability of water deliveries to Metropolitan's member agencies. For each type of O&M activity, the O&M Manual provides the following:

- General description of work performed
- Description of vehicle and equipment needs
- Description of activity timing and/or frequency

In addition, the O&M Manual includes a description of notification and reporting requirements for work in federal and/or state jurisdictional streambeds and wetlands, in U.S. Fish and Wildlife-designated critical habitat, or in the vicinity of special-status wildlife species or nesting birds. It also includes a list of standard best management practices (BMPs) implemented to avoid soil erosion, sedimentation, discharges of materials to stormwater or into water bodies, and the spread of invasive plant species.

Table E-3 summarizes the activities that will be addressed in the O&M Manual, including activity timing, frequency, and duration, as well as equipment needs.

Table E-3. Summary of Western San Bernardino County Operating Region DSIPP Proposed O&M Activities

O&M Activity Code No.	Activity	Frequency	Typical Duration	Typical Equipment Needs
Routine O&M Activities				
Patrol Road Maintenance				
1	Grading of patrol roads	Annually and as needed	Ongoing (55 days total to grade all patrol roads in Western San Bernardino County Operating Region)	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, and dozer
2	Vegetation maintenance along patrol roads	Annually, prior to grading of patrol roads, and as needed	Ongoing	Bobcat with mower, construction-grade lawn mower, and water truck
3	Culvert maintenance	Annually	1 day per culvert	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, pumps, and handheld tools
4	Vegetation removal along patrol roads	As needed	Ongoing	Bobcat with mower, construction-grade lawn mower, water truck, and handheld tools
5	Maintenance of low water/ Arizona crossings	As needed, typically following large storm events	1 day per crossing	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, and pumps
6	Erosion control	As needed, typically prior to and following large storm events	1 to 3 days per event	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, and handheld tools; crane, if pipeline segments are placed
Patrol and Inspection				
7	Patrolling and inspections	Weekly with light truck, twice per year with utility truck	Ongoing	Light truck or utility truck; water quality sample collection may be conducted during inspections and would include handheld tools to collect samples
Routine Structure Maintenance, Repair, and Replacement				
8	Cleaning of equipment and	Quarterly	Ongoing	Garden hoses, handheld tools, and Metropolitan-approved,

Table E-3. Summary of Western San Bernardino County Operating Region DSIPP Proposed O&M Activities

O&M Activity Code No.	Activity	Frequency	Typical Duration	Typical Equipment Needs
	structures			biodegradable cleaning solvents
9	Graffiti removal and coating of structures	As needed for graffiti removal; coating every 5 years	Ongoing	Light vehicles, utility truck, handheld tools, such as coating brushes and rollers, hand sanders or pressure pot sprayer sand blaster
10	Vegetation maintenance around structures	Annually and as needed	Ongoing	Bobcat with mower, construction-grade lawn mower, water truck, handheld tools, and hand-held sprayer for herbicide
11	Pipeline appurtenance maintenance, repair and replacement (e.g., blowoff structure, pump wells, manholes, vacuum valves, service connections, pressure control structures, pump stations, and valves)	As needed	Ongoing	Handheld tools or mechanical equipment, such as a motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, utility truck, and pumps
12	Pest control	Monthly or as needed	Ongoing	Handheld sprayers and bait stations
Other				
13	Shutdowns/ dewatering	As needed	1 to 10 days	Crane, light towers, utility truck, trailers, generators, pumps, temporary piping, and erosion control materials
14	Emergency work	As needed	As needed depending on nature of emergency	As needed depending on nature of emergency
Single-Occurrence O&M Activities				
15	Patrol road structural repairs (low water crossings including Arizona crossings, culverts, bridges)	As needed	As needed depending upon type of structure	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, and a crane

Sources: Metropolitan 2001, 2013.

Routine O&M Activities

Patrol Road Maintenance

Patrol road maintenance would involve numerous activities including grading of patrol roads, vegetation mowing and trimming along patrol roads, culvert maintenance/cleanout, vegetation removal along patrol roads, maintenance of Arizona crossings, other low water crossings, and erosion control activities. These activities are aimed at maintaining the Metropolitan patrol road system in good working order and passable condition.

In order to avoid significant drainage and erosion issues prior to the rainy season, Metropolitan would remove soil, debris, and vegetation matter from drainage structures (i.e., low water/Arizona crossings, culverts, cross drains, V-ditches) along the roads. Metropolitan would also keep patrol roads and approximately 4 feet on either side of the patrol road free of vegetation through trimming and mowing. This activity keeps the road passable and alleviates the accumulation of excess organic matter within drainage structures.

Even with diligent cleanout, heavy rains and frequent use by heavy-duty vehicles can result in some degree of soil rutting and concentrated stormwater runoff, leading to the development of erosional channels or rills. In order to minimize or remove erosional features from the patrol roads, Metropolitan would periodically regrade road surfaces in a manner that restores or promotes sheet flow by outsloping, placing additional cross drains, or armoring the inlets and outlets of drainage pipes. In addition to or prior to regrading, ruts and potholes would be filled with soil or rock and temporary erosion control features such as gravel bags, certified weed-free wattles, or silt fencing. Riprap would also be placed in susceptible areas along patrol roads to minimize or prevent erosion and sedimentation. Repair or construction of fencing and relocation of existing lighting along the patrol roads or the addition of gates to existing fencing may occur to prevent unauthorized use or damage within Metropolitan's right-of-way.

Erosion control methods for patrol roads or structures located in the vicinity of seasonal drainages, seeps, or creeks could include shoring of creek banks through minor earthwork, reseeding or installation of jute netting, or placement of K-rails to prevent erosion of patrol roads along streambeds. The placement of 0.75-inch or larger rock, treated concrete-base product, or aggregate base may occur on unpaved patrol roads to prevent washouts, potholes, and ruts.

Patrol and Inspection

Patrolling and inspection of patrol roads and aboveground pipeline infrastructure is required to identify any maintenance required for patrol roads and pipeline infrastructure. The inspections would involve vehicle travel by Metropolitan operations staff along existing patrol roads for each pipeline and pipeline appurtenance location and identification and reporting of any maintenance

needs. Water quality sample collection and testing may be conducted during the inspections to ensure that no contamination of water supply has occurred through system malfunction.

Patrolling would be conducted on a weekly basis and is the mechanism through which Metropolitan personnel are alerted to the need for the O&M activities described in this section.

Routine Structure Maintenance, Repair, and Replacement

In addition to keeping patrol roads properly maintained, the O&M Manual describes a series of maintenance activities that would be regularly performed inside of and/or within a 20-foot maximum radius around aboveground pipeline structures. These activities include general cleaning of equipment and structures, graffiti removal and coating of structures, clearing and weed abatement around structures, pipeline appurtenance maintenance and replacement, and pest control.

General cleaning of equipment/structures would be conducted through washing and maintenance of equipment and pipeline appurtenant structures to remove dirt, spider webs, and other debris. Equipment and facility cleaning would be conducted by hand with water from a garden hose attached to the nearest water connection. Metropolitan-approved biodegradable solvents would be used, as needed. Following the washing of equipment and structures, the existing blowoff valves would be exercised by opening them for a few minutes and all moving parts would be lubricated with grease. Structures at grade and below grade would also be painted and coated to remove graffiti, prevent corrosion, and maintain metal and concrete surfaces. If the building or structure is covered with stone cinderblocks, sandblasting would be conducted to remove graffiti and no coating is required. Concrete surfaces would typically be painted with a water-based exterior latex enamel (Metropolitan 2013). All coating, paint colors, and brands are approved by Metropolitan and Occupational Health and Safety Administration regulations would be adhered to.

Vegetation trimming, mowing, and clearing, as well as weed abatement, for aboveground structures would occur in a similar manner as that described along patrol roads. Metropolitan-approved pesticides/herbicides would be applied by, contracted, licensed sprayers, as needed, for safety reasons and to avoid damage to electrical systems and other Metropolitan structures. Targeted pests include rats, mice, spiders, bees, and wasps. Vegetation maintenance and pesticide/herbicide application is currently performed within a 10-foot radius of the appurtenant structures; however, as part of the proposed program, this area could be extended up to 20 feet where property and environmental constraints do not exist.

Structure repair and replacement, which involves pipeline appurtenances located aboveground or in belowground structures accessed through manholes, would be required on occasion to replace defective, outdated, or aging equipment. This activity is limited to work on pipeline appurtenant structures and does not include repair or replacement of segments of pipeline. Although the work does not typically require excavation, minor trenching may be required for work associated with vent piping, electrical equipment, and other miscellaneous appurtenant structures. Any minor

trenching or excavation would be restricted to the 10- *to* 20-foot maintained area around existing structures. Structures may be waterproofed or raised or moved slightly within the same structure footprint to avoid water intrusion. Flows may be diverted around the structures with small V-ditches. Gravel may be placed around manholes or other structures to prevent erosion. The addition of air vents, replacement of valve cabinets, or addition of minor on-site structures to protect existing manholes or other structures may be necessary. Minor vegetation removal within the 10- to 20-foot area around structures may be required for equipment setup and access if growth has occurred between other maintenance and vegetation removal activities. In addition, certain areas may require installation of access gates or fences.

For work within urban areas, in order to access the belowground structures through manholes depending on the location of the structures, traffic control, or a city-approved traffic control plan may be necessary for work that requires a traffic diversion. Work on substructures involves testing for the presence of gases; pumping of water if the structure or access is flooded; inspection of substructure pipes, valves, and other equipment for corrosion; sandblasting; or prepping for coating and the application of coating.

Other

Pipeline shutdowns and dewatering activities would occasionally be needed to perform inspections and maintenance activities on a pipeline. Prior to performing any shutdown, a designated shutdown coordinator is assigned and is responsible for preparing a shutdown plan; meeting all federal, state, and local laws and regulations; monitoring and enforcing permits and clearances during the shutdown; coordinating with member and other affected agencies; and ensuring assigned shutdown workers carry out assignments.

As part of a shutdown, the pipeline must be emptied of water (dewatered) before inspections and/or maintenance on the pipeline can be performed. Water is released to drainages, storm drains, or other open areas either through a direct release or through temporary piping. Prior to releasing water into storm drains or flood control facilities, Metropolitan must receive permission from the city or agency having jurisdiction over those affected drains or facilities. Metropolitan would also notify the appropriate Regional Water Quality Control Board (RWQCB) of releases of water. Any chlorinated or chloraminated water must be neutralized prior to its discharging into any channel or drain. Water samples of discharged water must be submitted to the Metropolitan water quality lab for analysis. Pumping to dewater the pipeline would occur during the daytime and nighttime hours. As necessary and appropriate, Metropolitan would coordinate with local jurisdictions and notify potentially affected property owners or residents of shutdown activities. Following dewatering of the pipeline, inspections and/or maintenance on pipelines would be performed. Often a shutdown/dewatering event may be conducted in support of a member agency activity on its system. The pipeline would be refilled upon completion of the maintenance activity.

In addition, other O&M activities would include emergency operations procedures. An emergency is defined as a sudden, unexpected occurrence, involving a clear and imminent danger that requires immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services. Emergency work would include flood control, sediment cleanup and removal, or repair of any kind to avoid loss or damage. The emergency project impact footprint would be restricted to the minimum area necessary to address the potential for loss or damage to life, health, property, or essential public services. Whenever possible, work would be conducted from existing patrol roads and structure locations where disturbance has previously occurred. Metropolitan's Environmental Planning Section would be notified as soon as possible. Pre-activity photographs of the work area would be taken, if possible, and submitted to Metropolitan following completion of the emergency work. Metropolitan would comply, to the extent possible, with all applicable regulations regarding reporting and notification for emergency projects and potential impacts to sensitive resources.

Emergency O&M would likely fit into the activities that are being assessed as either routine or single-occurrence activities or they would be exempt under CEQA (Guidelines Section 15269). Therefore, emergency O&M activities, while described in the O&M Manual, are not specifically called out in this PEIR because their exact nature is difficult to anticipate.

Single-Occurrence O&M Activities

Single-occurrence O&M activities are maintenance activities that are typically conducted on a one-time basis and include proposed projects involving rehabilitation or replacement of existing structures and patrol roads to support the continued operation of Metropolitan's pipelines. Single-occurrence O&M activities typically require design engineering.

Patrol Road Structural Improvements

Patrol road structural repairs include the placement of railcar bridges, installation of new culverts, or construction of Arizona crossings or other low water crossings such as articulated mat crossings to reestablish or maintain vehicle access on existing patrol roads. In western San Bernardino County, these crossings were identified as part of the proposed program's patrol road structural repairs. Arizona crossings are permanent at-grade concrete crossings constructed to provide stabilized access through shallow creeks and streambeds. Typically, the first step in constructing an Arizona crossing is to prepare the in situ material (or subgrade) upon which the pavement structure is placed. In western San Bernardino County, most Arizona crossings are installed in dry creek beds. The next step is to place riprap and concrete and build the crossing. The last step is to finish the grade and tie the crossing back in to the patrol road. If the crossing is being constructed in an active creek, then the creek would need to be dewatered or water diversion structures placed so that water does not flow over the area of construction. Culverts are permanent reinforced concrete pipe structures that are placed within the bottom of creeks with steeper banks to allow vehicle crossing without interrupting creek flow or changing the slope of the bank. During construction of Arizona crossings or culverts, flows are

temporarily directed around the work area with silt fencing, sand bags, Visqueen plastic sheeting, or bypass piping. Similar to construction of Arizona crossings, when constructing a culvert, the site/subgrade must first be prepared. Next, the culvert is laid or constructed with the proper direction and angling for adequate flow, and then the area around the culvert must be backfilled and finished.

Railcar bridges are flat steel railcars placed over a larger streambed and used as short span bridges. They span the waterway so permanent structures in the streambed are limited to the placement of concrete abutments on each bank. Beams and plates may be used as a temporary alternative to railcar bridges and involve the placement of beams and metal plates over the creek crossing. There are no railcar bridges proposed in the Western San Bernardino County Operating Region under current design plans.

E.5 Summary of Impacts

Table E-4 presents a summary of the environmental impacts that could result from the proposed program, applicant proposed measures, the level of significance before mitigation, proposed mitigation measures, and the level of significance of the impact after the implementation of the applicant proposed measures and/or mitigation measures.

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Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Aesthetics	**Impact AES-1:** Would the program substantially degrade the existing visual character or quality of the site and its surroundings?	**CIP Projects** ***Patrol Road Improvements and Paving*** **APM-AES-1: Design Features.** In areas of visual sensitivity, Metropolitan will coordinate with property owners and/or affected jurisdictions/ agencies to develop and implement design features to minimize, to the extent feasible, the visual impacts associated with installation of paving materials. The selection of paving materials may be influenced by the existing colors in the landscape and by the surrounding landscape context. Materials may be selected such that the roadway surface visually blends in with the surrounding landscape to the extent feasible. ***Engineered Erosion Control and Slope Stabilization*** **APM-AES-2: Slope Protection Design.** In areas of visual sensitivity, where feasible and appropriate, slope-protection measures shall be designed to ensure compatibility with the existing landscape and minimize visual contrast with existing slopes, channels, embankments, and rock faces to the greatest extent feasible. Slope protection designs shall be prepared and reviewed by qualified professionals (e.g., Professional Engineers or Registered Landscape Architects) who have relevant expertise in aesthetically pleasing and contextually sensitive solutions in slope-protection design. Specific slope-protection measures shall be designed in coordination with the property owner/affected jurisdiction or agency associated with the specific location of targeted slope stabilization work. In addition to regrading and compacting slopes to improve structural integrity and minimize continued damage and soil loss, solutions could include live gully repair, fascines/pole cuttings with subsurface drainage, vegetated mechanically stabilized slopes, vegetated gabions, turf reinforcement mats, vegetation, and/or the following: • **Rock Slope Protection:** Sculpting shall be incorporated in the excavated slope to create more natural-looking slope variation and rock staining shall be used to help blend the color of the cut slope or newly installed “rock” to the natural color of the existing slope/channel/embankment/rock face. The height of rock slope-protection features shall be less than the height of the associated slope/channel/embankment/rock face to ensure consistency in scale and to minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the solution shall be partially buried to minimize visibility. • **Tiebacks/Anchors:** Where anchored walls are used, sculpted and colored/stained shotcrete shall be applied on the façade of the anchored wall to mimic the form, color, and texture of the natural slope/channel/ embankment/rock face to the greatest extent feasible. • **Stepped Retaining Walls:** Retaining wall materials shall mimic the color and texture of the existing slope/channel/embankment/rock face and shall be selected to minimize resulting visual contrast. The height of retaining walls shall be less than the height of the associated slope/ channel/embankment/rock face to ensure consistency in scale and	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the retaining wall shall be partially buried to minimize visibility. **O&M Activities** No APMs			
Aesthetics	**Impact AES-2**: Would the program have a substantial adverse effect on a scenic vista?	—	Less than significant	—	Less than significant
Aesthetics	**Impact AES-3:** Would the program substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	—	Less than significant	—	Less than significant
Aesthetics	**Impact AES-4:** Would the program create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	—	Less than significant	—	Less than significant
Aesthetics	**Cumulative Impacts:** Would the program have a cumulative effect on aesthetic resources?	**CIP Projects** ***Patrol Road Improvements and Paving*** APM-AES-1 ***Engineered Erosion Control and Slope Stabilization*** APM-AES-2 **O&M Activities (all)** No APMs	Less than significant	—	Less than significant
Air Quality	**Impact AQ-1:** Would the program conflict with or obstruct implementation of the applicable air quality plan?	—	Less than significant	—	Less than significant
Air Quality	**Impact AQ-2:** Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?	**CIP Projects and O&M Activities (all)** **APM-AQ-1: Construction Equipment.** Where Tier 4 equipment is reasonably available for off-road equipment with engines rated at 50 horsepower or greater, it will be used. **APM-AQ-2: Fugitive Dust Control.** Proposed program activities would adhere to South Coast Air Quality Management District Rule 403, which includes a variety of measures intended to reduce fugitive dust emissions. The following measures shall be implemented during maintenance activities, as needed, to reduce the potential for fugitive dust emissions during grading, excavation, and construction activities:	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		• The areas disturbed at any one time by clearing, grading, earthmoving, or excavation operations shall be minimized to prevent excessive amounts of dust. • Pre-grading/excavation activities shall include watering of the area to be graded or excavated before commencement of grading or excavation operations. Application of water should penetrate sufficiently to minimize fugitive dust during earthmoving, grading, and excavation activities, but shall not be applied in a manner that generates runoff from the active work area. In light of drought conditions, Metropolitan would consider alternative feasible methods of dust control that minimize the use of water. • If reclaimed water is used for the purpose of dust control, such water shall be compliant with Title 22 standards applicable to use of recycled water for soil compaction, concrete mixing and dust control (22 CCR Division 4, Chapter 3, Article 3, Section 60307). • All trucks shall be required to cover their loads as required by California Vehicle Code, Section 23114. All graded and excavated material, exposed soil areas, including unpaved parking and staging areas, and other active portions of the construction site, including unpaved roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and reclaimed water shall be used whenever possible. • During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earthmoving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by proposed program activities and operations from being a nuisance or hazard, either on site or off site. • Open material stockpiles shall be periodically watered, or treated with appropriate dust suppressants, if needed.			
Air Quality	**Impact AQ-3:** Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold emissions which exceed quantitative thresholds for ozone precursors)?	**CIP Projects and O&M Activities (all)** APM-AQ-1 APM-AQ-2	Less than significant	—	Less than significant
Air Quality	**Impact AQ-4:** Would the program expose sensitive receptors to substantial pollutant concentrations?	—	Less than significant	—	Less than significant
Air Quality	**Impact AQ-5:** Would the program create objectionable odors affecting a substantial number of people?	—	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Air Quality	**Cumulative:** Would the program have a cumulative effect on air quality resources?	**CIP Projects and O&M Activities (all)** APM-AQ-1 APM-AQ-2	Less than significant	—	Less than significant
Biological Resources	**Impact BIO-1:** Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**CIP Projects (all)** **APM-BIO-1: Pre-Activity Special-Status Plant Surveys.** Within the portions of the CIP project and single-occurrence O&M activity sites that were not surveyed in 2017, or for project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys for special-status plant species during the appropriate blooming period for species that have potential to occur. Surveys will conducted by a qualified botanist within the areas that would be subject to direct or indirect impacts. Surveys will conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFW 2018), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (USFWS 2002) or the most current accepted protocol. Plant species encountered during the field surveys will be identified to subspecies or variety, if applicable, to determine sensitivity status. Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project and single-occurrence O&M activity sites. **APM-BIO-2: Flagging of Work Limits.** All CIP project and single-occurrence O&M activity work area limits within special-status species habitat, including staging areas, shall be well defined and marked (e.g., by caution tape or temporary fencing). All temporary fencing or other markers shall be clearly visible to construction personnel. Parking, stockpiling, or storage of equipment shall be permitted only within designated staging areas. **APM-BIO-3: Cleaning of Mowing Equipment.** Mowing equipment shall be thoroughly cleaned before use so it is free of seeds from noxious weeds and does not introduce such weeds to new areas. **APM-AQ-2: Fugitive Dust Control** (see Air Quality section of this table). **Routine O&M Activities** APM-BIO-3 **APM-BIO-4: Invasive Plant Removal Protocols.** Invasive plant species shall be removed in a manner that prevents propagation. All cut/removed invasive vegetation shall be taken to a dump as destruction load. Maintenance personnel shall avoid letting cut stems or seedpods be washed downstream or left behind to propagate.	Significant (overall)	**CIP Projects and O&M Activities (all)** **MM-BIO-1: Nesting Bird Surveys.** For all proposed program activities, grading or vegetation clearing, cutting, and removal shall be scheduled to occur during the non-breeding season for birds (September 1 through January 31). If grading or vegetation clearing, cutting, or removal are required during the breeding season (February 1 through August 31), then a qualified biologist shall survey all potential nesting vegetation within 100 feet of the grading limits for nesting birds prior to grading activities, as property access allows. The purpose of the surveys shall be to determine if active nests of special-status or other protected birds are present within the vicinity of the work area. The survey shall be conducted within 7 days prior to the start of work. If no nesting birds are observed, project activities may commence. If an active nest is located, the site shall be marked, and an appropriate buffer established, based on site conditions, nesting species, and construction activity. The buffer area shall not be disturbed until after birds have fledged. The qualified biologist, in conjunction with Metropolitan's Environmental Planning staff, will determine when construction activities may resume in the area. In the event that a threatened or endangered species is located within the survey area and avoidance is not feasible, consultation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife shall be required. **MM-BIO-2: Compensation for Impacts to Federally and State-Listed Species Habitat.** Direct temporary and permanent impacts to suitable habitat for federally or state-listed species within proposed CIP project and single-occurrence O&M activity areas shall be mitigated through on-site or off-site measures. Mitigation for temporary and permanent impacts to listed species habitat shall consider, and may overlap with, jurisdictional waters and wetlands (MM-BIO-5). • **Temporary Impacts.** Mitigation for direct temporary impacts to suitable habitat for federally or state-listed species shall be implemented through on-site rehabilitation at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to similar conditions to those that existed prior to grading and/or ground-disturbing activities. For proposed CIP projects and single-occurrence O&M activity temporary impact areas outside routinely maintained areas, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities.	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		APM-AQ-2 **Single-Occurrence O&M Activities** APM-BIO-1 through APM-BIO-3 APM-AQ-2		• **Permanent Impacts.** Metropolitan shall purchase land or fund a mitigation bank or in-lieu fee program to compensate for all permanent loss of suitable habitat for federally or state-listed species (including critical habitat), if available, at a 1:1 ratio. Direct impacts to federally listed species' occupied habitat shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the federal Endangered Species Act (ESA) of 1973, as amended. Additionally, direct impacts to federally designated critical habitat that cannot be avoided shall be addressed through either the ESA Section 7 or Section 10(a)(1)(B) process. Direct impacts to state-listed species shall be addressed through the California Fish and Game Code Section 2081(b) incidental take permit process. The two processes may require additional mitigation beyond what is being proposed under this CEQA analysis. **MM-BIO-3: Pre-Construction Biological Surveys.** Prior to the start of ground-disturbing construction or vegetation removal associated with Capital Investment Plan (CIP) projects and single-occurrence Operations and Maintenance (O&M) activities, pre-construction surveys for special-status plant or wildlife species shall be conducted in areas of suitable habitat within 300 feet of ground-disturbing activities, as property access allows. If special-status plant or wildlife species are located during the focused surveys, then their locations shall be mapped and monitored for avoidance (MM-BIO-4). **MM-BIO-4: Biological Monitoring.** Should special-status plants or wildlife be identified during MM-BIO-3 or APM-BIO-1, a qualified biologist shall monitor ground-disturbing activities within areas where special-status plant and wildlife species, sensitive vegetation communities, or jurisdictional waters/wetlands are present during CIP projects and single-occurrence O&M activities. The qualified biologist shall look for special-status species that may be located within or immediately adjacent to work areas. If special-status species are found, the biological monitor shall identify their location for avoidance or flush/move them out of harm's way to avoid direct impacts to these species. The qualified biologist, in coordination with The Metropolitan Water District of Southern California (Metropolitan), shall determine when monitoring shall cease.	
Biological Resources	**Impact BIO-2:** Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**CIP Projects (all) and O&M Activities (overall)** APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Biological Resources	**Impact BIO-3:** Would the program have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	**CIP Projects (all) and O&M Activities (overall)** APM-BIO-2 APM-BIO-3 APM-AQ-2	Significant (overall)	**CIP Projects (all) and O&M Activities (overall)** MM-BIO-4 **MM-BIO-5: Compensation for Impacts to Jurisdictional Wetlands and Waters.** Mitigation for temporary and permanent impacts to jurisdictional wetlands and waters shall consider and overlap with compensation for special-status species habitat (MM-BIO-2). The U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board may require additional compensation during the regulatory permitting process. • **Temporary Impacts.** Mitigation for direct temporary impacts to jurisdictional wetlands and waters resulting from CIP projects, single-occurrence O&M activities, and routine O&M activities shall be implemented through on-site restoration. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. For impacted vegetated jurisdictional wetlands and waters, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities. • **Permanent Impacts.** Mitigation for permanent impacts to jurisdictional wetlands and waters resulting from CIP projects and single-occurrence O&M activities shall be implemented at a minimum 1:1 mitigation ratio through purchase of credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement. If no agency-approved mitigation bank or in-lieu fee program is available, off-site mitigation lands shall be preserved through a conservation easement.	Less than significant
Biological Resources	**Impact BIO-4:** Would the program interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	—	Less than significant	—	Less than significant
Biological Resources	**Impact BIO-5:** Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	—	Less than significant	—	Less than significant
Biological Resources	**Impact BIO-6:** Would the program conflict with the provisions of an adopted Habitat Conservation Plan,	—	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
	Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				
Biological Resources	**Cumulative:** Would the program have a cumulative effect on biological resources?	**CIP Projects and O&M Activities (all)** APM-BIO-1 through APM-BIO-4 APM-AQ-2	Significant	**CIP Projects and O&M Activities (all)** MM-BIO-1 through MM-BIO-5	Less than significant
Cultural Resources	**Impact CR-1:** Would the program cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	—	Significant	**CIP Projects (all)** **MM-CR-1: Avoidance of Impacts to Cultural Resources.** Metropolitan shall minimize or avoid impacts to potentially significant cultural resources discovered unexpectedly during construction by developing and implementing the following: • All work shall halt within 50 feet of the discovery site and the discovery shall be protected in place. • Metropolitan, in consultation with the qualified cultural resources specialist, shall designate an area surrounding the area as a restricted area. • A qualified cultural resources specialist shall evaluate the significance of the discovery. • A qualified cultural resources specialist shall develop appropriate treatment measures for the discovery in consultation with Metropolitan and other appropriate agencies. • Work shall be prohibited in the restricted area until Metropolitan provides written authorization. **O&M Activities** ***Routine and Single-Occurrence O&M Activities*** MM-CR-1 **MM-CR-4: Phase I Cultural Resource and/or Paleontological Survey.** For areas not already surveyed, a pre-activity review should be performed for future ground-disturbing activities associated with Operations and Maintenance (O&M) activities (O&M Activity Code Nos. 3 and 15). For each location where these activities will take place, the proposed activity footprint will first be examined by Metropolitan staff to determine if the proposed ground-disturbing activities will be confined to the area of previous disturbance or if there is a potential for additional ground disturbance within intact native sediments. If it is determined that the proposed activities have the potential to impact undisturbed native sediments, then a Phase I cultural resource and/or a paleontological survey will be required. The purpose of the field surveys will be to visually inspect the ground surface for evidence of archaeological remains and for exposed fossils or traces thereof and to evaluate geologic exposures for their potential to contain	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
				preserved fossil material at the subsurface. All archaeological resources observed during the course of fieldwork shall be adequately recorded at the time of discovery following standard documentation procedures. All fossil occurrences observed during the course of fieldwork, significant or not, shall be adequately documented and recorded at the time of discovery. **MM-CR-5: Protective Measures for Archaeological Resources.** For future ground-disturbing O&M activities (O&M Activity Code Nos. 3 and 15) in the vicinity of an archaeological resource, protective measures shall be implemented for significant archaeological sites in close proximity to a proposed program work area. If the pre-activity review (MM-CR-4) identifies a known archaeological site within 50 feet of a Distribution System Infrastructure Protection Program (DSIPP) work area, the following protective measures are required as warranted: • Exclusion fencing and flagging shall be established around any significant or potentially significant archaeological site located within 50 feet of a DSIPP work area. • A qualified archaeologist shall monitor all ground-disturbing activities in all DSIPP work areas located within 50 feet of a significant or potentially significant archaeological site. **MM-CR-6: Phase II Cultural Resources Evaluation.** For future ground-disturbing O&M activities (O&M Activity Code Nos. 3 and 15) in areas where archaeological resources cannot be avoided by implementation of MM-CR-5, development of a Phase II cultural resources evaluation program would be required to be implemented by a qualified archaeologist. The evaluation program will include the development of an appropriate research design and methodological approach to evaluate the archaeological resources that have the potential to be impacted during proposed program-related activities. The findings of the cultural resources evaluation program shall be presented in a technical report to be submitted to Metropolitan (and the federal lead agency, if applicable) for review and approval. **MM-CR-7: Phase III Data Recovery Plan.** For those archaeological resources determined to be eligible for listing in the California Register of Historical Resources and/or the National Register of Historic Places, a Phase III data recovery plan shall be prepared by a qualified archaeologist prior to the onset of excavations. The plan shall detail the field, laboratory, and archival methods that shall be used during the data recovery program; the curation of archaeological materials at an appropriate facility for future research; and provisions for a report detailing the findings and significance of the archaeological resources. The plan shall be submitted to Metropolitan for review and approval prior to the commencement of data recovery investigations. For prehistoric	

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
				archaeological sites, a Native American monitor shall be present during the Phase III fieldwork efforts. Results of the Phase III data recovery plan shall be presented in a technical report submitted to Metropolitan for review and approval prior to the commencement of ground-disturbing activities. A final version of the report shall be submitted to the regional California Historic Resources Information System repository.	
Cultural Resources	**Impact CR-2:** Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	—	Significant	**CIP Projects (all)** MM-CR-1 **O&M Activities** ***Routine and Single-Occurrence O&M Activities*** MM-CR-1 MM-CR-4 through MM-CR-7	Less than significant
Cultural Resources	**Impact CR-3:** Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	—	Significant	**CIP Projects (all)** **MM-CR-2: Paleontological Resource Impact Mitigation Program.** Prior to the start of ground-disturbing activities in previously undisturbed areas with high paleontological sensitivity, a qualified professional paleontologist meeting the Society of Vertebrate Paleontology's (2010) standards ("project paleontologist") shall be retained to provide project-level analysis. The project paleontologist shall prepare and implement a paleontological resource impact mitigation program (PRIMP) for areas that will include excavation into native soils with high or undetermined geologic sensitivity. The PRIMP shall provide management strategies based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance. As part of the PRIMP, where new ground disturbance would occur at 4 feet or more below ground surface, full-time monitoring may be required in program work areas determined to have a high or undetermined paleontological sensitivity (i.e., Puente Formation, early Holocene or older axial-channel and alluvial-fan deposits, fault-bounded conglomerate and sandstone), or spot check monitoring in proposed program work areas determined to have low paleontological sensitivity (i.e., Holocene age surficial deposits). In addition, the PRIMP shall require that the project paleontologist conduct a Worker's Environmental Awareness Program (WEAP) training for all field personnel regarding the types of fossils that could be found in the work areas and the procedures to follow should paleontological resources be encountered. Specifically, the training shall provide a description of the fossil resources that may be encountered in the work areas, outline steps to follow in the event that a fossil discovery is made, and provide contact	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
				information for the project paleontologist and on-site monitor(s). The training shall be developed by the project paleontologist and may be conducted concurrent with other environmental training (e.g., biological, cultural, and natural resources awareness training, safety training). **MM-CR-3: Preparation, Curation, and Reporting of Vertebrate Fossils.** All unique identifiable vertebrate fossil remains that are collected during the course of the proposed program will be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation will include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens will be identified to the lowest taxonomic level possible, cataloged, analyzed, and delivered to an accredited museum repository for permanent curation and storage. Fossil specimens will be submitted for permanent curation in a museum repository approved by Metropolitan, such as the San Bernardino County Museum or Western Science Center. The cost of curation is assessed by the repository and is the responsibility of Metropolitan. At the conclusion of laboratory work and museum curation, a final report will be prepared describing the results of the paleontological inventory and evaluation. The report will include an overview of the proposed program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If fossils will be donated for permanent curation, a copy of the report will be submitted to the curation institution along with the fossil assemblage. **O&M Activities (all)** MM-CR-2 MM-CR-3 MM-CR-4	
Cultural Resources	**Impact CR-4:** Would the program disturb any human remains, including those interred outside of formal cemeteries?	**CIP Projects and O&M Activities (all)** **APM-CR-1: Treatment of Human Remains.** If human remains are discovered during construction, no further disturbance shall occur until the county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the county coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted within a reasonable time. Subsequently, NAHC shall identify the most likely descendant (MLD). The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in California Public Resources Code Section 5097.98.	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Cultural Resources	**Cumulative:** Would the program have a cumulative effect on cultural resources?	**CIP Projects and O&M Activities (all)** APM-CR-1	Significant	**CIP Projects (all)** MM-CR-1 MM-CR-2 MM-CR-3 **O&M Activities (all)** MM-CR-1 through MM-CR-7	Less than significant
Geology and Soils	**Impact GEO-1:** Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**CIP Projects** ***Patrol Road Improvements and Paving and Engineered Erosion Control*** **APM-GEO-1: Earthwork and Grading Best Practices.** Metropolitan's design plans, including proposed site grading and earthwork activities, for the proposed program will seek to minimize ground disturbance and shall be coordinated with local jurisdictions, as appropriate. Local jurisdictional restrictions and requirements will be included in the development of project designs. Metropolitan's design plans will be submitted to local jurisdictions for their review and approval as necessary. Comments received from the local jurisdictions will be incorporated into project designs to the extent possible. Metropolitan's contractors shall obtain grading permits as required by the local jurisdictions. Proposed projects shall implement the following earthwork considerations, as applicable: • *Remedial Grading*: Prior to grading, any fill zone shall be cleared of surface and subsurface obstructions. Voids created by removal of buried material shall be backfilled with properly compacted soil. Exposed subgrade in fill zones shall be scarified to a depth of at least 6 inches, moisture conditioned to above optimum, and compacted to at least 90 percent of the American Society for Testing and Materials (ASTM) D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades may need to be stabilized with crushed rock, geogrids, and/or other methods. • *Compacted Fill/Backfill*: Fill materials shall be naturally occurring, well-graded soil or soil/rock combinations free of wood, trash, construction debris, and organic, contaminated, or deleterious material. • *Temporary Excavations*: When necessary to prevent caving and to protect adjacent structures or property, trenches and excavations shall be protected, shored, sheeted, braced, or sloped in accordance with CCR Title 8 and the regulations of local authorities having jurisdiction Excavation requirements are outlined in Metropolitan's construction specifications, and Metropolitan staff will review and approve the contractor's excavation plans. Safety standards established within the California Occupational Safety and Health Administration (Cal/OSHA) CCR Construction Safety Orders (CSOs) and General Industry Safety Orders (GISOs) that are applicable to the work shall be adhered to. Metropolitan construction inspectors will also monitor compliance with regulations.	Less than significant (overall)	—	Less than significant (overall)

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		Slope Stabilization No APMs **O&M Activities** ***Routine O&M Activities*** No APMs ***Single-Occurrence O&M Activities*** **APM-HYD-1: Implementation of a SWPPP or Water Pollution Control Plan, as Applicable** (see Hydrology and Water Quality section of this table).			
Geology and Soils	**Impact GEO-2:** Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. • Strong seismic ground shaking? • Seismic-related ground failure, including liquefaction? • Landslides?	—	Less than significant	—	Less than significant
Geology and Soils	**Impact GEO-3:** Would the program result in substantial soil erosion or the loss of topsoil?	—	Less than significant	—	Less than significant
Geology and Soils	**Impact GEO-4:** Would the program 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	—	Less than significant
Geology and Soils	**Impact GEO-5:** Would the program have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	—	No impact	—	No impact

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Geology and Soils	**Cumulative:** Would the program have cumulative geological and soils impacts?	APM-GEO-1 APM-HYD-1	Less than significant	—	Less than significant
Greenhouse Gas Emissions	**Impact GHG-1:** Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	—	Less than significant	—	Less than significant
Greenhouse Gas Emissions	**Impact GHG-2:** Would the program conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	—	Less than significant	—	Less than significant
Greenhouse Gas Emissions	**Cumulative:** Would the program have a cumulative effect on greenhouse gas emissions resources?	—	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-1:** Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would is create a significant hazard to the public or the environment?	**CIP Projects and O&M Activities (all)** **APM-HAZ-1: Hazardous Materials Management**. Hazardous materials storage shall be in compliance with the California Environmental Protection Agency's Department of Toxic Substances Control requirements. Metropolitan and/or its contractor shall be responsible for proper handling, packaging, transportation and disposal of all hazardous waste brought on site or generated on site through incidental use, including but not limited to aerosol spray cans and empty vehicle fluid and cleaning cans. Hazardous materials shall be stored in covered, leak-proof containers when not in use, away from storm drains and heavy traffic areas, and shall be protected from rainfall infiltration and vandalism. Hazardous materials shall be stored separately from non-hazardous materials, on a surface that prevents spills from permeating the ground surface, and in an area secure from unauthorized entry at all times. Incompatible materials shall be stored separately from each other. **APM-HAZ-2: Previously Unidentified Hazardous Materials**. Should hazardous materials previously not identified be discovered during construction and/or grading activities, Metropolitan and/or its contractor shall stop work in the area immediately and notify the health and safety representative, who will assess the situation and take appropriate actions, including but not limited to clearing the work area, posting signs and securing the area from unauthorized entry, and notifying the appropriate local authorities. Metropolitan and contractor personnel shall ensure that on-site workers are trained to identify and recognize potentially hazardous materials (e.g., unmarked containers, stained soils, suspicious odors, refuse from illegal dumping). **APM-HAZ-3: Health and Safety Procedures for Lead-Contaminated Soil.** Metropolitan has standard procedures to manage potential hazards related to lead-contaminated soil: Exposure Assessments and Patrol Road Maintenance Guidelines. These standard procedures have been established by the Metropolitan Safety Regulatory Services (SRS) as follows:	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		• **Exposure Assessments.** In the event work activities may expose C&D and/or construction service unit (CSU) employees to lead (or other heavy metals), an exposure assessment will be conducted in the potentially contaminated area. The employees will wear an air pump with sampling cassette throughout the work day. The sampling cassette will be taken to a lab to determine the amount of airborne lead (or other metal) exposure. Based on the lab results, Metropolitan SRS will implement personal protective measures for employees required to work in the exposure area. • **Patrol Road Maintenance Guidelines.** Special safety precautions procedures are required for maintenance work on the Inland Feeder at the approximate location of the Highland Site. These procedures include driving with windows up, driving at slow speeds to reduce airborne dust, not causing airborne dirt while working, rinsing footwear prior to entering a vehicle, and using Lead-Off wet wipes to wipe down hands and other exposed skin areas before re-entering a vehicle. **APM-AQ-2: Fugitive Dust Control** (see Air Quality section of this table).			
Hazards and Hazardous Materials	**Impact HAZ-2:** Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	**CIP Projects and O&M Activities (all)** **APM-TR-1: Traffic Control Plan** (see Traffic and Circulation section of this table).	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-3:** Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including, where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	**CIP Projects and O&M Activities (all)** **APM-HAZ-4: Fire Protection and Fire Safety.** Metropolitan or Metropolitan's contractor shall provide fire safety measures during construction activities in compliance with Chapter 14 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during construction shall be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors. Fire containment and extinguishing equipment shall be located on site and shall be accessible during construction activities. Construction workers shall be trained in use of the fire suppression equipment and shall not be permitted to idle vehicles on the job site when not in use. Where hot work is necessary, it shall be performed in compliance with the California Fire Code's Chapter 35, "Welding and other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention During Welding, Cutting and other Hot Work."	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-4:** Would the program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	—	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-5:** Would the program 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	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Hazards and Hazardous Materials	**Impact HAZ-6:** Would the program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	—	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-7:** For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program result in a safety hazard for people residing or working in the program area?	—	Less than significant	—	Less than significant
Hazards and Hazardous Materials	**Impact HAZ-8:** For a program within the vicinity of a private airstrip, would the program result in a safety hazard for people residing or working in the program area?	—	No impact	—	No impact
Hazards and Hazardous Materials	**Cumulative:** Would the program have a cumulative effect on hazards or hazardous materials resources?	**CIP Projects and O&M Activities (all)** APM-HAZ-1 through APM-HAZ-4 APM-AQ-2 APM-TR-1	Less than significant	—	Less than significant
Hydrology and Water Quality	**Impact HYD-1:** Would the program violate any water quality standards or waste discharge requirements?	**CIP Projects** ***Patrol Road Improvements and Paving*** **APM-HYD-1: Implementation of a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan, as Applicable.** For projects or activities subject to the State Water Resources Control Board (SWRCB) Construction General Permit (i.e., where construction disturbances would exceed 1 acre), mobilization or construction shall not begin on the project/ activity site until Metropolitan has submitted permit registration documents, including a SWPPP, to the SWRCB and obtained a waste discharge ID number. **APM-HYD-2: Grading of Patrol Roads.** Patrol roads will be graded in a manner that minimizes the channelization and ponding of stormwater and maximizes the dispersion of runoff via sheet flow (rather than erosive, high-velocity flows). Metropolitan's Patrol Road Maintenance Guidelines, which are used by Metropolitan staff during road grading, call for creation of a cross-slope on the road bed of 0.25 inches per foot of road width toward the outside edge, with crowning of the road to be done only on double-lane roads. Where outsloping the road is not possible due to land contours, ditches shall be created along the side of the road to contain water and direct it away from the road. The bank of the ditch from the edge of the road to the bottom of the ditch shall be at an angle of no less than 3 inches per foot, and shall be a minimum of 1 foot wide and 1 foot deep. In high runoff areas, the ditch shall be larger.	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		Modifications to these guidelines may be made based on specific site conditions. Grade dips shall be installed where necessary to direct water across the road. Arizona crossings shall be constructed with materials that will not degrade water quality (e.g., concrete, coarse rock, riprap, and/or gabions). **APM-HYD-3: Dewatering.** If program activities require dewatering to provide a dry work area, dewatering systems will be used to remove and dispose of accumulated surface water and/or manage groundwater seepage. As needed, groundwater will be pumped into truck-mounted storage tanks and either discharged to land in accordance with Regional Water Quality Control Board (RWQCB) regulations, or transported to an authorized discharge location. Discharges of non-stormwater from a trench or excavation that contain sediment or other pollutants directly to a sanitary sewer, storm drain, creek bed, or other receiving water shall be prohibited without first obtaining special authorization or permit from the RWQCB or local jurisdiction. **APM-HYD-4: Avoidance of Spills and Leaks.** All equipment operating in and near a watercourse must be maintained in good working condition and free of leaks. No equipment maintenance or refueling shall occur in a channel or basin bottom. All maintenance crews working with heavy equipment shall be trained in spill containment and response procedures. **APM-HYD-5: Equipment Servicing and Fueling.** All equipment will be serviced and fueled off site. Washing down heavy equipment on the job site shall be permitted only when limited to washing mud or dirt from equipment (engine cleaning or oily parts cleaning is not permitted), and when wash water would drain to an enclosed area where water could percolate or evaporate. Wash water shall not be allowed to enter city or county storm drain systems, and no soaps or chemicals shall be used for equipment washing on the job site. **APM-HYD-6: Concrete Work.** For proposed CIP projects requiring concrete work, all concrete washouts shall be conducted either into excavations where the concrete was poured or within designated concrete washout stations, or shall be captured using a washout recycling system. Crews shall not be allowed to dispose of concrete directly onto the ground. **APM-HYD-7: Maintenance of Existing Hydrology.** Stream crossing structures shall be designed to maintain water depths and water velocities comparable to those found in natural areas upstream and downstream of the crossing. **APM-HYD-8: Avoidance of Channel Work during the Rainy Season.** Activities in earthen channels and in channels with soft bottoms and bank protection shall be avoided during the rainy season to the extent feasible to avoid work when water could be present in the drainage. **APM-HYD-9: Materials in Waterways.** No brush, loose soils, or other construction materials/waste shall be deposited on or below the ordinary high-water mark of waterways (streams, creeks, canals, ditches). (This BMP does not apply to the use of packed earth or the planting of vegetation to repair and stabilize earthen channels.)			

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		APM-HYD-10: Temporary Stream Diversions. Sandbags or other approved methods that avoid and minimize in-stream impacts and effects on wildlife shall be used if temporary stream diversions are required. **APM-HYD-11: Herbicide Use.** Any pesticide or herbicide applications shall occur under the direction of a professional pesticide applicator with either a Qualified Applicator License or an Agricultural Pest Control Adviser License in California. Label instructions and all applicable laws and regulations are to be strictly followed in the application of pesticides and herbicides and in the disposal of excess materials and containers. Only those materials registered by the U.S. Environmental Protection Agency (EPA) for the specific purpose are authorized for use, and they shall be used only when weather conditions will minimize drift and impacts on non-target sites. Before applying any pesticides or herbicides in parks or on federal or state land, Metropolitan shall obtain approval from the appropriate agency for all pesticides and herbicides proposed for use on these lands. Only pesticides on the Metropolitan "Approved Pesticide List" and registered with the EPA and the California Environmental Protection Agency will be used. ***Engineered Erosion Control*** APM-HYD-1 APM-HYD-3 through APM-HYD-11 ***Slope Stabilization*** APM-HYD-1 APM-HYD-3 through APM-HYD-10 **O&M Activities** ***Routine O&M Activities*** APM-HYD-2 through APM-HYD-11 ***Single-Occurrence O&M Activities*** APM-HYD-1 APM-HYD-3 through APM-HYD-11			
Hydrology and Water Quality	**Impact HYD-2:** Would the program 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 which would result in substantial erosion or siltation on- or off-site?	**CIP Projects (all)** APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10 **O&M Activities** ***Routine O&M Activities*** No APMs ***Single-Occurrence O&M Activities*** APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Hydrology and Water Quality	**Impact HYD-3:** Would the program 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 which would result in flooding on- or off-site?	**CIP Projects (all)** APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10 **O&M Activities** ***Routine O&M Activities*** No APMs ***Single-Occurrence O&M Activities*** APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant	—	Less than significant
Hydrology and Water Quality	**Impact HYD-4:** Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	**CIP Projects** ***Patrol Road Improvements and Paving*** APM-HYD-2 ***Engineered Erosion Control*** No APMs ***Slope Stabilization*** No APMs **O&M Activities (all)** No APMs	Less than significant	—	Less than significant
Hydrology and Water Quality	**Impact HYD-5:** Would the program otherwise substantially degrade water quality?	**CIP Projects** ***Patrol Road Improvements and Paving*** APM-HYD-1 through APM-HYD-11 ***Engineered Erosion Control*** APM-HYD-1 APM-HYD-3 through APM-HYD-11 ***Slope Stabilization*** APM-HYD-1 APM-HYD-3 through APM-HYD-11 **O&M Activities (all)** No APMs	Less than significant	—	Less than significant
Hydrology and Water Quality	**Impact HYD-6:** Would the program 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	—	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
	production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				
Hydrology and Water Quality	**Impact HYD-7:** Would the program place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	—	No impact	—	No impact
Hydrology and Water Quality	**Impact HYD-8:** Would the program place within a 100-year flood hazard area structures which would impede or redirect flood flows?	—	Less than significant	—	Less than significant
Hydrology and Water Quality	**Impact HYD-9:** Would the program 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	—	Less than significant
Hydrology and Water Quality	**Impact HYD-10:** Would the program result in inundation by seiche, tsunami, or mudflow?	—	Less than significant	—	Less than significant
Hydrology and Water Quality	**Cumulative:** Would the program have a cumulative effect on hydrology or water quality resources?	**CIP Projects and O&M Activities (all)** APM-HYD-1 through APM-HYD-11	Less than significant	—	Less than significant
Land Use	**Impact LU-1:** Would the program 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?	—	Less than significant	—	Less than significant
Land Use	**Impact LU-2:** Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?	—	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Land Use	**Impact LU-3:** Would the program physically divide an established community?	—	No impact	—	No impact
Land Use	**Cumulative:** Would the program have a cumulative land use impact?	—	Less than significant	—	Less than significant
Noise	**Impact NOI-1:** Would the program result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	**CIP Projects and O&M Activities (all)** **APM-NOI-1: Compliance with Noise Output Regulations.** All mobile or fixed noise-producing equipment used on the proposed program that is regulated for noise output by a federal, state, or local agency shall comply with such regulation while in the course of proposed program activity. **APM-NOI-2: Use of Electric Equipment.** Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible. **APM-NOI-3: Location of Stockpiles and Other Noise-Producing Activities.** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors. **APM-NOI-4: Construction-Related Speed Limits.** Construction site and haul-road speed limits shall be established and enforced during the construction period. **APM-NOI-5: Construction Hours Restrictions.** As feasible, the hours of construction, including all spoils and material transport, shall be restricted to the time periods and days permitted by the local noise ordinance or other applicable ordinance. As necessary, Metropolitan shall coordinate with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts **APM-NOI-6: Limits on Noise-Producing Signals.** The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. **APM-NOI-7: Pre-Construction Coordination.** As necessary, Metropolitan shall voluntarily coordinate with local jurisdictions and sensitive receptors regarding the proposed program to address any potential program-specific noise-related issues prior to commencement of construction activities. **APM-NOI-8: Noise Complaints Response and Resolution.** The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints.	Less than significant	—	Less than significant
Noise	**Impact NOI-2:** Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?	**CIP Projects and O&M Activities (all)** APM-NOI-1 through APM-NOI-8	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Noise	**Impact NOI-3:** Would the program result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	—	Less than significant	—	Less than significant
Noise	**Impact NOI-4:** Would the program result in a substantial permanent increase in ambient noise levels in the program vicinity above levels existing without the program?	—	No impact	—	No impact
Noise	**Impact NOI-5:** For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program expose people residing or working in the program area to excessive noise levels?	—	Less than significant	—	Less than significant
Noise	**Impact NOI-6:** For a program within the vicinity of a private airstrip, would the program expose people residing or working in the program area to excessive noise levels?	—	Less than significant	—	Less than significant
Noise	**Cumulative:** Would the program have a cumulative noise impact?	**CIP Projects and O&M Activities (all)** APM-NOI-1 through APM-NOI-8	Less than significant	—	Less than significant
Public Services	**Impact PUB-1:** Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Public Services	**Impact PUB-1A:** Fire Protection?	**CIP Projects and O&M Activities (all)** **APM-HAZ-4: Fire Protection and Fire Safety** (see Hazards and Hazardous Materials section of this table).	Less than significant	—	Less than significant
Public Services	**Impact PUB-1B:** Police Protection?	—	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Public Services	**Impact PUB-1C:** Schools?	—	No impact	—	No impact
Public Services	**Impact PUB-1D:** Parks?	—	No impact	—	No impact
Public Services	**Impact PUB-1E:** Other Public Facilities?	—	No impact	—	No impact
Public Services	**Cumulative:** Would the program have a cumulative public services impact?	—	Less than significant	—	Less than significant
Traffic and Circulation	**Impact TR-1:** Would the program conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance or 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	—	Less than significant
Traffic and Circulation	**Impact TR-2:** Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	—	Less than significant	—	Less than significant
Traffic and Circulation	**Impact TR-3:** Would the program substantially increase hazards due to a design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?	—	Less than significant	—	Less than significant
Traffic and Circulation	**Impact TR-4:** Would the program result in inadequate emergency access?	**CIP Projects and O&M Activities (all)** **APM-TR-1: Traffic Control Plan.** a. Where appropriate for work on public roadways and as required by the local jurisdiction, prior to the start of the construction phase, Metropolitan or Metropolitan's contractor shall submit a Traffic Control Plan to the appropriate local jurisdiction for review and approval. The plan shall be consistent with the California Department of Transportation (Caltrans)	Less than significant	—	Less than significant

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
		Traffic Manual, Chapter 5. Traffic control shall be in accordance with California Code of Regulations (CCR) Title 8. b. Where appropriate for work on public roadways, Metropolitan shall submit a set of proposed construction plans to agencies with jurisdiction over the roadways to allow them to comment on the proposed plans. c. During construction on public roadways, Metropolitan shall implement traffic management measures as deemed necessary and applicable by a properly licensed engineer. Measures could include the following, as appropriate: i. Temporary traffic lanes shall be marked and barricades and lights shall be provided at excavations and crossings per the Manual of Traffic Controls for Construction and Maintenance Work Zones. ii. Construction activities shall affect the least number of travel lanes possible, with both directions of traffic flow being maintained at all times to the extent feasible. iii. Construction shall avoid the morning and evening peak traffic periods to the extent feasible. iv. Construction across on- and off-street bikeways shall be done in a manner that allows for safe bicycle access, or bicycle traffic will be safely rerouted. v. Private driveways located within construction areas shall remain open to maintain access to the maximum extent feasible. Should construction be required that prevents access to a private driveway, Metropolitan shall coordinate with the owners and shall implement measures such as installation of metal plates to provide access. d. During construction of projects that would impact emergency or public access, Metropolitan shall notify all affected fire, police, and paramedic departments/services as well as any affected public transportation agencies of the schedule and duration of construction activities. e. During construction of projects that would impact underlying or adjacent property owners, Metropolitan shall send notification to and coordinate with these owners about the construction activity and duration.			
Traffic and Circulation	**Impact TR-5:** Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	**CIP Projects and O&M Activities (all)** APM-TR-1	Less than significant	—	Less than significant
Traffic and Circulation	**Impact TR-6:** Would the program result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	—	No impact	—	No impact

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Traffic and Circulation	**Cumulative:** Would the program have a cumulative effect on traffic and/or circulation resources?	**CIP Projects and O&M Activities (all)** APM-TR-1	Less than significant	—	Less than significant
Utilities and Service Systems	**Impact UTL-1:** Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	—	Less than significant	—	Less than significant
Utilities and Service Systems	**Impact UTL-2:** Would the program be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	**CIP Projects and O&M Activities (all)** **APM-UTL-1: Waste Reduction and Recycling.** Metropolitan has established a goal to reuse or recycle a minimum of 50 percent of the construction and demolition debris generated by construction activities, including proposed program activities. At a minimum, the waste generated by the proposed program shall meet local waste management regulations specifying minimum percentages of reuse or recycling of construction and demolition waste and debris. Waste shall be recycled whenever possible. Materials that cannot be reused or recycled shall be either incinerated or disposed of at a properly permitted landfill.	Less than significant	—	Less than significant
Utilities and Service Systems	**Impact UTL-3:** Would the program exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	—	No impact	—	No impact
Utilities and Service Systems	**Impact UTL-4:** Would the program require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	—	No impact	—	No impact
Utilities and Service Systems	**Impact UTL-5:** Would the program have sufficient water supplies available to serve the program from existing entitlements and resources, or are new or expanded entitlements needed?	—	No impact	—	No impact
Utilities and Service Systems	**Impact UTL-6:** Would the program result in a determination by the wastewater treatment provider which serves or may serve the program that it has adequate capacity to serve the program's projected demand in addition to the provider's existing commitments?		No impact	—	No impact

Table E-4. Summary of Program Impacts

CEQA Topic	Environmental Topic	Applicant Proposed Measures	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance
Utilities and Service Systems	**Impact UTL-7:** Would the program comply with federal, state, and local statutes and regulations related to solid waste?	—	Less than significant	—	Less than significant
Utilities and Service Systems	**Cumulative:** Would the program have a cumulative effect on utilities and/or service systems?	**CIP Projects and O&M Activities (all)** APM-UTL-1	Less than significant	—	Less than significant

Notes: CEQA = California Environmental Quality Act; APM = applicant proposed measure; MM = mitigation measure; — = no APMs apply or no mitigation measures are required.

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E.6 Analysis of Alternatives

E.6.1 Alternatives Considered but Rejected

Alternatives considered but rejected include location and a design alternative. All of the potential alternatives that were considered for the proposed program have been rejected. Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a), an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." The focus is on informed decision making and public participation rather than providing a set of alternatives simply to satisfy format. Based on the nature of the proposed program (operation and maintenance of an existing water conveyance and distribution system), feasible alternatives to the proposed program, other than the two identified in this section, were not identified. Maintenance projects proposed under the program are small projects at specific locations with limited options for methods of construction. For this reason, identification of feasible alternatives for the proposed program was limited. The following discussion presents the alternatives that were considered but rejected, and why they were rejected. These alternatives are not discussed in further detail and have been eliminated from further consideration.

Alternative Locations

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen the significant effects of the project need be considered for inclusion in the EIR (14 CCR 15126.6(f)(2)). Because the proposed program involves the maintenance, repair, and upgrade of an existing water supply conveyance and distribution system, as well as maintenance projects to address access or infrastructure problems, an alternative site analysis is not appropriate. The proposed program location, or Western San Bernardino County Operating Region, comprises Metropolitan's conveyance and distribution system pipelines and appurtenant structures, right-of-way, and patrol roads within western San Bernardino County, California. Maintenance needs have been identified at specific locations associated with an existing water supply conveyance and distribution system; therefore, it would not be feasible to move the maintenance activities to another location. Relocating activities to other sites would not meet the proposed program objectives. As a result, alternative locations were rejected and are not analyzed in detail in this PEIR.

Project Design Alternative

A second alternative that was considered was the Project Design Alternative, which consists of incorporation of bioengineering techniques (e.g., hydroseeding and geotextiles, planted walls, vegetated gabions) into project design in order to minimize significant impacts resulting from the proposed program, where feasible. This alternative was considered because it had the potential to feasibly attain the basic objective of the proposed program, while avoiding or substantially lessening the significant effects of the proposed program. However, after review, it was determined that this approach did not meet the criteria to be considered as a separate alternative. As part of the proposed program, bioengineering techniques are already being incorporated into the design at proposed program sites where feasible and appropriate. In order to obtain regional permits that are being sought as part of the proposed program, the regulatory agencies (U.S. Army Corps of Engineers, RWQCB, and CDFW) have stated that they expect Metropolitan to consider and incorporate, where feasible, bioengineering techniques into construction methods. Rather than an alternative to be considered, bioengineering is a requirement and feature of the existing proposed program. In addition, in order to minimize impacts from the proposed program and resulting mitigation, design engineering is taking environmental resources under consideration as part of the design process and design plans are being prepared in a manner that limits/minimizes impacts to sensitive habitats, special-status species, and jurisdictional waters. As such, the Project Design Alternative is already being incorporated as part of the proposed program.

Furthermore, the impacts in the two categories where significant impacts have been identified (biological resources and cultural resources) would not necessarily be avoided or substantially lessened by implementation of the Project Design Alternative. Bioengineering techniques would not likely reduce impacts to cultural resources, as the potential excavation (i.e., ground disturbance) and repair activities, which would create the potential disturbance to archaeological and paleontological resources, would still occur. Bioengineering would not minimize the potential impact to cultural resources. For biological resources, likewise, the impact to the sensitive resource, be it a sensitive habitat or a special-status animal species, would still occur with the disturbance (i.e., excavation, vegetation removal/disturbance) during construction activities. Even with incorporation of bioengineering techniques, the proposed maintenance activities/projects would still be implemented and the resulting construction disturbance would occur. The bioengineering techniques would serve to restore the impact area, but not necessarily reduce the impact from construction disturbance. Thus this Project Design Alternative does not meet the criteria for an alternative to avoid or substantially lessen any of the significant effects of the program.

E.6.2 Alternatives Selected for Further Analysis

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of the "No Project" Alternative, which reflects the "circumstances under which the Project does not proceed." The No Project Alternative, in this case, assumes that the existing water supply conveyance and distribution system in the Western San Bernardino County Operating Region would continue to operate without the implementation of proposed CIP projects or the proposed O&M activities plan. Additionally, under the No Project Alternative, the repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems, would not occur.

An EIR must identify an "environmentally superior" alternative, and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify an alternative from among the others evaluated as environmentally superior. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior. However, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed project. None of the environmental impacts identified in the PEIR were found to be significant and unavoidable. If an alternative is considered clearly superior to the proposed project relative to identified impacts, Section 15126.6 of the CEQA Guidelines requires that alternative be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives.

Two alternatives to the proposed program, other than the No Project Alternative, were considered; however, these alternatives were not further considered and analyzed for the reasons stated in Section E.6.1, Alternatives Considered but Rejected. Based on the analysis provided in Chapter 6, Alternatives, the No Project Alternative is considered environmentally inferior to the proposed program. In addition, the No Project Alternative would not meet any of the project objectives identified by Metropolitan. The proposed program would allow for maintenance of the existing water conveyance and distribution system and associated infrastructure in a streamlined manner, thus ensuring the continued reliability and security of the water supply system. The proposed program, therefore, is considered to be the environmentally superior alternative.

E.7 Areas of Controversy

Section 15123(b)(2) of the CEQA Guidelines requires the executive summary of an EIR to disclose areas of controversy known to the lead agency that have been raised by the agencies and the public. A Notice of Preparation (NOP) was circulated to solicit agency and public comments on the scope and environmental analysis to be included in the PEIR. A total of 16 comment letters were received during the NOP public review period. Copies of the NOP and the NOP comment letters

received by Metropolitan are included in Appendices C and D to this PEIR, respectively. The following issues were raised in the written responses to the NOP:

- It was recommended that the appropriate regional archaeological information center be contacted and if required, a professional report be prepared detailing the findings and recommendation of the records search and field survey.
- It was recommended that mitigation plans be in place for subsurface archaeological finds.
- Encroachment permits and coordination with the California Department of Transportation (Caltrans) was requested prior to construction for any proposed work in the vicinity of Caltrans' right-of-way.
- Permit review was recommended for work within the San Bernardino Flood Control District right-of-way or grading that will alter drainage flows.
- Recent biological surveys and mitigation measures to compensate for the loss of native flora and fauna and state waters were requested.
- It was recommended that Metropolitan obtain a California Endangered Species Act Incidental Take Permit if the program would result in take of an endangered species.
- Notification under Section 1600 of the California Fish and Game for potential impacts to streambeds was requested.
- It was recommended that measures be taken to avoid impacts to California Endangered Species Act listed species, rare natural communities, and nesting birds.
- The Auto Club Speedway requested that Metropolitan coordinate with private landowners prior to CIP projects or O&M activities.
- Submittal of the Draft EIR and all appendices or technical documents related to air quality and greenhouse gas analyses to the South Coast Air Quality Management District was requested.

E.8 Issues to Be Resolved by the Lead Agency

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved. With respect to the proposed program, the key issues to be resolved include decisions by Metropolitan, as lead agency, as to the following:

- Whether this environmental document adequately describes the environmental impacts of the proposed program
- Whether the recommended mitigation measures should be modified and/or adopted
- Whether there are other mitigation measures or alternatives that should be considered for the proposed program besides those identified in the Draft PEIR

1 Introduction

1.1 Overview of the Proposed Program

The Metropolitan Water District of Southern California (Metropolitan) is proposing the design, construction, operation, and maintenance of Capital Investment Plan (CIP) projects and preparation and implementation of an Operations and Maintenance (O&M) Manual (see Appendix A to this program environmental impact report [PEIR]) for the conveyance and distribution system within its Western San Bernardino County Operating Region (proposed program). The proposed program, which is identified as the Distribution System Infrastructure Protection Program (DSIPP, or proposed program), is a comprehensive assessment effort that identifies, prioritizes, and executes needed surface infrastructure protection projects for Metropolitan's conveyance and distribution system. The scope of the program only includes those projects that could be identified from visual inspection of the surface or accessed from manholes at the surface and does not include projects related to the rehabilitation or replacement of subsurface pipelines.

For this program, Metropolitan divided its service area into operating regions based on geographic areas and roughly following county lines. The DSIPP is being implemented in phases by operating region: Phase 1 includes the operating regions of Orange and Western San Bernardino counties; Phase 2 includes the operating regions of Los Angeles and Riverside/San Diego counties; and Phase 3 encompasses San Bernardino County's outlying areas. The first operating region addressed was the Orange County Operating Region. Western San Bernardino is the second operating region to be addressed (see Chapter 2, Figure 2-2, Western San Bernardino County Operating Region Pipeline Locations). Metropolitan's operating regions are generally located within the boundaries of each county, but may also include areas that extend slightly beyond the county boundaries.

In order to ensure continued water supply reliability, Metropolitan is proposing to implement a comprehensive program to (1) design, construct, operate, and maintain CIP projects that address surface infrastructure maintenance and protection needs and (2) prepare and implement an O&M Manual for execution of routine O&M activities. Under the DSIPP, this programmatic California Environmental Quality Act (CEQA) document is being prepared for proposed CIP projects and O&M activities, and long-term programmatic regional permits will be obtained for work within regulated waters to streamline the CEQA and permitting process and execute projects under the proposed program on a regular and timely basis.

The two components of the proposed program, CIP projects and O&M activities, are described as follows:

- **CIP Projects**: CIP infrastructure projects generally consist of repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems that threaten system reliability. Examples of proposed CIP

projects include patrol road upgrades (e.g., paving); installation of engineered erosion control structures (e.g., grouted riprap or channel lining); and slope stabilization measures. CIP projects typically require engineering design and would be conducted on a one-time basis. Once a CIP project is built, it would then require implementation of O&M activities to maintain the structure.

- **O&M Activities**: O&M activities within the Western San Bernardino County Operating Region are currently ongoing; however, the O&M Manual would develop a formalized plan that would provide a systematic and scheduled approach to these maintenance activities and would serve as a comprehensive guide for the maintenance of existing water conveyance and distribution system infrastructure. The O&M Manual would describe routine and single-occurrence maintenance activities and provide a schedule for routine inspection and maintenance of patrol roads and pipeline appurtenant structures. Routine and single-occurrence O&M activities are described as follows:
    - Routine O&M activities are preventive in nature and include, on a regular basis, standard practices that detect and correct minor issues that may eventually lead to damage or loss of surface infrastructure. Types of routine O&M activities include regular patrols and visual inspections of patrol roads and aboveground appurtenant structures; maintenance of patrol roads (e.g., minor grading, vegetation maintenance, Arizona crossing and culvert maintenance); routine facility maintenance, repair, and replacement (e.g., cleaning of equipment and structures, graffiti removal, coating of structures, vegetation maintenance, repair/installation of security fencing/signage); pipeline shutdowns and dewatering; and emergency procedures. The O&M component of the proposed program would address all routine, ongoing O&M activities for currently constructed structures, as well as the long-term O&M activities for structures proposed under the CIP component of this program.
    - Single-occurrence O&M activities are conducted on a one-time basis and would include repair, rehabilitation, or replacement of existing structures to support the continued maintenance of existing pipelines and appurtenant pipeline structures. Examples of single-occurrence O&M activities include patrol road structural repairs, and could include the installation of Arizona crossings, culverts, and/or bridges. Single-occurrence O&M activities may require design engineering; however, the project design is typically not as complex as the CIP projects discussed in this PEIR.

Following construction of the structures, long-term maintenance would occur as described in the O&M Manual under routine O&M. The proposed design, construction, and operation of the CIP projects and the preparation and implementation of the O&M Manual considered together are referred to as the "proposed program."

1.2 Environmental Impact Report Process

1.2.1 CEQA Compliance

CEQA (California Public Resources Code, Section 21000 et seq.) requires the preparation and certification of an environmental impact report (EIR) for any project that a lead agency determines may have a significant effect on the environment. This PEIR has been prepared in compliance with all criteria, standards, and procedures of the CEQA Guidelines (14 CCR 15000 et seq.). This document has been prepared as both a project EIR (pursuant to Section 15161 of the CEQA Guidelines) and a PEIR (pursuant to Section 15168 of the CEQA Guidelines) and represents the independent judgment of Metropolitan as the lead agency (14 CCR 15050).

1.2.2 Initial Study/NOP

CEQA establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed and the extent and types of impacts that the proposed project and its alternatives would have on the environment should the project or alternatives be implemented. An initial environmental review of the proposed program was conducted and an Initial Study prepared in accordance with the requirements of Section 15365 of the CEQA Guidelines (see Appendix C to this PEIR). Based on the findings of the Initial Study, it was determined that the program could have potentially significant effects for some environmental resources, and that an EIR should be prepared. Therefore, pursuant to Section 15082 of the CEQA Guidelines, a notice of preparation (NOP) of a draft PEIR, dated November 25, 2014, was prepared and circulated with the Initial Study to interested agencies, organizations, and individuals to afford them an opportunity to respond with specific comments and/or questions regarding the scope and content of the PEIR. The Initial Study/NOP were also sent to the State Clearinghouse at the California Governor's Office of Planning and Research. The State Clearinghouse number assigned to this PEIR is SCH No. 2014111071.

Pursuant to Section 15082 of the CEQA Guidelines, recipients of the NOP for the proposed program were requested to provide responses within approximately 30 days after their receipt of the NOP. The review period for the Initial Study/NOP, however, extended from November 25, 2014, to January 9, 2015, to give commenters additional time to respond because the review period included several holidays. All comments received during the public review period were considered during the preparation of this PEIR. Appendix D includes copies of the comment letters received on the Initial Study/NOP, as well as a table that summarizes the comments received and lists the PEIR chapter where the comment has been addressed.

1.3 Contents and Organization of the PEIR

The PEIR is organized as follows:

- The **Executive Summary** presents a brief summary of the proposed program background and objectives, as well as a description of the proposed program components (CIP projects and O&M activities). The section also includes a table summarizing (1) the level of significance for each potential impact in each resource category analyzed in the PEIR; (2) the applicant proposed measures to be implemented as part of the proposed program and mitigation measures proposed to reduce or avoid significant impacts; and (3) the level of impact significance following mitigation.
- **Chapter 1**, **Introduction**, serves as a foreword to the PEIR, providing an overview of the proposed program, a brief summary of CEQA and the EIR process, and a discussion of the preparation and distribution of the Initial Study/NOP. This chapter also presents the contents and organization of the PEIR.
- **Chapter 2**, **Existing Facilities and Setting**, provides an overview of Metropolitan's overall conveyance and distribution system and, more specifically, the conveyance and distribution system in the Western San Bernardino County Operating Region.
- **Chapter 3, Program Description**, provides a thorough description of the proposed program components (CIP projects and O&M activities), including a listing of applicant proposed measures and a listing of federal, state, and local agencies that Metropolitan may potentially need to coordinate with or need authorization from to implement this proposed program.
- **Chapter 4**, **Environmental Analysis**, includes a summary of the overall approach to the analysis of each resource category and the identification of potentially significant impacts, as well as an overview of the organization of each of the resource sections.

  Sections 4.1 through 4.13 provide analysis of the potentially significant environmental impacts identified for the proposed program, as well as proposed applicant proposed measures and/or mitigation measures to reduce or avoid any potentially significant impacts for each of the resource categories listed below. For each resource category, the environmental setting, regulatory framework, and thresholds of significance for that particular resource are included within each section in Chapter 4, preceding the analysis of potential impacts from the proposed program. Also included in each section in Chapter 4 is the discussion of environmental topics where, based on the findings of the Initial Study, potential impacts were found to be less than significant or no potential impacts were identified; these topics are not further discussed in the PEIR.

The following resource categories are analyzed in Chapter 4 of the PEIR:

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

Based on the results of the Initial Study, impacts for all significance thresholds were determined to be less than significant for the resource categories of Agriculture and Forestry Resources, Mineral Resources, Population and Housing, and Recreation. The impact analysis for these resources is included in the Initial Study and these topics are not further addressed in this PEIR.

- **Chapter 5, Cumulative Impacts**, includes a discussion of the impacts from the proposed program in combination with past, present, and probable future projects.
- **Chapter 6, Alternatives**, includes a description of the No Project Alternative and a brief analysis of impacts associated with this alternative.
- **Chapter 7, Other CEQA Considerations**, includes a discussion of significant environmental impacts that cannot be avoided and significant irreversible environmental changes that would result from implementation of the proposed program. The growth-inducing impacts associated with the proposed program are also discussed.
- **Chapter 8, References**, provides full citations for the documents cited in Chapters 1 through 7 of the PEIR.
- **Chapter 9, List of Preparers**, lists the personnel and organizations involved in preparation of the PEIR.

Appendices include various technical studies and other related documents prepared for the proposed program, as listed below:

- Appendix A – Draft O&M Manual
- Appendix B – CIP Project Locations
- Appendix C – Initial Study/NOP
- Appendix D – Initial Study/NOP Comment Letters
- Appendix E – Air Quality and Greenhouse Gas Emission Calculations
- Appendix F – Biological Resources Reports
- Appendix G – Hazards Records Search Results
- Appendix H –Land Use Policy
- Appendix I – Noise Analysis
- Appendix J – Trip Generation Analysis Memo

2 Existing Facilities and Setting

This chapter provides an overview of The Metropolitan Water District of Southern California's (Metropolitan's) existing facilities and the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program) setting. The chapter provides a broad overview of Metropolitan's regional conveyance and distribution system, a description of the regional setting, a summary of the conveyance and distribution pipelines in the Western San Bernardino County Operating Region, and a general discussion regarding the types of pipeline infrastructure (i.e., appurtenant structures and patrol roads) found throughout Metropolitan's conveyance and distribution system, including the Western San Bernardino County Operating Region. The description of the pipelines and associated infrastructure is included to provide a better understanding of locations where program activities are proposed within Metropolitan's system and a context for the types of activities that are proposed. The description of the proposed program is provided in Chapter 3, Program Description.

2.1 Overview of Metropolitan

Metropolitan is one of the nation's largest providers of treated drinking water. On average, Metropolitan moves more than 1.5 billion gallons of water through its distribution system each day, delivering supplies to 26 member agencies. Those agencies, in turn, sell that water to more than 300 sub-agencies or directly to consumers. In all, about 19 million Southern Californians rely on Metropolitan for some or all of the water they use in their homes and businesses. Metropolitan's service area encompasses a six-county area of 5,200 square miles in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Including the Colorado River Aqueduct, the water delivery/distribution system includes approximately 1,000 miles of pipeline, tunnels, and canals, as well as patrol roads, transmission lines, 5 treatment plants, 9 reservoirs, 16 hydroelectric plants, and numerous pressure control structures, pumps and valves, buildings, shops, and other structures (Figure 2-1, Overview of Metropolitan's Conveyance and Distribution System).

Metropolitan imports its water from two sources: the Colorado River Aqueduct and the State Water Project. The State Water Project brings water supplies south from the Sacramento–San Joaquin Delta, while the Colorado River Aqueduct moves water to the west from Lake Havasu. The Colorado River Aqueduct stretches 242 miles across the desert and mountains of the Mojave Desert, and the State Water Project courses 444 miles through the central part of the state over the Tehachapi Mountains and flows into the Southern California coastal plain (Metropolitan 2013).

Metropolitan built and owns the Colorado River Aqueduct, so its responsibility for the system commences at the Whitsett Intake Pumping Plant on the Colorado River, 15 miles southeast of Lake Havasu City. From there, canals, siphons, pipelines, and four pumping plants move the water west to Metropolitan's terminal reservoir, Lake Mathews. Metropolitan's regional distribution system connects to Lake Mathews, as well as at Lake Perris and Castaic Lake, which

are terminal reservoirs for the east and west branches of the state-owned-and-operated State Water Project (Metropolitan 2013).

2.2 Overview of the Western San Bernardino County Operating Region

The Western San Bernardino County Operating Region comprises Metropolitan's conveyance and distribution system pipelines and appurtenant structures, right-of-way, and patrol roads within Western San Bernardino County, California. The Western San Bernardino County Operating Region includes 74 miles of pipeline, 392 pipeline structures, and approximately 50 miles of patrol roads. As depicted in Figure 2-2 (Western San Bernardino County Operating Region Pipeline Locations) and Figure 2-3 (Local Vicinity and Aerial Photograph) and as shown in Table 2-1, the Western San Bernardino County Operating Region pipeline and patrol road system extends through San Bernardino County and 10 cities. The cities are as follows:

- Chino Hills
- Fontana
- Highland
- Montclair
- Ontario
- Rancho Cucamonga
- Redlands
- Rialto
- San Bernardino
- Upland

Metropolitan's right-of-way within the Western San Bernardino County Operating Region extends through multiple parcels. All currently identified Capital Investment Plan (CIP) project locations and Operations and Maintenance (O&M) activity locations and the Assessor's Parcel Numbers in which that work would occur are listed in Appendix B, CIP Project Locations, to this program environmental impact report (PEIR).

To support operation of the conveyance and distribution pipelines within the Western San Bernardino County Operating Region, Metropolitan also maintains a complex system of aboveground appurtenant pipeline structures and a system of patrol roads. The activities performed under the proposed program would occur at these structures and along the patrol roads, which are collectively referred to as "associated infrastructure" in this PEIR.

Table 2-1 summarizes information about the pipelines within Metropolitan's conveyance and distribution system that are included in the Western San Bernardino County Operating Region.

2.3 Description of Associated Infrastructure

In order to support operation of the pipelines described in Section 2.2, Metropolitan also maintains the associated infrastructure. Many of the projects and activities performed under the proposed program would occur on these aboveground structures and along patrol roads.

2.3.1 Pipeline Appurtenances

There are several types of aboveground structures constructed along the pipeline system that are used to maintain adequate water pressure and flow in the pipes or allow access to structures for maintenance and inspection. O&M activities are conducted to maintain access to these structures in order to perform inspections and maintenance to ensure that they continue to function properly. Vegetation and debris are currently removed from an area of approximately 10 feet around each aboveground structure to ensure unimpeded access by patrol crews. Descriptions of the most common types of appurtenant structures maintained by Metropolitan are provided below (Jordan and Bicker 2013). Figures 2-4A through 2-4D include photographs of examples of these appurtenant structures.

- **Blowoff Structure:** Blowoff structures, which are provided at low points in a pipeline, allow the pipeline to be dewatered, by gravity, through an outlet into a watercourse or storm drain. Blowoff structure discharge outlets are at or slightly above existing grade and accessed via manhole or structure.
- **Pump Wells:** Pumping wells, which are provided at low points in a pipeline, allow pumps to be placed inside the pipeline and water discharged to the surface. Pump wells are accessed via a manhole.
- **Manholes:** Manholes are access points into a pipeline. Manhole structures are typically at or slightly above existing grade, and the access point into the pipeline is typically below grade from the manhole structure.
- **Vacuum Valves:** Air vents or air release and vacuum valves are provided at high points in a pipeline and near abrupt changes of grade to allow air to enter the pipeline when the water level lowers and allows air to escape the pipeline when the water level rises. Vacuum valves are located adjacent to, or inside, manholes.
- **Service Connections:** Service connections are the connection between the customer's piping and the water system's meter, service pipe, or constructed conveyance. Service connection piping is located below grade and connected directly to pipelines. Service connections may have a cabinet above grade that houses a meter indicating the amount of water provided through the service connection.
- **Pressure Control Structures:** Pressure control structures are designed to regulate flows and control downstream pressure in a pipeline. The majority of the structure is below grade. Access is at grade via the abovegrade portion of the structure.

- **Pump Stations:** Pump stations are designed to increase pressure or lift water to a higher elevation to allow flow through the conveyance system. Pump stations may be located above grade or both above and below grade. Facilities may be fully enclosed at the surface or partially exposed. Access is at grade via the above grade portion of the structure.
- **Valves:** Valves are devices that regulate, direct, or control the flow of a liquid or gas by opening, closing, or partially obstructing various passageways. Valves can be located inside manholes, adjacent to manholes, or inside structures.

2.3.2 Patrol Roads

Patrol roads (paved and unpaved) within the Western San Bernardino County Operating Region are maintained to provide vehicle and equipment access to pipelines, appurtenant structures, and other water distribution infrastructure where access is otherwise not available from a public street. These roads are owned in fee, under easement, or other established right-of-way. Generally, Metropolitan patrol roads are a maximum of 16 feet in width and include a 4-foot buffer on either side, for a total maximum width of 24 feet. In addition, the patrol roads typically include turnaround areas, consisting of an existing driveway or aboveground structure, approximately every 1,000 feet, to facilitate access and maintenance activities. Figure 2-5 (Typical Metropolitan Operations and Maintenance Area) depicts a cross-section of the patrol roads and associated maintenance buffers.

Table 2-1. Summary of Western San Bernardino County Operating Region Pipelines

Pipeline	Local Jurisdiction	Year of Construction	Length (miles)	Flow		Inner Diameter (inches)		Overview
				From	*To*	*Min*	*Max*	*Description*
Inland Feeder	Cities of San Bernardino, Highland, Redlands; unincorporated area in San Bernardino County	1960s–1990s	29	Department of Water Resources Devil Canyon facility	Diamond Valley Lake	144	168	The purpose for the Inland Feeder is to transport water from the State Water Project at Devil Canyon to Diamond Valley Lake or Lake Mathews. It provides system reliability and water quality by enabling Metropolitan to divert large volumes of water (when available) from Northern California and deposit it in surface storage reservoirs for use during dry periods or emergencies. It also blends water that is lower in salinity with water that is higher in salinity to improve water quality.
Etiwanda Pipeline	Cities of Fontana and Rancho Cucamonga	1993	6.5	Turnout structure on the Rialto Pipeline at Rialto Station 3667+14	Upper Feeder at Station 1081+03	144	144	The Etiwanda Pipeline connects the Rialto Pipeline with the Upper Feeder to provide the Upper Feeder with State Water Project water.
Rialto Pipeline	Cities of Upland, Rancho Cucamonga, Fontana, Rialto, San Bernardino; unincorporated area in San Bernardino County	1975	29	California Department of Water Resources Devil Canyon facility	San Dimas facility	96	135	The Rialto Pipeline transports East Branch California State Water Project water into Metropolitan's supply and distribution system. The Rialto Pipeline is the sole source of water to the Etiwanda Pipeline. The Rialto Pipeline supplies untreated water to a number of service connections for both groundwater replenishment and domestic purposes prior to arriving at the Live Oak Reservoir. The Rialto Pipeline can deliver water into the Live Oak Reservoir for storage or bypass the reservoir. The pipeline continues westerly from the Live Oak Reservoir and interconnects with the La Verne Pipeline near the Glendora Tunnel.
Upper Feeder	Cities of Montclair, Ontario, Rancho Cucamonga, Fontana; unincorporated area in San Bernardino County and Jurupa Valley	1933–1941	63	Lake Mathews Forebay Outlet Tower	Eagle Rock Control Tower at Station 3319+08	84	140	The Upper Feeder delivers a blend of untreated water from the Colorado River Aqueduct and the State Water Project to the Weymouth Treatment Plant. This feeder also supplies water to a number of service connections for groundwater storage and replenishment.
Yorba Linda Feeder	City of Chino Hills	1975	18	La Verne Pipeline at Station 118+18 near the Upper Feeder Junction Structure	Robert B. Diemer Water Treatment Plant	96	121	The Yorba Linda Feeder can deliver water from the State Water Project or the Colorado River Aqueduct, or a blend of both waters to the Robert B. Diemer Water Treatment Plant.

Sources: Metropolitan 2005, 2008, 1997.
Notes: min = minimum; max = maximum.

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SOURCE: Nat Geo 2020

FIGURE 2-1

Overview of Metropolitan's Conveyance and Distribution System

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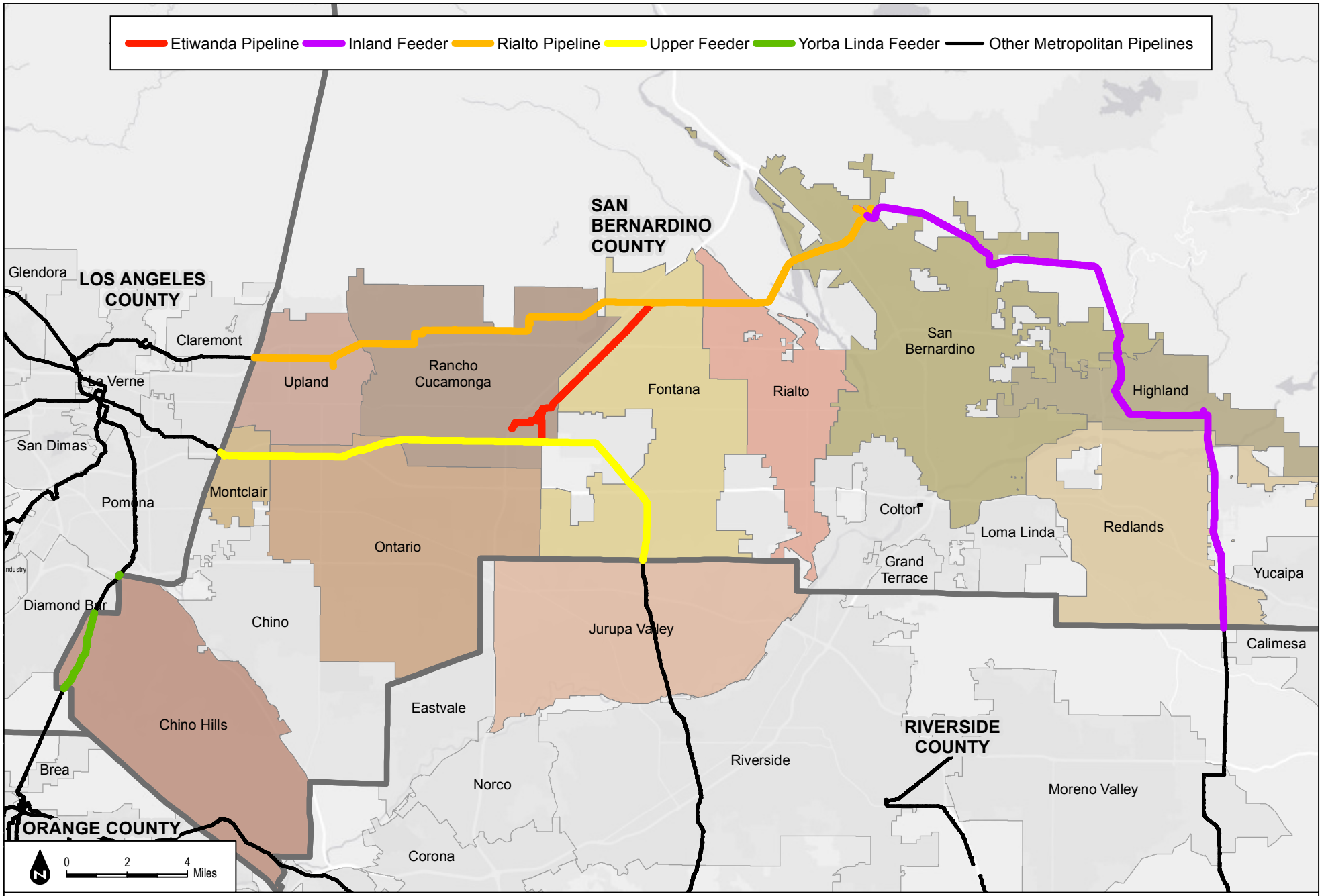

SOURCE: ESRI World Canvas 2020

FIGURE 2-2

Western San Bernardino County Operating Region Pipeline Locations

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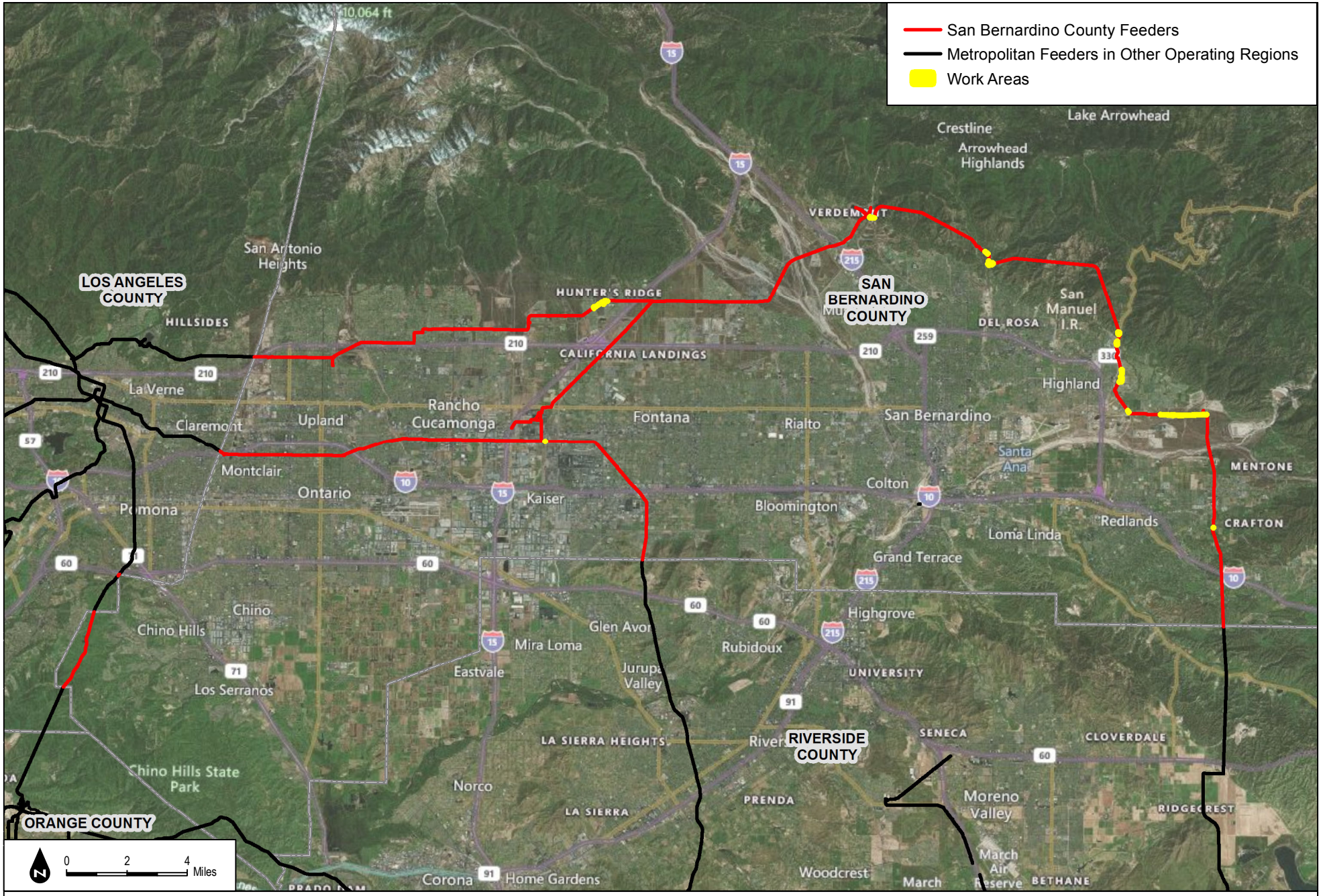

SOURCE: Bing Maps 2019

FIGURE 2-3

Local Vicinity and Aerial Photograph

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SOURCE: Metropolitan

FIGURE 2-4A

Blowoff Structure

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SOURCE: Metropolitan

FIGURE 2-4B

Pressure Control Structure

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SOURCE: Metropolitan

FIGURE 2-4C

Vacuum Valve and Manhole Structure

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SOURCE: Metropolitan

FIGURE 2-4D

Articulated Mat Crossing

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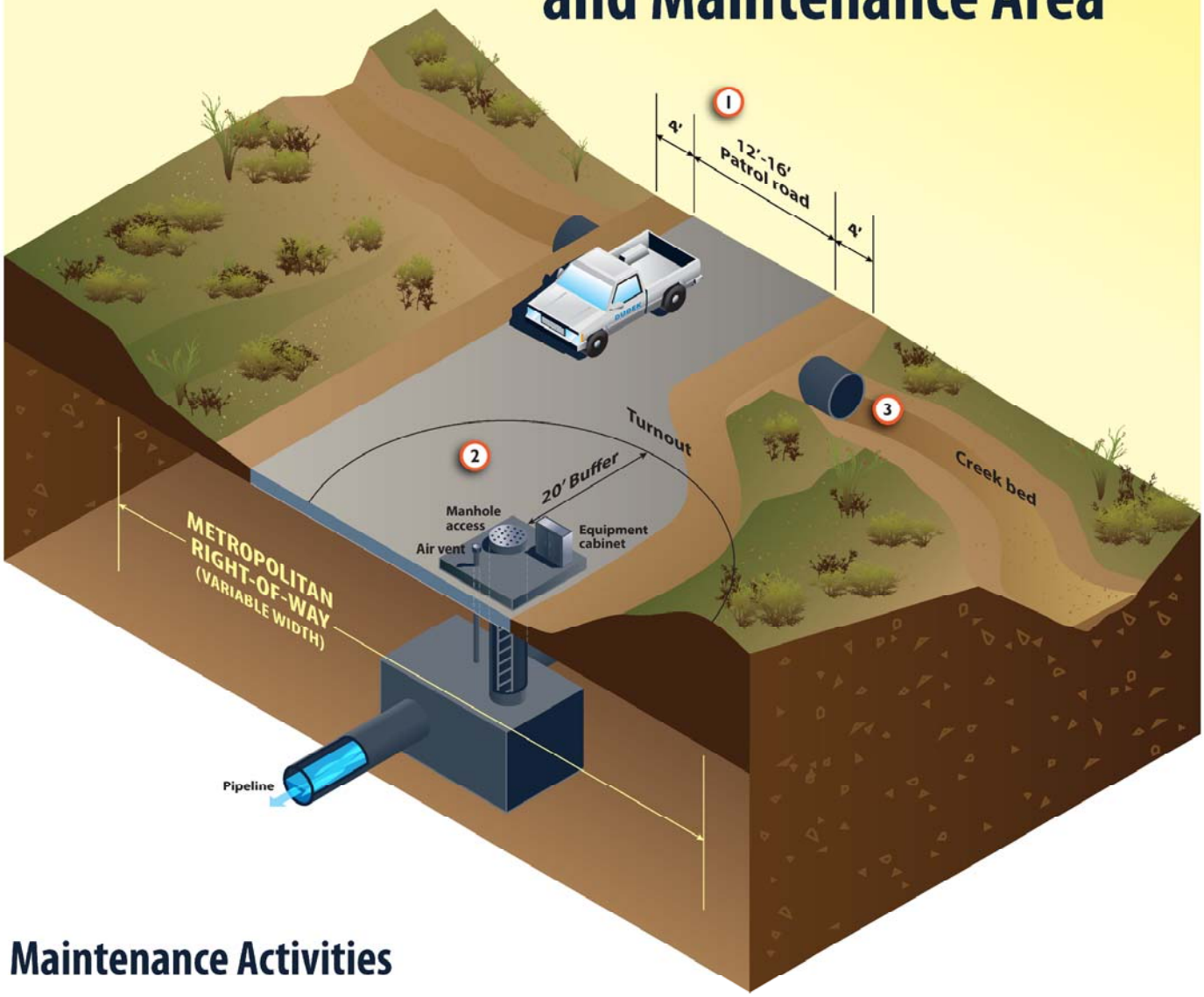
Typical Metropolitan Operations and Maintenance Area



Maintenance Activities

1 Patrol Road

- Weekly patrols
- Grading
- Erosion control
- Vegetation maintenance
- Turnouts/driveways approximately every 1000 feet
- Maintain 4-foot shoulder on both sides of road
- Pest control

2 Structures

- Weekly patrols
- Graffiti removal
- Clean equipment/structures
- Vegetation maintenance within 20-foot buffer around above ground appurtenances
- Structure replacement/ maintenance
- Erosion control
- Pest control

3 Culverts and Arizona Crossings

- Maintain free of sediment and vegetation
- Regrading/repaving as necessary

SOURCE: Metropolitan

FIGURE 2-5

Typical Metropolitan Operations and Maintenance Area

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3 Program Description

This chapter describes the purpose and objectives of the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP; proposed program) and provides a detailed description of the proposed program, including a summary of proposed Capital Investment Plan (CIP) projects, proposed operations and maintenance (O&M) activities, and applicant proposed measures (APMs) for each of the components. This chapter also lists the discretionary actions, approvals, and coordination with other agencies that may be required to implement the proposed program.

3.1 Background and Project Need

The majority of The Metropolitan Water District of Southern California's (Metropolitan's) conveyance and distribution system was constructed from the 1930s through the 1970s. The system, which includes pipelines, associated appurtenant structures, and patrol roads, requires continual monitoring and maintenance to ensure a reliable water supply and to minimize the potential for emergency situations. Rehabilitation, replacement, and repair of existing structures, as well as maintenance of patrol roads, are necessary to maintain reliable infrastructure. In many areas throughout Metropolitan's service area, patrol roads may become or have already become impassable due to erosion and/or excessive vegetation growth. In localized areas, erosional features, drainage problems, and/or periodic flooding have caused pipelines and appurtenant aboveground structures to become inaccessible, exposed, or otherwise vulnerable to damage. These issues, in addition to increasing environmental requirements and the regulatory time frames for obtaining permits and approvals for work within sensitive biological areas, have constrained Metropolitan's ability to perform critical maintenance activities in a timely and efficient manner.

In June 2012, Metropolitan established the DSIPP, a comprehensive assessment program that identifies, prioritizes, and executes needed surface infrastructure protection projects for Metropolitan's conveyance and distribution system. The scope of the program includes projects identified from visual inspection of the surface or accessed from manholes at the surface (i.e., vaults) and does not include projects related to the rehabilitation or replacement of pipelines. For this program, Metropolitan has divided its service area into operating regions based on geographic areas and roughly following county lines. The first operating region addressed was the Orange County Operating Region. The second operating region to be addressed is the Western San Bernardino County Operating Region.

Under the DSIPP, California Environmental Quality Act (CEQA) documentation will be prepared for proposed CIP projects and proposed O&M activities for each operating region. CIP projects generally consist of repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems that threaten system reliability. They typically require engineering design and would be conducted on a one-time basis. O&M activities include

those activities that are conducted on a regular and ongoing basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. Once a CIP project is constructed, it would require O&M activities to maintain the structure. Following certification of the CEQA document, long-term regional permits will be obtained for each operating region to authorize activities that occur within waters regulated under Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code. The goal of this programmatic regional approach is to streamline environmental clearances and enable Metropolitan to implement proposed CIP maintenance projects and critical O&M activities in a timely manner.

3.2 Proposed Program Objectives

The proposed program objectives are as follows:

- Maintain access to pipelines and appurtenant structures to conduct necessary maintenance to ensure reliability of the water supply conveyance and distribution system.
- Address associated infrastructure issues that threaten the reliability and/or security of the conveyance and distribution system and water supply to Metropolitan's service area by implementing proposed infrastructure protection projects.
- Provide a systematic and scheduled approach to ongoing routine maintenance activities.
- Obtain regional permits that provide long-term permitting approval and streamline environmental clearance processes for maintenance projects in regulated waters.
- Streamline environmental clearances and enable Metropolitan to implement proposed CIP projects and critical O&M activities in a timely manner, especially for those projects in environmentally sensitive or regulated areas.

3.3 DSIPP Program Components

The proposed program is composed of two primary components: (1) the design, construction, and operation of proposed CIP infrastructure maintenance projects within the Western San Bernardino County Operating Region and (2) the preparation and adoption of an O&M Manual and implementation of covered O&M activities throughout the Western San Bernardino County Operating Region. These two program components are referred to collectively in this document as the "proposed program." The O&M activities described in the Draft O&M Manual (Appendix A) are currently conducted by Metropolitan, but have been subject to CEQA review and permit issuance on a project-by-project basis, as needed. The implementation of the O&M Manual would enable a range of routine and single-occurrence O&M activities to occur within Metropolitan's Western San Bernardino County Operating Region on a systematic, scheduled basis.

The proposed CIP projects and O&M activities are identified in Metropolitan's DSIPP Assessment Report. The Preliminary Design Report for the Western San Bernardino County Operating Region further addresses CIP projects (including a description of potential repair options and the recommended repair, as well as preliminary design drawings) and the O&M Manual (found in Appendix A) addresses currently identified and future O&M activities. This program environmental impact report (PEIR) narrative does not attempt to individually describe the proposed projects listed in the table; instead, each project in the table is keyed to one or more activity codes. Activity codes reference general categories of CIP maintenance projects or types of O&M activities. For any one location (or station) along a pipeline, there may be more than one activity being proposed, and there may be both CIP projects and O&M activities proposed at each location.

Each record in Appendix B (CIP Project Locations) includes the following information:

- **Pipeline Name ("Feeder"):** Pipeline/feeder names identify the pipeline along which the proposed project or activity would occur.
- **Station ID ("Station"):** Station IDs refer to locations at 100-foot increments along the pipelines, with the station numbers increasing in the direction of the flow of water. For example, Station 542+00 is 54,200 feet from the beginning of the pipeline. Each proposed activity in the table is identified by the closest pipeline stationing of the closest aboveground structure(s). This means that the activity would occur at or in the immediate vicinity of the station.
- **CIP Activity Code ("CIPCode"):** Each CIP project type has been assigned a code from 1 to 3. These CIP project types are described in Section 3.5, Description of Proposed CIP Projects, and are used to categorize proposed CIP projects in Appendix B.

3.4 Proposed Program Study Area

The study area (9,106 acres) for the proposed program was established to assist in the analysis of the proposed program's effects on environmental resources. It includes all areas within Metropolitan's existing right-of-way and patrol roads where proposed CIP maintenance projects and O&M activities would occur in the Western San Bernardino County Operating Region. To ensure an appropriate geographic scope of analysis, the following areas within the Western San Bernardino County Operating Region were included in a GIS geodatabase that delineates the entire study area:

- All Metropolitan fee properties and easements
- All Metropolitan patrol roads (16 feet in width) with a 4-foot buffer applied to either side of the approximate centerline of the roads, for a total width of 24 feet
- Project/activity-specific areas/polygons delineating the footprint of proposed CIP projects and the general locations of proposed O&M activities identified as part of the DSIPP

Although the DSIPP assessment report identified current O&M needs, future O&M activities described in the O&M Manual may be implemented anywhere along Metropolitan's Western San Bernardino County Operating Region right-of-way and patrol roads. Prior to implementation, these future O&M activities will be subject to internal review by Metropolitan to ensure that they are in compliance with the activity descriptions set forth in the O&M Manual, conditions of this PEIR, and any resource agency permit conditions. If necessary, future O&M activities may be subject to additional CEQA analysis and/or resource agency coordination.

3.5 Description of Proposed CIP Projects

The proposed CIP projects generally consist of repair, upgrade, and/or relocation of existing structures, or the installation of permanent structures to address access or infrastructure problems that threaten system reliability. A list of the proposed CIP projects identified in the Western San Bernardino County DSIPP Assessment Report is included in Appendix B. It should be noted that the proposed program description for CIP infrastructure projects only includes design and construction of the projects; O&M activities following construction of CIP projects would be covered under the O&M component of this program description.

Table 3-1 summarizes the proposed CIP projects identified in the Western San Bernardino County DSIPP assessment, including activity type, duration, and equipment.

Table 3-1. Summary of Western San Bernardino County DSIPP Proposed CIP Projects

CIP Activity Code No.	Activity	Typical Duration	Typical Equipment Needs
1	Patrol road improvements and paving	1–3 days	Tractor, loader, backhoe, excavator, dump truck, motor grader, roller, paver, water truck
2	Engineered erosion control	Up to 2 weeks	Blade, loader, excavator, dump truck, water truck
3	Slope stabilization	Up to 4 weeks	Dozer, loader, backhoe, blade, dump truck, water truck

3.5.1 Patrol Road Improvements and Paving

Metropolitan maintains approximately 50 miles of paved and unpaved patrol roads within the Western San Bernardino County Operating Region. All patrol roads are graded on an annual basis as part of routine O&M activities to reduce erosion and ensure that the roads are passable. Some patrol roads are subject to repeated and severe erosion and become impassable due to ruts, potholes, and gullies caused by erosion. In certain locations, unpaved roads or deteriorated paved roads would be paved or repaved to reduce the frequency and magnitude of maintenance issues. Additionally, in

areas where existing patrol roads are narrow, road widening to Metropolitan's existing maximum road width (generally a 16-foot-wide patrol road, with 4-foot buffers on either side, for a total of 24 feet in width) would occur. Paving/road-widening activities would include grading of the road to a maximum of 16 feet in width; removal of old, damaged paving; vegetation removal; placement and compacting of base material; and placement of gravel, asphalt, or concrete paving materials.

Erosion can also occur in the vicinity of aboveground appurtenant pipeline structures and result in damage to these structures. In these cases, paving would be performed around these structures to reduce the potential for damage and reduce the need for future routine vegetation maintenance, erosion control, and replacement of structures. The paving would be restricted to a 20-foot radius (maximum) around the structure and would consist of reinforced concrete paving or concrete in previously disturbed and maintained areas or new asphalt paving around manholes.

There are 13 identified CIP projects in the Western San Bernardino County Operating Region. Of the 13 CIP projects, 8 involve patrol road grading, grading and paving, or paving around manhole structures, which are generally already disturbed and are maintained as part of current operations. Maintaining patrol roads and controlling water runoff through the maintenance of the patrol roads is a critical function of the DSIPP. Because this type of project is so prevalent, it can be assumed to occur throughout the Western San Bernardino County Operating Region.

3.5.2 Engineered Erosion Control

Engineered erosion control would consist of the installation of permanent structures or repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls, necessary to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. This type of proposed CIP project, which typically requires engineering design, is intended to prevent excess sediment deposition and accelerated erosion in features that convey creek flows and/or stormwater flows without impeding or accelerating the flows. The discharge points where stormwater is directed from the constructed feature into a water body would be stabilized with concrete, with ungrouted riprap, or by other feasible methods, as necessary.

Slopes adjacent to Metropolitan's structures or Metropolitan structures adjacent to patrol roads would be stabilized with retaining walls, secant walls, gabions, or concrete structure protection to minimize erosion-related issues, which can undermine aboveground structures and patrol roads and threaten the integrity of Metropolitan's system.

In addition, portions of Metropolitan's pipeline system extend beneath creeks, drainages, or other areas of concentrated flows. The natural cover over the pipelines scours over time and eventually there is potential for pipeline exposure. Additional erosion and scour once the pipeline is exposed can result in corrosion and pipe failure. Where pipe exposure, potential pipe exposure, or lack of

significant cover has been identified, Metropolitan would provide additional soil cover (where erosion is slower), construct level control structures, or protect the pipeline in place with a concrete covering.

Of the 13 identified CIP projects in the Western San Bernardino County Operating Region, 12 involve engineered erosion control. These projects typically are located near patrol roads and are needed because the integrity of the patrol road is compromised. In other cases, the bottom of a channel or the bank of a channel has eroded, and engineered erosion control is necessary to prevent further erosion from occurring. This is of particular concern when the erosion is destabilizing an area where there is an underground pipeline and the pipeline will become or already has become exposed. In other cases, there is erosion around blowoff structures, pump wells, or manholes that needs to be repaired so the manhole does not sustain damage.

3.5.3 Slope Stabilization

Slope stabilization projects are proposed where instability presents an appreciable risk to the safety and continuity of the Metropolitan pipeline system. Erosion may also be an issue in areas where larger drainages or washes that convey large quantities of flow are present. These locations typically require annual repair work that may be significantly minimized through the construction of drainage improvements or stabilization structures. In several areas, Metropolitan has noted small to medium-sized gullies that are progressively getting larger through a combination of waterfall erosion (at the head of the gully from cascading water) and landslide erosion along gully banks. In other locations, the occurrence of previous slides or slope failures indicates that the areas may be vulnerable in the future. The slope repair design would include regrading and compacting of the slope, rock slope protection, soil cement, anchors, tie-backs, stepped retaining walls, or a combination of methods.

Of the approximately 13 CIP projects, 4 involve slope stabilization. These projects typically involve bank protection, addition of fill to shore up undermined structures, construction of curbs or retaining walls, and addition of riprap and other materials to stabilize slopes. General locations of these types of projects include slopes above manholes and patrol roads, as well as other Metropolitan aboveground facilities that are at risk from erosion due to unstable slopes.

3.5.4 Applicant Proposed Measures for CIP Projects

The APMs in this section include best management practices (BMPs) and Metropolitan's standard procedures and practices that shall be implemented during construction of proposed CIP projects.

3.5.4.1 Aesthetics

APM-AES-1 **Design Features.** In areas of visual sensitivity, Metropolitan will coordinate with property owners and/or affected jurisdictions/agencies to develop and implement design features to minimize, to the extent feasible, the visual impacts associated with

installation of paving materials. The selection of paving materials may be influenced by the existing colors in the landscape and by the surrounding landscape context. Materials may be selected such that the roadway surface visually blends in with the surrounding landscape to the extent feasible.

APM-AES-2 **Slope Protection Design.** In areas of visual sensitivity, where feasible and appropriate, slope protection measures shall be designed to ensure compatibility with the existing landscape and minimize visual contrast with existing slopes, channels, embankments, and rock faces to the greatest extent feasible. Slope protection designs shall be prepared and reviewed by qualified professionals (e.g., Professional Engineers or Registered Landscape Architects) who have relevant expertise in aesthetically pleasing and contextually sensitive solutions in slope-protection design. Specific slope-protection measures shall be designed in coordination with the property owner/affected jurisdiction or agency associated with the specific location of targeted slope stabilization work. In addition to regrading and compacting slopes to improve structural integrity and minimize continued damage and soil loss, solutions could include live gully repair, fascines/pole cuttings with subsurface drainage, vegetated mechanically stabilized slopes, vegetated gabions, turf reinforcement mats, vegetation, and/or the following:

- **Rock Slope Protection**: Sculpting shall be incorporated in the excavated slope to create more natural-looking slope variation and rock staining shall be used to help blend the color of the cut slope or newly installed "rock" to the natural color of the existing slope/channel/embankment/rock face. The height of rock slope protection features shall be less than the height of the associated slope/channel/embankment/rock face to ensure consistency in scale and to minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the solution shall be partially buried to minimize visibility.
- **Tiebacks/Anchors**: Where anchored walls are used, sculpted and colored/stained shotcrete shall be applied on the façade of the anchored wall to mimic the form, color, and texture of the natural slope/channel/embankment/rock face to the greatest extent feasible.
- **Stepped Retaining Walls:** Retaining wall materials shall mimic the color and texture of the existing slope/channel/embankment/rock face and shall be selected to minimize resulting visual contrast. The height of retaining walls shall be less than the height of the associated slope/channel/embankment/rock face to ensure consistency in scale and minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the retaining wall shall be partially buried to minimize visibility.

3.5.4.2 Air Quality

APM-AQ-1 **Construction Equipment.** Where Tier 4 equipment is reasonably available for off-road equipment with engines rated at 50 horsepower or greater, it will be used.

APM-AQ-2 **Fugitive Dust Control.** Proposed program activities would adhere to South Coast Air Quality Management District Rule 403, which includes a variety of measures intended to reduce fugitive dust emissions. The following measures shall be implemented during maintenance activities, as needed, to reduce the potential for fugitive dust emissions during grading, excavation, and construction activities:

- The areas disturbed at any one time by clearing, grading, earthmoving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering of the area to be graded or excavated before commencement of grading or excavation operations. Application of water should penetrate sufficiently to minimize fugitive dust during earthmoving, grading, and excavation activities, but shall not be applied in a manner that generates runoff from the active work area. In light of drought conditions, Metropolitan would consider alternative feasible methods of dust control that minimize the use of water.
- If reclaimed water is used for the purpose of dust control, such water shall be compliant with Title 22 standards applicable to use of recycled water for soil compaction, concrete mixing and dust control (22 CCR Division 4, Chapter 3, Article 3, Section 60307).
- All trucks shall be required to cover their loads as required by California Vehicle Code Section 23114. All graded and excavated material, exposed soil areas, including unpaved parking and staging areas, and other active portions of the construction site, including unpaved roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and reclaimed water shall be used whenever possible.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earthmoving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by proposed program activities and operations from being a nuisance or hazard, either on site or off site.
- Open material stockpiles shall be periodically watered or treated with appropriate dust suppressants, if needed.

3.5.4.3 Biological Resources

APM-BIO-1 **Pre-Activity Special-Status Plant Surveys.** Within the portions of the CIP project and single-occurrence O&M activity sites that were not surveyed in 2017, or for project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys for special-status plant species during the appropriate blooming period for species that have potential to occur. Surveys will conducted by a qualified botanist within the areas that would be subject to direct or indirect impacts. Surveys will conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFW 2018), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (USFWS 2002) or the most current accepted protocol. Plant species encountered during the field surveys will be identified to subspecies or variety, if applicable, to determine sensitivity status.

Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project and single-occurrence O&M activity sites.

APM-BIO-2 **Flagging of Work Limits.** All CIP project and single-occurrence O&M activity work area limits within special-status species habitat, including staging areas, shall be well defined and marked (e.g., by caution tape or temporary fencing). All temporary fencing or other markers shall be clearly visible to construction personnel. Parking, stockpiling, or storage of equipment shall be permitted only within designated staging areas.

APM-BIO-3 **Cleaning of Mowing Equipment.** Mowing equipment shall be thoroughly cleaned before use so it is free of seeds from noxious weeds and does not introduce such weeds to new areas.

APM-BIO-4 **Invasive Plant Removal Protocols.** Invasive plant species shall be removed in a manner that prevents propagation. All cut/removed invasive vegetation shall be taken to a dump as destruction load. Maintenance personnel shall avoid letting cut stems or seedpods be washed downstream or left behind to propagate.

APM-AQ-2 **Fugitive Dust Control** (see Section 3.5.4.2).

3.5.4.4 Cultural Resources

APM-CR-1 **Treatment of Human Remains.** If human remains are discovered during construction, no further disturbance shall occur until the county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the county coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted within a reasonable time. Subsequently, NAHC shall identify the most likely descendant (MLD). The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in California Public Resources Code Section 5097.98.

3.5.4.5 Geology and Soils

APM-GEO-1 **Earthwork and Grading Best Practices.** Metropolitan's design plans, including proposed site grading and earthwork activities, for the proposed program will seek to minimize ground disturbance and shall be coordinated with local jurisdictions, as appropriate. Local jurisdictional restrictions and requirements will be included in the development of project designs. Metropolitan's design plans will be submitted to local jurisdictions for their review and approval as necessary. Comments received from the local jurisdictions will be incorporated into project designs to the extent possible. Metropolitan's contractors shall obtain grading permits as required by the local jurisdictions.

Proposed projects shall implement the following earthwork considerations, as applicable:

- ***Remedial Grading*:** Prior to grading, any fill zone shall be cleared of surface and subsurface obstructions. Voids created by removal of buried material shall be backfilled with properly compacted soil. Exposed subgrade in fill zones shall be scarified to a depth of at least 6 inches, moisture conditioned to above optimum, and compacted to at least 90 percent of the American Society for Testing and Materials (ASTM) D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades may need to be stabilized with crushed rock, geogrids, and/or other methods.

- ***Compacted Fill/Backfill*:** Fill materials shall be naturally occurring, well-graded soil or soil/rock combinations free of wood, trash, construction debris, and organic, contaminated, or deleterious material.

- ***Temporary Excavations*:** When necessary to prevent caving and to protect adjacent structures or property, trenches and excavations shall be protected, shored,

sheeted, braced, or sloped in accordance with CCR Title 8 and the regulations of local authorities having jurisdiction. Excavation requirements are outlined in Metropolitan's construction specifications, and Metropolitan staff will review and approve the contractor's excavation plans. Safety standards established within the California Occupational Safety and Health Administration (Cal/OSHA) CCR Construction Safety Orders (CSOs) and General Industry Safety Orders (GISOs) that are applicable to the work shall be adhered to. Metropolitan construction inspectors will also monitor compliance with regulations.

3.5.4.6 Greenhouse Gas Emissions

There are no APMs relating to greenhouse gas emissions.

3.5.4.7 Hazards and Hazardous Materials

APM-HAZ-1 **Hazardous Materials Management.** Hazardous materials storage shall be in compliance with the California Environmental Protection Agency's Department of Toxic Substances Control requirements. Metropolitan and/or its contractor shall be responsible for proper handling, packaging, transportation and disposal of all hazardous waste brought on site or generated on site through incidental use, including but not limited to aerosol spray cans and empty vehicle fluid and cleaning cans. Hazardous materials shall be stored in covered, leak-proof containers when not in use, away from storm drains and heavy traffic areas, and shall be protected from rainfall infiltration and vandalism. Hazardous materials shall be stored separately from non-hazardous materials, on a surface that prevents spills from permeating the ground surface, and in an area secure from unauthorized entry at all times. Incompatible materials shall be stored separately from each other.

APM-HAZ-2 **Previously Unidentified Hazardous Materials.** Should hazardous materials previously not identified be discovered during construction and/or grading activities, Metropolitan and/or its contractor shall stop work in the area immediately and notify the health and safety representative, who will assess the situation and take appropriate actions, including but not limited to clearing the work area, posting signs and securing the area from unauthorized entry, and notifying the appropriate local authorities. Metropolitan and contractor personnel shall ensure that on-site workers are trained to identify and recognize potentially hazardous materials (e.g., unmarked containers, stained soils, suspicious odors, refuse from illegal dumping).

APM-HAZ-3 **Health and Safety Procedures for Lead-Contaminated Soil.** Metropolitan has standard procedures to manage potential hazards related to lead-contaminated soil: Exposure

Assessments and Patrol Road Maintenance Guidelines. These standard procedures have been established by the Metropolitan Safety Regulatory Services (SRS) as follows:

- **Exposure Assessments.** In the event work activities may expose C&D and/or construction service unit (CSU) employees to lead (or other heavy metals), an exposure assessment will be conducted in the potentially contaminated area. The employees will wear an air pump with sampling cassette throughout the work day. The sampling cassette will be taken to a lab to determine the amount of airborne lead (or other metal) exposure. Based on the lab results, Metropolitan SRS will implement personal protective measures for employees required to work in the exposure area.
- **Patrol Road Maintenance Guidelines.** Special safety precautions procedures are required for maintenance work on the Inland Feeder at the approximate location of the Highland Site. These procedures include driving with windows up, driving at slow speeds to reduce airborne dust, not causing airborne dirt while working, rinsing footwear prior to entering a vehicle, and using Lead-Off wet wipes to wipe down hands and other exposed skin areas before re-entering a vehicle.

APM-HAZ-4 **Fire Protection and Fire Safety.** Metropolitan or Metropolitan's contractor shall provide fire safety measures during construction activities in compliance with Chapter 14 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during construction shall be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors. Fire containment and extinguishing equipment shall be located on site and shall be accessible during construction activities. Construction workers shall be trained in use of the fire suppression equipment and shall not be permitted to idle vehicles on the job site when not in use. Where hot work is necessary, it shall be performed in compliance with the California Fire Code's Chapter 35, "Welding and other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention During Welding, Cutting and other Hot Work."

APM-AQ-2 **Fugitive Dust Control** (see Section 3.5.4.2).

APM-TR-1 **Traffic Control Plan** (see Section 3.5.4.12).

3.5.4.8 Hydrology and Water Quality

APM-HYD-1 **Implementation of a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan, as Applicable.** For projects or activities subject to the State Water Resources Control Board (SWRCB) Construction General Permit (i.e., where construction disturbances would exceed 1 acre), mobilization or construction shall not begin on the project/activity site until Metropolitan has submitted permit registration documents, including a SWPPP, to the SWRCB and obtained a waste discharge ID number.

APM-HYD-2 **Grading of Patrol Roads.** Patrol roads will be graded in a manner that minimizes the channelization and ponding of stormwater and maximizes the dispersion of runoff via sheet flow (rather than erosive, high-velocity flows). Metropolitan's Patrol Road Maintenance Guidelines, which are used by Metropolitan staff during road grading, call for creation of a cross-slope on the road bed of 0.25 inches per foot of road width toward the outside edge, with crowning of the road to be done only on double-lane roads. Where outsloping the road is not possible due to land contours, ditches shall be created along the side of the road to contain water and direct it away from the road. The bank of the ditch from the edge of the road to the bottom of the ditch shall be at an angle of no less than 3 inches per foot, and shall be a minimum of 1 foot wide and 1 foot deep. In high runoff areas, the ditch shall be larger. Modifications to these guidelines may be made based on specific site conditions. Grade dips shall be installed where necessary to direct water across the road. Arizona crossings shall be constructed with materials that will not degrade water quality (e.g., concrete, coarse rock, riprap, and/or gabions).

APM-HYD-3 **Dewatering.** If program activities require dewatering to provide a dry work area, dewatering systems will be used to remove and dispose of accumulated surface water and/or manage groundwater seepage. As needed, groundwater will be pumped into truck-mounted storage tanks and either discharged to land in accordance with Regional Water Quality Control Board (RWQCB) regulations, or transported to an authorized discharge location. Discharges of non-stormwater from a trench or excavation that contain sediment or other pollutants directly to a sanitary sewer, storm drain, creek bed, or other receiving water shall be prohibited without first obtaining special authorization or permit from the RWQCB or local jurisdiction.

APM-HYD-4 **Avoidance of Spills and Leaks.** All equipment operating in and near a watercourse must be maintained in good working condition and free of leaks. No equipment maintenance or refueling shall occur in a channel or basin bottom. All maintenance crews working with heavy equipment shall be trained in spill containment and response procedures.

APM-HYD-5 **Equipment Servicing and Fueling.** All equipment will be serviced and fueled off site. Washing down heavy equipment on the job site shall be permitted only when limited to washing mud or dirt from equipment (engine cleaning or oily parts cleaning is not permitted), and when wash water would drain to an enclosed area where water could percolate or evaporate. Wash water shall not be allowed to enter city or county storm drain systems, and no soaps or chemicals shall be used for equipment washing on the job site.

APM-HYD-6 **Concrete Work.** For proposed CIP projects requiring concrete work, all concrete washouts shall be conducted either into excavations where the concrete was poured or within designated concrete washout stations, or shall be captured using a washout recycling system. Crews shall not be allowed to dispose of concrete directly onto the ground.

APM-HYD-7 **Maintenance of Existing Hydrology.** Stream crossing structures shall be designed to maintain water depths and water velocities comparable to those found in natural areas upstream and downstream of the crossing.

APM-HYD-8 **Avoidance of Channel Work during the Rainy Season.** Activities in earthen channels and in channels with soft bottoms and bank protection shall be avoided during the rainy season to the extent feasible to avoid work when water could be present in the drainage.

APM-HYD-9 **Materials in Waterways.** No brush, loose soils, or other construction materials/waste shall be deposited on or below the ordinary high-water mark of waterways (streams, creeks, canals, ditches). (This BMP does not apply to the use of packed earth or the planting of vegetation to repair and stabilize earthen channels.)

APM-HYD-10 **Temporary Stream Diversions.** Sandbags or other approved methods that avoid and minimize in-stream impacts and effects on wildlife shall be used if temporary stream diversions are required.

APM-HYD-11 **Herbicide Use.** Any pesticide or herbicide applications shall occur under the direction of a professional pesticide applicator with either a Qualified Applicator License or an Agricultural Pest Control Adviser License in California. Label instructions and all applicable laws and regulations are to be strictly followed in the application of pesticides and herbicides and in the disposal of excess materials and containers. Only those materials registered by the U.S. Environmental Protection Agency (EPA) for the specific purpose are authorized for use, and they shall be used only when weather conditions will minimize drift and impacts on non-target sites. Before applying any pesticides or herbicides in parks or on federal or state land, Metropolitan shall obtain approval from the appropriate agency for all pesticides and herbicides proposed for use on these lands. Only pesticides on the Metropolitan "Approved Pesticide List" and registered with the EPA and the California Environmental Protection Agency will be used.

3.5.4.9 Land Use and Planning

There are no APMs relating to land use and planning.

3.5.4.10 Noise

APM-NOI-1 **Compliance with Noise Output Regulations.** All mobile or fixed noise-producing equipment used on the proposed program that is regulated for noise output by a federal, state, or local agency shall comply with such regulation while in the course of proposed program activity.

APM-NOI-2 **Use of Electric Equipment.** Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.

APM-NOI-3 **Location of Stockpiles and Other Noise-Producing Activities.** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

APM-NOI-4 **Construction-Related Speed Limits.** Construction site and haul-road speed limits shall be established and enforced during the construction period.

APM-NOI-5 **Construction Hours Restrictions.** As feasible, the hours of construction, including all spoils and material transport, shall be restricted to the time periods and days permitted by the local noise ordinance or other applicable ordinance. As necessary, Metropolitan shall coordinate with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts.

APM-NOI-6 **Limits on Noise-Producing Signals.** The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

APM-NOI-7 **Pre-Construction Coordination.** As necessary, Metropolitan shall voluntarily coordinate with local jurisdictions and sensitive receptors regarding the proposed program to address any potential program-specific noise-related issues prior to commencement of construction activities.

APM-NOI-8 **Noise Complaints Response and Resolution.** The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints.

3.5.4.11 Public Services

APM-HAZ-4 **Fire Protection and Fire Safety** (see Section 3.5.4.7).

3.5.4.12 Traffic and Circulation

APM-TR-1 **Traffic Control Plan.**

a. Where appropriate for work on public roadways and as required by the local jurisdiction, prior to the start of the construction phase, Metropolitan or Metropolitan's contractor shall submit a Traffic Control Plan to the appropriate local jurisdiction for review and approval. The plan shall be consistent with the California Department of Transportation (Caltrans) Traffic Manual, Chapter 5. Traffic control shall be in accordance with the California Code of Regulations (CCR) Title 8.

b. Where appropriate for work on public roadways, Metropolitan shall submit a set of proposed construction plans to agencies with jurisdiction over the roadways to allow them to comment on the proposed plans.

c. During construction on public roadways, Metropolitan shall implement traffic management measures, as deemed necessary and applicable by a properly licensed engineer. Measures could include the following, as appropriate:

   i. Temporary traffic lanes shall be marked and barricades and lights shall be provided at excavations and crossings per the Manual of Traffic Controls for Construction and Maintenance Work Zones.

   ii. Construction activities shall affect the least number of travel lanes possible, with both directions of traffic flow being maintained at all times to the extent feasible.

   iii. Construction shall avoid the morning and evening peak traffic periods to the extent feasible.

   iv. Construction across on- and off-street bikeways shall be done in a manner that allows for safe bicycle access, or bicycle traffic will be safely rerouted.

   v. Private driveways located within construction areas shall remain open to maintain access to the maximum extent feasible. Should construction be required that prevents access to a private driveway, Metropolitan shall coordinate with the owners and shall implement measures such as installation of metal plates to provide access.

d. During construction of projects that would impact emergency or public access, Metropolitan shall notify all affected fire, police, and paramedic departments/services as well as any affected public transportation agencies of the schedule and duration of construction activities.

e. During construction of projects that would impact underlying or adjacent property owners, Metropolitan shall send notification to and coordinate with these owners about the construction activity and duration.

3.5.4.13 Utilities and Service Systems

APM-UTL-1 **Waste Reduction and Recycling.** Metropolitan has established a goal to reuse or recycle a minimum of 50 percent of the construction and demolition debris generated by construction activities, including proposed program activities. At a minimum, the waste generated by the proposed program shall meet local waste management regulations specifying minimum percentages of reuse or recycling of construction and demolition waste and debris. Waste shall be recycled whenever possible. Materials that cannot be reused or recycled shall be either incinerated or disposed of at a properly permitted landfill.

3.6 Description of Proposed O&M Activities

Metropolitan's proposed O&M activities are conducted on a regular and ongoing basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. These activities are currently ongoing within the Western San Bernardino County Operating Region; however, the O&M Manual (Appendix A) would establish a formalized plan that would provide a systematic and scheduled approach to these maintenance activities and would serve as a comprehensive guide for the maintenance of existing water conveyance and distribution infrastructure. For the purposes of this CEQA document, O&M activities are divided into two categories: routine O&M activities and single-occurrence O&M activities.

Routine O&M activities do not require extensive engineering or involve the construction of new facilities. They are repeated, routine activities that occur and will continue to occur at regular intervals to maintain patrol roads and other infrastructure in good condition. These activities include patrols and visual inspections; patrol road maintenance; maintenance/cleanout of drainage features; facility maintenance, repair, and replacement; vegetation management/maintenance; and other activities such as pipeline shutdowns/dewatering and emergency work.

Single-occurrence O&M activities would typically be conducted on a one-time basis and would include repair, rehabilitation, or replacement of existing structures to support the continued operation and maintenance of existing pipelines and appurtenant pipeline structures. This includes reestablishment of access to structures through repair and rehabilitation of the patrol roads. In the Western San Bernardino County Operating Region, single-occurrence O&M activities are primarily limited to patrol road structural repairs, and would include installation of Arizona crossings, low water crossings, culverts, and/or bridges. All proposed O&M activities within the Western San Bernardino County Operating Region are described in the Western San Bernardino County Operating Region O&M Manual. The O&M Manual describes the range of O&M activities that are performed on a regular basis to ensure the continued safety and reliability of water deliveries to Metropolitan's member agencies. For each type of O&M activity, the O&M Manual provides the following:

- General description of work performed
- Description of vehicle and equipment needs
- Description of activity timing and/or frequency

In addition, the O&M Manual includes a description of notification and reporting requirements for work in federal and/or state jurisdictional streambeds and wetlands, in USFWS-designated critical habitat, or in the vicinity of special-status wildlife species or nesting birds. It also includes a list of standard BMPs implemented to avoid soil erosion, sedimentation, discharges of materials to stormwater or into water bodies, and the spread of invasive plant species.

Table 3-2 summarizes the activities that would be addressed in the O&M Manual, including activity timing, frequency, and duration, as well as equipment needs.

Table 3-2. Summary of Western San Bernardino County DSIPP Proposed O&M Activities

O&M Activity Code No.	Activity	Frequency	Typical Duration	Typical Equipment Needs
Routine O&M Activities				
Patrol Road Maintenance				
1	Grading of patrol roads	Annually and as needed	Ongoing (55 days total to grade all patrol roads in Western San Bernardino County Operating Region)	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, and dozer
2	Vegetation maintenance along patrol roads	Annually, prior to grading of patrol roads, and as needed	Ongoing	Bobcat with mower, construction-grade lawn mower, and water truck
3	Culvert maintenance	Annually or as needed	1 day per culvert	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, pumps, and handheld tools
4	Vegetation removal along patrol roads	As needed	Ongoing	Bobcat with mower, construction-grade lawn mower, water truck, and handheld tools
5	Maintenance of low water/Arizona crossings	As needed, typically following large storm events	1 day per crossing	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, and pumps
6	Erosion control	As needed, typically prior to and following large storm events	1 to 3 days per event	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, and handheld tools; crane, if pipeline segments are placed
Patrol and Inspection				
7	Patrolling and inspections	Weekly with light truck; twice per year with utility truck	Ongoing	Light truck or utility truck; water quality sample collection may be conducted during inspections and would include handheld tools to collect samples
Routine Structure Maintenance, Repair, and Replacement				
8	Cleaning of equipment and structures	Quarterly	Ongoing	Garden hoses, handheld tools, and Metropolitan-approved biodegradable cleaning solvents

Table 3-2. Summary of Western San Bernardino County DSIPP Proposed O&M Activities

O&M Activity Code No.	Activity	Frequency	Typical Duration	Typical Equipment Needs
9	Graffiti removal and coating of structures	As needed for graffiti removal; coating every 5 years	Ongoing	Light vehicles, utility truck, and handheld tools such as coating brushes and rollers, hand sanders, or pressure pot sprayer sand blaster
10	Vegetation maintenance around structures	Annually and as needed	Ongoing	Bobcat with mower, construction-grade lawn mower, water truck, handheld tools, and handheld sprayer for herbicide
11	Pipeline appurtenance maintenance, repair, and replacement (e.g., blowoff structure, pump wells, manholes, vacuum valves, service connections, pressure control structures, pump stations, and valves)	As needed	Ongoing	Handheld tools or mechanical equipment, such as a motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, light towers, generators, utility truck, and pumps
12	Pest control	Monthly or as needed	Ongoing	Handheld sprayers and bait stations
Other				
13	Shutdowns/ dewatering	As needed	1 to 10 days	Crane, light towers, utility truck, trailers, generators, pumps, temporary piping, and erosion control materials
14	Emergency work	As needed	As needed depending on nature of emergency	As needed depending on nature of emergency
Single-Occurrence O&M Activities				
15	Patrol road structural repairs (low water crossings including Arizona crossings, culverts, bridges)	As needed	As needed depending upon type of structure	Motor grader, backhoe, excavator, loader, water truck, dump truck, scraper, dozer, and crane

Sources: Metropolitan 2001, 2013.

3.6.1 Routine O&M Activities

3.6.1.1 Patrol Road Maintenance

Patrol road maintenance would involve numerous activities including grading of patrol roads, vegetation mowing and trimming along patrol roads, culvert maintenance/cleanout, vegetation removal along patrol roads, maintenance of Arizona crossings, other low water crossings, and erosion control activities. These activities are aimed at maintaining the Metropolitan patrol road system in good working order and passable condition.

In order to avoid significant drainage and erosion issues prior to the rainy season, Metropolitan would remove soil, debris, and vegetation matter from drainage structures (i.e., Arizona crossings, culverts, cross drains, V-ditches) along the roads. Metropolitan would also keep patrol roads and approximately 4 feet on either side of the patrol road free of vegetation through trimming and mowing. This activity keeps the road passable and alleviates the accumulation of excess organic matter within drainage structures.

Even with diligent cleanout, heavy rains and frequent use by heavy-duty vehicles can result in some degree of soil rutting and concentrated stormwater runoff, leading to the development of erosional channels or rills. In order to minimize or remove erosional features from the patrol roads, Metropolitan would periodically regrade road surfaces in a manner that restores or promotes sheet flow by outsloping, placing additional cross drains, or armoring the inlets and outlets of drainage pipes. In addition to or prior to regrading, ruts and potholes would be filled with soil or rock and temporary erosion control features such as gravel bags, certified weed-free wattles, or silt fencing. Riprap would also be placed in susceptible areas along patrol roads to minimize or prevent erosion and sedimentation. Repair or construction of fencing and relocation of existing lighting along the patrol roads or the addition of gates to existing fencing may occur to prevent unauthorized use or damage within Metropolitan's right-of-way.

Erosion control methods for patrol roads or structures located in the vicinity of seasonal drainages, seeps, or creeks could include shoring of creek banks through minor earthwork, reseeding or installation of jute netting, or placement of K-rails to prevent erosion of patrol roads along streambeds. The placement of 0.75-inch or larger rock, treated-concrete base product, or aggregate base may occur on unpaved patrol roads to prevent washouts, potholes, and ruts.

3.6.1.2 Patrol and Inspection

Patrolling and inspection of patrol roads and aboveground pipeline infrastructure is required to identify any maintenance required for patrol roads and pipeline infrastructure. The inspections would involve vehicle travel by Metropolitan operations staff along existing patrol roads for each pipeline and pipeline appurtenance location and identification and reporting of any maintenance needs. Water quality sample collection and testing may be conducted during the inspections to ensure that no contamination of water supply has occurred through system malfunction.

Patrolling would be conducted on a weekly basis and is the mechanism through which Metropolitan personnel are alerted to the need for the O&M activities described in this section.

3.6.1.3 Routine Structure Maintenance, Repair, and Replacement

In addition to keeping patrol roads properly maintained, the O&M Manual describes a series of maintenance activities that would be regularly performed inside of and/or within a 20-foot maximum radius around aboveground pipeline structures. These activities include general cleaning of equipment and structures, graffiti removal and coating of structures, clearing and weed abatement around structures, pipeline appurtenance maintenance and replacement, and pest control.

General cleaning of equipment/structures would be conducted through washing and maintenance of equipment and pipeline appurtenant structures to remove dirt, spider webs, and other debris. Equipment and facility cleaning would be conducted by hand with water from a garden hose attached to the nearest water connection. Metropolitan-approved biodegradable solvents would be used, as needed. Following the washing of equipment and structures, the existing blowoff valves would be exercised by opening them for a few minutes and all moving parts would be lubricated with grease. Structures at grade and below grade would also be painted and coated to remove graffiti, prevent corrosion, and maintain metal and concrete surfaces. If the building or structure is covered with stone cinderblocks, sandblasting would be conducted to remove graffiti and no coating is required. Concrete surfaces would typically be painted with water-based exterior latex enamel (Metropolitan 2013). All coating, paint colors, and brands are approved by Metropolitan and Occupational Safety and Health Administration (OSHA) regulations would be adhered to.

Vegetation trimming, mowing, and clearing, as well as weed abatement, for aboveground structures would occur in a similar manner as that described along patrol roads. Metropolitan-approved pesticides/herbicides would be applied by, contracted, licensed sprayers, as needed, for safety reasons and to avoid damage to electrical systems and other Metropolitan structures. Targeted pests include rats, mice, spiders, bees, and wasps. Vegetation maintenance and pesticide/herbicide application is currently performed within a 10-foot radius of the appurtenant structures; however, as part of the proposed program, this area could be extended up to 20 feet where property and environmental constraints do not exist.

Structure repair and replacement, which involves pipeline appurtenances located aboveground or in belowground structures accessed through manholes, would be required on occasion to replace defective, outdated, or aging equipment. This activity is limited to work on pipeline appurtenant structures and does not include repair or replacement of segments of pipeline. Although the work does not typically require excavation, minor trenching may be required for work associated with vent piping, electrical equipment, and other miscellaneous appurtenant structures. Any minor trenching or excavation would be restricted to the 10- to 20-foot maintained area around existing structures. Structures may be waterproofed or raised or moved slightly within the same structure footprint to avoid water intrusion. Flows may be diverted around the structures with small V-ditches. Gravel may be placed around manholes or other

structures to prevent erosion. The addition of air vents, replacement of valve cabinets, or addition of minor on-site structures to protect existing manholes or other structures may be necessary. Minor vegetation removal within the 10- to 20-foot area around structures may be required for equipment setup and access if growth has occurred between other maintenance and vegetation removal activities. In addition, certain areas may require installation of access gates or fences.

For work in urban areas, in order to access the belowground structures through manholes depending on the location of the structures, traffic control, or a city-approved traffic control plan may be necessary for work that requires a traffic diversion. Work on substructures involves testing for the presence of gases; pumping of water if the structure or access is flooded; inspection of substructure pipes, valves, and other equipment for corrosion; sandblasting; or prepping for coating and the application of coating.

3.6.1.4 Other

Pipeline shutdowns and dewatering activities would occasionally be needed to perform inspections and maintenance activities on a pipeline. Prior to performing any shutdown, a designated shutdown coordinator is assigned and is responsible for preparing a shutdown plan; meeting all federal, state, and local laws and regulations; monitoring and enforcing permits and clearances during the shutdown; coordinating with member and other affected agencies; and ensuring that assigned shutdown workers carry out assignments.

As part of a shutdown, the pipeline must be emptied of water (dewatered) before inspections and/or maintenance on the pipeline can be performed. Water is released to drainages, storm drains, or other open areas either through a direct release or through temporary piping. Prior to releasing water into storm drains or flood control facilities, Metropolitan must receive permission from the city or agency having jurisdiction over those affected drains or facilities. Metropolitan would also notify the appropriate RWQCB of releases of water. Any chlorinated or chloraminated water must be neutralized prior to its discharging into any channel or drain. Water samples of discharged water must be submitted to the Metropolitan water quality lab for analysis. Pumping to dewater the pipeline would occur during the daytime and nighttime hours. As necessary and appropriate, Metropolitan would coordinate with local jurisdictions and notify potentially affected property owners or residents of shutdown activities. Following dewatering of the pipeline, inspections and/or maintenance on pipelines would be performed. Often a shutdown/dewatering event may be conducted in support of a member agency activity on its system. The pipeline would be refilled upon completion of the maintenance activity.

In addition, other O&M activities would include emergency operations procedures. An emergency is defined as a sudden, unexpected occurrence, involving a clear and imminent danger that requires immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services. Emergency work would include flood control, sediment cleanup and removal, or repair of any kind to avoid loss or damage. The emergency project impact footprint would be restricted to the minimum area necessary to address the potential for loss or damage to life, health, property, or

essential public services. Whenever possible, work would be conducted from existing patrol roads and structure locations where disturbance has previously occurred. Metropolitan's Environmental Planning Section would be notified as soon as possible. Pre-activity photographs of the work area would be taken, if possible, and submitted to Metropolitan following completion of the emergency work. Metropolitan would comply, to the extent possible, with all applicable regulations regarding reporting and notification for emergency projects and potential impacts to sensitive resources.

Emergency O&M activities would likely fit into the activities that are being assessed as either routine or single-occurrence activities or they would be exempt under CEQA (14 CCR 15269). Therefore, emergency O&M activities, while described in the O&M Manual, are not specifically called out in this PEIR because their exact nature is difficult to anticipate.

3.6.2 Single-Occurrence O&M Activities

Single-occurrence O&M activities are maintenance activities that are typically conducted on a one-time basis and include proposed projects involving rehabilitation or replacement of existing structures and patrol roads to support the continued operation of Metropolitan's pipelines. Single-occurrence O&M activities typically require design engineering.

3.6.2.1 Patrol Road Structural Improvements

Patrol road structural repairs include the placement of railcar bridges, installation of new culverts, or construction of Arizona crossings or other low water crossings such as articulated mat crossings to reestablish or maintain vehicle access on existing patrol roads. In Western San Bernardino County, these crossings were identified as part of the proposed program's patrol road structural repairs. Arizona crossings are permanent at-grade concrete crossings constructed to provide stabilized access through shallow creeks and streambeds. Typically, the first step in constructing an Arizona crossing is to prepare the in situ material (or subgrade) upon which the pavement structure is placed. In Western San Bernardino County, most Arizona crossings would be installed in dry creek beds. The next step is to place riprap and concrete and build the crossing. The last step is to finish the grade and tie the crossing back in to the patrol road. If the crossing is being constructed in an active creek, then the creek would need to be dewatered or water diversion structures placed so that water does not flow over the area of construction. In the case of an active creek bed, after preparing the subgrade, the creek would need to be dewatered or water diversion structures placed so that the water does not flow over the area of construction. The next step is to place riprap, concrete, and build half the crossing, and then re-divert the water and finish the second half of the crossing. The last step is to finish the grade and tie the crossing back in to the patrol road. Culverts are permanent reinforced concrete pipe structures that are placed within the bottom of creeks with steeper banks to allow vehicle crossing without interrupting creek flow or changing the slope of the bank. During construction of Arizona crossings or culverts, flows are temporarily directed around the work area with silt fencing, sandbags, Visqueen plastic sheeting, or bypass piping. Similar to construction of

Arizona crossings, when constructing a culvert, the site/subgrade must first be prepared. Next, the culvert is laid or constructed with the proper direction and angling for adequate flow, and then the area around the culvert must be backfilled and finished.

Railcar bridges are flat steel railcars placed over a larger streambed and used as short span bridges. They span the waterway so permanent structures in the streambed are limited to the placement of concrete abutments on each bank. Beams and plates may be used as a temporary alternative to railcar bridges and involve the placement of beams and metal plates over the creek crossing. There are no railcar bridges proposed in the Western San Bernardino Operating Region under current design plans.

3.6.3 Applicant Proposed Measures for O&M Activities

The APMs in this section include the BMPs that shall be implemented during proposed O&M activities.

3.6.3.1 Aesthetics

There are no APMs for aesthetics that are relevant to O&M activities.

3.6.3.2 Air Quality

APM-AQ-1 **Construction Equipment** (see Section 3.5.4.2).

APM-AQ-2 **Fugitive Dust Control** (see Section 3.5.4.2).

3.6.3.3 Biological Resources

APM-BIO-1 **Pre-Activity Special-Status Plant Surveys** (see Section 3.5.4.3).

APM-BIO-2 **Flagging of Work Limits** (see Section 3.5.4.3).

APM-BIO-3 **Cleaning of Mowing Equipment** (see Section 3.5.4.3).

APM-BIO-4 **Invasive Plant Removal Protocols** (see Section 3.5.4.3).

APM-AQ-2 **Fugitive Dust Control** (see Section 3.5.4.2).

3.6.3.4 Cultural Resources

APM-CR-1 **Treatment of Human Remains** (see Section 3.5.4.4).

3.6.3.5 Geology and Soils

APM-HYD-1 **Implementation of a SWPPP or Water Pollution Control Plan, as Applicable** (see Section 3.5.4.8).

3.6.3.6 Greenhouse Gas Emissions

There are no APMs relating to greenhouse gas emissions.

3.6.3.7 Hazards and Hazardous Materials

APM-HAZ-1 **Hazardous Materials Management** (see Section 3.5.4.7).

APM-HAZ-2 **Previously Unidentified Hazardous Materials** (see Section 3.5.4.7).

APM-HAZ-3 **Health and Safety Procedures for Lead-Contaminated Soil** (see Section 3.5.4.7).

APM-HAZ-4 **Fire Protection and Safety** (see Section 3.5.4.7).

APM-AQ-2 **Fugitive Dust Control** (see Section 3.5.4.2).

APM-TR-1 **Traffic Control Plan** (see Section 3.5.4.12).

3.6.3.8 Hydrology and Water Quality

APM-HYD-1 **Implementation of a SWPPP or Water Pollution Control Plan, as Applicable** (see Section 3.5.4.8).

APM-HYD-2 **Grading of Patrol Roads** (see Section 3.5.4.8).

APM-HYD-3 **Dewatering** (see Section 3.5.4.8).

APM-HYD-4 **Avoidance of Spills and Leaks** (see Section 3.5.4.8).

APM-HYD-5 **Equipment Servicing and Fueling** (see Section 3.5.4.8).

APM-HYD-6 **Concrete Work** (see Section 3.5.4.8).

APM-HYD-7 **Maintenance of Existing Hydrology** (see Section 3.5.4.8).

APM-HYD-8 **Avoidance of Channel Work during the Rainy Season** (see Section 3.5.4.8).

APM-HYD-9 **Materials in Waterways** (see Section 3.5.4.8).

APM-HYD-10 **Temporary Stream Diversions** (see Section 3.5.4.8).

APM-HYD-11 **Herbicide Use** (see Section 3.5.4.8).

3.6.3.9 Land Use and Planning

There are no APMs relating to land use and planning.

3.6.3.10 Noise

APM-NOI-1 **Compliance with Noise Output Regulations** (see Section 3.5.4.10).

APM-NOI-2 **Use of Electric Equipment** (see Section 3.5.4.10).

APM-NOI-3 **Location of Stockpiles and Other Noise-Producing Activities** (see Section 3.5.4.10).

APM-NOI-4 **Construction-Related Speed Limits** (see Section 3.5.4.10).

APM-NOI-5 **Construction Hours Restrictions** (see Section 3.5.4.10).

APM-NOI-6 **Limits on Noise-Producing Signals** (see Section 3.5.4.10).

APM-NOI-7 **Pre-Construction Coordination** (see Section 3.5.4.10).

APM-NOI-8 **Noise Complaints Response and Resolution** (see Section 3.5.4.10).

3.6.3.11 Public Services

APM-HAZ-4 **Fire Protection and Fire Safety** (see Section 3.5.4.7).

3.6.3.12 Transportation/Traffic

APM-TR-1 **Traffic Control Plan** (see Section 3.5.4.12).

3.6.3.13 Utilities and Service Systems

APM-UTL-1 **Waste Reduction and Recycling** (see Section 3.5.4.13).

3.7 Permits and Approvals

Federal, state, and local agencies may rely on information in the PEIR to inform them in their decision making regarding issuance of specific permits related to program construction or operation. Table 3-3 lists the federal, state, and local permits and authorizations that may be required for the proposed program prior to construction, as well as the agencies that Metropolitan will likely need to coordinate with regarding this program. Based on the nature and location of projects and activities and the potentially affected agencies/jurisdictions, permitting requirements and approvals may vary from project to project within the proposed program.

Table 3-3. Agency Coordination

Agency	Jurisdiction	Permit Regulatory Requirement
Federal		
Advisory Council on Historic Preservation	National Historic Preservation Act	National Historic Preservation Act Section 106 Consultation (if required as part of the Section 404 Clean Water Act permit review)
U.S. Fish and Wildlife Service	Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Acts, Fish and Wildlife Coordination Act	Endangered Species Act Section 7 Consultation
U.S. Army Corps of Engineers, Los Angeles District	Clean Water Act	Clean Water Act Section 404 Nationwide Permit, Regional General Permit, or Individual Permit
State		
California Department of Fish and Wildlife, Inland Deserts Region (Region 6)	Manage fish, wildlife, plant resources, and habitats; California Endangered Species Act, California Native Plant Protection Act, California Fish and Game Code Section 1601	Streambed Alteration 1602 Permit
California Department of Transportation (District 8)	California Streets and Highways Code 660–711.21; CCR 1411.1–1411.6	Encroachment Permits Traffic Control Plans
California State Office of Historic Preservation	Potential to affect cultural resources	National Historic Preservation Act Section 106 Consultation
Regional Water Quality Control Board, Region 8 (Santa Ana)	Clean Water Act Sections 401 and 402; Porter-Cologne Water Quality Control Act; California Water Code Division 7, Water Quality	401 Certification Stormwater Construction General Permit 2009-0009-DWQ National Pollution Discharge Elimination System Permit No. CAS 618036
Local		
San Bernardino County Public Works	County roads and highways	Coordination with the County will occur as needed and as appropriate
San Bernardino County Land Use Services	Building and Safety Department	Coordination with the County will occur as needed and as appropriate
Local jurisdictions (as appropriate)	Local/city roads and rights-of-way	Coordination with local jurisdictions will occur as needed and as appropriate

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4 Environmental Analysis

Introduction

The following environmental analyses provide information relative to 13 environmental resource categories as they pertain to the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP; proposed program). Each section of this chapter describes the existing environmental conditions of the proposed program area for each resource category; provides the regulatory framework for each resource category; presents the criteria used to determine whether an impact would be significant; provides Applicant Proposed Measures (APMs) that are implemented as part of standard practice by The Metropolitan Water District of Southern California (Metropolitan) to reduce impacts; analyzes potential impacts of the proposed program; identifies mitigation measures for each significant impact to reduce impacts to below a level of significance; and summarizes the significance of impacts after mitigation has been applied. The November 2014 Initial Study (Appendix C) included an analysis of all 17 resource categories; however, impacts for 4 resource categories (agriculture and forestry resources, mineral resources, population and housing, and recreation) were found to be less than significant and are therefore not further analyzed in this program environmental impact report (PEIR).

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

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

Analysis Format

This PEIR evaluates how the proposed program would impact the 13 resource areas. Each environmental resource category addressed in the PEIR is analyzed in a separate section that is organized as follows:

- **Existing Conditions:** This section of each resource area section provides information describing the existing physical environmental conditions within or surrounding the proposed program area that may be subject to change as a result of the implementation of the proposed program. The conditions included in the PEIR are those that existed at the time the notice of preparation was released for public review.
- **Regulatory Framework:** This section provides the regulatory framework, including relevant regulations, for each resource category.
- **Thresholds of Significance:** This section provides criteria for determining the significance of proposed program impacts for each environmental resource. These thresholds are identified by the impact topic (e.g., "AES" for aesthetics) and number: Impact TOPIC-1 (e.g., "Impact AES-1"). This section also identifies impacts that were found not to be significant through the Initial Study analysis and that are not carried through the PEIR for analysis.
- **Applicant Proposed Measures:** APMs include best management practices that are standard practice for Metropolitan to reduce impacts and that will be integrated into the program design. Where APMs are proposed, they are provided in full in this section of the resource area section with a unique code (e.g., APM-CR-1 for the first APM for cultural resources), as well as in the Executive Summary (Table E-4, Summary of Program Impacts) and in Chapter 3, Program Description.
- **Impact Analysis:** This section provides a discussion of the characteristics of the proposed program that may have an effect on the environment, analyzes the nature and extent to which the proposed program is expected to change the existing environment, and indicates whether the program impacts are beneath or exceed the significance thresholds. The analysis provided in this section is organized by those components of the program that will be analyzed at a project level and those to be analyzed at a program level. A project-level analysis includes projects where details of construction and implementation are known and where environmental effects can be determined and mitigated. DSIPP Capital Investment Plan (CIP) projects and known single-occurrence Operations and Maintenance (O&M) activities are analyzed at a project level. A program-level analysis generally evaluates the broad environmental impacts of the program as a series of actions that can be characterized as one large project. Future unidentified O&M activities associated with the DSIPP are analyzed at a program level. Due to the large number of projects and activities covered by this program, CIP projects and O&M activities have further been divided into subcategories of CIP project types (i.e., patrol road improvements and paving; erosion control; slope stabilization) and O&M activity types (i.e., routine O&M and single-occurrence O&M). Each impact analysis section is organized by activity type (CIP or O&M), project/activity type subcategory

(defined by activity codes, such as CIP Activity Code No. 1), and then by impact number so that the discussion is primarily organized by the type of activity and secondarily by the impact. The impact analysis in each section is generally organized as follows, but may vary:

- CIP Projects
  - Patrol Road Improvements and Paving (CIP Activity Code No. 1)
    - Impact TOPIC-1: Only the impact topics that apply to each type of activity or project are analyzed. The analysis concludes with a determination regarding impact significance prior to mitigation.
      - Mitigation Measures: This subsection appears after each impact topic subsection (e.g., Impact CR-1) and identifies mitigation measures to reduce significant adverse impacts to the extent feasible. Each mitigation measure is given a unique code (e.g., MM-CR-1 for the first mitigation measure for cultural resources).
      - Level of Significance: This subsection, which appears after each impact topic subsection, provides a discussion of significant adverse environmental impacts that cannot be feasibly mitigated or avoided, significant adverse environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not significant.
    - Impact TOPIC-2
      - Mitigation Measures
      - Level of Significance
  - Engineered Erosion Control (CIP Activity Code No. 2)
    - Impact TOPIC-1
  - Slope Stabilization (CIP Activity Code No. 3)
    - Impact TOPIC-1
- O&M Activities
  - Routine O&M Activities
    - Impact TOPIC-1
      - Mitigation Measures
      - Level of Significance
    - Impact TOPIC-2
  - Single-Occurrence O&M Activities
    - Impact TOPIC-1

  - **Impacts Summary:** The Impact Analysis section for each resource area includes a summary table of impacts and any associated APMs and mitigation measures, organized by threshold and by CIP project and O&M activity subcategories. This usually appears after the O&M Activities section, but because the impact analysis in Section 4.3, Biological Resources, is especially complex, that summary table has been placed before the CIP Projects section (along with other explanatory sections) to act as a signpost for the reader.

- **Impacts Found Not to Be Significant:** This subsection includes a summary of impacts found not to be significant through the Initial Study analysis. Impact topics for which impacts were found not to be significant in the Initial Study are not carried through the PEIR for analysis, as specified in the Thresholds of Significance section.
  - CIP Projects
  - O&M Activities

4.1 Aesthetics

This section describes the existing aesthetics/visual resources setting of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), identifies the applicable regulatory framework, and evaluates potential impacts associated with aesthetics/visual resources that would result from the proposed program.

This section primarily focuses on potential impacts to existing visual character and quality. The following topic related to aesthetics/visual resources is examined in this section:

- Would the program substantially degrade the existing visual character or quality of the site and its surroundings?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), the proposed program would result in less than significant impacts to scenic vistas, scenic highways, and day and nighttime views resulting from proposed CIP projects and Operations and Maintenance (O&M) activities in the Western San Bernardino County Operating Region; therefore, these resources are not further analyzed in this PEIR. The Initial Study also concluded that potential impacts to existing visual character and quality of the site and surroundings resulting from proposed O&M activities would be less than significant. As such, the description of existing conditions, the discussion of the regulatory setting, and the impact analysis presented in this section focus on the proposed CIP projects and potential impacts to visual character resulting from construction of these projects. Impacts from operation and maintenance of proposed CIP projects were addressed as part of the analysis for O&M activities in the November 2014 Initial Study (Appendix C) and were determined to be less than significant.

The information in this section is based on aerial photographs, Esri mapping, the Preliminary Design Report for the Western San Bernardino County Right-of-Way and Infrastructure Protection Program (Metropolitan 2014), and the general plans for the jurisdictions in which proposed CIP projects are located.

As no significant impacts to aesthetics have been identified for the activities associated with the proposed program, no mitigation measures are necessary, and none are identified in this section.

4.1.1 Existing Conditions

4.1.1.1 Overview

The Western San Bernardino County Operating Region includes The Metropolitan Water District of Southern California (Metropolitan) conveyance and distribution system pipelines and appurtenant structures, rights-of-way, and patrol roads within western San Bernardino County. In addition to

unincorporated County of San Bernardino lands, the western San Bernardino County area includes the cities of Redlands, Highland, San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Montclair, Ontario, and Chino Hills.

4.1.1.2 Visual Character

The visual character of a given area is the overall impression created by its combination of natural landscape features, such as landforms, water, and vegetation, and built features, such as buildings, roads, and other structures. Within the proposed program area, a repetition of landscape features is noticeable; as a result, several main types of landscapes are represented. The landscape type and visual character of the landscapes where identified CIP projects are proposed are described below.

According to the County of San Bernardino (County) General Plan Land Use Element, "San Bernardino County is vast … consisting of three distinct regions: the Valley, the Mountains and the Desert" (County of San Bernardino 2014). The Valley Region encompasses the majority of the Western San Bernardino County Operating Region and consists of all the areas in San Bernardino County located south and west of the San Bernardino Mountains and the Yucaipa and Crafton Hills. Much of the Valley Region is urban and developed with residential, commercial, recreational, educational, and industrial uses, and includes properties developed with large electrical and water infrastructure such as electrical substations, reservoirs, and aboveground storage tanks. Located north of the Valley Region, the Mountain Region consists of the San Bernardino and San Gabriel mountains and includes forests, meadows, and lakes. A segment of the Inland Feeder pipeline to the north and northwest of the city of Highland traverses the Mountain Region. Lastly, the Desert Region lies north and east of the Mountain Region and generally consists of an "assemblage of mountain ranges interspersed with long, broad valleys that often contain dry lakes" (County of San Bernardino 2014). The Western San Bernardino County Operating Region does not extend into San Bernardino County's Desert Region. The locations of Metropolitan pipelines included in the San Bernardino County Operating Region are depicted on Figure 4.1-1, Western San Bernardino County Operating System – Existing Landscape Setting Overview.

Valley Region

In addition to developed, urban areas, the County's Valley Region includes undeveloped hilly terrain, canyons, alluvial washes, meadows and seeps, and rolling, grassland-covered hills. All pipelines within the Western San Bernardino County Operating Region are generally located within the urban landscapes that characterize the majority of the Valley Region. Segments of the Rialto, Inland and Upper Feeder pipelines are located in non-urban areas of the Western San Bernardino County Operating Region; however, these areas have typically been altered by existing development such that a predominantly natural setting is not present. For example, a short segment of the Rialto Pipeline traverses the broad and perpetually dry Cajon Wash near the Cajon Pass and in between

industrial warehouses and residential development. In the city of Rancho Cucamonga, another segment of the Rialto Pipeline is located within San Sevaine Creek and the adjacent developed flood control channel. In addition, a segment of the Inland Feeder pipeline and associated patrol roads the segment of the Upper Feeder included in the project is located in an industrial area of Fontana that includes the Auto Club Speedway, large distribution warehouses, a steel plant, transmission line corridors, an electrical substatuion laydown yards, and a detention center.

Photographs of the existing landscape setting along the Rialto Feeder and Inland Feeder pipelines within the valley region of the Western San Bernardino Operating Region are included on Figure 4.1-1a, Existing Landscape Setting: Valley Region. An image from Google Earth streetview toward a segment of the Upper Feeder pipeline included in the proposed program near East Etiwanda Creek is also included on Figure 4.1-1a.

Mountain Region

Within the County's Mountain Region, the Western San Bernardino County Operating Region includes facilities in rocky, grass- and shrub-dotted washes near the Department of Water Resources Devil Canyon Power Plant and shrub- and grassland-covered hills and mountains of the San Bernardino National Forest. Generally, the segments of the Inland Feeder located to the north and northwest of the city of Highland, and in the northernmost portion of the city of San Bernardino, are located within the County's Mountain Region.

Photographs of the existing landscape setting along the Inland Feeder ithin the County's Mountain Region and mountainous areas of the Western San Bernardino County Operating Region are included on Figure 4.1-1b, Existing Landscape Setting: Mountain Region.

4.1.2 Regulatory Framework

The applicable regulatory framework as it relates to the protection of visual resources and visual character is presented in this section. The discussion is organized by federal, state, and local regulatory framework, and includes an examination of pertinent methodology, applicable policies/plans, and agencies.

Federal

The magnitude of potential impacts to existing visual character is based on distance zones (i.e., foreground, background, and seldom-seen) from which proposed program components would be visible; whether intervening elements, including vegetation and development, would screen views of proposed program components from public viewpoints; and the anticipated contrast in the basic landscape character elements of form, line, color, and texture between existing and proposed landscape conditions. This methodology is consistent with the Bureau of Land Management's Visual Resource Management system and is generally accepted and used in aesthetic/visual resources

analyses. Potential impacts to existing quality and character resulting from the proposed program were assessed using analytical concepts and methodology developed by the Bureau of Land Management for the protection of visual resources and general scenery management.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that proponents assess potential environmental impacts associated with implementation of the proposed program, and suggests that scenic vistas, scenic resources within a state scenic highway, visual character and quality of a site and its surroundings, and daytime and nighttime views in the area be considered during environmental reviews.

Local

General Plans, Policies, and Regulations

Counties and cities have independent planning documents such as general plans that typically contain policies, objectives, and other regulations established for the protection of visual and/or scenic resources, with consideration of the existing visual character in the development process. General plans and associated local policies and regulations are established to guide new development. Visual and scenic resources identified for protection in local general plans and policies include open space and formally designated scenic areas; mature native trees; and unique natural landforms such as canyons, hillsides, and ridgelines. The proposed program involves maintenance of an existing utility and does not include any new development; maintenance of existing utilities would not be considered inconsistent with these types of local plans and policies. Metropolitan strives to be consistent with local jurisdictions' general plans and regulations and understands the importance of compliance with the goals and policies therein. However, pursuant to California Government Code Sections 53091(d) and (e), public utilities such as Metropolitan are typically exempt from local building and zoning regulations.

4.1.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's impacts to aesthetics are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to aesthetics would occur if the proposed program would have any of the following effects:

Impact AES-1: Would the program substantially degrade the existing visual character or quality of the site and its surroundings?

Impact AES-2: Would the program have a substantial adverse effect on a scenic vista?

Impact AES-3: **Would the program substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

Impact AES-4: **Would the program create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

Results of the analysis performed for the November 2014 Initial Study for the proposed program indicated that potential impacts would be less than significant for the following topics; therefore, these topics are not further analyzed in this PEIR:

Impact AES-1: **(O&M Activities only) Degradation of Visual Quality/Character**

Impact AES-2: **Adverse Effect on a Scenic Vista**

Impact AES-3: **Damage to Scenic Resources within a State Scenic Highway**

Impact AES-4: **New Source of Light or Glare**

4.1.4 Applicant Proposed Measures

Relevant best management practices (BMPs), included in this PEIR as applicant proposed measures (APMs), are presented in full in this section (see also Chapter 3). These APMs, which are standard practice for Metropolitan, will minimize impacts to visual resources. Their specific relevance to impact topics is detailed in Section 4.1.5, Impact Analysis (see also Executive Summary, Table E-4).

APM-AES-1 **Design Features.** In areas of visual sensitivity, Metropolitan will coordinate with property owners and/or affected jurisdictions/agencies to develop and implement design features to minimize, to the extent feasible, the visual impacts associated with installation of paving materials. The selection of paving materials may be influenced by the existing colors in the landscape and by the surrounding landscape context. Materials may be selected such that the roadway surface visually blends in with the surrounding landscape to the extent feasible.

APM-AES-2 **Slope Protection Design.** In areas of visual sensitivity, where feasible and appropriate, slope-protection measures shall be designed to ensure compatibility with the existing landscape and minimize visual contrast with existing slopes, channels, embankments, and rock faces to the greatest extent feasible. Slope protection designs shall be prepared and reviewed by qualified professionals (e.g., Professional Engineers or Registered Landscape Architects) who have relevant expertise in aesthetically pleasing and contextually sensitive solutions in slope-protection design. Specific slope-protection measures shall be designed in coordination with the property owner/affected jurisdiction or agency associated with the specific location of targeted

slope stabilization work. In addition to regrading and compacting slopes to improve structural integrity and minimize continued damage and soil loss, solutions could include live gully repair, fascines/pole cuttings with subsurface drainage, vegetated mechanically stabilized slopes, vegetated gabions, turf reinforcement mats, vegetation, and/or the following:

- **Rock Slope Protection:** Sculpting shall be incorporated in the excavated slope to create more natural-looking slope variation and rock staining shall be used to help blend the color of the cut slope or newly installed "rock" to the natural color of the existing slope/channel/embankment/rock face. The height of rock slope-protection features shall be less than the height of the associated slope/channel/embankment/rock face to ensure consistency in scale and to minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the solution shall be partially buried to minimize visibility.
- **Tiebacks/Anchors:** Where anchored walls are used, sculpted and colored/stained shotcrete shall be applied on the façade of the anchored wall to mimic the form, color, and texture of the natural slope/channel/embankment/rock face to the greatest extent feasible.
- **Stepped Retaining Walls:** Retaining wall materials shall mimic the color and texture of the existing slope/channel/embankment/rock face and shall be selected to minimize resulting visual contrast. The height of retaining walls shall be less than the height of the associated slope/channel/embankment/rock face to ensure consistency in scale and minimize opportunities for view blockage and interruption of lines of sight. If technologically feasible, the retaining wall shall be partially buried to minimize visibility.

4.1.5 Impact Analysis

4.1.5.1 CIP Projects

Proposed CIP projects would generally consist of repair, upgrading, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of CIP projects: patrol road improvements and paving, engineered erosion control, and slope stabilization.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact AES-1: Degradation of Visual Quality/Character

Within the Western San Bernardino County Operating Region, Metropolitan staff uses existing patrol roads to access pipelines and appurtenant facilities to conduct maintenance activities. As proposed by the DSIPP, proposed patrol road improvements and paving/repaving of patrol roads, as well as small areas of paving (turnarounds) around existing aboveground appurtenant structures, would occur along and near existing pipeline alignments. Paving is proposed to address erosion issues and reduce the frequency of maintenance and severity of associated impacts. As described in Section 4.1.1, Existing Conditions, the majority of pipelines and CIP projects would occur in developed, urban landscapes of the Valley Region and the remaining CIP projects would generally occur in areas that have been visibly altered by access roads; pipelines and other water- and non-water related development flood channels; residential, commercial, and industrial uses; and roads. Patrol road improvements and paving would occur in relatively small discrete areas that have been previously disturbed by existing development including Metropolitan infrastructure (e.g., manholes, patrol roads). Overall, they will not impact the visual quality/character. Due to the relatively small size of the areas in which patrol road improvements and paving activities would occur, and because of the existing disturbed character of the landscape, proposed patrol road improvements and paving activities would not result in the substantial degradation of existing visual quality and/or character.

In addition to the developed Valley Region, proposed patrol road improvements and paving would occur in the County's Mountain Region. Similar to proposed activities in the Valley Region, patrol road improvements and paving proposed near the foothills and within the higher elevation terrain of the San Bernardino Mountains would occur in areas that have been subject to previous disturbance and development, including roadway construction and Metropolitan infrastructure. For example, patrol road improvements and paving proposed along the Inland Feeder at the base of the San Bernardino Mountains may increase the visibility of the existing dirt access road. However, proposed activities would occur in the vicinity of a large, four-lane highway (i.e., State Route [SR] 330) and a nearby mobile home residential development, and as such, paving of an existing access road would not substantially degrade the visual character of the developed area. Patrol road improvements are also proposed along the Inland Feeder near the Arrowhead Springs area; however, improvements would occur between existing manhole structures and a small, discrete area of generally flat to moderately sloped terrain that appears to be subject to periodic vegetation maintenance. The area is also accessible via an existing access/patrol road and is adjacent to an existing two-lane paved road. Lastly, patrol road improvements and paving along the Rialto Pipeline through the San Sevaine Creek/Wash would occur within a small, discrete area of the wash that is crossed by several existing access roads along the creek channel and between manhole and other aboveground structures.

In addition to surrounding areas of residential, commercial, and industrial development and roads, existing Metropolitan patrol roads, and pipeline structures/facilities belonging to other utility providers

mark the existing landscape of the Western San Bernardino County Operating Region. Because patrol road improvements and paving would occur in small and discrete linear areas along pipelines and within locations that have been subject to previous disturbance and alteration, patrol road improvements and paving activities (CIP Activity Code No. 1) would not result in the substantial degradation of existing visual quality and/or character. In addition, APM-AES-1 (see Section 4.1.4, Applicant Proposed Measures) would be implemented as part of Metropolitan's standard practice to further minimize impacts to aesthetics and visual quality and character. Impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact AES-1: Degradation of Visual Quality/Character

Engineered erosion control measures such as corrugated metal pipes, flared inlets, and upstream wing walls/headwalls that are designed to direct flow across roads are primarily installed perpendicular to roads and below ground level. Additionally, engineered erosion control may occur in streams, creek beds, and washes. In these instances and depending on the elevation of adjacent terrain and density of nearby vegetation, erosion control measures may be visible to sensitive receptors in the surrounding area. Therefore, except for discharge points and in locations where open streams, creek beds, and washes are present, erosion control measures are generally not visible to sensitive receptors in the surrounding area.

Due to the regular occurrence of flooding and related inaccessibility of patrol roads within several washes of the Western San Bernardino County Operating Region, engineered erosion control would be implemented to facilitate continued Metropolitan access to facilities and ensure adequate drainage of areas. Where engineered erosion control is necessary to ensure continued (and reliable) access through low areas prone to flooding, the installation of engineered erosion control measures would not substantially degrade existing visual character. Culverts, corrugated metal pipes, and V-ditches are relatively commonplace within natural channels in canyons, alluvial valleys, and washes where existing water infrastructure is located. As such, engineered erosion control would not be considered unexpected elements in the visual landscape, which, as mentioned previously, has been visibly altered by development, including existing utility infrastructure and patrol roads.

Pipelines are located belowground and are protected by existing channel beds, embankments, small to large boulders, and/or riprap. These features also help to obscure appurtenant facilities from view. However, in several locations in the Western San Bernardino County Operating Region, existing embankments require improvement to ensure the protection of Metropolitan facilities. For example,

where existing concrete embankments are failing, reinforcement is required to prevent possible damage to the underlying pipeline. In these instances, proposed solutions would include reconstruction of the embankment and the installation of boulders at the toe of the embankment for added protection. While this solution would be installed to address existing erosion issues, enhanced aesthetics and improved visual quality and character may also occur through the remedying of the failed embankment, the installation of boulders, and the related screening of areas subject to erosion. As such, in these instances, engineered erosion control would not substantially affect the existing quality and character of existing landscapes.

It should also be noted that the below-ground-level installation of engineered erosion control along existing streams or in washes prone to flooding would enhance the ability of these measures to blend in with the existing landscape. More specifically, because culverts, corrugated metal pipes, flared inlets, and upstream wing walls/headwalls are partially buried and/or obscured from view, the color and texture displayed by these features tends to be subdued. Also, the existing visual character and quality of landscapes in which engineered erosion control improvements would occur has generally been subject to previous disturbance associated with urban development, including residential, commercial, and industrial uses and roads; Metropolitan pipelines and patrol roads; and patrol roads and infrastructure belonging to other utility providers. In addition, the overall visibility of engineered erosion control features would be further reduced with implementation of APM-AES-2 (see Section 4.1.4), which requires slope protection measures to be compatible with the existing landscape and requires minimization of visual contrast to the greatest extent feasible. Because engineered erosion control would not be considered unexpected elements in the visual landscape, would not be visually prominent, and with implementation of APM-AES-2 as part of Metropolitan's standard practice, implementation of engineered erosion control measures would not substantially degrade existing visual quality/character. Impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact AES-1: Degradation of Visual Quality/Character

Within the Western San Bernardino County Operating Region, slope stabilization activities are proposed where drainages convey flow and substantial damage to conveyance structures or where scour and erosion of channel banks is present and where substantial erosion occurs. In both instances, slope stabilization activities are necessary to prevent slope and facility failure.

Slope stabilization is proposed along the Inland Feeder downstream of the Devil Canyon Power Plant in an existing wash/flood control facility crossed by multiple access roads. Manholes and other aboveground structures are also located in the wash. Proposed slope stabilization measures, including slope reconstruction, riprap reconstruction, rock slope protection, anchors, tiebacks, and stepped retaining walls would not substantially affect the existing visual quality and character of developed channels, washes, and other locations in the Western San Bernardino County Operating Region. In addition, slope stabilization activities may be screened from view of the public such that stabilization measures may not be visible or readily noticeable. For example, slope stabilization at Inland Feeder Station 592+31 would likely be visible to passing motorists on SR-330, the existing landscape has been visibly altered by road and residential development. Additionally, the regrading of the currently unvegetated slope and/or installation of riprap for additional protection would be concentrated near existing visual features, including an existing manhole structure and patrol road, that are not typically objects of focus in the views of passing highway motorists. As such, slope stabilization activities would not substantially affect the overall character and/or quality of the existing landscape. APM-AES-2 would also be implemented to further reduce potential impacts and would ensure that slope protection measures are visually compatible with existing slopes, channels, embankments, and rock faces to the greatest extent feasible. Because proposed slope stabilization measures would be screened from view, or, when visible to public, would not substantially degrade existing visual quality/character, and with implementation of APM-AES-2 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.1.5.2 O&M Activities (All)

As previously discussed, there would be no significant impacts to aesthetics relating to O&M activities as a result of the proposed program.

4.1.5.3 Impacts Summary

Table 4.1-1 summarizes the impacts for CIP projects and O&M activities under each impact threshold analyzed in the November 2014 Initial Study and this PEIR.

Table 4.1-1. Aesthetics Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact AES-1: Would the program substantially degrade the existing visual character or quality of the site and its surroundings?			
CIP Projects[a]			
Patrol Road Improvements and Paving	Less than significant	APM-AES-1	Less than significant
Engineered Erosion Control	Less than significant	APM-AES-2	Less than significant
Slope Stabilization	Less than significant	APM-AES-2	Less than significant

Note:
[a] Based on the findings of the November 2014 Initial Study, for Impact AES-1 only CIP projects were analyzed in this PEIR; see Section 4.1.6.2 for O&M activity findings for this impact.

4.1.6 Impacts Found Not to Be Significant

4.1.6.1 CIP Projects and O&M Activities

Impact AES-2: Adverse Effect on a Scenic Vista

The County of San Bernardino General Plan does not specifically designate scenic vista points; however, the County seeks to preserve and protect cultural resources, including parks, areas of regional significance, and scenic, cultural, and historic sites that contribute to a distinctive visual experience (County of San Bernardino 2014). The proposed CIP projects and O&M activities would result in visual changes that are minor in magnitude and would be located within the context of existing facilities characteristic of Metropolitan's right-of-way, such as patrol roads and pipeline appurtenances. Proposed O&M activities, such as road grading or minor vegetation maintenance, would primarily maintain the existing patrol roads and pipeline appurtenant structures, with very little to no visual change. The presence of construction equipment to perform O&M work would be short term and temporary. Construction activities associated with some of the proposed CIP projects, such as those involving slope repair and rehabilitation or stream-crossing structures, would require grading activities, vegetation management, and use of construction-related vehicles and equipment that could appear visually cluttered or uncharacteristic of the broader visual context. However, such activities would be temporary, are commonly associated with maintenance and improvement activities along utility rights-of-way, and would not affect an officially recognized scenic vista. In addition, many of these activities would not occur in areas frequented by the public. As such, the implementation of proposed CIP projects and O&M activities would have a less than significant impact on existing views from scenic vistas.

Impact AES-3: Damage to Scenic Resources within a State Scenic Highway

The proposed program study area is not located within the vicinity of a State Scenic Highway, as designated by the California Department of Transportation. The closest State Scenic Highway to the proposed program study area is a 4-mile stretch of SR-91 extending from the intersection of SR-55 with SR-91 to the eastern limits of the city of Anaheim (Caltrans 2016). The Yorba Linda Feeder, the closest location within the Western San Bernardino County Operating Region to the designated State Scenic Highway, is located approximately 8 miles northeast of the SR-55 and SR-91 junction.

At a distance of 8 miles, neither the CIP projects nor the O&M activities proposed under the DSIPP would physically affect features within the State Scenic Highway corridor, such as trees, rock outcroppings, or historic buildings. However, scenic resources also include the views experienced by motorists along the scenic highway. Neither the CIP projects nor the O&M activities would be perceptible to motorists because resulting visual changes, if any, would be low profile and out of view due to distance, intervening topography, and the general level of development in the area. Routine O&M activities in general, even if they occurred closer to the highway and were visible, would not have adverse effects because they would be temporary and typical of activities that already routinely occur along utility rights-of-way. For these reasons, no impacts pertaining to damage to scenic resources within a state scenic highway would occur.

Impact AES-4: New Source of Light or Glare

No new permanent lighting would be installed as part of the proposed program. Therefore, potential effects with respect to lighting would be limited to circumstances where temporary, portable lighting would be needed to complete construction work at night. Construction, operation, and maintenance activities are typically conducted during daytime hours; however, use of temporary, portable light sources may sometimes be necessary during routine pipeline shutdowns. Additionally, such lighting would only be required in locations where street lighting is not present or adequate (e.g., rural/open space areas). Because these circumstances would be the exception rather than the rule, and would be temporary if needed, the impact would be minimal. As standard practice, Metropolitan uses hooded, downward-directed lights to illuminate work areas and to minimize light trespass onto adjacent properties. Because the proposed program does not include permanent lighting and because the need for nighttime light is episodic, limited in extent and duration, and would involve use of downward-directed lights, the impact would be less than significant.

4.1.6.2 O&M Activities

Impact AES-1: Degradation of Visual Quality/Character

Because the proposed O&M activities would involve maintenance and repair of existing facilities, and because the Metropolitan right-of-way, where located in primarily unaltered open space such as Tonner Canyon, is often inaccessible to the public, the degree of visual change that would be perceptible would be negligible. The pipeline appurtenant structures are not large or visually dominant and grading or vegetation management that would occur during O&M activities would result

in minor, incremental visual change that would be characteristic of activities that already occur along Metropolitan's patrol roads and facilities. Similarly, the visual presence of vehicles and personnel during maintenance activities would be temporary and would represent a continuation of existing routine activities. For these reasons, the impact of proposed O&M activities on the existing visual quality and/or character of O&M sites and their surroundings would be less than significant.

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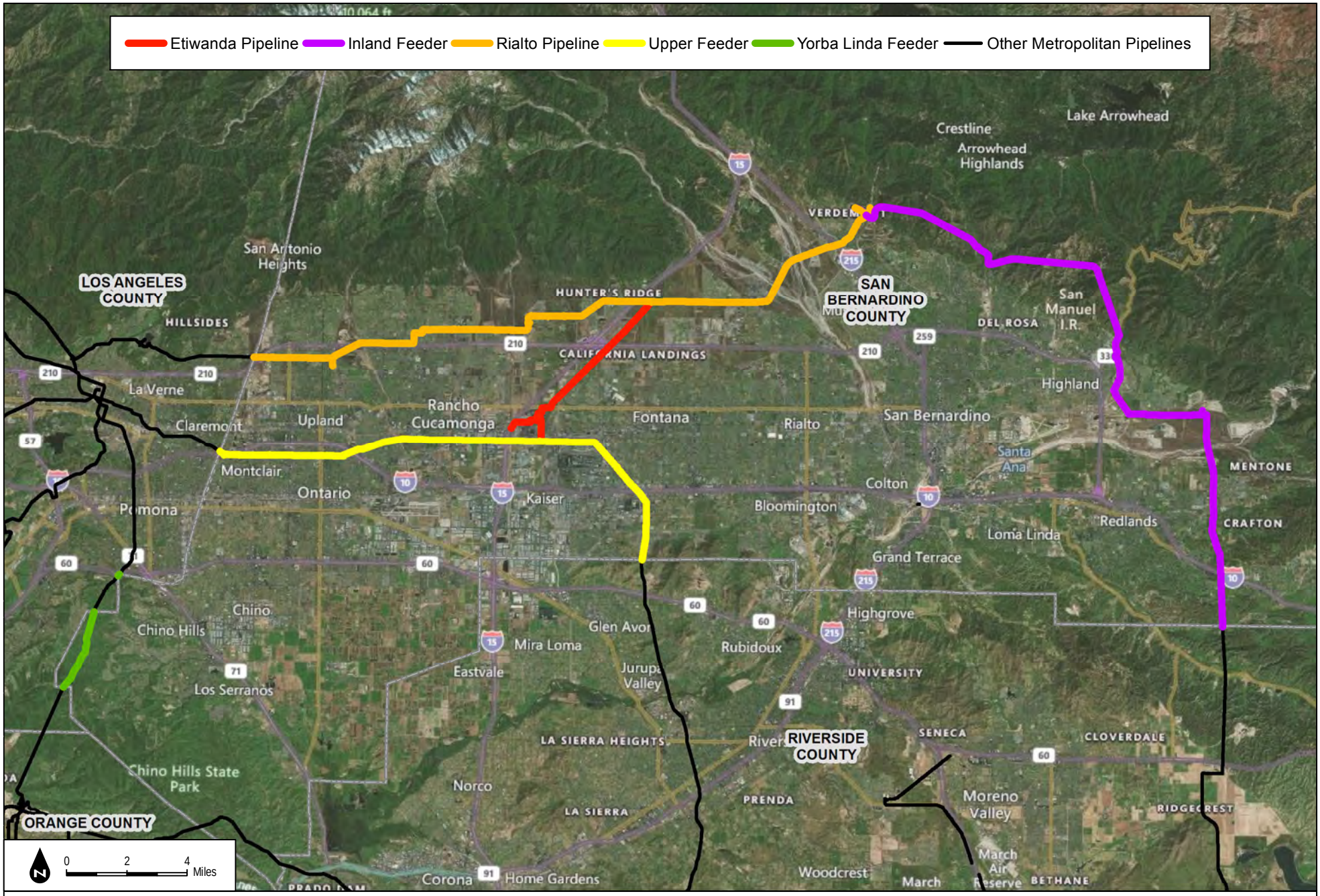

SOURCE: ArcGIS Online Basemap

FIGURE 4.1-1

Western San Bernardino County Operating System – Existing Landscape Setting Overview

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Rialto Pipeline through Cajon Wash

Inland Feeder and patrol roads through Upper Santa Ana River Wash

SOURCE: MWD 2013

FIGURE 4.1-1a

Existing Landscape Setting: Valley Region

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Inland Feeder near DWR Devil Canyon Power Plant

Inland Feeder off SR-330

Inland Feeder through San Bernardino Mountains

SOURCE: MWD 2013

FIGURE 4.1-1b

Existing Landscape Setting: Mountain Region

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4.2 Air Quality

This section describes the existing air quality setting of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program) area, discusses applicable federal, state, and regional regulations pertaining to air quality, and evaluates the impacts to air quality associated with development of the proposed program. In addition, this section identifies best management practices (BMPs)—presented as applicant proposed measures (APMs) in this program environmental impact report (PEIR)—that are implemented as part of The Metropolitan Water District of Southern California's (Metropolitan's) standard practice and that would reduce program-generated criteria air pollutant emissions. The following topics related to air quality are examined in this section:

- Would the program conflict with or obstruct implementation of the applicable air quality plan?
- Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Would the program result in a cumulatively considerable net increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Would the program expose sensitive receptors to substantial pollutant concentrations?

As stated in the November 2014 Initial Study (see Appendix C to this PEIR), the proposed program would result in less than significant impacts for the potential to create objectionable odors affecting a substantial number of people; therefore, this topic is not further analyzed in this PEIR.

4.2.1 Existing Conditions

Climate and Topography

The proposed program area is located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. Air quality in the proposed program area is affected not only by various emission sources (e.g., mobile, industry), but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall. The SCAB's combination of topography, low mean mixing height, abundant sunshine, and emissions from one of the largest urban areas in the United States has historically resulted in some of the worst air pollution in the nation.

Although the SCAB has a semiarid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. Summer wind flow patterns represent worst-case conditions

because this is the period of higher temperatures and more sunlight, which results in more ozone (O_3) formation. During spring and early summer, pollution produced during any single day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to the Earth's surface. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. Mixing heights for inversions are lower in the summer, and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problems are carbon monoxide (CO), fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}), and nitrogen dioxide (NO_2) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen (NO_x) to form photochemical smog.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), coarse particulate matter (particulate matter with an aerodynamic diameter equal to or less than 10 microns; PM_{10}), fine particulate matter (particulate matter with an aerodynamic diameter equal to or less than 2.5 microns; $PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following text.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

[1] The descriptions of each of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's Criteria Air Pollutants (EPA 2016) and the CARB Glossary of Air Pollutant Terms (CARB 2016a).

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Weather and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer as well as at the Earth's surface in the troposphere. The O_3 that the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effect and is thus considered "bad" O_3. Stratospheric O_3, or "good" O_3, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed. O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

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

with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

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

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle, as well as producing haze and reducing regional visibility. People with influenza, people with chronic respiratory and cardiovascular diseases, the elderly, smokers, children, people who cannot breathe well through their noses, and exercising athletes (because many breathe through their mouths) are groups of people who are considered sensitive to $PM_{2.5}$ and PM_{10}.

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead emissions sources of greater concern. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint. The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs (see description under Non-Criteria Air Pollutants). There are no separate health standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air.

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

Diesel Particulate Matter. Diesel particulate matter (DPM), which is the predominant TAC, is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and

particle, both of which contribute to health risks. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70 percent of all airborne cancer risk in California is associated with DPM (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same noncancer health effects as $PM_{2.5}$ exposure.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where people most likely to be affected by air pollution live or spend considerable amounts of time are known as *sensitive receptors*. Facilities where these individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). Much of the proposed program area within the Western San Bernardino County Operating Region is located in developed lands that support residential, commercial, education, and industrial land uses, as well as local and regional parks, and a variety of sensitive receptors.

4.2.2 Regulatory Framework

Federal

Federal Clean Air Act

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of National Ambient Air Quality Standards (NAAQS; federal standards) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emissions standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. Federal standards are established for criteria pollutants under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

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

State

California Clean Air Act

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

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

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

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

Table 4.2-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as primary standard
	8 hours	0.070 ppm (137 μg/m³)	0.070ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	

Table 4.2-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	No separate state standard	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
lead[j,k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[j]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[i]	24-hour	0.01 ppm (26 µg/m³)	—	—
Sulfates (SO_4)	24-hour	25 µg/m³	—	—
Visibility-reducing particles	8-hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: O_3 = ozone; ppm= parts per million by volume; µg/m³ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³ = milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific standard time.

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

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

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

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[f] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
[g] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb, whereas California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
[h] In 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[j] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Local

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed program area is located. SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. SCAQMD's air quality management plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recently adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD governing board on March 3, 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP's overall control strategy is an integral approach relying on fair-share emission reductions from federal, state, and local levels. The 2016 AQMP is composed of stationary and mobile source emission reductions from traditional regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile source strategies, and reductions from federal sources (SCAQMD 2017). The previous AQMP was the 2012 AQMP (SCAQMD 2013), and proposed policies and measures to achieve national and California standards for improved air quality in the SCAB and those portions of the Salton Sea Air Basin that

are under SCAQMD jurisdiction. The 2012 AQMP is designed to meet applicable federal and state requirements for O_3 and particulate matter. The 2012 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development.

Applicable Rules

Emissions that would result from stationary and area sources during operation under the proposed program may be subject to SCAQMD rules and regulations. The SCAQMD rules applicable to the proposed program may include the following:

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose both of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines:** This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce NO_x, VOC, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.
- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of architectural coatings, primarily by placing limits on the VOC content of various coating categories.

Background Air Quality

South Coast Air Basin Attainment Designation

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

Table 4.2-2. South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	National Standards	*California Standards*
O_3 – 1 hour	No national standard	**Nonattainment**
O_3 – 8 hours	**Extreme nonattainment**	**Nonattainment**
NO_2	Unclassifiable/attainment	Attainment
CO	Attainment/maintenance	Attainment
SO_2	Unclassifiable/attainment	Attainment
PM_{10}	Attainment/maintenance	**Nonattainment**
$PM_{2.5}$	**Serious nonattainment**	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No national standard	Unclassified
Sulfates	No national standard	Attainment
Visibility-reducing particles	No national standard	Unclassified
Vinyl chloride	No national standard	No designation

Sources: EPA 2019a (national); CARB 2018 (California).
Notes: O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Definitions: attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2

standards, and federal and state SO_2 standards. Although a portion of the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard (Los Angeles County), it is designated as attainment for the state lead standard (EPA 2019a; CARB 2018).

Local Ambient Air Quality

The proposed program area's local ambient air quality is monitored by SCAQMD. CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

Four air quality monitoring stations are located throughout the following cities in Western San Bernardino County: Upland (1350 San Bernardino Road), Fontana (14360 Arrow Highway), San Bernardino (24302 East 4th Street), and Redlands (500 North Dearborn). Given that individual projects associated with the proposed program are distributed throughout Western San Bernardino County, data were examined for each of the four air quality monitoring sites and the maximum air pollutant average is presented in Table 4.2-3. The data collected at these stations are considered representative of the air quality experienced in the proposed program vicinity. Air quality data from 2016 through 2018 for the monitoring stations are provided in Table 4.2-3.

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O_3)										
Fontana	ppm	Maximum 1-hour concentration	California	0.09	0.139	0.137	0.141	34	33	38
	ppm	Maximum 8-hour concentration	California	0.070	0.105	0.119	0.111	52	51	72
			National	0.070	0.105	0.118	0.111	49	49	69
Nitrogen Dioxide (NO_2)										
Fontana	ppm	Maximum 1-hour concentration	California	0.18	0.071	0.069	0.063	0	0	0
			National	0.100	0.072	0.069	0.063	0	0	0
	ppm	Annual concentration	California	0.030	0.018	0.018	0.018	—	—	—
			National	0.053	—	—	—	—	—	—
Carbon Monoxide (CO)										
San Bernardino	ppm	Maximum 1-hour concentration	California	20	—	—	—	—	—	—
			National	35	2.2	2.5	2.7	0	0	0
	ppm	Maximum 8-hour concentration	California	9.0	—	—	—	—	—	—
			National	9	1.7	2.3	2.5	0	0	0

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Sulfur Dioxide (SO_2)										
Fontana	ppm	Maximum 1-hour concentration	National	0.075	0.063	0.039	0.029	0	0	0
	ppm	Maximum 24-hour concentration	National	0.14	0.007	0.011	0.009	0	0	0
	ppm	Annual concentration	National	0.030	0.004	0.002	0.004	—	—	—
Coarse Particulate Matter (PM_{10})[a]										
Fontana	µg/m³	Maximum 24-hour concentration	California	50	94.8	75.3	61.5	ND (14)	ND (8)	ND (8)
			National	150	94.0	75.3	64.1	0.0 (0)	ND (0)	0.0 (0)
	µg/m³	Annual concentration	California	20	ND	ND	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
San Bernardino	µg/m³	Maximum 24-hour concentration	National	35	53.5	38.2	30.1	3.0 (1)	3.3 (1)	0.0 (0)
	µg/m³	Annual concentration	California	12	11.1	ND	ND	—	—	—
			National	12.0	11.1	11.4	11.1	—	—	—

Sources: CARB 2019; EPA 2019b.

Notes: ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; — = not available; ND = insufficient data available to determine the value. Data were taken from CARB iADAM (http://www.arb.ca.gov/adam) or EPA AirData (http://www.epa.gov/airdata/) and represent the highest concentrations experienced over a given year.

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

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

4.2.3 Thresholds of Significance

CEQA Thresholds

The significance criteria used to evaluate the proposed program's impacts to air quality are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to air quality would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact AQ-1: Would the program conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-2: Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact AQ-3: Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Impact AQ-4: Would the program expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-5: Would the program create objectionable odors affecting a substantial number of people?

Based on the findings of the November 2014 Initial Study, the following topic was determined to have a less than significant impact for air quality, as is summarized in Section 4.2.6, Impacts Found Not to Be Significant:

Impact AQ-5: Creation of Objectionable Odors

SCAQMD Thresholds

Appendix G of the CEQA Guidelines indicates that where available, the significance criteria established by the applicable AQMD or pollution control district may be relied on to determine whether the proposed program would have a significant impact on air quality. The most recent version of SCAQMD's CEQA Air Quality Handbook (SCAQMD 1993) sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality (the SCAQMD Air Quality Significance Thresholds Table was updated in March 2015). Proposed program-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.2-4 are exceeded. Only those thresholds related to potentially significant construction impacts are identified in Table 4.2-4 because the proposed program would not generate substantial criteria pollutant emissions or related impacts associated with operational activities.

The proposed program would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O_3, which is a nonattainment pollutant, if the proposed program's construction emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4.2-4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly (see discussion of O_3 and its sources in Section 4.2.1, Existing Conditions), and

the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 4.2-4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds	
Pollutant	*Construction (pounds per day)*
VOCs	75
NO_x	100
CO	550
SO_x	150
PM_{10}	150
$PM_{2.5}$	55
Lead[a]	3
Toxic Air Contaminants	
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)
Ambient Air Quality for Criteria Pollutants[b]	
NO_2 1-hour average Annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)
PM_{10} 24-hour average Annual average	 10.4 μg/m³ (construction)[d] 1.0 μg/m³
$PM_{2.5}$ 24-hour average	 10.4 μg/m³ (construction)[d]

Source: SCAQMD 2015.

Notes: SCAQMD = South Coast Air Quality Management District; VOC = volatile organic compound; lb/day = pounds per day; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million; μg/m³ = micrograms per cubic meter.
Greenhouse gas thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not included in this table, as they will be addressed within the greenhouse gas emissions analysis and not the air quality study.

[a] The phasing out of leaded gasoline started in 1976; gasoline no longer contains lead.

[b] TACs include carcinogens and non-carcinogens.

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

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

In addition to the emission-based thresholds listed in Table 4.2-4, SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of construction activities, which is referred to as a localized significance threshold (LST) analysis. For project sites of 5 acres or less, SCAQMD LST Methodology (SCAQMD 2008) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance

of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling.

This assessment analyzes potential LST impacts associated with representative Capital Investment Plan (CIP) projects and Operations and Maintenance (O&M) activities that are close to sensitive receptors. The LST Methodology is not designed to evaluate localized impacts from mobile sources (such as material delivery and haul trucks) traveling over roadways (SCAQMD 2008); however, it could be used to determine potential impacts associated with construction activities that occur within a localized area.

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

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

There are four Source-Receptor Areas in San Bernardino County where the proposed activities may occur. These include Source-Receptor Area 32 (Northwest San Bernardino Valley), Source-Receptor Area 34 (Central San Bernardino Valley), Source-Receptor Area 35 (East San Bernardino Valley), and Source-Receptor Area 37 (Central San Bernardino Mountains). The nearest sensitive receptor to the proposed program differs for each proposed CIP and O&M activity. The maximum number of acres disturbed on the peak day of 1 acre, was estimated using the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (SCAQMD 2014), which provides estimated acres per 8-hour/day for crawler tractors, graders, rubber-tired dozers, and scrapers. Because the SCAQMD lookup tables do not have thresholds for a distance of 34 meters, the LST significance thresholds were estimated by interpolating between the 25- and 50-meter thresholds. The values from the SCAQMD lookup tables for San Bernardino County's Source-Receptor Areas for 1-acre project sites and distances of 34 meters (112 feet) are shown in Table 4.2-5.

Table 4.2-5. LSTs for San Bernardino County Source-Receptor Areas

Pollutant	Thresholds (Pounds per Day) *1-Acre Project Site, at a Distance of 34 Meters*
SRA 32 (Northwest San Bernardino Valley)	
NO_2	129
CO	1,030
PM_{10}	8
$PM_{2.5}$	5
SRA 34 (Central San Bernardino Valley)	
NO_2	129
CO	808
PM_{10}	7
$PM_{2.5}$	4
SRA 35 (East San Bernardino Valley)	
NO_2	129
CO	930
PM_{10}	7
$PM_{2.5}$	4
SRA 37 (Central San Bernardino Mountains)	
NO_2	129
CO	808
PM_{10}	7
$PM_{2.5}$	4

Source: SCAQMD 2008, Appendix C.
Notes: LST = localized significance threshold; SRA = Source-Receptor Area; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
LSTs are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 34 meters (112 feet), which was determined by identifying the closest sensitive receptor to potential DSIPP work areas using Google Earth. The DSIPP 3571+01 work area was identified as the site closest to sensitive receptors, at 34 meters.

4.2.4 Applicant Proposed Measures

Applicable BMPs, included in this PEIR as APMs, are presented in full in this section (see also Chapter 3, Program Description). These APMs, which are standard practice for Metropolitan, will reduce impacts to air quality. Their specific relevance to impact topics is detailed in Section 4.2.5, Impact Analysis (see also Executive Summary, Table E-4).

APM-AQ-1 **Construction Equipment.** Where Tier 4 equipment is reasonably available for off-road equipment with engines rated at 50 horsepower or greater, it will be used.

APM-AQ-2 **Fugitive Dust Control.** Proposed program activities would adhere to South Coast Air Quality Management District Rule 403, which includes a variety of measures intended to reduce fugitive dust emissions. The following measures shall be implemented during maintenance activities, as needed, to reduce the potential for fugitive dust emissions during grading, excavation, and construction activities:

- The areas disturbed at any one time by clearing, grading, earthmoving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering of the area to be graded or excavated before commencement of grading or excavation operations. Application of water should penetrate sufficiently to minimize fugitive dust during earthmoving, grading, and excavation activities, but shall not be applied in a manner that generates runoff from the active work area. In light of drought conditions, Metropolitan would consider alternative feasible methods of dust control that minimize the use of water.
- If reclaimed water is used for the purpose of dust control, such water shall be compliant with Title 22 standards applicable to use of recycled water for soil compaction, concrete mixing and dust control (22 CCR Division 4, Chapter 3, Article 3, Section 60307).
- All trucks shall be required to cover their loads as required by California Vehicle Code, Section 23114. All graded and excavated material, exposed soil areas, including unpaved parking and staging areas, and other active portions of the construction site, including unpaved roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and reclaimed water shall be used whenever possible.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earthmoving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by proposed program activities and operations from being a nuisance or hazard, either on site or off site.
- Open material stockpiles shall be periodically watered or treated with appropriate dust suppressants, if needed.

4.2.5 Impact Analysis

The following air quality impact analysis is organized by threshold, as identified in Section 4.2.3, Thresholds of Significance. Consistent with the regional nature of air quality and cumulative effects of air pollution, the impact determination for each of the four thresholds analyzed in this PEIR is for the proposed program as a whole. When applicable, the analysis of impacts resulting from implementation of proposed CIP projects and O&M activities is presented separately; however, the determination of the level of significance for each threshold is for the collective activities proposed under the program.

CIP Projects

Types of proposed CIP projects consist of the following: patrol road improvements and paving (CIP Activity Code No. 1), engineered erosion control (CIP Activity Code No. 2), and slope stabilization (CIP Activity Code No. 3).

Of the 13 proposed CIP projects, 8 projects include CIP Activity Code No. 1 activities (patrol road improvements and paving) as the primary purpose of the improvement project or in combination with another CIP project category (i.e., projects coded CIP Activity Code No. 1, CIP Activity Code Nos. 1 and 2, and CIP Activity Code Nos. 1, 2, and 3). Twelve of the CIP projects include CIP Activity Code No. 2 activities (engineered erosion control) (i.e., projects coded CIP Activity Code No. 2, CIP Activity Code Nos. 1 and 2, CIP Activity Code Nos. 2 and 3, and CIP Activity Code Nos. 1, 2, and 3). Four CIP projects include CIP Activity Code No. 3 activities (slope stabilization) (i.e., projects coded CIP Activity Code Nos. 2 and 3 and CIP Activity Code Nos. 1, 2, and 3).[2]

O&M Activities

The proposed program identified 15 O&M activities, which are divided into two general categories as follows: routine O&M activities and single-occurrence O&M activities. Routine O&M activities include six O&M activity codes that involve patrol road maintenance (O&M Activity Code Nos. 1–6); one activity code that involves patrol and inspection (O&M Activity Code No. 7); five activity codes that involve routine structure maintenance, repair, and replacement (O&M Activity Code Nos. 8–12), and two activity codes that involve other activities such as shutdowns/dewatering and emergency work (O&M Activity Code Nos. 13–14). Single-occurrence O&M activities include one O&M activity code (O&M Activity Code No. 15), which involves patrol road structural repairs (low water crossings, Arizona crossings, culverts, bridges).

Many of the O&M activities do not necessitate the use of diesel construction equipment, trucks transporting materials, and/or a construction crew, such as O&M Activity Code No. 8, which involves cleaning of equipment and structures, and O&M Activity Code No. 9, which involves graffiti removal and coating of structures.

Construction Timing and Duration

The DSIPP Preliminary Design Report for the Western San Bernardino County Region (Metropolitan 2014) identifies proposed CIP projects and single-occurrence O&M activities and provided location specifics, details of existing site issues, potential options for addressing the identified issues, and the proposed solution. For emissions modeling purposes, construction activities associated with the proposed CIP projects and single-occurrence O&M activities are assumed to occur over approximately

[2] The breakdown of CIP projects by activity code is an all-inclusive calculation and does not sum to the total number of CIP projects because individual projects may be included in more than one CIP activity code total. Similarly, the percent of total estimate does not sum to 100 percent because the percent estimate compares the total projects that include each CIP activity code as the primary purpose or in combination with another CIP project category and compares it to the total CIP project estimate of 13 projects.

2 years, 2020 through 2021. It is estimated that 60 percent of the required activities would occur in 2020 and the remaining 40 percent would occur in 2021. All CIP projects are expected to be completed within 2020 and 2021.

Future unidentified O&M activities described in the O&M Manual (see Appendix A to this PEIR) may be implemented anywhere along Metropolitan's Western San Bernardino County Operating Region right-of-way and patrol roads in the future. Before implementation, these future O&M activities would be subject to internal review by Metropolitan to ensure that they are in compliance with the activity descriptions set forth in the O&M Manual and the conditions of this PEIR.

Approach and Methodology

To provide a conservative analysis of typical proposed CIP projects and O&M activities, representative projects were identified based on the DSIPP Assessment Report for the Western San Bernardino County Operating Region (Metropolitan 2014) and input from Metropolitan engineers and operations staff. Information regarding a typical construction scenario, including anticipated phasing and phase duration, construction equipment, worker trips, vendor truck tips (including water trucks), and haul truck trips, was generated for each of these representative projects.

These representative projects are intended to represent a maximum, or worst-case, scenario associated with proposed program construction. Construction specifications of each proposed CIP project and O&M activity will vary depending on the subject site characteristics, maintenance or improvement needs, and type of proposed solution; however, construction requirements for activities within the same category are not expected to differ substantially. Because several of the proposed CIP projects and O&M activities address similar issues, the proposed solutions include similar procedures, many of which are techniques Metropolitan has historically used to resolve common issues, including routine activities that do not require advanced planning and design. Therefore, although construction of the other proposed activities will differ from the scenarios analyzed in this PEIR, the modeled projects and estimated maximum daily emissions included herein would represent a conservative assessment of air quality impacts associated with anticipated project construction. Project plans may potentially change during final design; however, it is anticipated that footprints would be reduced (rather than increased) as a result of a more refined design plan.

Pollutant emissions associated with proposed CIP project and O&M activity construction activities were quantified using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Project-specific information was assumed in CalEEMod based on information provided by Metropolitan staff and review of preliminary design plans, when available. Default values provided in CalEEMod were used where detailed project information was not available.

The number of workers would vary depending on the construction activity and would range from two to six workers per day. The CalEEMod default value for a worker trip distance of 14.7 miles one way was assumed in the analysis. Vendor trucks were each assumed to result in two one-way trips per

day. It was assumed that average one-way trip distance for vendor trucks is 16 miles, based on conservative estimates provided by Metropolitan. Haul trucks were each assumed to result in two one-way trips per day. The CalEEMod default value of 20 miles one way for haul truck trips was assumed in the analysis. Estimated average daily haul truck trips were multiplied by the total days of the respective construction phase to estimate total haul truck trips in CalEEMod.

4.2.5.1 Representative CIP Projects

The representative proposed CIP projects selected for this air quality analysis are described in this subsection. Table 4.2-6 presents a summary of the representative proposed CIP projects analyzed herein.

Table 4.2-6. Representative CIP Projects Summary

Representative Project	CIP Activity Code No.	CIP Project Category	Selected Representative Project
A	1	Patrol Road Improvements and Paving	Inland Feeder Station 660+00
B	2	Engineered Erosion Control	Inland Feeder Station 592+31
C	3	Slope Stabilization	Inland Feeder Station 19+55

Source: Metropolitan 2016.
Note: CIP = Capital Investment Plan.

The maximum number of CIP projects that would be constructed concurrently is anticipated to be three (Harriger, pers. comm. 2016).

Details and construction assumptions for each representative project are provided in the following subsections.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Representative CIP Project A: Patrol Road Improvements and Paving (CIP Activity Code No. 1)

As previously discussed, of the 13 proposed CIP projects, 8 projects involve patrol road paving or paving around structures as the primary purpose of the improvement project or in combination with another CIP project category. The average work area (i.e., footprint) of CIP Activity Code No. 1 projects, including projects that are categorized as CIP Activity Code No. 1, CIP Activity Code Nos. 1 and 2, and CIP Activity Code Nos. 1, 2, and 3, is 0.64 acres. Work areas range in size from 0.16 to 2.07 acres. This air quality analysis used the estimated work area (largest area for potential disturbance, including temporally impacted areas), which represents the area of proposed activity and the project's impact footprint on the environment, to estimate project emissions.

The proposed CIP project located at Inland Feeder Station 660+00 was selected to represent the road paving project type (CIP Activity No. 1). To improve access to Inland Feeder Station 660+00, the existing access road would be regraded or redirected. Construction scenario details for Representative CIP Project A (CIP Activity Code No. 1, patrol road improvements and paving) are provided in Table 4.2-7.

Table 4.2-7. Representative CIP Project A – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	2	6	2[a]	8	Motor graders (graders)	1
Grading – over-excavation	3	9	2[a]	0	Motor graders (graders)	1
Building construction 1 – lay base	3	9	14[a]	12	Motor graders (graders)	1
					Rollers	1
Paving	1	18	8	4	Paving equipment	1
					Rollers	1
					Skid steer loaders	1
Building construction 2 – finish work	1	6	0	0	Motor graders (graders)	1
					Skid steer loaders	1

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Project.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.

Engineered Erosion Control (CIP Activity Code No. 2)

Representative CIP Project B: Engineered Erosion Control (CIP Activity Code No. 2)

Of the 13 CIP projects in the San Bernardino County Operating Region, approximately 12 projects involve engineered erosion control, either as the primary activity or in combination with another CIP project. Typical engineered erosion control (CIP Activity Code No. 2) projects would include installation of permanent structures or repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls, necessary to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. The average work area of CIP Activity Code No. 2 projects, including projects that are categorized as CIP Activity Code No. 2, CIP Activity Code Nos. 1 and 2, CIP Activity Code Nos. 2 and 3, and CIP Activity Code Nos. 1, 2, and 3, is 0.70 acres. Work areas range in size from 0.03 to 1.81 acres.

The proposed CIP project located at Inland Feeder Station 592+31 was selected to represent the engineered erosion control project type. Improvements made to the Inland Feeder Station 592+31 would include slope stabilization at the structure and regrading the existing road to drain to a V-ditch. In addition, a V-ditch will be added along the road. Construction scenario details for Representative CIP Project B (CIP Activity Code No. 2, engineered erosion control) are provided in Table 4.2-8.

Table 4.2-8. Representative CIP Project B – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation – removing materials and mobilization	4	9	2[a]	24	Excavators	1
					Rubber-tired loaders	1
Grading	2	9	8[a]	0	Excavators	1
					Rubber-tired loaders	1
Building construction 1– place riprap rock	4	12	12	0	Motor graders (graders)	1
					Tractors/ loaders/ backhoes	1
Building construction 2 – concrete grout	2	15	10[a]	0	Loader (Tractors/ loaders/ backhoes)	1
Building construction 3 – finish work and place base rock	3	15	10[a]	0	Loader (Tractors/ loaders/ backhoes)	1
Building construction 4 – demobilization	1	9	0	6	N/A	N/A

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Project; N/A = not applicable.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.

Slope Stabilization (CIP Activity Code No. 3)

Representative CIP Project C: Slope Stabilization (CIP Activity Code No. 3)

Of the 13 CIP projects, 4 projects involve slope stabilization. The average acreage of CIP Activity Code No. 3 projects, including projects that are categorized as CIP Activity Code Nos. 1, 2, and 3 or CIP Activity Code Nos. 2 and 3, is 0.69 acres. Work areas range in size from 0.40 to 1.38 acres.

The proposed CIP project located at Inland Feeder Station 19+55 was selected to represent the slope stabilization project type (CIP Activity Code No. 3), which is analyzed herein as Representative CIP Project C. The concrete embankment west of the blow-off structure at Inland Feeder Station 19+55 is failing and needs reinforcing to prevent further damage to structure. The reason for failure is erosion and channel migration, as well as seepage and drainage from the parallel access road. Concrete below the blow-off by the creek is cracked and has fallen. Boulders have been placed at the bottom of the concrete embankment to temporarily support the feature.

To address the issues at Inland Feeder Station 19+55, this proposed CIP project would demolish the existing panels, grade/excavate the channel walls, and channel bottom to "toe-in" structural components and stabilize soil. Geotextile material and grouted riprap would be installed to strengthen the embankment. The site would then be regraded with rock fill material that would redirect migrating flow back to channel and protect the blow-off structure. Also, the access road to direct drainage away from channel wall would be regraded.

Construction scenario details for Representative CIP Project C (CIP Activity Code No. 3, slope stabilization) are provided in Table 4.2-9.

Table 4.2-9. Representative CIP Project C – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks [a]	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	10	12	8[a]	40	Excavator	1
					Loader	1
Building construction 1 – restore the slope	6	12	8[a]	12	Excavator	1
					Loader	1
Building construction 2 – geotextile and riprap	20	12	22[a]	40[b]	Excavator	1
					Loader	1

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Project.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.
[b] Dump trucks were accounted for in haul trips.

4.2.5.2 Representative O&M Activities

The representative proposed O&M activities selected for this air quality analysis are described in this subsection. Table 4.2-10 presents a summary of the representative proposed O&M activities analyzed herein.

Table 4.2-10. Representative O&M Activities Summary

Representative Activity	O&M Activity Code No.	O&M Activity Category	Selected Representative Activity
A	1	Patrol Road Grading	Three levels of patrol road grading and maintenance were assessed: high, moderate, and low
B	6	Erosion Control	Upper Feeder Station 728+50
C	11	Structure Maintenance, Repair, and Replacement	Inland Feeder Station 573+94
D	15	Patrol Road Structural Repairs	Inland Feeder Station 3571+01

Source: Metropolitan 2016.
Note: O&M = Operations and Maintenance.

The maximum number of proposed O&M activities that would be constructed concurrently is anticipated to be three (Harriger, pers. comm. 2016).

The following O&M activities emissions analysis is based on the proposed O&M activities described for each site, which are a generally a shorter duration and/or lower intensity than the proposed CIP projects proposed at the site. Details and construction assumptions for representative O&M activities are provided below.

Patrol Road Grading (O&M Activity Code No. 1)

Representative O&M Activity A: Patrol Road Grading (O&M Activity Code No. 1)

Representative O&M Activity A is broken down into three levels of patrol road grading: (1) high maintenance (average completion of 1 mile per day), (2) moderate maintenance (average completion of 2 miles per day), and (3) low maintenance (average completion of 4.5 miles per day). High-level maintenance requirements may occur when one or more of the following conditions are present: a severe level of erosion, a large amount of vegetation, close proximity to residences, or an impeded road with excessive gates. Moderate-level maintenance conditions are associated with a moderate level of erosion, proximity to residences, and partially restricted access. Low-level maintenance conditions are associated with a low level of erosion with unimpeded road access, such as a road with a few gates or location along an existing canal.

Construction scenario details for patrol road grading for the three typical maintenance levels (Representative O&M Activity A, O&M Activity Code No. 1) are provided in Table 4.2-11.

Table 4.2-11. Representative O&M Activity A – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
High Maintenance (1 mile/day)						
Grading	1	12	6	6[a]	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Moderate Maintenance (2 miles/day)						
Grading	1	12	4	6[a]	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1

Table 4.2-11. Representative O&M Activity A – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Low Maintenance (4.5 miles/day)						
Grading	1	6	4	0	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Dump trucks were accounted for in haul trips.

Representative O&M Activity B: Erosion Control (O&M Activity Code No. 6)

Upper Feeder Station 728+50 was selected to represent a location where erosion control activities (O&M Activity Code No. 6) are proposed, which is evaluated as Representative O&M Activity B. The issues presented at this site include flooding and drainage issues during the rainy season. Periodic grading and/or road improvements, as well as drainage improvements, are necessary for better accessibility to the patrol road through the area and to the aboveground structure at Upper Feeder Station 728+50 during the rainy season.

The recommended solution to address the issues at this site grading and paving patrol the roadway from Upper Feeder Station 728+50 to Station 745 and installation of drainage features (concrete curb/ditch) along patrol road and around structure at Station 736+64 to improve drainage through the area and accessibility during rainy season.

Construction scenario details for proposed O&M activities at Upper Feeder Station 728+50 (Representative O&M Activity B, O&M Activity Code No. 6) are provided in Table 4.2-12.

Table 4.2-12. Representative O&M Activity B– Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks Per Day	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	3	6	6	6	Motor graders (graders)	1
Grading – earthwork	3	9	8	12	Skid steer loaders	1
					Tractors/loaders/ backhoes	1
Building construction 1 – concrete masonry curb and ditch	2	12	2	4	Pumps	1

Table 4.2-12. Representative O&M Activity B– Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks Per Day	Equipment	
					Equipment Type	*Quantity*
Building construction 2 – finish work	2	6	2	8	Skid steer loaders	1
					Tractors/loaders/ backhoes	1

Source: Metropolitan 2016.
Note: O&M = Operations and Maintenance.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

Structure Maintenance, Repair, and Replacement (O&M Activity Code Nos. 11 and 15)

Representative O&M Activity C: Structure Maintenance, Repair, and Replacement (O&M Activity Code No. 11)

Inland Feeder Station 573+94 was selected to represent an O&M activity location where structure maintenance, repair, and replacement activities (O&M Activity Code 11) are proposed, which is evaluated as Representative O&M Activity C. The issues at this site include trash and construction debris dumping by the public. The proposed solution includes installing a gate across the existing access road and connecting the gate to the existing chain link fence.

Construction scenario details for proposed O&M activities at Inland Feeder Station 573+94, which include structure maintenance, repair, and/or replacement (Representative O&M Activity C, O&M Activity Code No. 11), are provided in Table 4.2-13.

Table 4.2-13. Representative O&M Activity C – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation/ clean-up	2	9	2	8	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Gate installation	1	6	0	0	N/A	N/A

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance; N/A = not applicable (no equipment associated with the proposed construction phase).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

Representative O&M Activity D: Patrol Road Structural Repairs (O&M Activity Code No. 15)

Inland Feeder Station 3571+01 was selected to represent an O&M activity location where patrol road structural repairs activities (O&M Activity Code 15) are proposed, which is evaluated as Representative O&M Activity D. The issues at this site include grades through crossing and access

and the need for regrading after rain events. The proposed solution would potentially involve grading and reconstruction of the patrol road and turnaround. Additionally, two low water or Arizona crossings would be constructed.

Construction scenario details for proposed O&M activities at Inland Feeder Station 3571+01, which represents patrol road structural repairs (Representative O&M Activity D, O&M Activity Code No. 15), are provided in Table 4.2-14.

Table 4.2-14. Representative O&M Activity D – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation	4	6	0	0	Motor graders (graders)	1
Grading	4	6	0	0	Motor graders (graders)	1
					Rubber-tired loaders	1
					Tractors/loaders/ backhoes	1
Building construction 1 – install riprap	8	9	6	0	Tractors/loaders/ backhoes	1
Building construction 2 – concrete grout	4	18	2	0	N/A	N/A
Building construction 3 – finish work	4	6	2	0	Motor graders (graders)	1

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance; N/A = not applicable (no equipment proposed during this activity).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

4.2.5.3 Impact Analysis by Impact Threshold

Impact AQ-1: Conflict with Applicable Air Quality Plan

The proposed program area is located within the SCAB under the jurisdiction of the SCAQMD. The SCAQMD has established criteria for determining consistency with the 2016 AQMP. The criteria are as follows (SCAQMD 1993):

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

Consistency Criterion No. 1

A criteria air pollutant emissions modeling analysis that identified the proposed program's impact on air quality was performed under Impact AQ-2, and concluded that proposed program construction activities would result in less than significant impacts because concurrent construction of the maximum anticipated construction activities would not generate criteria air pollutant emissions that would exceed the SCAQMD thresholds. The SCAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. Implementation of the proposed program would result in VOC, NO_x, PM_{10}, or $PM_{2.5}$ emissions; however, proposed program-generated emissions would not exceed the SCAQMD thresholds. Therefore, the proposed program is not anticipated to contribute to the frequency or severity of existing air quality violations or delay timely attainment of the CAAQS/NAAQS or interim emission reductions in the 2016 AQMP.

Consistency Criterion No. 2

The proposed program area traverses multiple jurisdictions with distinct general plan land use designations and zoning designations; however, proposed CIP projects and O&M activities are related to maintenance of an existing utility. Work would be performed on/at existing structures and patrol roads, and would occur primarily within existing right of way that is currently used and/or previously disturbed by Metropolitan. The proposed program does not include changing existing land uses, land use designations, or applicable policies as designated in the general plans of the affected jurisdictions. Accordingly, the proposed program and future O&M activities are not anticipated to exceed the assumptions in the 2016 AQMP and would not generate employment not accounted for in the Southern California Association of Governments (SCAG) 2016 Regional Growth Forecast.

Summary

Because the proposed program does not propose a change in land use designations and would not generate employment that was not accounted for in the SCAG 2016 Regional Growth Forecast, and the proposed program would not generate emissions that would exceed the SCAQMD construction thresholds, impacts relating to the proposed program's potential to conflict with or obstruct implementation of the SCAQMD 2016 AQMP would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact AQ-2: Violation or Contribution to Violation of Air Quality Standards

Proposed CIP projects and O&M activities would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from

construction equipment at proposed project sites, as well as from off-site trucks hauling excavated earth materials. Construction emissions could vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Criteria air pollutant emissions associated with implementation of proposed CIP projects and O&M activities were quantified using CalEEMod, version 2016.3.2. Default values provided in CalEEMod were used where detailed project information was not available. A detailed depiction of the construction schedule including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles, is included Tables 4.2-7 through 4.2-9 for proposed CIP projects and Tables 4.2-11 through 4.2-14 for proposed O&M activities for each representative project and activity described in Section 4.2.5.1, Representative CIP Projects, and Section 4.2.5.2, Representative O&M Activities.

Construction of proposed CIP projects and O&M activities must adhere to SCAQMD Rules 401 (Visible Emissions), 403 (Fugitive Dust), and 431.2 (Sulfur Content of Liquid Fuels) during construction-related activities, which would assist in minimizing project-generated fugitive dust emissions and combustion pollutants. APM-AQ-2 specifies the BMPs that would be implemented during earthmoving activities to reduce fugitive dust emissions and demonstrate compliance with SCAQMD Rule 403. As specified in APM-AQ-1, off-road equipment over 50 horsepower would be fitted with engines rated Tier 4 Interim or higher (i.e., Tier 4 Final), which would substantially reduce combustion NO_x emissions.

For the purpose of this air quality analysis, all proposed program activities are evaluated as short-term construction-related activities and are compared to the SCAQMD construction thresholds for criteria air pollutants to determine the proposed program's potential to result in significant impacts to air quality.

CIP Projects

Construction assumptions for Representative CIP Projects A through C are presented in Tables 4.2-7 through Table 4.2-9. Table 4.2-15 presents the estimated maximum unmitigated daily construction emissions generated during construction of the three representative proposed CIP projects in 2020. Estimated maximum daily CIP project construction emissions for individual representative projects would not exceed the SCAQMD construction thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Maximum daily emissions were estimated for 2020 to represent the first year of anticipated construction. Maximum daily construction emissions in 2021 or later, compared to modeled emissions for 2020 would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

There is a potential for construction of proposed CIP projects to occur concurrently with construction of one or more other CIP projects; however, it is not anticipated that more than three CIP projects would occur simultaneously under normal scheduling practices. Regardless, the potential for the proposed program to result in significant impacts as a result of concurrent construction of CIP project and O&M activities is addressed following the O&M activity analysis in the following subsection.

Table 4.2-15. Proposed CIP Projects Estimated Maximum Daily Construction Emissions

Project	CIP Activity Code No.	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		pounds per day					
Representative CIP Project A: Patrol Road Improvements and Paving	1	0.32	6.39	7.86	0.02	14.37	1.56
Representative CIP Project B: Engineered Erosion Control	2	0.30	6.35	9.13	0.02	11.53	2.22
Representative CIP Project C: Slope Stabilization	3	0.32	7.54	7.56	0.02	17.26	1.85
Maximum daily emissions		**0.32**	**7.54**	**7.86**	**0.02**	**17.26**	**2.22**
SCAQMD threshold		*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?		No	No	No	No	No	No

Notes: CIP = Capital Investment Plan; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix E for complete results.
Year 2020 was conservatively assumed to represent the year of construction.
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust consistent with APM-AQ-2 and required by Rule 403.
All equipment over 50 horsepower was assumed to meet Tier 4 Interim standards per APM-AQ-1.

O&M Activities

Construction assumptions for Representative O&M Activities A through D are presented in Tables 4.2-11 through 4.2-14. Table 4.2-16 presents estimated maximum daily construction emissions resulting from routine and single-occurrence O&M activities in 2020.

Table 4.2-16. Proposed O&M Activities Estimated Maximum Daily Construction Emissions

Activity	O&M Activity Code No.	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		Pounds per Day					
Routine Patrol Road Maintenance							
Representative O&M Activity A: Patrol Road Grading:	1	—	—	—	—	—	—
High Maintenance	—	0.31	5.55	6.80	0.02	12.50	1.33
Moderate Maintenance	—	0.30	5.24	6.69	0.02	12.13	1.29
Low Maintenance	—	0.23	3.73	6.25	0.01	7.33	0.79

Table 4.2-16. Proposed O&M Activities Estimated Maximum Daily Construction Emissions

Activity	O&M Activity Code No.	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		Pounds per Day					
Representative O&M Activity B: Erosion Control	6	0.24	4.76	4.73	0.01	10.37	1.14
Routine Structure Maintenance, Repair, and Replacement							
Representative O&M Activity C: Structure Maintenance, Repair and Replacement	11	0.26	4.43	6.47	0.01	7.55	0.81
Single-Occurrence							
Representative O&M Activity D: Patrol Road Structural Repairs	15	0.31	4.78	9.48	0.02	15.88	1.67
Maximum daily emissions		**0.31**	**5.55**	**9.48**	**0.02**	**15.88**	**1.67**
SCAQMD threshold		*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?		No	No	No	No	No	No

Note: O&M = Operations and Maintenance; VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District. See Appendix E for complete results.
Year 2021 was conservatively assumed to represent the year of construction
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust consistent with APM-AQ-2 and required by Rule 403.
All equipment over 50 horsepower was assumed to meet Tier 4 Interim standards per APM-AQ-1.

As shown in Table 4.2-16, maximum daily emissions of individual representative O&M activities would not exceed the SCAQMD thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. The proposed program would also include future O&M activities that would result in emissions at a later time (2021 or later). Maximum daily construction emissions in 2021 or later would be slightly less than estimated for 2020 due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

As with the proposed CIP project construction, there is a potential for multiple O&M activities to occur simultaneously. The potential for program construction to result in significant impacts as a result of concurrent CIP projects and O&M activities is addressed below.

Potential Overlap of CIP Projects and O&M Activities

There is a potential for construction of proposed CIP projects and O&M activities to occur concurrently with construction of one or more CIP projects and/or O&M activities. The criteria air pollutant of concern (i.e., the pollutant that concurrent project construction would most likely exceed thresholds of) is PM_{10}. It is not anticipated that simultaneous construction of CIP projects and/or O&M activities would exceed the thresholds for VOCs, NO_x, CO, SO_x, or $PM_{2.5}$ without exceeding the PM_{10} threshold because PM_{10} is generated from equipment operation, vehicle travel, and earthwork, which are the primary sources of emissions. As such, PM_{10} is assumed to be the limiting criteria air pollutant in this analysis.

Based on the estimated emissions from CIP projects presented in Table 4.2-15, it is reasonable to anticipate that the maximum daily PM_{10} emissions would be within the range of approximately 12 to 17 pounds per day. Representative CIP Project C (CIP Activity Code No. 3) was estimated to result in the greatest emissions of PM_{10} (17.26 pounds per day) out of the three analyzed representative CIP projects. The majority of the CIP projects would include patrol road improvements and paving (Representative CIP Project A, CIP Activity Code No. 1), which was estimated to result in a maximum of approximately 14.37 pounds per day. However, for purposes of analyzing impacts associated with potential construction overlap, it is assumed that CIP projects could result in a maximum of 17.26 pounds per day of PM_{10}. The second greatest PM_{10} emissions resulted from construction of Representative CIP Project A, which, as previously mentioned, was estimated to be approximately 14.37 pounds per day of PM_{10}. Since the SCAQMD threshold for PM_{10} is 150 pounds per day, and assuming the CIP Activity Code No. 3 could generate approximately 17 pounds per day, it is estimated that construction activities of eight CIP projects would have to occur for emissions to exceed the SCAQMD PM_{10} threshold.

As shown in Table 4.2-14, Representative O&M Activity D, Patrol Road Structural Repairs (O&M Activity Code 15) was estimated to result in the greatest emissions of PM_{10} (15.88 pounds per day) out of the five analyzed representative O&M activities. Although Representative O&M Activity D is a single-occurrence activity, for purposes of the analysis of impacts resulting from potential construction overlap, it is assumed that O&M activities could result in a maximum of 16 pounds per day of PM_{10}. Therefore, it is estimated that nine O&M activities would have to occur simultaneously for proposed program-generated emissions to exceed the SCAQMD threshold of 150 pounds per day for PM_{10}.

Based on conservative assumptions and emissions estimates, and assuming maximum emissions associated with proposed CIP projects and O&M activities, proposed program-generated emissions could potentially exceed the SCAQMD PM_{10} threshold for construction if eight CIP projects or nine O&M activities, or an equivalent combination thereof, would occur simultaneously.

The proposed individual CIP projects and O&M activities would not exceed the SCAQMD thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Because the maximum number of concurrent construction projects and activities is anticipated to be six projects and/or activities (three CIP projects and three O&M activities), concurrent construction activities under the proposed program would also not exceed the SCAQMD threshold. With incorporation of APM-AQ-1 and APM-AQ-2 into the proposed program as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact AQ-3: Increase of Criteria Pollutant for which Program Region is Nonattainment

The impact analysis for this threshold is for the proposed program as a whole. The analysis is based on the cumulative contribution of pollutant emissions from all proposed CIP projects and O&M activities, as well as the current NAAQS and CAAQS attainment status of the SCAB.

The SCAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. Implementation of the proposed program would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Tables 4.2-15 and 4.2-16, which present maximum daily construction emissions from proposed CIP projects and O&M activities, respectively, construction emissions from individual CIP projects and O&M activities would not exceed the SCAQMD significance thresholds. In addition, as explained in the Impact AQ-2 assessment, simultaneous construction of multiple CIP projects and/or O&M activities would not exceed the SCAQMD construction thresholds because the maximum number of concurrent projects is anticipated to be less than the number of concurrent projects with combined emissions that would exceed thresholds. Because the proposed program is not expected to exceed the SCAQMD thresholds, the proposed program would thereby not conflict with the SCAQMD 2016 AQMP, which addresses the cumulative emissions in the SCAB. Project-specific impacts would be less than significant. Nonetheless, the proposed program includes APM-AQ-1 and APM-AQ-2, which would further reduce proposed program-generated emissions.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact AQ-4: Exposure of Sensitive Receptors to Pollutants

Construction Local Significance Thresholds Analysis

Individual proposed program construction activities would be temporary in nature. Representative CIP projects are estimated to range in duration from 10 to 36 days. Representative O&M activities that were evaluated were estimated to range in duration from 1 to 24 days. The intensity of the construction activities, including the number of equipment operating in a day, truck trips, and worker trips, would vary throughout the proposed program. The surrounding land uses and potential nearby sensitive receptors, as well as the distance to the closest sensitive receptor, would also vary depending on the location of the activity site.

Construction activities associated with the proposed program would result in temporary on-site sources of fugitive dust and construction equipment emissions. Off-site emissions from haul trucks, vendor trucks, and worker vehicle trips are not included in the LST analysis. It was conservatively assumed that sensitive receptors (such as residences) that would potentially be affected by

construction activity within an individual project or activity area could be located within 34 meters (112 feet) of the project/activity site. The most stringent SCAQMD LST threshold within the Western San Bernardino County Source-Receptor Areas, as shown in Table 4.2-5, are compared to the maximum daily on-site construction emissions and presented in Tables 4.2-17 and 4.2-18.

CIP Projects

Construction assumptions for Representative CIP Projects A through C are presented in Tables 4.2-7 through Table 4.2-9. Table 4.2-17 presents the estimated maximum unmitigated daily on-site construction emissions generated during construction of the three representative CIP projects and compares the emissions to the most stringent SCAQMD localized significance criteria.

Table 4.2-17. CIP Projects LST Analysis – On-Site Construction Emissions

Project	CIP Activity Code No.	NO_x	CO	PM_{10}	$PM_{2.5}$
		Pounds per Day			
Representative CIP Project A: Patrol Road Improvements and Paving	1	2.89	5.50	0.16	0.03
Representative CIP Project B: Engineered Erosion Control	2	4.52	8.45	2.37	1.31
Representative CIP Project C: Slope Stabilization	3	3.63	6.26	0.01	0.01
Maximum daily on-site construction emissions		**4.52**	**8.45**	**2.37**	**1.31**
Most stringent LST		*129*	*808*	*7*	*4*
Threshold exceeded?		No	No	No	No

Notes: CIP = Capital Investment Project; LST = localized significance threshold; NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix E for complete results.
Localized significance thresholds are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 34 meters (112 feet).
Year 2020 was conservatively assumed to represent the year of construction.
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust required by Rule 403.
All equipment over 50 horsepower was assumed to meet Tier 4 Interim standards per APM-AQ-1.

As shown in Table 4.2-17, maximum daily on-site construction emissions during proposed CIP project implementation would not exceed the most stringent LSTs. As such, site-specific CIP project construction impacts on ambient air quality at sensitive receptor locations would be less than significant.

O&M Activities

Construction assumptions for Representative O&M Activities A through D are presented in Tables 4.2-11 through 4.2-14. Table 4.2-18 presents estimated maximum daily on-site construction emissions generated during construction of the proposed routine and single-occurrence O&M activities and compares the emissions to the most stringent SCAQMD localized significance criteria.

Table 4.2-18. O&M Activities LST Analysis – On-Site Construction Emissions

Activity	O&M Activity Code No.	NO_x	CO	PM_{10}	$PM_{2.5}$
		Pounds per Day			
Routine Patrol Road Maintenance					
Representative O&M Activity A: Patrol Road Grading	1	—	—	—	—
High Maintenance	—	3.10	5.86	0.62	0.08
Moderate Maintenance	—	3.10	5.86	1.22	0.16
Low Maintenance	—	3.10	5.86	2.72	0.31
Representative O&M Activity B: Erosion Control	6	2.52	3.91	0.11	0.05
Routine Structure Maintenance, Repair, and Replacement					
Representative O&M Activity C: Structure Maintenance, Repair, and Replacement	11	3.10	5.86	0.16	0.03
Single-Occurrence					
Representative O&M Activity D: Patrol Road Structural Repairs	15	4.76	9.21	0.10	0.03
Maximum daily on-site construction emissions		***4.76***	***9.21***	***2.72***	***0.31***
Most stringent LST		*129*	*808*	*7*	*4*
Threshold exceeded?		No	No	No	No

Notes: O&M = operations and maintenance; LST = localized significance threshold; NO_x = oxides of nitrogen; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix E for complete results.
Localized significance thresholds are shown for 1-acre project sites corresponding to a distance to a sensitive receptor of 34 meters (112 feet).
Year 2020 was conservatively assumed to represent the year of construction.
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust consistent with APM-AQ-2 and required by Rule 403.
All equipment over 50 horsepower was assumed to meet Tier 4 Interim standards per APM-AQ-1.

Maximum daily on-site emissions of NO_x and CO resulted from construction (grading) of Representative O&M Activity D (O&M Activity Code No. 15) and maximum daily on-site emissions of PM_{10} and PM_2 resulted from construction (grading) of Representative O&M Activity A, low maintenance (O&M Activity Code No. 1). As shown in Table 4.2-18, proposed O&M activities would not generate emissions in excess of site-specific LSTs; therefore, site-specific O&M activity construction impacts on ambient air quality at sensitive receptor locations would be less than significant.

Potential Overlap of CIP Projects and O&M Activities

As previously discussed under Impact AQ-2, due to PM_{10} being the limiting criteria air pollutant, the number of concurrent construction CIP projects and O&M activities before exceeding the SCAQMD significance thresholds would be eight CIP projects or nine O&M activities, or an equivalent combination thereof. However, it is assumed that no more than three CIP projects and three O&M activities would be undertaken concurrently, nor is it anticipated that construction of projects and activities would occur within the same area and potentially impact the same nearby sensitive receptor. Accordingly, overlap of construction activities that would result in a greater potential impact to sensitive receptors is not anticipated. As previously discussed, APM-AQ-1 and APM-AQ-2 would be

incorporated into the proposed program to reduce proposed program-generated emissions and associated on-site impacts. Impacts associated with potential overlap of CIP and O&M activities would be less than significant.

Carbon Monoxide Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (level of service E or worse). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

Individual proposed program CIP projects and O&M activities would be temporary and would not be a source of daily, long-term mobile-source emissions. Accordingly, proposed activities would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots. In addition, due to continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing. Maximum background CO levels in Western San Bernardino County, as shown in Table 4.2-3, are less than 28 percent of the 1-hour and 8-hour NAAQS and CAAQS and would be expected to improve further due to reductions in motor vehicle emissions. Based on these considerations, the proposed program would result in a less than significant impact to air quality with regard to potential CO hotspots.

Toxic Air Contaminants

TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health (see Section 4.2.1, Existing Conditions). The greatest potential for TAC emissions during construction would be diesel particulate matter (DPM) emissions from heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. The majority of the proposed activities would occur within existing Metropolitan use areas or previously disturbed areas, as well as in open space, it is not anticipated that the greater portion of proposed program construction activities would be located close to sensitive receptors. Furthermore, construction would not occur in one area for an extended period of time.

The proposed program would not require the extensive use of heavy-duty construction equipment, which is subject to CARB's Airborne Toxic Control Measures for in-use diesel construction equipment to reduce DPM emissions, and it would not involve extensive use of diesel trucks. As shown in Tables

4.2-15 and 4.2-16, which present estimated maximum daily construction emissions from construction of the proposed CIP projects and O&M activities, construction activities would not generate substantial emissions of PM_{10} and emissions from individual projects would not exceed the SCAQMD maximum daily construction thresholds. In addition, with implementation of APM-AQ-1 as part of Metropolitan's standard practice, off-road equipment over 50 horsepower would be fitted with engines rated Tier 4 Interim or higher (i.e., Tier 4 Final), which would substantially reduce combustion PM_{10} emissions.

The construction period for the proposed program would occur during 2020 and 2021, an approximately 2-year time period, after which proposed program-related TAC emissions associated with the proposed CIP projects and O&M activities would cease. The proposed future, ongoing O&M activities are not expected to generate substantial emissions of criteria air pollutants or TACs. Since these future activities would are anticipated to involve fewer projects (daily and annual) and intensity of activities would be reduced, future emissions are expected to result in lower emissions than analyzed herein for the proposed program. Thus, the proposed program would not result in a long-term (i.e., 30-year) source of TAC emissions. As such, impacts related to exposure of sensitive receptors to proposed program-related TAC emission impacts during construction would be less than significant.

Health Impacts of Criteria Air Pollutants

Construction of the proposed program would generate criteria air pollutant emissions; however, the proposed program would not exceed the SCAQMD mass-emission thresholds. As presented in Table 4.2-2, the SCAB is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The potential health effects associated with pollutants are presented in Section 4.2.1 under "Pollutants and Effects."

VOCs and NO_x (precursors to O_3): Because the proposed program involves construction activities that would primarily be completed within 2 years and would not result in VOC or NO_x emissions that would exceed the SCAQMD thresholds, the proposed program is not anticipated to substantially contribute to regional O_3 concentrations and associated health impacts.

NO_2: In addition to O_3, NO_x contributes to potential exceedances of the NAAQS and CAAQS for NO_2. However, as shown in Table 4.2-3, Local Ambient Air Quality Data, the existing NO_2 concentrations are below the NAAQS and CAAQS. Thus, it is not expected that the proposed program's construction NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects.

CO: The associated CO hotspots were discussed previously as a less than significant impact. Thus, the proposed program's CO emissions would not contribute to the health effects associated with this pollutant.

PM_{10} and $PM_{2.5}$: The proposed program would not generate emissions of PM_{10} and $PM_{2.5}$ that would exceed the SCAQMD's thresholds and is not expected to cause any increase in related regional health effects for these pollutants.

The majority of the proposed program's projects would occur within a 2-year schedule; however, future, ongoing O&M activities would also occur. Because the anticipated maximum number of projects and/or activities that would occur concurrently is six projects and/or activities (three CIP projects and three O&M activities), concurrent construction activities under the proposed program would not exceed the SCAQMD thresholds for construction (discussed under Impact AQ-2). Accordingly, the proposed program would not result in a potentially significant contribution to regional concentrations of non-attainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.2.5.4 Impacts Summary

Table 4.2-19 presents a summary of the potential air quality impacts associated with implementation of the Western San Bernardino County DSIPP for CIP projects and O&M activities under each impact threshold analyzed in this PEIR.

Table 4.2-19. Air Quality Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact AQ-1: Would the program conflict with or obstruct implementation of the applicable air quality plan?			
All Proposed CIP Projects and O&M Activities	Less than significant	—	Less than significant
Impact AQ-2: Would the program violate any air quality standard or contribute substantially to an existing or projected air quality violation?			
All Proposed CIP Projects and O&M Activities	Less than significant	APM-AQ-1 APM-AQ-2	Less than significant
Impact AQ-3: Would the program result in a cumulatively considerable new increase of any criteria pollutant for which the program region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			
All Proposed CIP Projects and O&M Activities	Less than significant	APM-AQ-1 APM-AQ-2	Less than significant
Impact AQ-4: Would the program expose sensitive receptors to substantial pollutant concentrations?			
All Proposed CIP Projects and O&M Activities	Less than significant	APM-AQ-1 APM-AQ-2	Less than significant

4.2.6 Impacts Found Not to Be Significant

Impact AQ-5: Creation of Objectionable Odors

It is possible that odors could be released during construction of proposed CIP projects and O&M activities. Paints and enamels used for graffiti removal; coating, lubricants, and solvents used to clean Metropolitan structures during proposed O&M activities; and paving and construction equipment used for implementation of CIP projects could release objectionable odors. Chemicals used for maintenance and cleaning would be used in quantities small enough to be able to be transported on a utility vehicle and would not be used in concentrations substantial enough to significantly impact areas surrounding the project sites. In addition, the majority of projects associated with the proposed program are in remote areas located away from residences and other occupied facilities, so a limited number of people would be affected. The potential release of odors associated with construction equipment and maintenance and cleaning materials would be minor, temporary, and unlikely to impact a substantial number of people; therefore, impacts would be considered less than significant.

4.3 Biological Resources

This section of the program environmental impact report (PEIR) describes the existing biological resources, identifies associated regulatory framework, evaluates potential impacts, and identifies mitigation measures to reduce the level of significance for impacts associated with implementation of the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP or proposed program).

4.3.1 Methods of Analysis

For the purposes of analyzing existing biological resources conditions and the impacts resulting from the proposed program, 9,187 acres were evaluated. This acreage comprises proposed Capital Investment Plan (CIP) project locations, single-occurrence Operations and Maintenance (O&M) activity locations (which overlap with CIP projects), and existing pipeline alignments/rights-of-way and patrol roads plus a 500-foot buffer (proposed program area).

4.3.1.1 Literature Review

An extensive data and literature review of all special-status biological resources throughout the western portion of San Bernardino County (the County) was conducted. Special-status biological resources are those defined as follows: (1) species that have been given special recognition by federal, state, or local resource agencies due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as special status; (3) habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; (4) wildlife corridors and habitat linkages; and (5) jurisdictional aquatic resources (waters and wetlands) subject to the permitting authority of the U.S. Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW),[1] and Regional Water Quality Control Board (RWQCB). The California Environmental Quality Act (CEQA) requires public agencies to analyze and publicly disclose the environmental impacts from projects they approve. Metropolitan considered the following special-status biological resources for the CEQA analysis:

- **Plants** – species listed as threatened or endangered under the federal and state Endangered Species Acts (ESAs) and species with a California Rare Plant Rank (CRPR) of 1 or 2 as defined by CDFW (CDFW 2020)
- **Wildlife** – species listed as threatened or endangered under the federal and state ESAs; California Species of Special Concern, and Fully Protected species as defined by CDFW
- **Vegetation communities** – natural communities designated as sensitive by CDFW (CDFW 2019a).

[1] The California Department of Fish and Game (CDFG) was officially renamed the California Department of Fish and Wildlife (CDFW) as of January 1, 2013. Where references are made in this document to the department for background information, documents, permits, consultations, etc. prior to January 1, 2013, the title CDFG is used, and after January 1, 2013, CDFW is used.

The following sources were used during the literature review process to compile a list of potentially occurring special-status plants, and wildlife, and sensitive vegetation communities, and aquatic resources within the proposed program area:

- California Natural Diversity Database (CNDDB) (CDFW 2019b)
- Calflora (2019)
- CDFW California Wildlife Habitat Relationships (CDFG 2019c)
- CNPS Inventory of Rare, Threatened, and Endangered Plants of California, 10th online edition (CNPS 2019)
- U.S. Department of Agriculture Web Soil Survey (USDA 2019)
- U.S. Fish and Wildlife Service (USFWS) Critical Habitat and Occurrence Data (USFWS 2019)
- U.S. Geological Survey National Hydrography Dataset (USGS 2019a)
- Draft Environmental Impact Statement/Supplemental Environmental Impact Report Proposed Habitat Conservation Plan and Section 10 Permit for the Upper Santa Ana River Wash Plan (USFWS and SBVWCD 2019)
- Upper Santa Ana River Habitat Conservation Plan Final Phase I Report (ICF International 2014)
- South Coast Resource Management Plan (BLM 2011)

4.3.1.2 Vegetation Community and Land Cover Mapping

Between September and December 2015, Dudek biologists conducted vegetation community and land cover mapping within the proposed program area. This effort included a combination of data and literature review, geographic information system (GIS) database development, aerial photograph interpretation, and field verification. Previous vegetation community and land cover mapping efforts and datasets were used to the extent possible. An initial program-specific GIS data layer was created from three datasets (AECOM 2015; Dudek 2015; SCAG 2011) that were merged. Dudek biologists conducted aerial interpretation of current imagery to identify and annotate appropriate vegetation communities and land covers on the merged GIS layer. Following the aerial interpretation of the entire proposed program area, Dudek biologists conducted field verifications of areas of concern or areas that were difficult to identify during the aerial photograph review in September and December 2015. Field mapping edits were incorporated into the GIS database and an in-depth analysis was performed on the data set to correct duplicate or overlapping polygons, ensure edge matching, verify name and code attribution, and perform overall quality assurance/quality control. A complete description of the methodology is contained in the Vegetation Community and Land Cover Mapping Report (Dudek 2016), which is included in Appendix F-1 to this PEIR. During the jurisdictional delineation, described in Section 4.3.1.5, Jurisdictional Wetlands and Waters, minor adjustments to the vegetation mapping were made after the report was prepared.

Vegetation community alliances and associations were organized according to the List of California Terrestrial Natural Communities Recognized by the CNDDB (Natural Communities List; CDFG 2010[2]) within three life forms, referred to as formation classes: vegetation types dominated or characterized by trees (forest and woodlands), by shrubs (shrubland), and by herbaceous plants (herbaceous). The mapped vegetation communities were grouped by formation class. Because CDFW does not classify non-natural land covers or unvegetated communities, a fourth group was added for organization purposes: non-natural land covers/unvegetated communities. Alliances represent vegetation communities that illustrate broad-scale environmental differences of overall structure and dominant species. Associations take into account more detailed floristic patterns, including species that co-occur with the dominant species of the uppermost layer. Vegetation communities or land covers not listed in the Natural Communities List (CDFG 2010) were identified as a "mapping unit" with a descriptive name. In November 2019, CDFW published an updated California Sensitive Natural Communities List (2019a). The vegetation communities mapped in the field were compared with the updated 2019 list to ensure consistency with the latest version of the California Natural Communities List.

4.3.1.3 Special-Status Plant and Wildlife Species Habitat Modeling

The potential for special-status species to occur throughout the proposed program area was evaluated based on the literature review and database searches described above, development and analysis of species-specific habitat models, and focused field habitat assessments. Additionally, habitat for the federally listed endangered Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) was determined based on the mapping provided in the Delhi Sands Flower-Loving Fly (*Rhaphiomidas terminatus abdominalis*) 5-Year Review: Summary and Evaluation (USFWS 2008). Each species was given a rating of "not expected," "low," "medium," or "high" based on relative location to known occurrences (based on the CNDDB and USFWS occurrence data), vegetation communities (habitat) present, elevation ranges, and soils. Habitat models are a graphical representation of areas that may provide suitable habitat for a particular species (i.e., special-status species habitat). Habitat models were developed for special-status species that were determined to have a moderate to high potential for occurrence within the proposed program area using ArcGIS software. A suite of environmental factors were analyzed that could support the presence of these species within the proposed program area, including previous species observations, the location and elevation of certain natural vegetation communities, and soil types.

Field habitat assessments were then conducted on those species that were federally or state listed as threatened or endangered to verify and further refine the extent of each species' habitat within the proposed program area based on existing environmental and biological conditions. A series of field visits to these modeled habitat areas were conducted in September and October 2016 to refine the extent of each species' habitat based on existing environmental and biological conditions (habitat

[2] Updated using the most current California Sensitive Natural Communities list (CDFW 2019a).

assessment). Dudek biologists used digital imagery and georeferenced data on iPads, as well as hard-copy aerial photographs at 2,400 to 4,800 scale (1 inch = 200 feet to 1 inch = 400 feet) of the proposed program area to map suitable habitat for each species while walking or driving through the proposed program area. Following the field visits, updated suitable habitat determinations were made, including the potential for occurrence (not expected, low, moderate, or high) for each special-status species along each pipeline alignment.

4.3.1.4 Special-Status Plant and Wildlife Species Surveys

The information from the special-status plant and wildlife species habitat modeling was used to initiate focused USFWS protocol-level surveys for species that have suitable habitat within 500 feet of CIP project footprints and single-occurrence O&M activities. The following surveys were conducted in accordance with the established protocols set by the regulatory agencies:

- Focused special-status plant surveys – 694 acres (six surveys in May and June 2017). See Appendix F-2 for the full methodology of the surveys.
- Coastal California gnatcatcher (*Polioptila californica californica*) – 174 acres (30 surveys in May, June, and July 2017). See Appendix F-3 for the full methodology of the surveys.
- Least Bell's vireo (*Vireo bellii pusillus*) – 14.16 acres (eight surveys in May, June, and July 2017). See Appendix F-4 for the full methodology of the surveys.
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*) – 11.25 acres (15 surveys in November and December 2017). See Appendix F-5 for the full methodology of the surveys.

Additional coastal California gnatcatcher and San Bernardino kangaroo rat surveys, which are included in Appendix F-6, were conducted in 2019 for another Metropolitan project that overlaps one CIP project location.

4.3.1.5 Jurisdictional Wetlands and Waters

Delineation of potential federal and state jurisdictional wetlands and waters in accordance with Sections 401 and 404 of the Clean Water Act, the Porter-Cologne Water Quality Protection Act, and Section 1602 of the California Fish and Game Code was first conducted by AECOM (2015) for the program area. Dudek updated the delineation in 2016, 2017, and 2019 (Dudek n.d.). The delineation included reconnaissance-level surveys to ground truth potential waters in the program area. Focused field surveys to delineate federal and state jurisdictional wetlands and waters were only conducted for the CIP project/single-occurrence O&M activity sites.

ACOE- and RWQCB-jurisdictional wetlands were delineated in accordance with the ACOE 1987 Manual for the Delineation of Wetlands (TR Y-87-1) (ACOE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (ACOE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region

of the Western United States: A Delineation Manual (ACOE 2008b) was used to determine the limits of non-wetland waters. CDFW jurisdiction is delineated to the bank of the streams/channels or to the limit of the adjacent riparian vegetation. For shallow drainages and washes that do not support riparian vegetation, the top of bank measurement may be the same as the ordinary high water mark measurement. A total of 13 CIP projects/single-occurrence O&M activity work areas (O&M Activity Code No. 15), plus a 500-foot buffer, were investigated to determine whether jurisdictional waters were present.

4.3.2 Existing Conditions

The following discussion summarizes the existing biological resources present within the proposed program area, and includes a description of the vegetation communities, special-status species, jurisdictional waters and wetlands, and wildlife corridors and movement.

4.3.2.1 Vegetation Communities and Land Covers

A majority of the proposed program area occurs within developed and urban areas of the western portion of San Bernardino County. However, large areas of dedicated open space support natural upland and aquatic vegetation communities throughout the region. Detailed descriptions of the vegetation community alliances/associations and land cover types, as well as maps, are provided in Appendix F-1.

Formation Classes

Brief descriptions of the four formation classes used to organize the numerous vegetation communities and land covers are provided in the following paragraphs.

Forest and Woodlands Alliances and Stands

There are approximately 165 acres of habitat in the forest and woodlands alliances and stands, with three general formation or habitat types: cool temperate forest, riparian forest, and warm temperate forest. The forest and woodlands alliances and stands represent approximately 2 percent of the proposed program area.

Shrubland Alliances and Stands

There are approximately 1,897 acres of habitat in the shrubland alliances and stands, with three general formations or habitat types: coastal scrub, mixed chaparral, and riparian scrub. The shrubland alliances and stands represent approximately 21 percent of the proposed program area.

Herbaceous Alliances and Stands

There are approximately 1,059 acres of habitat in the herbaceous alliances and stands, with two general formations or habitat types: annual grassland and fresh emergent wetland. Herbaceous alliances and stands represent approximately 12 percent of the proposed program area.

Non-Natural Land Covers/Unvegetated Communities

There are approximately 6,066 acres of non-natural land covers/unvegetated communities, with four general formations or habitat types: agriculture, basins and watercourses, developed, and water. Non-natural land covers are characterized by limited native vegetation resulting in low-function ecological processes. Many have been altered from their natural states for human uses, and provide little habitat and foraging potential for wildlife due to the lack of significant cover by native vegetation. Non-natural land covers represent approximately 66 percent of the proposed program area.

Sensitive Vegetation Communities

Several vegetation communities within the proposed program area are considered sensitive by CDFW (CDFW 2019a) and are summarized in Table 4.3-1.

Table 4.3-1. Sensitive Vegetation Communities within the Proposed Program Area

Formation or Generalized Habitat Type	Alliance Name[a]	DSIPP Mapping Name
Forest and Woodlands Alliances and Stands		
Riparian Forest	*Platanus racemosa* (California sycamore woodlands) Alliance	California Sycamore Alliance
	Quercus agrifolia (coast live oak woodland) Alliance	Coast Live Oak–Arroyo Willow Association
	Populus fremontii (Fremont cottonwood forest) Alliance	Fremont Cottonwood Alliance
Warm Temperate Forest	*Juglans californica* (California walnut groves) Alliance	California Walnut Alliance
Shrubland Alliances and Stands		
Coastal Scrub	*Salvia apiana* (white sage scrub) Alliance	White Sage Scrub
	Eriogonum fasciculatum–Salvia apiana (California buckwheat–white sage scrub) Alliance	California Buckwheat–White Sage Scrub
Mixed Chaparral	*Rhus trilobata* (basket bush thickets) Provisional Alliance	Basket Bush Patches
	Prunus ilicifolia (holly leaf cherry chaparral) Alliance	Holly Leaf Cherry Chaparral

Table 4.3-1. Sensitive Vegetation Communities within the Proposed Program Area

Formation or Generalized Habitat Type	Alliance Name[a]	DSIPP Mapping Name
Riparian Scrub	*Lepidospartum squamatum* (scale broom scrub) Alliance	Scale Broom Scrub
	Sambucus nigra (Blue elderberry) Alliance	Blue Elderberry Stands
Herbaceous Alliances and Stands		
Freshwater Emergent Wetland	*Schoenoplectus californicus* (California bulrush marsh) Alliance	California Bulrush Marsh

Notes: DSIPP = Western San Bernardino County Distribution System Infrastructure Protection Program.

[a] CDFW 2019a.

Appendix F-7 provides figures for each CIP project/single-occurrence O&M activity site and the biological resources mapped in the 500-foot study area. Table 4.3-2 summarizes the vegetation communities found within the 13 CIP project/single-occurrence O&M activity sites and associated 500-foot study area based on the vegetation mapping conducted for the proposed program area.

Table 4.3-2. Vegetation Communities and Land Covers on the CIP Project/Single-Occurrence O&M Activity Sites and Associated 500-Foot Study Area

Station ID	Mapped Vegetation/Land Cover
Inland Feeder	
Station 19+55	Brittle Bush Alliance, California Buckwheat Alliance, California Sagebrush Alliance, Disturbed or Barren Mapping Unit, Transportation Mapping Unit
Station 266+15[a]	Annual Grassland Mapping Unit, Chamise Alliance (disturbed), Disturbed or Barren Mapping Unit
Station 288+90	California Sycamore Alliance,[b] California Buckwheat–Brittle Bush Association, California Sagebrush Alliance, Disturbed or Barren Mapping Unit
Station 290+15	California Sycamore Alliance,[b] California Buckwheat–Brittle Bush Association, California Sagebrush–California Buckwheat Alliance, California Sagebrush–California Buckwheat Disturbance Mapping Unit, California Sagebrush Alliance, Disturbed or Barren Mapping Unit, Transportation Mapping Unit
Station 573+94	Transportation Mapping Unit, Brittle Bush Alliance, Nonurban Commercial/Industrial/Institutional Mapping Unit
Station 592+31	Disturbed or Barren Mapping Unit, California Sagebrush Alliance, Brittle Bush Alliance, California Sagebrush–California Buckwheat Disturbance Mapping Unit, Tamarisk Thickets Semi-Natural Stands, Transportation Mapping Unit
Station 660+00	California Buckwheat Alliance, Brittle Bush Alliance, Disturbed or Barren Mapping Unit
Station 733+15	California Buckwheat Disturbance Mapping Unit, Disturbed or Barren Mapping Unit, Transportation Mapping Unit
Station 813+00	Scale Broom Alliance,[b] Unvegetated Channels Mapping Unit, Disturbed or Barren Mapping Unit, Annual Grassland Mapping Unit, California Buckwheat Alliance, California Juniper Alliance, Mulefat Alliance
Stations 822+10, 824+20	Scale Broom Alliance,[b] Mulefat Alliance, California Buckwheat Alliance, Disturbed or Barren Mapping Unit, California Juniper Alliance, Nonurban Commercial/Industrial/Institutional Mapping Unit, Transportation Mapping Unit
Station 1079+50	Disturbed or Barren Mapping Unit, Transportation Mapping Unit

Table 4.3-2. Vegetation Communities and Land Covers on the CIP Project/Single-Occurrence O&M Activity Sites and Associated 500-Foot Study Area

Station ID	Mapped Vegetation/Land Cover
Rialto Pipeline	
Station 3571+01	California Sagebrush Alliance, California Sagebrush–California Buckwheat Alliance, California Sagebrush–California Buckwheat Disturbance Mapping Unit, Scale Broom Alliance,[b] Unvegetated Channels Mapping Unit, Disturbed or Barren Mapping Unit, Ruderal Grassland Mapping Unit, Transportation Mapping Unit
Upland Feeder	
Station 1073+90	Ruderal Grassland Mapping Unit, Transportation Mapping Unit

Source: Appendix F-1.
Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance.
[a] Includes Stations 267+81 and 271+24.
[b] Sensitive community (CDFW 2019a).

4.3.2.2 Special-Status Plants

As described in Section 4.3.1.3, Special-Status Plant and Wildlife Species Habitat Modeling, prior to conducting surveys for special-status plants, an extensive desktop review was conducted of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the proposed program area (Section 4.3.1.1, Literature Review). Each special-status plant species was assigned a rating of "not expected," "low," "moderate," or "high" potential to occur based on relative location to known occurrences, vegetation communities, soil, and elevation. The results of the literature review and database searches are provided in Appendix F-8. It is important to note that the potential to occur determinations were made prior to surveys to determine which species needed to be surveyed.

Federally and state-listed plants with at least a low potential to occur and plants with a CRPR of 1 or 2 with a moderate or high potential to occur were surveyed for during the appropriate season. Table 4.3-3 lists the special-status plant species that were found during the focused surveys that were conducted during the appropriate seasons in 2017. The 2016–2017 rainy season was an above-average rainfall year (NOAA 2020), which led to a substantial bloom of the region's native plant species. Two special-status plant species were observed within the program area: Parry's spineflower (*Chorizanthe parryi* var. *parryi*; CRPR 1B.1) and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*; federally and state-listed endangered). None of the Parry's spineflower and Santa Ana River woollystar observed and mapped were within the proposed construction footprints for the CIP project sites. An additional 6,635 Parry's spineflower and 7 Santa Ana River woollystar were mapped in the proposed program area. Appendix F-2 contains a series of maps that illustrate the locations of these mapped individuals as well as the full results of the focused surveys. Appendix F-7 contains a series of maps that illustrate the mapped individuals in relation to the CIP project/single-occurrence O&M activity sites.

Based on negative results of the focused special-status plant surveys in 2017, the special-status species that were not observed during the survey (listed in Appendix F-8) are also not expected to occur within the survey areas shown in Appendix F-2. The construction footprint was refined to include existing patrol roads that would be used for access to some of the CIP project/single-occurrence O&M activity sites, some of which fell outside the 2017 special-status plant survey area. Because these areas are existing roads, they are mapped as the Non-Natural Land Covers/Unvegetated Communities mapping type, as shown in Appendix F-7. These existing roads are regularly driven and maintained as part of routine O&M activities, which limits the potential for special-status species to occur on them.

Table 4.3-3. Special-Status Plant Species Found within the 500-Foot Buffer of the CIP Project/Single-Occurrence O&M Activity Sites

Common Name *Scientific Name*	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (ft amsl)	Survey Results
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; sandy or rocky, openings/annual herb/Apr–June/902–4,003	**Inland Feeder Sta 813+00** Approximately 70 individuals were mapped within approximately 300 feet of the site.
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	Chaparral, coastal scrub (alluvial fan); sandy or gravelly/perennial herb/Apr–Sep/299–2,001	**Inland Feeder Sta 813+00, Sta 822+10, and Sta 824+20** Approximately 173 individuals observed with the nearest being approximately 300 feet from Sta 813+00.

Source: Appendix F-2.
Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance; ft amsl = feet above mean sea level; Sta = Station.

Federally Designated Critical Habitat: There is approximately 1.5 acres of the Inland Feeder portion within designated critical habitat for thread-leaved brodiaea (*Brodiaea filifolia*). The proposed CIP project locations, single-occurrence O&M activity locations, and existing pipeline alignments/rights-of-way and patrol roads are outside the critical habitat for this species.

4.3.2.3 Special-Status Wildlife

As described in Section 4.3.1.3, prior to conducting surveys for special-status wildlife, an extensive desktop review was conducted of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the proposed program area (Section 4.3.1.1). Each special-status wildlife species was given a rating of "not expected," "low," "medium," or "high" based on relative location to known occurrences, vegetation communities, soils, and elevation. Based on the analysis, 99 special-status wildlife species were identified as potentially occurring within the proposed program area. Of these, 30 wildlife species have a moderate or high potential to occur within the proposed program area. As with special-status plants, due to the varying habitats, soils, and elevation ranges along each of the five pipelines, most wildlife species have varying potential to occur based on location. Table 4.3-4 includes the special-status wildlife species

with either a moderate potential or a high potential to occur within the proposed program area. Appendix F-9 lists the 99 special-status wildlife species identified as occurring within the region of the proposed program area and their potential to occur. Based on results of the habitat models, field habitat assessments, and focused surveys, suitable habitat is found within the proposed program area for the special-status wildlife species listed in Table 4.3-4.

Table 4.3-4. Special-Status Wildlife Species with a Moderate to High Potential to Occur in the Proposed Program Area

Common Name Scientific Name	Federal/State Status	Proposed Program Area				
		Etiwanda Pipeline	*Inland Feeder*	*Rialto Pipeline*	*Upper Feeder*	*Yorba Linda Feeder*
Insects						
Delhi sands flower-loving fly *Rhaphiomidas terminatus abdominalis*	FE/None	—	—	—	✓	—
Amphibians						
western spadefoot *Spea hammondii*	None/SSC	—	✓	✓	—	✓
Reptiles						
silvery legless lizard *Anniella stebbinsi*	None/SSC	✓	✓	✓	✓	✓
California glossy snake *Arizona elegans occidentalis*	None/SSC	—	✓	✓	—	✓
orangethroat whiptail *Aspidoscelis hyperythra*	None/SSC	—	✓	✓	✓	✓
red diamondback rattlesnake *Crotalus ruber*	None/SSC	✓	✓	✓	✓	✓
Blainville's horned lizard *Phrynosoma blainvillii*	None/SSC	✓	✓	✓	✓	✓
coast patch-nosed snake *Salvadora hexalepis virgultea*	None/SSC	✓	✓	✓	✓	—
two-striped gartersnake *Thamnophis hammondii*	None/SSC	—	✓	✓	✓	✓
Birds						
tricolored blackbird *Agelaius tricolor* (nesting colony)	None/ST	✓	—	—	—	✓
grasshopper sparrow *Ammodramus savannarum* (nesting)	None/SSC	✓	✓	✓	✓	✓
long-eared owl *Asio otus* (nesting)	None/SSC	—	✓	—	—	✓

Table 4.3-4. Special-Status Wildlife Species with a Moderate to High Potential to Occur in the Proposed Program Area

Common Name Scientific Name	Federal/State Status	Proposed Program Area				
		Etiwanda Pipeline	*Inland Feeder*	*Rialto Pipeline*	*Upper Feeder*	*Yorba Linda Feeder*
burrowing owl *Athene cunicularia* (burrow sites and some wintering sites)	None/SSC	✓	✓	✓	✓	✓
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	None/SSC	—	✓	✓	—	—
yellow-breasted chat *Icteria virens* (nesting)	None/SSC	—	✓	—	—	✓
loggerhead shrike *Lanius ludovicianus* (nesting)	None/SSC	—	✓	✓	✓	✓
coastal California gnatcatcher *Polioptila californica californica*	FT/SSC	—	✓	✓	✓	—
yellow warbler *Setophaga petechia* (nesting)	None/SSC	—	✓	—	—	✓
least Bell's vireo *Vireo bellii pusillus* (nesting)	FE/SE	—	✓	—	—	✓
Mammals						
pallid bat *Antrozous pallidus*	None/SSC	—	✓	—	—	✓
Dulzura pocket mouse *Chaetodipus californicus femoralis*	None/SSC	—	✓	✓	—	—
northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	None/SSC	✓	✓	✓	✓	—
San Bernardino kangaroo rat *Dipodomys merriami parvus*	FE/SC	✓	✓	✓	—	—
western mastiff bat *Eumops perotis californicus*	None/SSC	✓	✓	✓	✓	✓
western yellow bat *Lasiurus xanthinus*	None/SSC	—	✓	✓	✓	✓
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	None/SSC	✓	✓	—	✓	✓
San Diego desert woodrat *Neotoma lepida intermedia*	None/SSC	—	✓	✓	✓	—
southern grasshopper mouse *Onychomys torridus ramona*	None/SSC	—	✓	✓	✓	—

Table 4.3-4. Special-Status Wildlife Species with a Moderate to High Potential to Occur in the Proposed Program Area

Common Name Scientific Name	Federal/State Status	Proposed Program Area				
		Etiwanda Pipeline	*Inland Feeder*	*Rialto Pipeline*	*Upper Feeder*	*Yorba Linda Feeder*
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	None/SSC	—	✓	✓	—	—
American badger *Taxidea taxus*	None/SSC	—	✓	✓	—	✓

Status:
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
ST: State listed as threatened
SC: State listed as candidate
SSC: California special concern species

Federally Designated Critical Habitat: Approximately 44 acres of the Inland Feeder portion of the proposed program area is within critical habitat for Santa Ana sucker (*Catostomus santaanae*). Approximately 6 acres of the Inland Feeder portion of the proposed program area is within critical habitat for southwestern willow flycatcher (*Empidonax traillii extimus*); however, the species was assessed as having a low potential to occur due to only marginal habitat being present (see Appendix F-9). Approximately 2,157 acres of the Inland Feeder portion of the proposed program area are within critical habitat for San Bernardino kangaroo rat.

Special-Status Wildlife and the CIP Project Sites

Special-status wildlife species with a moderate to high potential to occur in the program area were further evaluated to determine their potential to occur at each of the 13 CIP project locations and single-occurrence O&M activity sites. The special-status wildlife species with a moderate to high potential to occur in these locations are summarized in Table 4.3-5.

Protocol presence/absence surveys for coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat were conducted for the CIP projects and single-occurrence O&M activities that occurred in modeled habitat for the species. Table 4.3-6 lists the results of the surveys for these species on the CIP project sites conducted in 2017 (Appendices F-3, F-4, F-5, and F-6). Appendix F-7 contains a series of maps that illustrate the mapped individuals in relation to the CIP project/single-occurrence O&M activity sites.

Table 4.3-5. Special-Status Wildlife Species That Have a Moderate to High Potential to Occur in the 500-Foot Study Area Proposed CIP Projects and Single-Occurrence O&M Activity Sites

Common Name Scientific Name	Federal/State/ CRPR Status	Station Numbers												
		19+55	266+15[a]	288+90	290+15	573+94	592+31	660+00	733+15	813+00	822+10, 824+20	1079+50	3571+01[b]	1073+90
Amphibians														
western spadefoot *Spea hammondii*	None/SSC	✓	—	—	—	—	—	—	✓	✓	✓	—	—	—
Reptiles														
silvery legless lizard *Anniella stebbinsi*	None/SSC	✓	✓	✓	✓	✓	✓	—	—	✓	✓	—	✓	—
California glossy snake *Arizona elegans occidentalis*	None/SSC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	—
red diamondback rattlesnake *Crotalus ruber*	None/SSC	—	—	—	—	—	—	—	✓	✓	✓	—	—	—
Blainville's horned lizard *Phrynosoma blainvillii*	None/SSC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	—
coast patch-nosed snake *Salvadora hexalepis virgultea*	None/SSC	✓	—	—	—	—	—	✓	✓	✓	✓	—	✓	—
two-striped gartersnake *Thamnophis hammondii*	None/SSC	✓	—	✓	✓	✓	✓	✓	✓	✓	✓	—	—	—
Birds														
long-eared owl *Asio otus* (nesting)	None/SSC	✓	—	✓	✓	✓	✓	—	—	—	—	—	—	—
burrowing owl *Athene cunicularia* (burrow sites and some wintering sites)	None/SSC	—	—	—	—	—	—	—	✓	—	—	—	✓	✓

Table 4.3-5. Special-Status Wildlife Species That Have a Moderate to High Potential to Occur in the 500-Foot Study Area Proposed CIP Projects and Single-Occurrence O&M Activity Sites

Common Name Scientific Name	Federal/State/ CRPR Status	Station Numbers												
		19+55	266+15[a]	288+90	290+15	573+94	592+31	660+00	733+15	813+00	822+10, 824+20	1079+50	3571+01[b]	1073+90
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	None/SSC	—	—	—	—	—	—	✓	✓	✓	✓	—	—	—
yellow-breasted chat *Icteria virens* (nesting)	None/SSC	✓	—	✓	✓	✓	✓	—	—	—	—	—	—	—
loggerhead shrike *Lanius ludovicianus* (nesting)	None/SSC	✓	—	—	—	—	—	✓	✓	✓	✓	—	✓	—
coastal California gnatcatcher *Polioptila californica californica*	FT/SSC	—	—	—	—	✓	✓	✓	—	✓	✓	—	✓	—
yellow warbler *Setophaga petechia* (nesting)	None/SSC	✓	—	✓	✓	✓	✓	—	—	—	—	—	—	—
least Bell's vireo *Vireo bellii pusillus* (nesting)	FE/SE	✓	—	✓	✓	✓	✓	—	—	—	—	—	—	—
Mammals														
pallid bat *Antrozous pallidus*	None/SSC	✓	✓	✓	✓	✓	✓	—	—	—	—	—	—	—
Dulzura pocket mouse *Chaetodipus californicus femoralis*	None/SSC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	—
northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	None/SSC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	—

Table 4.3-5. Special-Status Wildlife Species That Have a Moderate to High Potential to Occur in the 500-Foot Study Area Proposed CIP Projects and Single-Occurrence O&M Activity Sites

Common Name Scientific Name	Federal/State/ CRPR Status	Station Numbers												
		19+55	266+15[a]	288+90	290+15	573+94	592+31	660+00	733+15	813+00	822+10, 824+20	1079+50	3571+01[b]	1073+90
San Bernardino kangaroo rat *Dipodomys merriami parvus*	FE/SC	—	—	—	—	—	—	✓	✓	✓	✓	—	✓	—
western mastiff bat *Eumops perotis californicus*	None/SSC	✓	✓	✓	✓	✓	✓	—	—	—	—	—	—	—
western yellow bat *Lasiurus xanthinus*	None/SSC	✓	—	✓	✓	✓	✓	—	—	—	—	—	—	—
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	None/SSC	✓	—	—	—	—	—	✓	✓	✓	✓	—	✓	—
San Diego desert woodrat *Neotoma lepida intermedia*	None/SSC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	—
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	None/SSC	✓	—	—	—	✓	✓	✓	✓	✓	✓	—	✓	✓

Table 4.3-5. Special-Status Wildlife Species That Have a Moderate to High Potential to Occur in the 500-Foot Study Area Proposed CIP Projects and Single-Occurrence O&M Activity Sites

Common Name Scientific Name	Federal/State/ CRPR Status	Station Numbers												
		19+55	266+15[a]	288+90	290+15	573+94	592+31	660+00	733+15	813+00	822+10, 824+20	1079+50	3571+01[b]	1073+90
American badger *Taxidea taxus*	None/SSC	✓	—	✓	✓	—	✓	—	—	—	—	—	—	—

Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance; CRPR = California Rare Plant Rank.

Status:

Federal

FE: Federally listed as endangered
FT: Federally listed as threatened

State

SE: State listed as endangered
ST: State listed as threatened
SC: State listed as candidate
SSC: California special concern species

[a] Includes Stations 267+81 and 271+24.
[b] Includes the three single-occurrence O&M activity sites.

Table 4.3-6. Special-Status Wildlife Species Found within the 500-Foot Buffer of the CIP Project/ Single-Occurrence O&M Activity Sites

Common Name *Scientific Name*	Habitat	Survey Results
coastal California gnatcatcher *Polioptila californica californica*	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	**Inland Feeder Sta 19+55** One adult female and one fledgling were visually detected, with the nearest observation occurring approximately 330 feet to the west of the site on the other side of the riparian vegetation associated with Devil Canyon Creek. Given the presence of the adult and fledgling, it is assumed at least one breeding pair is present within the study area for the station.
		An additional five pairs and one territorial male were observed in the survey area for previously proposed CIP projects that are no longer included in the CIP project analysis, but are still within the proposed program area.[a]
least Bell's vireo *Vireo bellii pusillus*	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	**Inland Feeder Sta 19+55** One lone male was visually detected in the riparian vegetation associated with Devil Canyon Creek immediately adjacent to the west of the site. The male was not detected with a female and a nest was not observed.
		Inland Feeder Sta 592+31 Two individuals were acoustically detected, with the nearest being approximately 490 feet to the east in riparian vegetation associated with City Creek. Nesting was not confirmed.
		Inland Feeder Sta 573+94 Two individuals were acoustically detected, with the nearest being approximately 440 feet to the east. Nesting was not confirmed. State Route 330 is also to the east, between the station and the locations of the individuals detected.
		Incidental observations in the vicinity of **Sta 592+31** and **Sta 573+94** of three individuals were made during other surveys, but the sightings were outside of the 500-foot buffer for the two CIP project sites.

Table 4.3-6. Special-Status Wildlife Species Found within the 500-Foot Buffer of the CIP Project/ Single-Occurrence O&M Activity Sites

Common Name *Scientific Name*	Habitat	Survey Results
San Bernardino kangaroo rat *Dipodomys merriami parvus*	Sparse scrub habitat, alluvial scrub/ coastal scrub habitats on gravelly and sandy soils near river and stream terraces	**Inland Feeder Sta 660+00** One individual was trapped within 8 feet of the construction footprint of the CIP project site.
		Inland Feeder Sta 733+15 One individual was trapped within the construction footprint of the CIP project site.
		Inland Feeder Sta 813+00 One individual was trapped within 2 feet of the construction footprint of the CIP project site.
		Inland Feeder Sta 822+10 Four individuals were trapped, with the closest trapping location being within 20 feet of the CIP project site.
		An additional 19 individuals were caught during surveys for previously proposed CIP projects that are no longer included in the CIP project analysis but that are still within the proposed program area.[b]

Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance.
[a] Inland Feeder Sta 914+10, Upper Feeder Sta 728+50.
[b] Rialto Pipeline Sta 3901+02; Inland Feeder Stas 735+40, 745+00, 791+00, 802+94, 940+80, 945+10.

4.3.2.4 Jurisdictional Wetlands and Waters

The program area intersects six main watersheds (from west to east): Lower San Gabriel River, Chino Creek, Middle Santa Ana River, Lytle Creek, Upper Santa Ana River, and San Timoteo Wash. Aside from certain open space areas such as Chino Hills State Park and the foothills of the San Bernardino, San Gabriel, and Jurupa mountains, these watersheds are dominated by urban development and drained through a network of underground storm drains and engineered flood control channels. The U.S. Geological Survey Watershed Boundary Dataset was used to identify the watersheds in the program area (USGS 2019b). The proposed program is within the 11,100-square-mile "Southern California Coastal" subregion (Hydrologic Unit Code [HUC] 1807), which identifies areas that eventually drain to the Pacific Ocean versus those that drain to the interior deserts of California. Figure 4.3-1, Watersheds and Hydrology, illustrates the watersheds and watercourses in the proposed program area.

The program area traverses both open space areas, which feature ephemeral creeks and drainages, and entirely urbanized areas, which are served by an extensive system of storm drains and engineered channels. Urbanization has irreversibly altered the natural watershed processes and hydrologic regimes in the flatland portion of the program area, although some of the pipelines cross upland open space areas where the hydrology remains largely governed by natural processes. Upland and/or open space areas traversed by pipelines in the program area include Chino Hills (Yorba Linda Feeder Stations 560+44 to 704+21), the Jurupa Mountains (Upper Feeder Stations 687+00 to 736+54), Lytle Creek and Cajon Wash (Rialto Pipeline Stations 3843+00 to 4000+00), and the mouths of Waterman Canyon/Twin Canyon (Inland Feeder Stations 225+00 to 295+00) and Cable Creek/Devil Canyon (Inland Feeder Stations 0+00 to 42+00). Table 4.3-7 describes the watersheds, creeks, and channels crossing each of the proposed program pipelines. Figure 4.3-1 illustrates the watersheds and watercourses in the proposed program area. Appendix F-10 contains a series of maps that illustrate the potential federal- and state-jurisdictional wetlands and waters delineated within the proposed CIP project/single-occurrence O&M activity sites.

Table 4.3-7. Watersheds and Watercourses in the Program Area

USGS Watershed	Size (sq km)	Metropolitan Pipelines	Creeks and Drainages That Cross the Program Area
Lower San Gabriel River	718	Yorba Linda Feeder	Tonner Canyon Creek, unnamed streams/ditches
Chino Creek	600	Upper Feeder, Rialto Pipeline	Deer Creek, Cucamonga Creek, San Antonio Creek Channel, unnamed streams/ditches
Middle Santa Ana River	757	Upper Feeder, Rialto Pipeline, Etiwanda Pipeline	East Etiwanda Creek, Day Creek, unnamed streams/ditches
Lytle Creek	421	Rialto Pipeline, Inland Feeder	Lytle Creek, Cajon Wash, Cable Creek, Devil Canyon Creek, unnamed streams/ditches
Upper Santa Ana River	657	Inland Feeder	Santa Ana River, City Creek, Plunge Creek, East Twin Creek, Highland Canal, Redlands Aqueduct, Devil Canyon Creek, Waterman Canyon Creek, Strawberry Creek, unnamed streams/ditches
San Timoteo Wash	315	Inland Feeder	Unnamed streams/ditches

Source: USGS 2019b.
Notes: USGS = U.S. Geological Survey; sq km = square kilometers.

Jurisdictional Wetlands and Waters and the CIP Project/Single-Occurrence O&M Activity Sites

Table 4.3-8 summarizes the delineated potential federal and state jurisdictional wetlands and waters within the proposed CIP project/single-occurrence O&M activity sites. With respect to ACOE-jurisdictional waters of the United States, including wetlands, ACOE makes the jurisdictional determination. CDFW and RWQCB also may request a site visit to review the jurisdictional delineation and may potentially change the limits of delineation. Therefore, the jurisdictional determinations

provided are preliminary and only identify the potential for jurisdictional areas to be affected by the proposed program in accordance with the CEQA thresholds (Section 4.3.4, Thresholds of Significance).

Table 4.3-8. Summary of Jurisdictional Waters Found within the 500-Foot Buffer of the CIP Project/Single-Occurrence O&M Activity Sites

CIP Project/Single-Occurrence O&M Activity Site	ACOE, CDFW, and RWQCB Wetlands (Acres)	ACOE, CDFW, and RWQCB Non-Wetland Waters (Acres)	CDFW-Only Jurisdiction (Acres)
Inland Feeder			
Sta 19+55	0.95	—	2.42
Sta 266+15[a]	—	—	1.26
Sta 288+90	—	0.18	2.27
Sta 290+15	—	0.23	1.36
Sta 573+94	—	—	—
Sta 592+31	—	—	0.93
Sta 660+00	—	12.12	1.13
Sta 733+15	—	0.75	0.42
Sta 813+00	—	7.61	5.09
Sta 822+10, 824+20	—	8.09	9.21
Sta 1079+50	—	—	—
Rialto Pipeline			
Sta 3571+01[b]	—	9.43	0.04
Upland Feeder			
Sta 1073+90	—	0.80	0.72
Totals	**0.95**	**39.22**	**25.06**

Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance; ACOE = U.S. Army Corps of Engineers; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; Sta = station.

[a] Includes Stations 267+81 and 271+24.

[b] Includes the three single-occurrence O&M activity sites.

It is anticipated that any impacts to jurisdictional wetlands and waters would require a Section 404 Permit from ACOE, a Section 401 Water Quality Certification from RWQCB, and a California Fish and Game Code Section 1602 Streambed Alteration Agreement from CDFW. The permitting agencies may require additional mitigation beyond what is being proposed under this CEQA analysis.

4.3.2.5 Wildlife Corridors

The South Coast Missing Linkages Project (South Coast Wildlands 2008) identifies the San Gabriel–San Bernardino Connection, which partially overlaps the proposed program area near Cajon Wash, Lytle Creek, and the Etiwanda Fan (San Gabriel foothills). The San Bernardino County Open Space Layer identifies wildlife corridors that partially overlap the proposed program area near Cajon Wash, the Etiwanda Fan (and associated drainages), Lytle Creek, Plunge Creek, Waterman Canyon, Twin Creek, and the Santa Ana River. Other watercourses that overlap the proposed program area that function as corridors include the Devil Creek area and City Creek.

4.3.3 Regulatory Framework

Agencies with jurisdiction over the biological resources and jurisdictional waters and wetlands located in the proposed program area are ACOE, USFWS, CDFW, the Santa Ana RWQCB, and local governments.

Federal

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) (33 USC 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 100-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges of dredged or fill material into waters of the United States are regulated under Section 404. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of tides); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, and natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. In California, the State Water Resources Control Board and the nine RWQCBs are responsible for implementing Sections 401 and 404 of the Clean Water Act. Important applicable sections of the Clean Water Act are as follows:

- **Section 401:** The Clean Water Act requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The Santa Ana RWQCB has authority for Section 401 compliance in the proposed program area.
- **Section 404:** Under Section 404 of the Clean Water Act, ACOE has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

Federal Endangered Species Act

The Endangered Species Act of 1973 (ESA) provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA regulates federally listed endangered or threatened wildlife and plant species and critical habitat. A species is considered endangered if it is

in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

The ESA defines critical habitat as "(i) the specific areas within the geographical area occupied by the species, at the time it is listed… on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed… upon a determination by the Secretary that such areas are essential for the conservation of the species" (16 USC 1532[5][A]) The critical habitat designation only applies to projects involving federal funding, permits, or projects. Within the proposed program area there is critical habitat for the following species: (1) coastal California gnatcatcher, (2) San Bernardino kangaroo rat, (3) Santa Ana sucker, (4) southwestern willow flycatcher, and (5) thread-leaved brodiaea. However, only federally designated critical habitat for San Bernardino kangaroo rat would be impacted by the CIP projects and single-occurrence O&M activities, including 1.3 acres of permanent impacts and 5.3 acres of temporary impacts.

Under Section 7 of the ESA, all federal agencies are required to consult with USFWS if they determine that any action that they fund, authorize, or carry out may affect a listed species or USFWS-designated critical habitat. Section 10(a) allows USFWS to authorize "take" of a listed species that is incidental to otherwise lawful activities. Approval criteria are specified in the ESA and federal regulations. Further guidance is provided in the Habitat Conservation Planning and Incidental Take Permitting Process Handbook (USFWS 2016).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and is listed in the Code of Federal Regulations (CFR), Title 50, Section 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, as well as any part, egg, or nest of such bird (50 CFR, Section 10.12). Migratory birds are not necessarily federally listed as endangered or threatened birds under the ESA. The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR, Section 21.11).

Upper Santa Ana River Wash Habitat Conservation Plan

The Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan) encompasses approximately 4,800 acres and includes lands within the jurisdiction of the County of San Bernardino, the Cities of Highland and Redlands, and the Bureau of Land Management. It includes a large reach of the Santa

Ana River and Plunge Creek and a small portion of Mill Creek just above its confluence with the Santa Ana River. The existing Santa Ana River Woollystar Preservation Area also overlaps the Wash Plan area. The Wash Plan would cover three federally endangered species, the San Bernardino kangaroo rat, Santa Ana River woollystar, and slender-horned spineflower (*Dodecahema leptoceras*); one federally threatened species, the coastal California gnatcatcher; and the coastal cactus wren (*Campylorhynchus brunneicapillus*). It would mitigate for the impacts of mining, groundwater recharge, road improvements, wells, trails, and other activities; these include new facilities/activities as well as the operation and maintenance of existing facilities. The Wash Plan has completed the public review process as of January 21, 2020, with a draft that was released in January 2018.

State

California Fish and Game Code

Lake and Streambed Alteration

In accordance with California Fish and Game Code Section 1602, "an entity shall not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" unless the entity first submits a written notification to the Department. The Department then decides whether the activity will substantially adversely affect fish or wildlife resources, and whether a Streambed Alteration Agreement is required with conditions to protect fish and wildlife resources. While there is no codified definition of "stream" or "lake," CDFW jurisdiction may include ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by Clean Water Act Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under California Fish and Game Code Section 1602 may encompass a greater area than those regulated under Clean Water Act Section 404.

California Endangered Species Act

The California Endangered Species Act (ESA) (California Fish and Game Code Section 2050 et seq.) prohibits the take (defined as "hunt, pursuit, catch, capture, kill, or attempt to hunt, pursue, catch, capture, or kill") of listed species except as otherwise provided in state law, and is administered by CDFW. Under the California ESA, the term "endangered species" is defined as a species of plant, fish, or wildlife that is "in serious danger of becoming extinct throughout all, or a significant portion of, its range," and is limited to species or subspecies native to California. A "threatened species" is defined as a "native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future." The California ESA also applies the take prohibitions to species petitioned for listing (state candidates).

California Native Plant Protection Act

The Native Plant Protection Act of 1977 directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, the California ESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals to threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the California ESA, mitigation measures for impacts to rare plants are typically included within a proposed project's CEQA analysis and as a condition of discretionary permits, which require preparation and approval of mitigation plans that contain assurances of implementation, monitoring, and maintenance.

Nesting Birds

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

4.3.4 Thresholds of Significance

The significance criteria used to evaluate project impacts to biological resources are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to biological resources would occur if the program would meet or exceed any of the following impact thresholds:

Impact BIO-1: **Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

Impact BIO-2: **Would the program have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

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

Impact BIO-4: **Would the program interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Impact BIO-5: **Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Impact BIO-6: **Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

4.3.5 Applicant Proposed Measures

Best management practices (BMPs), included in this PEIR as applicant proposed measures (APMs), are presented in full in this section (see also Chapter 3, Program Description). These APMs, which are standard BMPs for Metropolitan's routine O&M activities and are included in standard specifications for CIP projects, will reduce impacts to biological resources. Their specific relevance to impact topics is detailed in Section 4.3.6, Impact Analysis (see also Executive Summary, Table E-4).

APM-BIO-1 **Pre-Activity Special-Status Plant Surveys.** Within the portions of the CIP project and single-occurrence O&M activity sites that were not surveyed in 2017, or for project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys for special-status plant species during the appropriate blooming period for species that have potential to occur. Surveys will conducted by a qualified botanist within the areas that would be subject to direct or indirect impacts. Surveys will conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFW 2018), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (USFWS 2002) or the most current accepted protocol. Plant species encountered during the field surveys will be identified to subspecies or variety, if applicable, to determine sensitivity status.

Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control

measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project and single-occurrence O&M activity sites.

APM-BIO-2 **Flagging of Work Limits.** All CIP project and single-occurrence O&M activity work area limits within special-status species habitat, including staging areas, shall be well defined and marked (e.g., by caution tape or temporary fencing). All temporary fencing or other markers shall be clearly visible to construction personnel. Parking, stockpiling, or storage of equipment shall be permitted only within designated staging areas.

APM-BIO-3 **Cleaning of Mowing Equipment.** Mowing equipment shall be thoroughly cleaned before use so it is free of seeds from noxious weeds and does not introduce such weeds to new areas.

APM-BIO-4 **Invasive Plant Removal Protocols.** Invasive plant species shall be removed in a manner that prevents propagation. All cut/removed invasive vegetation shall be taken to a dump as destruction load. Maintenance personnel shall avoid letting cut stems or seedpods be washed downstream or left behind to propagate.

An additional APM from Section 4.2, Air Quality, would also reduce impacts to biological resources:

APM-AQ-2 (Fugitive Dust Control)

4.3.6 Impact Analysis

4.3.6.1 Definitions of Impacts

The types of impacts that would occur as a result of the proposed program's implementation include direct permanent impacts, direct temporary impacts, and indirect impacts. Each of these impact types is defined below.

Direct permanent impacts refer to the absolute and permanent physical loss of a biological resource due to clearing and grading associated with implementation of the proposed program. Direct permanent impacts are analyzed in four ways: (1) permanent loss of vegetation communities and land covers and of general wildlife species and their habitat, (2) permanent loss of or harm to individuals of special-status plant and wildlife species, (3) permanent loss of suitable habitat for special-status species, and (4) permanent loss of wildlife movement and habitat connectivity in the project area.

Direct temporary impacts refer to a temporal loss of vegetation communities and land covers resulting from vegetation and land cover clearing and grading associated with implementation of the proposed program. The main criterion for direct temporary impacts is that impacts would occur for a short period of time and would be reversible.

Indirect impacts are reasonably foreseeable effects caused by program implementation on remaining or adjacent biological resources outside the direct disturbance zone that may occur during grading or maintenance activities (i.e., short-term construction-related indirect impacts) or later in time as a result of the program (i.e., long-term, or operational, indirect impacts). Short-term indirect impacts can include dust, human activity, pollutants (including potential erosion), and noise that extend beyond the identified construction area. Long-term indirect impacts can include changes to hydrology, introduction of invasive species, dust, and noise that are operations related or that occur over the long term.

4.3.6.2 Section Organization

The analysis of potential effects is organized into the two broad categories: proposed CIP projects and O&M activities. These two broad categories are organized into groups and subgroups based on the activity type and frequency.

The evaluation of proposed program impacts for each category of activities using the thresholds of significance presented in Section 4.3.4 is organized by the resource potentially affected: special-status species, riparian and other sensitive vegetation communities, jurisdictional waters and wetlands, wildlife movement, local ordinances, and habitat conservation plans. The analysis presented below focuses on CIP project activities and single-occurrence O&M activities for which Metropolitan can reasonably estimate construction requirements. The extent of the estimated impacts represents the maximum impact potential based on preliminary designs for CIP projects and single-occurrence O&M activities. All impacts resulting from single-occurrence O&M activities overlap with a CIP project location; these impacts are inclusive of one another, and are not additive. The actual impacts may be reduced through refinement of design and as-built conditions. Future routine O&M activities may occur as needed throughout the program impact area.

4.3.6.3 Summary of Impacts and Significance

For ease of reading, Tables 4.3.9 and 4.3.10 are provided at the top of this section. Table 4.3.6-9 summarizes the impacts to special-status wildlife, sensitive vegetation communities, and jurisdictional waters and wetlands for all proposed CIP projects and single-occurrence O&M activities. These impact acreages represent the impacts of each proposed CIP project, regardless of activity code type, and single-occurrence O&M activity, based on the project and construction footprints. Table 4.3.6.10 summarizes the impact significance and mitigation for proposed CIP projects and single-occurrence O&M activities under each threshold.

Table 4.3-9. Biological Resources Impact Acreage (Proposed CIP Projects and Single-Occurrence O&M Activities)

Biological Resource	Permanent Impacts (Acres)[a]	Temporary Impacts (Acres)[a]	Total Impacts (Acres)[a,b]
Special-Status Wildlife Modeled Habitat			
Amphibian			
western spadefoot	0.86	0.53	1.39
Reptile—Terrestrial			
silvery legless lizard	0.24	0.07	0.30
California glossy snake	0.99	0.51	1.50
red diamondback rattlesnake	1.00	0.52	1.51
Blainville's horned lizard	1.00	0.52	1.51
coast patch-nosed snake	0.73	0.50	1.22
Reptile—Semi-Aquatic			
two-striped gartersnake	0.18	0.02	0.19
Bird—Raptor			
long-eared owl (nesting)	0.03	0.00	0.03
burrowing owl (burrow sites and some wintering sites)	0.23	0.07	0.30
loggerhead shrike (nesting)	0.30	0.15	0.45
Bird–Coastal Scrub Resident			
coastal cactus wren	0.41	0.32	0.73
coastal California gnatcatcher	0.41	0.31	0.72
Bird—Riparian			
yellow-breasted chat (nesting)	0.01	0.00	0.01
yellow warbler (nesting)	0.01	0.00	0.01
least Bell's vireo (nesting)	0.01	0.00	0.01
Mammal—Low Mobility			
Dulzura pocket mouse	0.73	0.50	1.22
northwestern San Diego pocket mouse	0.82	0.50	1.32
San Bernardino kangaroo rat	0.43	0.31	0.74
San Diego desert woodrat	0.73	0.50	1.22
Los Angeles pocket mouse	0.76	0.36	1.12
Mammal—Moderate Mobility			
pallid bat	0.92	2.76	3.67
western mastiff bat	0.86	0.53	1.39
western yellow bat	0.03	0.00	0.03
San Diego black-tailed jackrabbit	0.50	0.33	0.83
American badger	0.23	0.07	0.30

Table 4.3-9. Biological Resources Impact Acreage (Proposed CIP Projects and Single-Occurrence O&M Activities)

Biological Resource	Permanent Impacts (Acres)[a]	Temporary Impacts (Acres)[a]	Total Impacts (Acres)[a,b]
Special-Status Vegetation Communities			
Forest and Woodlands Alliances and Stands			
California sycamore woodlands	0.01	0.00	0.01
Fremont cottonwood forest	—	—	—
California walnut alliance	—	—	—
Coast live oak–arroyo willow association	—	—	—
Forest and Woodlands Alliances and Stands Subtotal	0.01	0.00	0.01
Shrubland Alliances and Stands			
basket bush patches	—	—	—
blue elderberry stands	—	—	—
California buckwheat–white sage scrub	—	—	—
California sagebrush–white sage alliance	—	—	—
holly leaf cherry chaparral	—	—	—
scale broom scrub	0.15	0.01	0.16
white sage scrub	—	—	—
Shrubland Alliances and Stands Subtotal	0.15	0.01	0.16
Herbaceous Alliances and Stands			
California bulrush marsh	—	—	—
Herbaceous Alliances and Stands Subtotal	—	—	—
Special-Status Vegetation Communities Total	**0.16**	**0.01**	**0.18**
Jurisdictional Waters and Wetlands			
ACOE/RWQCB Waters of the United States			
Non-wetland waters	0.20	0.07	0.27
Wetland waters	—	—	—
Waters of the United States Total	**0.20**	**0.07**	**0.27**
CDFW River, Stream, or Lake			
Vegetated	0.13	0.09	0.22
Unvegetated	—	0.00	0.00
River, Stream, or Lake Total	**0.13**	**0.09**	**0.22**

Notes: All anticipated impacts are from CIP projects (CIP Activity Code Nos. 1, 2, and 3) and single-occurrence O&M activities (O&M Activity Code No. 15).

[a] "0.00" indicates that the impact is less than 0.005 acres; "—" indicates there are no impacts in the associated category (permanent or temporary).

[b] Totals may differ from permanent and temporary due to rounding.

Table 4.3-10 summarizes the impact significance and mitigation for proposed CIP projects and O&M activities under each threshold.

Table 4.3-10. Biological Resources Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures		Level of Significance
Impact BIO-1: Would the program have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				
CIP Projects				
Patrol Road Improvements and Paving	Significant	MM-BIO-1 through MM-BIO-4	APM-BIO-1 APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Engineered Erosion Control	Significant	MM-BIO-1 through MM-BIO-4	APM-BIO-1 APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Slope Stabilization	Significant	MM-BIO-1 through MM-BIO-4	APM-BIO-1 APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
O&M Activities				
Routine	Significant	MM-BIO-1	APM-BIO-3 APM-BIO-4 APM-AQ-2	Less than significant
Single-Occurrence	Significant	MM-BIO-1 through MM-BIO-4	APM-BIO-1 APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Impact BIO-2: Would the program 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 Game or U.S. Fish and Wildlife Service?				
CIP Projects				
Patrol Road Improvements and Paving	Less than significant	—	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Engineered Erosion Control	Less than significant	—	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Slope Stabilization	Less than significant	—	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
O&M Activities				
Routine	Less than significant	—	—	Less than significant
Single-Occurrence	Less than significant	—	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant

Table 4.3-10. Biological Resources Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures		Level of Significance
Impact BIO-3: Would the program have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				
CIP Projects				
Patrol Road Improvements and Paving	Significant	MM-BIO-4 MM-BIO-5	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Engineered Erosion Control	Significant	MM-BIO-4 MM-BIO-5	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Slope Stabilization	Significant	MM-BIO-4 MM-BIO-5	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
O&M Activities				
Routine	Less than significant	—	—	Less than significant
Single-Occurrence	Significant	MM-BIO-4 MM-BIO-5	APM-BIO-2 APM-BIO-3 APM-AQ-2	Less than significant
Impact BIO-4: Would the program interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				
CIP Projects				
Patrol Road Improvements and Paving	Less than significant	—	—	Less than significant
Engineered Erosion Control	Less than significant	—	—	Less than significant
Slope Stabilization	Less than significant	—	—	Less than significant
O&M Activities				
Routine	Less than significant	—	—	Less than significant
Single-Occurrence	Less than significant	—	—	Less than significant
Impact BIO-5: Would the program conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				
CIP Projects				
Patrol Road Improvements and Paving	Less than significant	—	—	Less than significant
Engineered Erosion Control	Less than significant	—	—	Less than significant
Slope Stabilization	Less than significant	—	—	Less than significant
O&M Activities				
Routine	Less than significant	—	—	Less than significant
Single-Occurrence	Less than significant	—	—	Less than significant

Table 4.3-10. Biological Resources Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures		Level of Significance
Impact BIO-6: Would the program conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				
CIP Projects				
Patrol Road Improvements and Paving	Less than significant	—	—	Less than significant
Engineered Erosion Control	Less than significant	—	—	Less than significant
Slope Stabilization	Less than significant	—	—	Less than significant
O&M Activities				
Routine	Less than significant	—	—	Less than significant
Single-Occurrence	Less than significant	—	—	Less than significant

Impacts are discussed in more detail in the following sections.

For each of the following impact sections, direct and indirect impacts for biological resources are identified and a significance determination is made for each impact. For each significant impact, mitigation measures that would reduce the impact to less than significant are proposed.

Special-Status Wildlife

Impacts to special-status wildlife from the proposed CIP projects are consistent across all CIP activity codes. Additionally, impacts to special-status wildlife from single-occurrence O&M activities (O&M Activity Code No. 15) are consistent with impacts associated with the proposed CIP projects. Therefore, impacts to special-status wildlife are described first in this section and then summarized by CIP activity in Section 4.3.6.4 and by single-occurrence O&M activity in Section 4.3.6.5. Several special-status wildlife species have the potential to occur based on the presence of suitable habitat and their known occurrence in the vicinity of the proposed program area. Because both direct and indirect impacts will affect many species with similar life histories and behaviors in much the same way, the discussion of impacts is organized by species guilds based on these shared characteristics, as follows:

- Amphibian: western spadefoot
- Reptile—Terrestrial: silvery legless lizard, California glossy snake, red diamondback rattlesnake, Blainville's horned lizard, and coast patch-nosed snake
- Reptile—Semi-Aquatic: two-striped gartersnake
- Bird—Raptor: long-eared owl, burrowing owl, and loggerhead shrike

- Bird—Coastal Scrub Resident: coastal California gnatcatcher and coastal cactus wren
- Bird—Riparian: yellow-breasted chat, yellow warbler, and least Bell's vireo
- Mammal—Low Mobility: Dulzura pocket mouse, northwestern San Diego pocket mouse, San Bernardino kangaroo rat, San Diego desert woodrat, and Los Angeles pocket mouse
- Mammal—Moderate Mobility: pallid bat, western mastiff bat, western yellow bat, San Diego black-tailed jackrabbit, and American badger

Table 4.3.11 summarizes the impacts to special-status wildlife species impacts from proposed CIP projects and single-occurrence O&M activities.

Direct permanent impacts associated with the CIP projects have the potential to adversely affect special-status wildlife species through loss of breeding and/or foraging habitat. Grading or clearing of habitat occupied by special-status wildlife species, such as smaller and less mobile vertebrates, or species occupying burrows at the time of the disturbance, could result in loss of or harm to individuals of these species, which could be a significant impact absent mitigation. Direct impacts (grading) to active nests of special-status birds or to their eggs or young would also be a loss of individuals, would be a violation of the MBTA and California Fish and Game Code, and could be a significant impact absent mitigation. Temporary direct impacts associated CIP projects would include temporary vegetation removal prior to or during construction, which could adversely affect special-status wildlife species. The following summarizes the potential impacts to special-status wildlife species resulting from CIP projects by species guild or grouping.

Amphibian: Western Spadefoot

Western spadefoot (*Spea hammondii*) has the potential to breed in ephemeral pools from winter through summer, but spends the remainder of its life underground, during aestivation (warm-weather dormancy or deep sleep), in upland habitats. Based on the extensive surveys that have been conducted, no breeding pools occur within the CIP project areas or the single-occurrence O&M activity areas. Therefore, no impacts to western spadefoot aquatic breeding habitat would occur. The CIP projects and single-occurrence O&M activities would result in the loss of suitable upland habitat for this species. The small permanent and temporary loss of upland habitat would not substantially reduce the population of this species in the vicinity of the CIP projects and single-occurrence O&M activities, especially given the large area of suitable habitat that would remain available to this species in the vicinity. The loss of suitable habitat for western spadefoot from the CIP projects and single-occurrence O&M activities is summarized in Table 4.3.11.

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Table 4.3-11. Special-Status Wildlife Species Impacts from Proposed CIP Projects and Single-Occurrence O&M Activities Summary

Common Name	Federal/State	Program-Wide (Acres)	Permanent Impacts (Acres)				Temporary Impacts (Acres)		
			CIP Activity Code No. 1	*CIP Activity Code No. 2*	*CIP Activity Code No. 3*	*O&M Activity Code No. 15*	*CIP Activity Code No. 1*	*CIP Activity Code No. 2*	*CIP Activity Code No. 3*
Amphibian									
western spadefoot	None/SSC	1,834	0.60	0.84	0.29	0.03	0.31	0.37	0.32
Reptile—Terrestrial									
silvery legless lizard	None/SSC	285	0.14	0.24	0.14	0.03	0.07	0.07	0.07
California glossy snake	None/SSC	2,116	0.73	0.97	0.31	0.04	0.30	0.35	0.29
red diamondback rattlesnake	None/SSC	2,471	0.73	0.97	0.31	0.04	0.30	0.35	0.29
Blainville's horned lizard	None/SSC	2,196	0.73	0.97	0.31	0.04	0.30	0.35	0.29
coast patch-nosed snake	None/SSC	1,409	0.47	0.70	0.27	0.03	0.28	0.33	0.29
Reptile—Semi-Aquatic									
two-striped gartersnake	None/SSC	567	0.17	0.18	0.04	0.02	0.02	0.02	0.00
Bird—Raptor									
long-eared owl (nesting)	None/SSC	125	0.02	0.03	0.00	—	0.00	0.00	0.00
burrowing owl (burrow sites and some wintering sites)	None/SSC	958	0.18	0.23	0.05	—	0.04	0.07	0.05
loggerhead shrike (nesting)	None/SSC	936	0.30	0.30	—	—	0.15	0.15	—
Bird—Coastal Scrub Resident									
coastal cactus wren	None/SSC	503	0.15	0.39	0.16	—	0.11	0.16	0.27
coastal California gnatcatcher	FT/SSC	1,302	0.18	0.39	0.24	0.03	0.11	0.15	0.28
Bird—Riparian									
yellow-breasted chat (nesting)	None/SSC	77	—	0.01	0.00	—	—	0.00	—
yellow warbler (nesting)	None/SSC	77	—	0.01	0.00	—	—	0.00	—
least Bell's vireo (nesting)	FE/SE	77	—	0.01	0.00	—	—	0.00	—
Mammal—Low Mobility									
Dulzura pocket mouse	None/SSC	1,362	0.47	0.70	0.27	0.03	0.28	0.33	0.29
northwestern San Diego pocket mouse	None/SSC	1,635	0.56	0.80	0.27	0.03	0.28	0.33	0.29
San Bernardino kangaroo rat	FE/SC	1,303	0.41	0.41	0.20	0.04	0.14	0.14	0.25
San Diego desert woodrat	None/SSC	1,386	0.47	0.70	0.27	0.03	0.28	0.33	0.29
Los Angeles pocket mouse	None/SSC	1,504	0.50	0.74	0.31	0.04	0.15	0.20	0.29
Mammal–Moderate Mobility									
pallid bat	None/SSC	1,962	0.59	0.90	0.16	—	0.49	2.58	1.42
western mastiff bat	None/SSC	2,544	0.60	0.84	0.29	0.03	0.31	0.37	0.32
western yellow bat	None/SSC	101	0.02	0.03	0.00	—	0.00	0.00	0.00

Table 4.3-11. Special-Status Wildlife Species Impacts from Proposed CIP Projects and Single-Occurrence O&M Activities Summary

Common Name	Federal/State	Program-Wide (Acres)	Permanent Impacts (Acres)				Temporary Impacts (Acres)		
			CIP Activity Code No. 1	*CIP Activity Code No. 2*	*CIP Activity Code No. 3*	*O&M Activity Code No. 15*	*CIP Activity Code No. 1*	*CIP Activity Code No. 2*	*CIP Activity Code No. 3*
San Diego black-tailed jackrabbit	None/SSC	1,036	0.24	0.48	0.16	—	0.11	0.16	0.27
American badger	None/SSC	456	0.18	0.23	0.05	—	0.04	0.07	0.05

Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance.
Status:
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
ST: State listed as threatened
SC: State listed as candidate
SSC: California special concern species

Direct permanent and temporary impacts from the loss of upland habitat for western spadefoot would be less than significant. The loss of individual western spadefoots would also be less than significant. Impacts would be very limited in scope and would occur over a large area that would continue to support this species. Therefore, this minor impact would not affect the sustainability of the regional populations.

Reptile—Terrestrial (Silvery Legless Lizard, California Glossy Snake, Red Diamondback Rattlesnake, Blainville's Horned Lizard, and Coast Patch-Nosed Snake)

Species in the Reptile—Terrestrial Guild may find refuge and forage in coastal scrub and mixed chaparral in the vicinity of the CIP project and single-occurrence O&M activity areas. The projects and activities would result in the loss of suitable habitat for these species (Table 4.3-11). These species have low mobility, and direct impacts to this species could include mortality or injury.

The small permanent and temporary loss of suitable habitat would not substantially reduce the population of this species in the vicinity of the CIP project and single-occurrence O&M activity areas, especially given the large area of suitable habitat that would remain available to these species in the vicinity. Therefore, direct permanent and temporary impacts from the loss of habitat would be less than significant. The loss of individual silvery legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans*), red diamondback rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), and coast patch-nosed snake (*Salvadora hexalepis*) would also be less than significant. Impacts would be very limited in scope and would occur over a large area that would continue to support these species. Therefore, this minor impact would not affect the sustainability of the regional populations.

Reptile—Semi-Aquatic: Two-Striped Gartersnake

Two-striped gartersnake (*Thamnophis hammondii*) has the potential to forage and find refuge in riparian forest and riparian scrub habitats. The proposed CIP projects and single-occurrence O&M activities would result in the loss of suitable habitat for this species. The small permanent and temporary loss of suitable habitat (Table 4.3-11) would not substantially reduce the population of this species in the vicinity of the CIP project and single-occurrence O&M activity areas, especially given the large area of suitable habitat that would remain available to this species in the vicinity. Therefore, direct permanent and temporary impacts from the loss of suitable habitat would be less than significant. The species has low mobility, and direct impacts to the species could include mortality or injury. The loss of individual two-striped gartersnake would also be less than significant. Impacts would be very limited in scope and would occur over a large area that would continue to support this species. Therefore, this minor impact would not affect the sustainability of the regional population.

Bird—Raptor (Long-Eared Owl, Burrowing Owl, Loggerhead Shrike)

Species in the Bird—Raptor Guild may nest and forage in the vicinity of the CIP project and single-occurrence O&M activity areas. Implementation of the projects and activities would result in the loss of suitable habitat for these species (Table 4.3-11). Adults of these species are highly mobile, so they would be able to avoid injury or mortality from project-related disturbance. However, removal of nesting habitat could result in loss of nests, eggs, or nestlings, which would be a significant impact.

Direct permanent and temporary impacts to habitat for long-eared owl (*Asio otus*), burrowing owl (*Athene cunicularia*), and loggerhead shrike (*Lanius ludovicianus*) would be less than significant because the small permanent and temporary loss of suitable habitat would not substantially reduce the population of these species in the vicinity of the CIP project and single-occurrence O&M activity areas, especially given the large area of suitable habitat that would remain available to these species in the vicinity. Impacts to nests, eggs, or nestlings of Bird—Raptor Guild species would be potentially significant absent mitigation. However, implementation of Mitigation Measure (MM) BIO-1 would ensure that any nests of these species would be detected prior to initiation of proposed program activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of Bird—Raptor Guild species to less than significant levels.

Bird—Coastal Scrub Resident (Coastal Cactus Wren and Coastal California Gnatcatcher)

Species in the Bird—Coastal Scrub Resident Guild may nest and forage in the vicinity of the CIP project and single-occurrence O&M activity areas. Implementation of the CIP project would result in the loss of suitable habitat for these species; however, a substantial amount of habitat would remain in the vicinity that could be occupied by these species (Table 4.3-11). Adults of these species are highly mobile, so they would be able to avoid injury or mortality from project-related disturbance. However, removal of nesting habitat could result in loss of nests, eggs, or nestlings, which would be a significant impact.

Impacts to nests, eggs, or nestlings of Bird—Coastal Scrub Resident Guild species would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of proposed CIP projects and single-occurrence O&M activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of these measures would reduce impacts to nests, eggs, and nestlings of Bird—Coastal Scrub Resident Guild species to less than significant.

Direct permanent and temporary impacts to habitat for coastal cactus wren would be less than significant. Coastal California gnatcatcher, however, is federally listed as endangered, and any loss of habitat could be a significant impact absent mitigation. However, implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for any federally listed species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio.

Bird—Riparian (Yellow-Breasted Chat, Yellow Warbler, and Least Bell's Vireo)

Species in the Bird—Riparian Guild may nest and forage in riparian woodland and forest in the vicinity of the CIP project and single-occurrence O&M activity areas. Implementation of the projects and activities would result in the loss of 0.1 acres or less of suitable habitat for these species. Adults of these species are highly mobile, so they would be able to avoid injury or mortality from project-related disturbance. However, removal of nesting habitat could result in loss of nests, eggs, or nestlings, which would be significant impact. The loss of 0.1 acres (or less) would not substantially reduce the available habitat for yellow-breasted chat (*Icteria virens*) or yellow warbler (*Setophaga petechia*).

Direct permanent and temporary impacts to habitat for yellow-breasted chat and yellow warbler would be less than significant. Least Bell's vireo, however, is both federally and state listed as endangered, and any loss of habitat could be a significant impact absent mitigation. However, implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for any federally listed species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio. With implementation of MM-BIO-2, direct permanent and temporary impacts to least Bell's vireo habitat would be less than significant.

Impacts to nests, eggs, or nestlings of Bird—Riparian Guild species would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of CIP projects and single-occurrence O&M activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of Bird—Riparian Guild species to less than significant.

Mammal—Low Mobility (Dulzura Pocket Mouse, Northwestern San Diego Pocket Mouse, San Bernardino Kangaroo Rat, San Diego Desert Woodrat, and Los Angeles Pocket Mouse)

Species in the Mammal—Low Mobility Guild may find refuge in burrows and forage in coastal scrub and mixed chaparral in the vicinity of the CIP project and single-occurrence O&M activity areas. Implementation of the CIP projects and single-occurrence O&M activities would result in the loss of suitable habitat for these species (Table 4.3-11). These species have low mobility, and direct impacts to these species could include mortality or injury.

The small permanent and temporary loss of suitable habitat would not substantially reduce the population of these species in the vicinity of the CIP project and single-occurrence O&M activity areas, especially given the large area of suitable habitat that would remain available to these species in the vicinity. Therefore, direct permanent and temporary impacts from the loss of habitat would be less than significant. The loss of individual Dulzura pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse (*C. fallax fallax*), San Diego desert woodrat (*Neotoma lepida intermedia*), and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) would also be less than significant. Impacts would be very limited in scope and would occur over a large area that

would continue to support these species. Therefore, this minor impact would not affect the sustainability of the regional populations.

San Bernardino kangaroo rat, however, is federally listed as endangered, and any loss of habitat could be a significant impact absent mitigation. However, implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for any federally listed species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank, in-lieu fee program, or other agreement at a 1:1 ratio. With implementation of MM-BIO-2, direct permanent and temporary impacts to San Bernardino kangaroo rat habitat would be less than significant.

Impacts to individual San Bernardino kangaroo rat would be potentially significant absent mitigation. However, implementation of MM-BIO-3 and MM-BIO-4 would ensure that any individuals or burrows would be detected prior to initiation of proposed program activities and that impacts to individuals would be avoided.

Mammal—Moderate Mobility (Pallid Bat, Western Mastiff Bat, Western Yellow Bat, San Diego Black-Tailed Jackrabbit, and American Badger)

Species in the Mammal—Moderate Mobility Guild may roost, find refuge, and forage in the vicinity of the CIP project and single-occurrence O&M activity areas. Implementation of the CIP projects and single-occurrence O&M activities would result in the loss of suitable habitat for these species (Table 4.3-11). Adults of these species are highly mobile, so they would be able to avoid injury or mortality from project-related disturbance.

The small permanent and temporary loss of suitable habitat would not substantially reduce the population of these species in the vicinity of the CIP project and single-occurrence O&M activity areas, especially given the large area of suitable habitat that would remain available to these species in the vicinity. Therefore direct permanent and temporary impacts from the loss of habitat would be less than significant. The loss of individual pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and American badger (*Taxidea taxus*) would also be less than significant because of the high mobility of adults of these species which would allow them to avoid injury or mortality from project-related disturbance.

4.3.6.4 CIP Projects

For this impacts analysis, proposed CIP projects were divided into three broad categories: patrol road improvements and paving (CIP Activity Code No. 1), engineered erosion control (CIP Activity Code No. 2), and slope stabilization (CIP Activity Code No. 3). These types of activities require design engineering, often overlap with each other, and would be implemented on a one-time basis. Nine of the CIP projects include multiple CIP activity codes for each CIP project and the impacts for each activity code may or may not overlap each other, so permanent and temporary impact acreages

quantified for each activity code overlap and do not add up to the total impacts. Table 4.3-9 lists the total permanent and temporary impact acreages for special-status species, sensitive vegetation communities, and jurisdictional waters and wetlands for the proposed CIP projects and single-occurrence O&M activities.

Direct permanent and temporary impacts to biological resources were analyzed using GIS based on the species habitat models (i.e., special-status species habitat) described in Section 4.3.2, Existing Conditions. Appendix F-11 contains a series of maps that spatially illustrate the areas of modeled special-status wildlife species habitat. Appendix F-12 contains a series of maps that spatially illustrate the areas of impacted modeled special-status wildlife species habitat within the proposed CIP project areas. Appendix F-13 contains a series of maps that spatially illustrate the impacts to sensitive vegetation communities.

Metropolitan would implement APM-BIO-1 through APM-BIO-4 (see Section 4.3.5, Applicant Proposed Measures) to avoid and minimize impacts to biological resources. In addition, APM-AQ-2 would be implemented, which would further reduce impacts. However, some activities may require additional mitigation to reduce impacts to a less than significant level.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact BIO-1: Adverse Effect on Special-Status Species

Direct Impacts

Plants

As described in Section 4.3.2.2, Special-Status Plants, focused surveys for special-status plants were conducted during the appropriate seasons for the patrol road improvements and paving (CIP Activity Code No. 1) locations during an above-average rainfall year and no special-status species were observed in these CIP project areas. Permanent and temporary direct impacts to individual special-status plants are not anticipated and thus would be less than significant.

For project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys, in accordance with APM-BIO-1, for special-status plant species during the appropriate blooming period for species that have potential to occur. Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project sites.

Wildlife

Direct permanent impacts associated with patrol road improvements and paving around structures has the potential to adversely affect special-status wildlife species through loss of breeding and/or foraging habitat as quantified in Table 4.3-11. With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of suitable habitat (except nests) for special-status wildlife would be less than significant. A substantial amount of suitable habitat would remain in the vicinity that could be used by these species, and the small loss of habitat would not affect regional populations.

With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of individual special-status wildlife would also be less than significant. Impacts would be very limited in scope and occur over a large area that would continue to support these species. Therefore, these minor impacts would not affect the sustainability of the regional populations.

For patrol road improvements and paving around structures, there would be no impacts to habitat for least Bell's vireo. However, these CIP projects would permanently impact 0.18 acres and temporarily impact 0.11 acres of suitable habitat for coastal California gnatcatcher, which is a federally listed species, and any loss of habitat could be a significant impact absent mitigation. Also, these CIP projects would permanently impact 0.41 acres and temporarily impact 0.28 acres of suitable habitat for San Bernardino kangaroo rat, which is a federally listed species and a state candidate species, and any loss of habitat could be a significant impact absent mitigation. Implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for these species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio.

Impacts to nests, eggs, or nestlings of special-status birds (including coastal California gnatcatcher and least Bell's vireo) would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of project activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of these Bird—Riparian Guild species to less than significant.

Any impacts to individual San Bernardino kangaroo rat would be considered "take" under the ESA. Therefore, impacts to individual San Bernardino kangaroo rat would be potentially significant absent mitigation. However, implementation of MM-BIO-3 and MM-BIO-4 would ensure that any individuals or burrows would be detected prior to initiation of project activities and that impacts to individuals would be avoided.

Indirect Impacts

Plants

Potential short-term indirect impacts to special-status plants in the proposed program area from patrol road improvements and paving would include fugitive dust, introduction of chemical pollutants, introduction of non-native plant species, and increased human activity. Dust and applications for fugitive dust control can impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. These changes could result in impacts to suitable habitat for special-status plant species. Ground disturbance resulting from construction activities often promotes invasion from invasive weedy annual and perennial vegetation that can outcompete native species. Introduction of non-native plant species could displace native plant species, reducing diversity, increasing flammability and fire frequency,[3] and changing groundwater and surface water levels. These indirect effects would be mitigated through application of APM-BIO-2, APM-BIO-3, and APM-AQ-2 (see Section 4.3.5); other internal construction guidelines and BMPs, as discussed in Chapter 3; and MM-BIO-4.

No long-term indirect impacts would occur to special-status plant species from patrol road improvements and paving within the proposed program area. All impacts relating to proposed O&M activities following construction of proposed CIP projects would be considered under O&M activity impacts, described in Section 4.3.6.5, O&M Activities. Impacts would be less than significant with mitigation.

Wildlife

Potential short-term indirect impacts to special-status wildlife in the proposed program area from patrol road improvements and paving would include generation of fugitive dust, introduction of chemical pollutants, noise, and increased human activity. Dust could impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. These changes could result in impacts to suitable habitat for special-status wildlife species. However, these disturbances would not result in significant short-term indirect impacts with implementation of APM-BIO-2, APM-BIO-3, and APM-AQ-2 (see Section 4.3.5); other internal construction guidelines and BMPs, as discussed in Chapter 3; and MM-BIO-3 and MM-BIO-4. Use of chemical pollutants is not anticipated during construction-related program activities. Construction-related noise can have a variety of indirect impacts on wildlife species, including increased stress, weakened immune systems, altered foraging behavior, displacement due to startle, degraded communication with members of the same species (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators (Brattstrom and Bondello 1983, as cited in Lovich and Ennen 2011). However, these disturbances would not result in significant short-term impacts due to the

[3] In some instances, non-native, invasive plant species have higher flammability and ignition potential than native species, which can compromise safety by exacerbating fire hazards in upland areas.

short activity timeframes and the type of construction equipment used during program implementation. Construction activities related to patrol road improvements and paving would result in increased human activity, which can deter wildlife from using habitat areas. However, this type of disturbance would not result in significant short-term indirect impacts due to the short activity timeframes and duration of program activities.

All impacts relating to proposed O&M activities following implementation of proposed CIP projects would be considered under O&M activity impacts, described in Section 4.3.6.5.

Combined Impacts

APM-BIO-1 through APM-BIO-3 and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to special-status species, but impacts would remain significant absent mitigation.

Mitigation Measures

The following mitigation measures would be implemented to reduce the impacts to special-status plants and wildlife below a level of significance:

MM-BIO-1 **Nesting Bird Surveys.** For all proposed program activities, grading or vegetation clearing, cutting, and removal shall be scheduled to occur during the non-breeding season for birds (September 1 through January 31). If grading or vegetation clearing, cutting, or removal are required during the breeding season (February 1 through August 31), then a qualified biologist shall survey all potential nesting vegetation within 100 feet of the grading limits for nesting birds prior to grading activities, as property access allows. The purpose of the surveys shall be to determine if active nests of special-status or other protected birds are present within the vicinity of the work area. The survey shall be conducted within 7 days prior to the start of work. If no nesting birds are observed, project activities may commence. If an active nest is located, the site shall be marked, and an appropriate buffer established, based on site conditions, nesting species, and construction activity. The buffer area shall not be disturbed until after birds have fledged. The qualified biologist, in conjunction with Metropolitan's Environmental Planning staff, will determine when construction activities may resume in the area. In the event that a threatened or endangered species is located within the survey area and avoidance is not feasible, consultation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife shall be required.

MM-BIO-2 **Compensation for Impacts to Federally and State-Listed Species Habitat.** Direct temporary and permanent impacts to suitable habitat for federally or state-listed species within proposed CIP project and single-occurrence O&M activity areas shall be mitigated through on-site or off-site measures. Mitigation for temporary and

permanent impacts to listed species habitat shall consider, and may overlap with, jurisdictional waters and wetlands (MM-BIO-5).

- **Temporary Impacts.** Mitigation for direct temporary impacts to suitable habitat for federally or state-listed species shall be implemented through on-site rehabilitation at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to similar conditions to those that existed prior to grading and/or ground-disturbing activities. For proposed CIP projects and single-occurrence O&M activity temporary impact areas outside routinely maintained areas, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities.
- **Permanent Impacts.** Metropolitan shall purchase land or fund a mitigation bank or in-lieu fee program to compensate for all permanent loss of suitable habitat for federally or state-listed species (including critical habitat), if available, at a 1:1 ratio. Direct impacts to federally listed species' occupied habitat shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the federal Endangered Species Act (ESA) of 1973, as amended. Additionally, direct impacts to federally designated critical habitat that cannot be avoided shall be addressed through either the ESA Section 7 or Section 10(a)(1)(B) process. Direct impacts to state-listed species shall be addressed through the California Fish and Game Code Section 2081(b) incidental take permit process. The two processes may require additional mitigation beyond what is being proposed under this CEQA analysis.

MM-BIO-3 **Pre-Construction Biological Surveys.** Prior to the start of ground-disturbing construction or vegetation removal associated with Capital Investment Plan (CIP) projects and single-occurrence Operations and Maintenance (O&M) activities, pre-construction surveys for special-status plant or wildlife species shall be conducted in areas of suitable habitat within 300 feet of ground-disturbing activities, as property access allows. If special-status plant or wildlife species are located during the focused surveys, then their locations shall be mapped and monitored for avoidance (MM-BIO-4).

MM-BIO-4 **Biological Monitoring.** Should special-status plants or wildlife be identified during MM-BIO-3 or APM-BIO-1, a qualified biologist shall monitor ground-disturbing activities within areas where special-status plant and wildlife species, sensitive vegetation communities, or jurisdictional waters/wetlands are present during CIP projects and single-occurrence O&M activities. The qualified biologist shall look for special-status species that may be located within or immediately adjacent to work areas. If special-status species are found, the biological monitor shall identify their location for

avoidance or flush/move them out of harm's way to avoid direct impacts to these species. The qualified biologist, in coordination with The Metropolitan Water District of Southern California (Metropolitan), shall determine when monitoring shall cease.

Level of Significance: Less than significant with implementation of MM-BIO-1 through MM-BIO-4.

Impact BIO-2: Adverse Effect on Riparian Habitat/Sensitive Natural Communities

Riparian and sensitive natural communities (collectively, sensitive vegetation communities) were delineated for the proposed program area in 2015 (Appendix F-1). Several vegetation communities within the program area are considered sensitive by CDFW (CDFW 2019a).

Direct Impacts

Proposed patrol road improvements and paving activities would result in significant direct permanent impacts to sensitive vegetation communities across the proposed program area through the permanent removal of vegetation. Temporary direct impacts as a result of proposed patrol road improvements would result from use of temporary construction staging in undisturbed areas. The extent of impacts would vary depending on the existing road width and existing road conditions. In areas where road widening is proposed, there is a potential for direct impacts to sensitive vegetation communities. In areas where road paving or repaving is proposed within the existing road prism (the road surface and any bordering cut or fill slopes), direct impacts would not likely occur.

Potential permanent and temporary impacts could occur from patrol road improvements and paving activities to one sensitive vegetation community within the proposed program area: scale broom scrub. These impacts are on the Inland Feeder and Rialto Pipeline. The following summarizes the potential impacts to sensitive vegetation communities resulting from patrol road improvements and paving activities:

	Permanent Impacts (Acres)	Temporary Impacts (Acres)
• Scale broom scrub	0.16	0.01

The small amount of scale broom scrub impacted (0.04% of the total in the program area) is not substantial in comparison with the 413.8 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. Permanent and temporary direct impacts to sensitive vegetation communities would be less than significant.

Indirect Impacts

Potential short-term indirect impacts to sensitive vegetation communities in the proposed program area from proposed patrol road improvements and paving would include generation of fugitive dust, chemical pollutants (herbicides and pesticides), and increased human activity. Dust and applications for fugitive dust control can impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. However, these disturbances would not result in significant impacts with implementation of APM-BIO-2, APM-BIO-3, and APM-AQ-2 (see Section 4.3.5); other internal construction guidelines and BMPs, as discussed in Chapter 3; and MM-BIO-4.

There would be no long-term indirect impacts to sensitive vegetation communities associated with patrol road improvements and paving. All impacts relating to O&M activities following construction of CIP projects would be considered under the O&M impacts described in Section 4.3.6.5. Impacts would be less than significant.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to sensitive vegetation communities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-3: Adverse Effect on Wetlands

A formal delineation of federal wetlands as defined and regulated by Section 404 of the Clean Water Act was conducted in 2015, 2016, and 2019 (Dudek n.d.). The jurisdictional delineation also identified federal non-wetland waters and state jurisdictional waters and wetlands as defined and regulated by Section 401 of the Clean Water Act, the Porter-Cologne Water Quality Protection Act, and Section 1602 of the California Fish and Game Code. Federal and state jurisdictional waters and wetlands overlap with each other, and require concurrent analyses of effects. Additionally, acquisition of federal and state permits that authorize impacts to federal wetlands requires an evaluation and development of appropriate compensatory mitigation for impacts to non-wetland waters. As a result, the analysis and discussion of impacts to federal jurisdictional wetlands in this section includes federal and state jurisdictional waters.

Direct Impacts

Potential permanent and temporary impacts could occur from patrol road improvements and paving activities to potential jurisdictional wetlands and waters along the Inland Feeder and Rialto Pipeline.

The following summarizes the impacts to jurisdictional wetlands and waters from patrol road improvements and paving activities:

	Permanent Impacts (Acres)	Temporary Impacts (Acres)
• Waters of the United States and state		
- Non-wetland	0.20	0.07
• Waters of the state only		
- Vegetated streambed	0.13	0.09

ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function for waters of the United States. Similarly, California Executive Order W-59-93 was implemented to ensure no net loss of wetland values or function for waters of the state. Therefore, permanent and temporary direct impacts to jurisdictional resources would be significant absent mitigation.

Indirect Impacts

Potential short-term indirect impacts from proposed patrol road improvements and paving to jurisdictional waters, including wetlands, would be similar to those that could affect riparian and other sensitive vegetation communities (Impact BIO-2). Potential short-term indirect impacts would include changes in generation of fugitive dust and increased human activity. However, these disturbances would not result in significant impacts with implementation of APM-BIO-2, APM-BIO-3, and APM-AQ-2 (see Section 4.3.5); other internal construction guidelines and BMPs, as discussed in Chapter 3; and MM-BIO-4.

No long-term indirect impacts to jurisdictional wetlands associated with patrol road improvements and paving would occur. All impacts relating to O&M activities following construction of CIP projects would be considered under the O&M impacts described in Section 4.3.6.5. Impacts would be less than significant with mitigation.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts; however, impacts would remain potentially significant absent mitigation.

Mitigation Measures

In addition to MM-BIO-4, the following mitigation measure would be implemented to reduce the impacts to jurisdictional wetlands and waters to below a level of significance:

MM-BIO-5 **Compensation for Impacts to Jurisdictional Wetlands and Waters.** Mitigation for temporary and permanent impacts to jurisdictional wetlands and waters shall consider and overlap with compensation for special-status species habitat (MM-BIO-2). The U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board may require additional compensation during the regulatory permitting process.

- **Temporary Impacts.** Mitigation for direct temporary impacts to jurisdictional wetlands and waters resulting from CIP projects, single-occurrence O&M activities, and routine O&M activities shall be implemented through on-site restoration. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. For impacted vegetated jurisdictional wetlands and waters, the proposed rehabilitation of impact areas may include, at a minimum, a feasible implementation structure, salvage/seeding details, invasive species eradication methods, a monitoring schedule, performance standards of success, estimated costs, and identification of responsible entities.
- **Permanent Impacts.** Mitigation for permanent impacts to jurisdictional wetlands and waters resulting from CIP projects and single-occurrence O&M activities shall be implemented at a minimum 1:1 mitigation ratio through purchase of credits through an agency-approved mitigation bank, in-lieu fee program, or other agreement. If no agency-approved mitigation bank or in-lieu fee program is available, off-site mitigation lands shall be preserved through a conservation easement.

Level of Significance: Less than significant with implementation of MM-BIO-4 and MM-BIO-5.

Impact BIO-4: Interference with Wildlife Movement/Use of Nursery Sites

Direct Impacts

No significant direct permanent or temporary impacts would occur to wildlife movement or use of native wildlife nursery sites associated with patrol road improvements and paving activities. Proposed components of this CIP project include road widening, repaving of existing roads, vegetation removal, and erosion control. The proposed activities would be short term and would have a minimal impact footprint. None of these activities, either individually or cumulatively, would result in the creation of barriers to wildlife movement or impede the use of native wildlife nursery sites within the region. Existing habitat linkages and wildlife corridor functions would remain intact after patrol road improvements and paving projects are in place.

Indirect Impacts

There may be some short-term indirect impacts to localized wildlife movement and nursery sites during implementation of the proposed patrol road improvements and paving projects from increased human presence and construction-related noise. However, these impacts would be temporary and minor and would not be expected to significantly disrupt wildlife movement due to the small footprint of each proposed project and the ability for wildlife to avoid construction areas. The impacted areas would be limited relative to all adjacent habitat available for wildlife movement. In addition, no construction activity would occur at night. Most wildlife movement occurs during early morning or at night, and wildlife movement would not be affected at these times. No significant long-term indirect impacts to wildlife movement would occur as a result of program implementation. Similarly for potential nursery sites, impacts would be temporary and minor and would not be expected to significantly disrupt activities of nesting birds or roosting bats.

Combined Impacts

No significant long-term indirect impacts to wildlife movement or nursery sites would occur as a result of program implementation.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Biological Resources Protection Policies and Ordinances

Each city within the proposed program area has a general plan that includes natural resource and/or biological resource policies or ordinances. In addition, County policies and ordinances protect natural resources. Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts and to be consistent with policies when feasible. The proposed program is intended to maintain, repair, and improve existing infrastructure to ensure the reliability of Metropolitan's water conveyance and distribution system. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

Impacts

Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid

and/or minimize potential impacts from the proposed program and to be consistent with policies when feasible. Additionally, the activities outlined in this proposed program are not inconsistent with local plans and ordinances. As there are no potential conflicts with local policies or ordinances, direct impacts are not expected to occur.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-6: Conflict with an HCP or NCCP

Assessing impacts to regional resource planning takes into consideration whether a project would conflict with the requirements of an adopted plan, such as an NCCP, an HCP, a multiple species habitat conservation plan (MSHCP), an associated subarea plan, or another regional resource planning effort. The proposed program area is located within the boundaries of one approved regional conservation plan: the Wash Plan (USFWS and SBVWCD 2019).

Impacts

Approximately 635 acres of the proposed program area associated with the Inland Feeder occurs within the boundaries of the Wash Plan area. A total of three CIP project sites are proposed within the boundaries of the Wash Plan area, including Inland Feeder Station 733+15, Inland Feeder Station 813+00, and Inland Feeder Station 822+10; all three of these projects are CIP Activity Code Nos. 1 and 2. Metropolitan maintains a permanent maintenance easement for the Inland Feeder, which begins at Boulder Avenue in the City of Highland, runs east along the Southern California Edison (SCE) easement to Cone Camp Road in the City of Highland, and turns south across the Wash Plan planning area to Opal Avenue in the San Bernardino County community of Mentone. Figure 4.3-2, Conservation Area Boundaries, shows the boundaries of the Wash Plan area as it relates to the proposed program area.

Metropolitan is not a signatory to the Wash Plan. However, the proposed program would not preclude the adoption of this HCP because the impacts from implementation of these three CIP projects to natural vegetation is 0.22 acres of permanent impacts and 0.08 acres of temporary impacts. The impacts are minimal in the context of the 4,900-acre HCP boundary and the projects would not preclude the assembly of the preserve or implementation of the conservation measures in the Wash Plan. Therefore, impacts would be less than significant and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact BIO-1: Adverse Effect on Special-Status Species

Direct Impacts

Plants

As described in Section 4.3.2.2, focused surveys for special-status plants were conducted during the appropriate seasons for the engineered erosion control (CIP Activity Code No. 2) locations during an above-average rainfall year and no special-status plant species were observed in these CIP project areas. Permanent and temporary direct impacts to individual special-status plants are not anticipated and thus would be less than significant.

For CIP project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys, in accordance with APM-BIO-1, for special-status plant species during the appropriate blooming period for species that have potential to occur. Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project sites.

Wildlife

Direct permanent impacts associated with proposed engineering erosion control activities have the potential to adversely affect special-status wildlife species through potential loss of breeding and/or foraging habitat as quantified in Table 4.3-11. With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of suitable habitat (except nests) for special-status wildlife would be less than significant. A substantial amount of suitable habitat would remain in the vicinity that could be used by these species and the small loss of habitat would not affect regional populations.

With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of individual special-status wildlife would also be less than significant. Impacts would be very limited in scope and would occur over a large area that would continue to support these species. Therefore, these minor impacts would not affect the sustainability of the regional populations.

Engineering erosion control activities would permanently impact 0.01 acres and temporarily impact less than 0.005 acres of suitable habitat for least Bell's vireo, which is a federally and state-listed

species, and any loss of habitat could be a significant impact absent mitigation. Also, these CIP projects would permanently impact 0.39 acres and temporarily impact 0.16 acres of suitable habitat for coastal California gnatcatcher, which is a federally listed species, and any loss of habitat could be a significant impact absent mitigation. Finally, these CIP projects would permanently impact 0.41 acres and temporarily impact 0.14 acres of suitable habitat for San Bernardino kangaroo rat, which is a federally listed species and a state candidate species, and any loss of habitat could be a significant impact absent mitigation. Implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for these species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio.

Impacts to nests, eggs, or nestlings of special-status birds (including coastal California gnatcatcher and least Bell's vireo) would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of project activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of these Bird—Riparian Guild species to less than significant.

Any impacts to individual San Bernardino kangaroo rat would be considered "take" under the ESA. Therefore, impacts to individual San Bernardino kangaroo rat would be potentially significant absent mitigation. However, implementation of MM-BIO-3 and MM-BIO-4 would ensure that any individuals or burrows would be detected prior to initiation of proposed program activities and that impacts to individuals would be avoided.

Indirect Impacts

Plants

Indirect impacts to special-status plant species as a result of implementing the proposed engineered erosion control activities would be equivalent to those analyzed in this section for patrol road improvements and paving (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Wildlife

Indirect impacts to special-status wildlife species as a result of implementing the proposed engineered erosion control activities would be equivalent to those analyzed for patrol road improvements and paving (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Combined Impacts

With incorporation of APM-BIO-1 through APM-BIO-3 and APM-AQ-2, impacts would be avoided and/or reduced; however, they would remain significant absent mitigation.

Mitigation Measures

Metropolitan would implement the following mitigation measures where potential impacts to special-status plants and wildlife may occur to reduce the impacts below a level of significance: for plants, MM-BIO-2 and MM-BIO-4, and for wildlife, MM-BIO-1 through MM-BIO-4.

Level of Significance: Less than significant with implementation of MM-BIO-1 through MM-BIO-4.

Impact BIO-2: Adverse Effect on Riparian Habitat/Sensitive Natural Communities

Riparian and sensitive natural communities (collectively, sensitive vegetation communities) were delineated for the proposed program area in 2015 (Appendix F-1). Several vegetation communities within the program area are considered sensitive by CDFW (CDFW 2019a).

Direct Impacts

Proposed engineered erosion control activities would result in significant direct permanent impacts to sensitive vegetation communities by removal of vegetation from construction of permanent structures such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls. Temporary direct impacts as a result of engineered erosion control would result from temporary material construction staging in undisturbed areas.

Potential permanent and temporary impacts would occur from engineered erosion control activities to two sensitive vegetation communities within the proposed program area: California sycamore woodlands and scale broom scrub. These impacts are on the Inland Feeder and Rialto Pipeline. The following summarizes the potential impacts to sensitive vegetation communities resulting from engineered erosion control activities:

	Permanent Impacts (Acres)	Temporary Impacts (Acres)[4]
• California sycamore woodlands	0.01	0.00
• Scale broom scrub	0.16	—

[4] "0.00" indicates that the impact is less than 0.005 acres; "—" indicates there are no impacts in the associated category (permanent or temporary).

The small amount of California sycamore woodlands impacted (0.05% of the total in the program area) is not substantial in comparison with the 20.7 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. The small amount of scale broom scrub impacted (0.04% of the total in the program area) is not substantial in comparison with the 413.8 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. Permanent and temporary direct impacts to sensitive vegetation communities would be less than significant.

Indirect Impacts

Indirect impacts to sensitive vegetation communities as a result of implementing the proposed engineered erosion control activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to sensitive vegetation communities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-3: Adverse Effect on Wetlands

Similar to the analysis presented in this section for patrol road improvements and paving, the analysis and discussion of impacts to federal jurisdictional wetlands below includes federal and state jurisdictional waters.

Direct Impacts

Proposed engineered erosion control activities would result in significant direct permanent impacts to jurisdictional wetlands and waters through direct removal of vegetation during construction of permanent structures such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls. Temporary direct impacts as a result of engineered erosion control would result from temporary construction activities.

Potential permanent and temporary impacts could occur from engineered erosion control activities to potential jurisdictional wetlands and waters along the Inland Feeder and Rialto Pipeline portions of the proposed program area. The following summarizes the impacts to jurisdictional wetlands and waters for engineered erosion control activities:

	Permanent Impacts (Acres)	Temporary Impacts (Acres)
• Waters of the United States and state		
- Non-wetland	0.20	0.07
• Waters of the state only		
- Vegetated streambed	0.13	0.09

ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function for waters of the United States. Similarly, California Executive Order W-59-93 was implemented to ensure no net loss of wetland values or function for waters of the state. Thus, permanent and temporary direct impacts to jurisdictional resources would be significant absent mitigation.

Indirect Impacts

Indirect impacts to jurisdictional wetlands and waters as a result of implementing the proposed engineered erosion control activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to jurisdictional wetlands and waters; however, impacts would remain significant absent mitigation.

Mitigation Measures

MM-BIO-4 and MM-BIO-5 would be implemented to reduce impacts to jurisdictional wetlands/waters below a level of significance.

Level of Significance: Less than significant with implementation of MM-BIO-4 and MM-BIO-5.

Impact BIO-4: Interference with Wildlife Movement/Use of Nursery Sites

Direct Impacts

There would be no significant direct permanent or temporary impacts to wildlife movement or use of native wildlife nursery sites associated with proposed engineered erosion control activities. Proposed components of this activity type include installation of permanent structures or repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head wall to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. The proposed activities would be short term and would have a minimal impact footprint. None of these activities, either individually or cumulatively, would result in the creation of barriers to wildlife movement or impede the use of native wildlife nursery sites within the region. Further, culverts, corrugated metal pipes, and other structures may serve to improve localized wildlife movement by offering additional routes of travel from confined zones within the proposed program area. Existing habitat linkages and wildlife corridor functions would remain intact after proposed engineered erosion control projects are completed.

Indirect Impacts

Indirect impacts to wildlife movement and nursery sites as a result of implementing the proposed engineered erosion control activities would be equivalent to those analyzed above for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

Significant direct and indirect impacts to wildlife movement/nursery sites are not anticipated.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Biological Resources Protection Policies and Ordinances

Each city within the proposed program area has a general plan that includes natural resource and/or biological resource policies or ordinances. In addition, County policies and ordinances protect natural resources. Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts. The proposed program is intended to maintain, repair, and improve existing infrastructure to ensure the reliability of Metropolitan's water conveyance and distribution system. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

Impacts

Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts from the proposed program and to be consistent with policies when feasible. Additionally, the activities outlined in this proposed program are not inconsistent with local plans and ordinances.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-6: Conflict with an HCP or NCCP

Assessing impacts to regional resource planning takes into consideration whether a project would conflict with the requirements of an adopted plan, such as an NCCP, HCP, MSHCP, associated subarea plan, or other regional resource planning effort. The proposed program area is located within the boundaries of one approved conservation plan: the Wash Plan (USFWS and SBVWCD 2019).

Impacts

Approximately 635 acres of the proposed program area associated with the Inland Feeder occur within the boundaries of the Wash Plan area. A total of three CIP project sites are proposed within the boundaries of the Wash Plan area, including Inland Feeder Station 733+15, Inland Feeder Station 813+00, and Inland Feeder Station 822+10; all three of these projects are CIP Activity Code Nos. 1 and 2. Metropolitan maintains a permanent maintenance easement for the Inland Feeder, which begins at Boulder Avenue in the City of Highland, runs east along the SCE easement to Cone Camp Road in the City of Highland, and turns south across the Wash Plan planning area to Opal Avenue in the San Bernardino County community of Mentone. Figure 4.3-2 shows the boundaries of the Wash Plan area as it relates to the proposed program area.

Metropolitan is not a signatory to the Wash Plan. However, the proposed program would not preclude the adoption of this HCP because the impacts from implementation of these three CIP projects to natural vegetation is 0.22 acres of permanent impacts and 0.08 acres of temporary impacts. The impacts are minimal in the context of the 4,900-acre HCP boundary and the projects would not preclude the assembly of the preserve or implementation of the conservation measures in the Wash Plan. Therefore, impacts would be less than significant and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact BIO-1: Adverse Effect on Special-Status Species

Direct Impacts

Plants

As described in Section 4.3.2.2, focused surveys for special-status plants were conducted during the appropriate seasons for the slope stabilization (CIP Activity Code No. 3) locations during an above-average rainfall year and no special-status species were observed in these CIP project areas. Permanent and temporary direct impacts to individual special-status plants are not anticipated; therefore, impacts would be less than significant.

For CIP project sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys, in accordance with APM-BIO-1, for special-status plant species during the appropriate blooming period for species that have potential to occur. Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near CIP project sites.

Wildlife

Direct permanent impacts associated with proposed slope stabilization activities have the potential to adversely affect special-status wildlife species through potential loss of breeding and/or foraging habitat as quantified in Table 4.3-11. With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of suitable habitat (except nests) for special-status wildlife would be less than significant. A substantial amount of suitable habitat would remain in the vicinity that could be used by these species, and the small loss of habitat would not affect regional populations.

With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of individual special-status wildlife would also be less than significant. Impacts would be very limited in scope and occur over a large area that would continue to support these species. Therefore, these minor impacts would not affect the sustainability of the regional populations.

Slope stabilization activities would permanently impact less than 0.005 acres and temporarily impact less than 0.005 acres of suitable habitat for least Bell's vireo, which is a federally and state-listed species, and any loss of habitat could be a significant impact absent mitigation. Also, these CIP projects would permanently impact 0.24 acres and temporarily impact 0.28 acres of suitable habitat for coastal California gnatcatcher, which is a federally listed species, and any loss of habitat could be a significant impact absent mitigation. Finally, these CIP projects would permanently impact 0.20 acres and temporarily impact 0.25 acres of suitable habitat for San Bernardino kangaroo rat, which is a federally listed species and a state candidate species, and any loss of habitat could be a significant impact absent mitigation. Implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for these species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio.

Impacts to nests, eggs, or nestlings of special-status birds (including coastal California gnatcatcher and least Bell's vireo) would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of project activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of these Bird—Riparian Guild species to less than significant.

Any impacts to individual San Bernardino kangaroo rat would be considered "take" under the ESA. Therefore, impacts to individual San Bernardino kangaroo rat would be potentially significant absent mitigation. However, implementation of MM-BIO-3 and MM-BIO-4 would ensure that any individuals or burrows would be detected prior to initiation of proposed program activities and that impacts to individuals would be avoided.

Indirect Impacts

Plants

Indirect impacts to special-status plant species as a result of implementing the proposed slope stabilization activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Wildlife

Indirect impacts to special-status wildlife species as a result of implementing the proposed slope stabilization activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Combined Impacts

Implementation of APM-BIO-1 through APM-BIO-3 and APM-AQ-2 would avoid and/or reduce impacts; however, impacts would remain significant absent mitigation.

Mitigation Measures

Metropolitan would implement the following mitigation measures where potential impacts to special-status plants and wildlife may occur to reduce the impacts below a level of significance: for plants, MM-BIO-2 and MM-BIO-4, and for wildlife, MM-BIO-1 through MM-BIO-4.

Level of Significance: Less than significant with implementation of MM-BIO-1 through MM-BIO-4.

Impact BIO-2: Adverse Effect on Riparian Habitat/Sensitive Natural Communities

Riparian and sensitive natural communities were delineated for the proposed program area in 2015 (Appendix F-1). Several vegetation communities within the program area are considered sensitive by CDFW (CDFW 2019a).

Direct Impacts

Proposed slope stabilization activities would result in significant direct permanent impacts to sensitive vegetation communities across the proposed program area through direct removal of vegetation during slope repair activities such as grading and compacting of slopes; rock slope protection; and use of soil cement, anchors, tie-backs, and stepped retaining walls. Temporary direct impacts as a result of slope stabilization would result from temporary material construction staging in undisturbed areas.

Potential permanent and temporary impacts would occur from slope stabilization activities to two sensitive vegetation communities within the proposed program area: California sycamore woodlands and scale broom scrub. These impacts are on the Inland Feeder and Rialto Pipeline portions of the program area. The following summarizes the potential impacts to sensitive vegetation communities resulting from slope stabilization activities:

	Permanent Impacts (Acres)[5]	Temporary Impacts (Acres)[6]
• California sycamore	0.00	0.00
• Scale broom scrub	0.05	0.00

[5] "0.00" indicates that the impact is less than 0.005 acres.
[6] "0.00" indicates that the impact is less than 0.005 acres.

The small amount of California sycamore woodlands impacted (less than 0.005 acres, or 0.00% of the total in the program area) is not substantial in comparison with the 20.7 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. The small amount of scale broom scrub impacted (0.01% of the total in the program area) is not substantial in comparison with the 413.8 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. Permanent and temporary direct impacts to sensitive vegetation communities would be less than significant.

Indirect Impacts

Indirect impacts to sensitive vegetation communities as a result of implementing the proposed slope stabilization activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to sensitive vegetation communities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-3: Adverse Effect on Wetlands

Similar to the analysis presented in this section for patrol road improvements and paving, the analysis and discussion of impacts to federal jurisdictional wetlands includes federal and state jurisdictional waters.

Direct Impacts

Proposed slope stabilization activities would result in significant direct permanent impacts to jurisdictional wetlands and waters through direct removal of vegetation during slope repair activities such as grading and compacting of slopes; rock slope protection; and use of soil cement, anchors, tie-backs, and stepped retaining walls. Temporary direct impacts as a result of slope stabilization may result through temporary material construction staging in undisturbed areas.

Potential permanent and temporary impacts could occur from slope stabilization activities to jurisdictional wetlands and waters along the Inland Feeder and Rialto Pipeline portions of the program area. The following summarizes the impacts to jurisdictional wetlands and waters for slope stabilization activities:

	Permanent Impacts (Acres)[7]	Temporary Impacts (Acres)[8]
• Waters of the United States and state		
- Non-wetland	0.15	0.06
• Waters of the state only		
- Vegetated streambed	0.00	—

ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function for waters of the United States. Similarly, California Executive Order W-59-93 was implemented to ensure no net loss of wetland values or function for waters of the state. Therefore, permanent and temporary direct impacts to jurisdictional resources would be significant absent mitigation.

Indirect Impacts

Indirect impacts to jurisdictional waters as a result of implementing the proposed slope stabilization activities would be equivalent to those analyzed in this section for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be significant absent mitigation.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to jurisdictional wetlands and waters; however, impacts would remain significant absent mitigation.

Mitigation Measures

MM-BIO-4 and MM-BIO-5 would be implemented to reduce impacts to jurisdictional wetlands and waters below a level of significance.

Level of Significance: Less than significant with implementation of MM-BIO-4 and MM-BIO-5.

[7] "0.00" indicates that the impact is less than 0.005 acres.
[8] "—" indicates there are no impacts in the associated category (permanent or temporary).

Impact BIO-4: Interference with Wildlife Movement/Use of Nursery Sites

Direct Impacts

There would be no significant direct permanent or temporary impacts to wildlife movement or use of native wildlife nursery sites associated with proposed slope stabilization projects. Proposed components of this activity type would include bank protection, addition of material to shore up undermined structures, construction of curbs or retaining walls, and addition of riprap and other materials to stabilize slopes. The proposed activities would be short term and would have a minimal impact footprint. None of these activities, either individually or cumulatively, would result in the creation of barriers to wildlife movement or impede the use of native wildlife nursery sites within the region. Existing habitat linkages and wildlife corridor functions would remain after proposed slope stabilization projects are in place.

Indirect Impacts

Indirect impacts to wildlife movement and nursery sites as a result of implementing the proposed slope stabilization activities would be equivalent to those analyzed above for patrol road improvement and paving projects (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

Significant direct and indirect impacts to wildlife movement/nursery sites are not anticipated.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Biological Resources Protection Policies and Ordinances

Each city within the proposed program area has a general plan that includes natural resource and/or biological resource policies or ordinances. In addition, County policies and ordinances protect natural resources. Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts to be consistent with policies when feasible. The proposed program is intended to maintain, repair, and improve existing infrastructure to ensure the reliability of Metropolitan's water conveyance and distribution system. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

Impacts

Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts from the proposed program and to be consistent with policies when feasible. Additionally, the activities outlined in this proposed program are not inconsistent with local plans and ordinances. As there are no potential conflicts with local policies or ordinances, direct impacts are not expected to occur.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-6: Conflict with an HCP or NCCP

Assessing impacts to regional resource planning takes into consideration whether a project would conflict with the requirements of an adopted plan, such as an NCCP, HCP, MSHCP, associated subarea plan, or other regional resource planning effort. The proposed program area is located within the boundaries of one approved conservation plan: the Wash Plan (USFWS and SBVWCD 2019).

Impacts

None of the slope stabilization activities would occur within the boundaries of the Wash Plan. Therefore, there would be no conflicts with the HCP.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.3.6.5 O&M Activities

For the purposes of the impact analysis, O&M activities were divided into two broad categories: routine and single-occurrence O&M. Routine O&M activities would not require extensive engineering or involve construction of new facilities. They would be repeated activities that would occur at regular intervals to maintain patrol roads and other infrastructure in good condition. These activities include patrol road maintenance; patrols and visual inspections; maintenance/cleanout of drainage features; facility maintenance, repair, and replacement; vegetation management/maintenance; and other activities such as pipeline shutdowns/dewatering and emergency work.

Single-occurrence O&M activities (O&M Activity Code No. 15) would typically be conducted on a one-time basis and would include repair, rehabilitation, or replacement of existing structures to support the continued operation and maintenance of existing pipelines and appurtenant pipeline structures. This would include reestablishment of access to structures through repair and rehabilitation of patrol roads. In the Western San Bernardino County Operating Region, single-occurrence O&M activities are primarily limited to patrol road structural repairs, and would include installation of low water crossings, culverts, and/or bridges. Although impacts resulting from routine O&M activities are difficult to quantify, the anticipated direct permanent and temporary impacts from single-occurrence O&M activities were analyzed using GIS software based on the species habitat models described in Section 4.3.1.3, Special-Status Plant and Wildlife Species Habitat Modeling.

Metropolitan would implement APM-BIO-1 through APM-BIO-4 and APM-AQ-2 (Section 4.3.5) to avoid and minimize impacts to biological resources. However, some activities may require additional mitigation to reduce impacts to a less than significant level.

Routine O&M Activities

Impact BIO-1: Adverse Effect on Special-Status Species

Direct Impacts

Plants

Routine O&M activities are currently conducted on a regular basis within the proposed program area, are temporary, and occur within the existing disturbance footprint. These activities would not typically result in significant direct permanent or temporary impacts to special-status plants. Therefore, no significant direct impacts to special-status plants are expected to occur during routine O&M activities.

Wildlife

As discussed under "Plants," routine O&M activities are currently conducted on a regular basis within the proposed program area, are temporary, and occur within the existing disturbance footprint. These activities would not typically result in significant direct permanent or temporary impacts to special-status wildlife.

However, routine O&M activities that are conducted during the breeding season (February 1 through August 31) could result in direct impacts to nesting birds. Direct impacts to individual special-status wildlife, active nests, or the young of nesting special-status bird species would be significant absent mitigation. If routine O&M activities occur within the breeding bird season, significant impacts may occur if appropriate mitigation is not implemented. Therefore, if construction activities occur within the breeding bird season, which may result in significant impacts, MM-BIO-1 would be implemented to mitigate any impacts to less than significant.

Indirect Impacts

Plants

Short-term and long-term indirect impacts to special-status plant species associated with routine O&M activities would not likely result in significant impacts. All routine O&M activities are currently conducted on a regular basis, are temporary, and occur within the existing disturbance footprint. The proposed O&M activities would be short in duration and would not result in substantial changes to the landscape once completed (e.g., there would be no change or very limited changes in human activity, soil erosion, and hydrology). No significant short-term or long-term indirect impacts would occur to special-status plants from routine O&M activities.

Wildlife

Short-term and long-term indirect impacts to special-status wildlife species associated with routine O&M activities would not likely be significant. All routine O&M activities are currently conducted on a regular basis, are temporary, and occur within the existing disturbance footprint. Species that occur in the vicinity of routine O&M activity sites are adapted to the conditions generated by such activities.

However, noise generated by routine O&M activities, including vegetation maintenance and removal along patrol roads and around structures, that are conducted during the breeding season (February 1 through August 31) could result in indirect impacts to nesting birds. Noise related to these activities has the potential to disrupt reproductive and feeding activities. Under the MBTA, indirect impacts to individual special-status wildlife, active nests, or the young of nesting special-status bird species would be significant absent mitigation. This impact would be mitigated to a less than significant level through implementation of MM-BIO-1.

Combined Impacts

APM-BIO-3, APM-BIO-4, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts; however, impacts would remain significant absent mitigation.

Mitigation Measures

For routine O&M activities the following mitigation measures would be implemented to reduce the impacts below a level of significance: for plants, none are required; for wildlife, MM-BIO-1.

Level of Significance: Less than significant with implementation of MM-BIO-1.

Impact BIO-2: Adverse Effect on Riparian Habitat/Sensitive Natural Communities

Direct Impacts

As mentioned under Impact BIO-1, routine O&M activities are currently conducted on a regular basis within the proposed program area, are temporary, and occur within the existing disturbance footprint. These activities would not typically result in significant direct permanent or temporary impacts to sensitive vegetation communities. Therefore, no significant direct impacts to sensitive vegetation communities are expected to occur during routine O&M activities.

Indirect Impacts

Short-term and long-term indirect impacts to sensitive vegetation communities relating to routine O&M activities would not likely be significant. All routine O&M activities would occur within the existing disturbance footprint, would be conducted on a regular basis, and would be temporary. No significant short-term or long-term indirect impacts would occur to sensitive vegetation communities from routine O&M activities.

Combined Impacts

No significant direct or indirect impacts would occur to sensitive vegetation communities from routine O&M activities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-3: Adverse Effect on Wetlands

The analysis and discussion of impacts to federal jurisdictional wetlands in this section includes federal and state jurisdictional waters.

Direct Impacts

Routine O&M activities would typically occur within the existing disturbance footprint, would be conducted on a regular basis, and would be temporary. Therefore, no significant impact to federal or state jurisdictional wetlands or waters is anticipated.

Indirect Impacts

Short-term and long-term indirect impacts to jurisdictional wetlands and waters relating to routine O&M activities would not likely be significant. All routine O&M activities would occur within the existing disturbance footprint, would be conducted on a regular basis, and would be temporary.

Combined Impacts

No significant direct or indirect impacts would occur to federal or state jurisdictional wetlands or waters from routine O&M activities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-4: Interference with Wildlife Movement/Use of Nursery Sites

Direct Impacts

No significant direct permanent impacts would occur to wildlife movement or use of native wildlife nursery sites associated with routine O&M activities. The majority of Metropolitan's existing facilities in the proposed program area are underground or at grade, and do not pose an impediment to wildlife movement on a regional or local level. Existing habitat linkages and wildlife corridor functions would remain intact while routine O&M activities are conducted. Patrol road maintenance, which would include grading patrol roads, vegetation mowing and trimming along patrol roads, culvert maintenance/cleanout, vegetation removal along patrol roads, maintenance of low water crossings, and erosion control activities, would not likely result in impacts to wildlife movement because no new structures are proposed for construction that would impede wildlife movement. Patrol and inspection, another routine O&M activity, would include water quality sampling and vehicle patrols along existing roads. Patrol and inspection would not result in direct impacts to wildlife movement. Routine structure maintenance, repair, and replacement would involve general cleaning of equipment and structures, graffiti removal and coating of structures, clearing and weed abatement around structures, pipeline appurtenance maintenance and replacement, and pest control. Direct impacts to wildlife movement would not result from this activity because no structures to impede movement or impede the use of native wildlife nursery sites are proposed. No significant direct impacts to wildlife movement or nursery sites would occur from routine O&M activities.

Indirect Impacts

Some indirect temporary impacts to localized wildlife movement and nursery sites could occur due to patrol road maintenance or vehicle patrols from increased human presence and construction-related noise. However, these impacts would be temporary and would not be expected to significantly disrupt wildlife movement due to the small project footprint and the ability for wildlife to avoid the project construction areas. There would be no permanent indirect impacts to wildlife movement as a result of routine O&M activities.

Combined Impacts

No significant direct or indirect impacts would occur to wildlife movement or the use of nursery sites from routine O&M activities.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Biological Resources Protection Policies and Ordinances

As stated previously, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts and to be consistent with policies when feasible. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

Impacts

Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts from the proposed program and to be consistent with policies when feasible. Additionally, the activities outlined in this proposed program are not inconsistent with local plans and ordinances. As there are no potential conflicts with local policies or ordinances, direct impacts are not expected to occur.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-6: Conflict with an HCP or NCCP

Assessing impacts to regional resource planning takes into consideration whether a project would conflict with the requirements of an adopted plan, such as an NCCP, HCP, MSHCP, associated subarea plan, or other regional resource planning effort. The proposed program area is located within the boundaries of one approved regional conservation plan: the Wash Plan (USFWS and SBVWCD 2019).

Impacts

A portion of the proposed program area (Inland Feeder) is within the boundaries of the Wash Plan. Metropolitan maintains a permanent maintenance easement for the Inland Feeder within the boundaries of the HCP, which begins at Boulder Avenue in the City of Highland, runs east along the SCE easement to Cone Camp Road in the City of Highland, and turns south across the Wash Plan planning area to Opal Avenue in the San Bernardino County community of Mentone. Figure 4.3-2 shows the boundaries of the Wash Plan area as it relates to the proposed program area.

Metropolitan is not a signatory to the Wash Plan. However, the proposed routine O&M activities would not preclude the adoption of this HCP because the impacts from implementation of routine O&M activities would not significantly affect natural communities or other biological resources. Routine O&M activities are currently conducted on a regular basis within the proposed program area, are temporary, and occur within the existing disturbance footprint. The impacts are minimal in the context of the 4,900-acre HCP boundary and the activities would not preclude the assembly of the preserve or implementation of the conservation measures in the Wash Plan. Therefore, impacts would be less than significant and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities (O&M Activity Code No. 15)

Impact BIO-1: Adverse Effect on Special-Status Species

Direct Impacts

Plants

As described in Section 4.3.2.2, focused surveys for special-status plants were conducted during the appropriate seasons within single-occurrence O&M activity impact footprints during an above-average rainfall year and no special-status plant species were observed. Permanent and temporary direct impacts to individual special-status plants are not anticipated; therefore, impacts would be less than significant.

For single-occurrence O&M activity sites that do not commence construction by 2022, Metropolitan will complete pre-activity surveys, in accordance with APM-BIO-1, for special-status plant species during the appropriate blooming period for species that have potential to occur. Populations and individuals of any special-status plant species found during pre-activity surveys will be mapped with GPS. Mapped populations of listed species will be avoided unless take authorization has been

obtained from the respective resource agency. Non-listed special-status plants will be avoided during construction activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, will be implemented to protect special-status plant populations found near single-occurrence O&M activity sites.

Wildlife

Direct permanent impacts associated with single-occurrence O&M activities have the potential to adversely affect special-status wildlife species through direct mortality and potential loss of breeding and/or foraging habitat as quantified in Table 4.3-11. With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of suitable habitat (except nests) for special-status wildlife would be less than significant. A substantial amount of suitable habitat would remain in the vicinity that could be used by these species, and the small loss of habitat would not affect regional populations.

With the exception of coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat, the loss of individual special-status wildlife would also be less than significant. Impacts would be very limited in scope and would occur over a large area that would continue to support these species. Therefore, these minor impacts would not affect the sustainability of the regional populations.

For single-occurrence O&M activities, there would be no impacts to habitat for least Bell's vireo. However, these single-occurrence O&M activities would permanently impact 0.03 acres of suitable habitat for coastal California gnatcatcher, which is a federally listed species, and any loss of habitat could be a significant impact absent mitigation. Also, these single-occurrence O&M activities would permanently impact 0.04 acres of suitable habitat for San Bernardino kangaroo rat, which is a federally listed species and a state candidate species, and any loss of habitat could be a significant impact absent mitigation. Implementation of MM-BIO-2 would provide 1:1 mitigation for temporary loss of suitable habitat for these species, as well as mitigation for permanent habitat loss through preservation or funding of a mitigation bank or in-lieu fee program at a 1:1 ratio.

Impacts to nests, eggs, or nestlings of special-status birds (including coastal California gnatcatcher and least Bell's vireo) would be potentially significant absent mitigation. However, implementation of MM-BIO-1 would ensure that any nests of these species would be detected prior to initiation of proposed program activities, and that impacts to the nests, eggs, and nestlings would be avoided. Therefore, implementation of this measure would reduce impacts to nests, eggs, and nestlings of these Bird—Riparian Guild species to less than significant.

Any impacts to individual San Bernardino kangaroo rat would be considered "take" under the ESA. Therefore, impacts to individual San Bernardino kangaroo rat would be potentially significant absent mitigation. However, implementation of MM-BIO-3 and MM-BIO-4 would ensure that any individuals or burrows would be detected prior to initiation of project activities and that impacts to individuals would be avoided.

Indirect Impacts

Plants

Indirect impacts to special-status plant species as a result of implementing the proposed single-occurrence O&M activities would be equivalent to those analyzed in Section 4.3.6.4, CIP Projects, for patrol road improvements and paving (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Wildlife

Indirect impacts to special-status wildlife species as a result of implementing the proposed single-occurrence O&M activities would be equivalent to those analyzed in Section 4.3.6.4 for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be significant absent mitigation.

Combined Impacts

APM-BIO-1 through APM-BIO-3 and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts, but impacts would remain significant absent mitigation.

Mitigation Measures

The following mitigation measures would be implemented where potential impacts to special-status plants and wildlife may occur to reduce the impacts below a level of significance: for plants, no measures are required; for wildlife, MM-BIO-1 through MM-BIO-4.

Level of Significance: Less than significant with implementation of MM-BIO-1 through MM-BIO-4.

Impact BIO-2: Adverse Effect on Riparian Habitat/Sensitive Natural Communities

Direct Impacts

Single-occurrence O&M activities would result in significant direct permanent impacts to sensitive vegetation communities. The only sensitive vegetation community that would be impacted by single-occurrence O&M activities is scale broom scrub. The following summarizes the potential impacts to sensitive vegetation communities resulting from single-occurrence O&M activities:

	Permanent Impacts (Acres)	Temporary Impacts (Acres)[9]
• Scale broom scrub	0.02	—

[9] "—" indicates there are no impacts in the associated category (permanent or temporary).

The small amount of scale broom scrub impacted (0.00% of the total in the program area) is not substantial in comparison with the 413.8 acres of the community that has been mapped in the program area (see Appendix F-1), and more within the region. Permanent direct impacts to this sensitive vegetation community would be less than significant.

Indirect Impacts

Indirect impacts to sensitive vegetation communities as a result of implementing the proposed single-occurrence O&M activities would be equivalent to those analyzed in Section 4.3.6.4 for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-3: Adverse Effect on Wetlands

Similar to the analysis presented in Section 4.3.6.4 for patrol road improvements and paving, the analysis and discussion of impacts to federal jurisdictional wetlands in this section includes federal and state jurisdictional waters.

Direct Impacts

Single-occurrence O&M activities (O&M Activity Code No. 15) would result in significant direct permanent impacts to jurisdictional wetlands and waters. No temporary direct impacts would result from single-occurrence O&M activities.

Potential permanent impacts could occur from single-occurrence O&M activities to potential jurisdictional wetlands and waters along the Rialto Pipeline portion of the proposed program area. The following summarizes the impacts to jurisdictional wetlands and waters for single-occurrence O&M activities:

	Permanent Impacts (Acres)[10]	Temporary Impacts (Acres)[11]
• Waters of the United States and state		
- Non-wetland	0.06	—
• Waters of the state only		
- Vegetated streambed	0.00	—
- Unvegetated streambed	0.00	—

ACOE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function for waters of the United States. Similarly, California Executive Order W-59-93 was implemented to ensure no net loss of wetland values or function for waters of the state. Therefore, permanent direct impacts to jurisdictional resources would be significant absent mitigation.

Indirect Impacts

Indirect impacts to jurisdictional wetlands and waters as a result of implementing the proposed single-occurrence O&M activities would be equivalent to those analyzed in Section 4.3.6.4 for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant with mitigation.

Combined Impacts

APM-BIO-2, APM-BIO-3, and APM-AQ-2 would be incorporated into the proposed program to avoid and/or reduce impacts to jurisdictional wetlands and waters; however, impacts would remain significant absent mitigation.

10 "0.00" indicates that the impact is less than 0.005 acres.
11 "—" indicates there are no impacts in the associated category (permanent or temporary).

Mitigation Measures

MM-BIO-4 and MM-BIO-5 would be implemented to reduce impacts to jurisdictional wetlands and waters below a level of significance.

Level of Significance: Less than significant with implementation of MM-BIO-4 and MM-BIO-5.

Impact BIO-4: Interference with Wildlife Movement/Use of Nursery Sites

Direct Impacts

No significant direct permanent or temporary impacts would occur to wildlife movement or use of native wildlife nursery sites associated with single-occurrence O&M activities. Proposed components of this O&M activity include repair, rehabilitation, and replacement of existing structures, such as patrol road structural repairs. None of these activities would result in the creation of barriers to wildlife movement or impede the use of native wildlife nursery sites within the region. Existing habitat linkages and wildlife corridor functions would remain intact after single-occurrence O&M activities are complete.

Indirect Impacts

Indirect impacts to wildlife movement as a result of implementing the proposed single-occurrence O&M activities would be equivalent to those analyzed in Section 4.3.6.4 for patrol road improvements and paving activities (CIP Activity Code No. 1). Impacts would be less than significant.

Combined Impacts

Significant direct and indirect impacts to wildlife movement are not anticipated.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Biological Resources Protection Policies and Ordinances

As stated previously, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts from the proposed program. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

Impacts

Per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, however, Metropolitan would coordinate with local jurisdictions if necessary during proposed program implementation to avoid and/or minimize potential impacts from the proposed program and to be consistent with policies when feasible. Additionally, the activities outlined in this proposed program are not inconsistent with local plans and ordinances.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact BIO-6: Conflict with an HCP or NCCP

Assessing impacts to regional resource planning takes into consideration whether a project would conflict with the requirements of an adopted plan, such as an NCCP, HCP, MSHCP, associated subarea plan, or other regional resource planning effort. The proposed program area is located within the boundaries of one approved regional conservation plan: the Wash Plan (USFWS and SBVWCD 2019).

Impacts

None of the single-occurrence O&M activities would occur within the boundaries of the Wash Plan. Therefore, no impacts would occur relating to conflicts with an HCP.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.3.6.6 Impacts Summary

See Table 4.3-10, Biological Resources Impacts Summary (Section 4.3.6.3) for a summary of the impact significance and mitigation for proposed CIP projects and O&M activities under each threshold.

4.3.7 Impacts Found Not to Be Significant

All impact thresholds were assessed in this PEIR.

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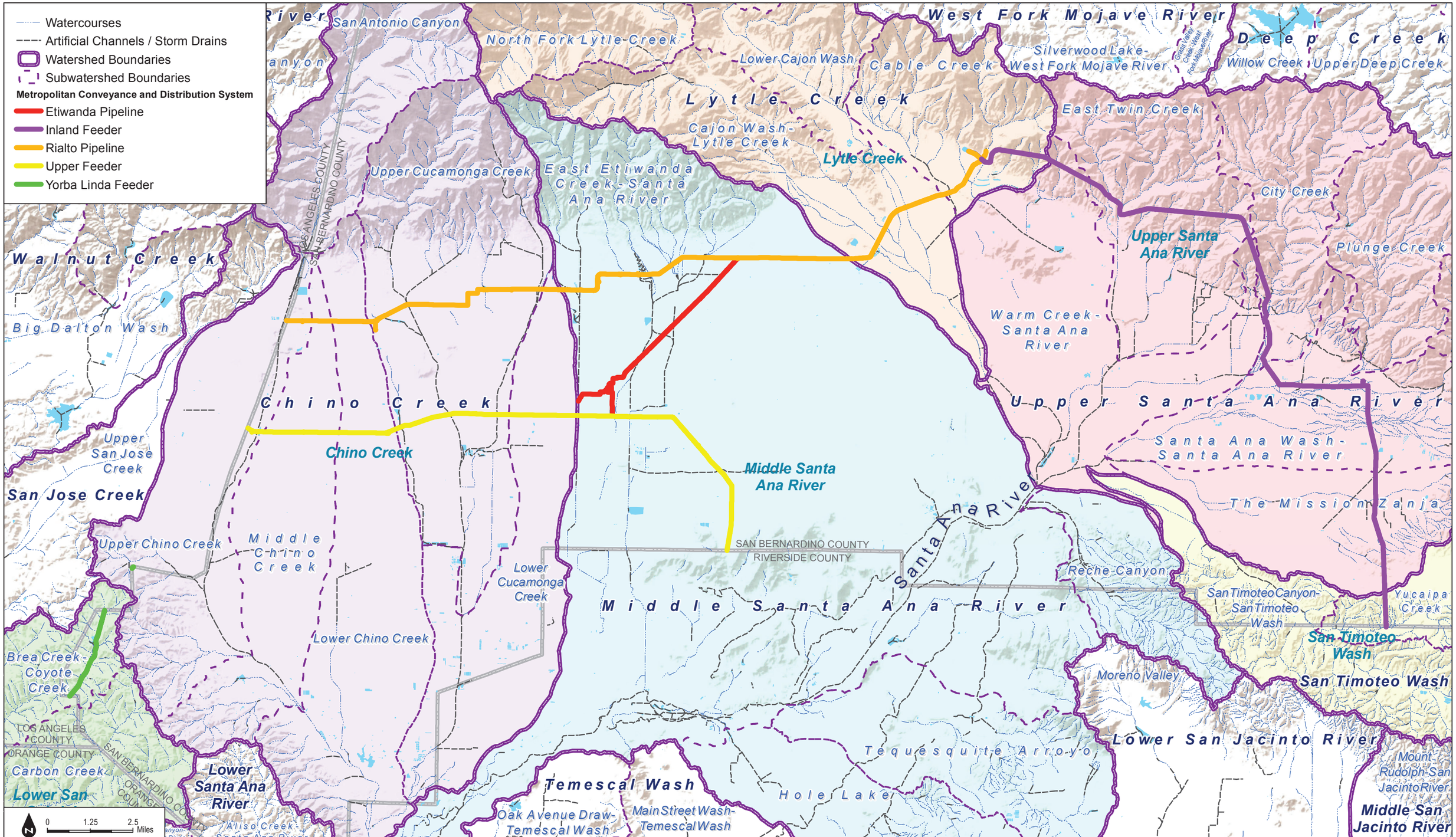

SOURCE: ESRI World Terrain 2019, USGS 2019

FIGURE 4.3-1

Watersheds and Hydrology

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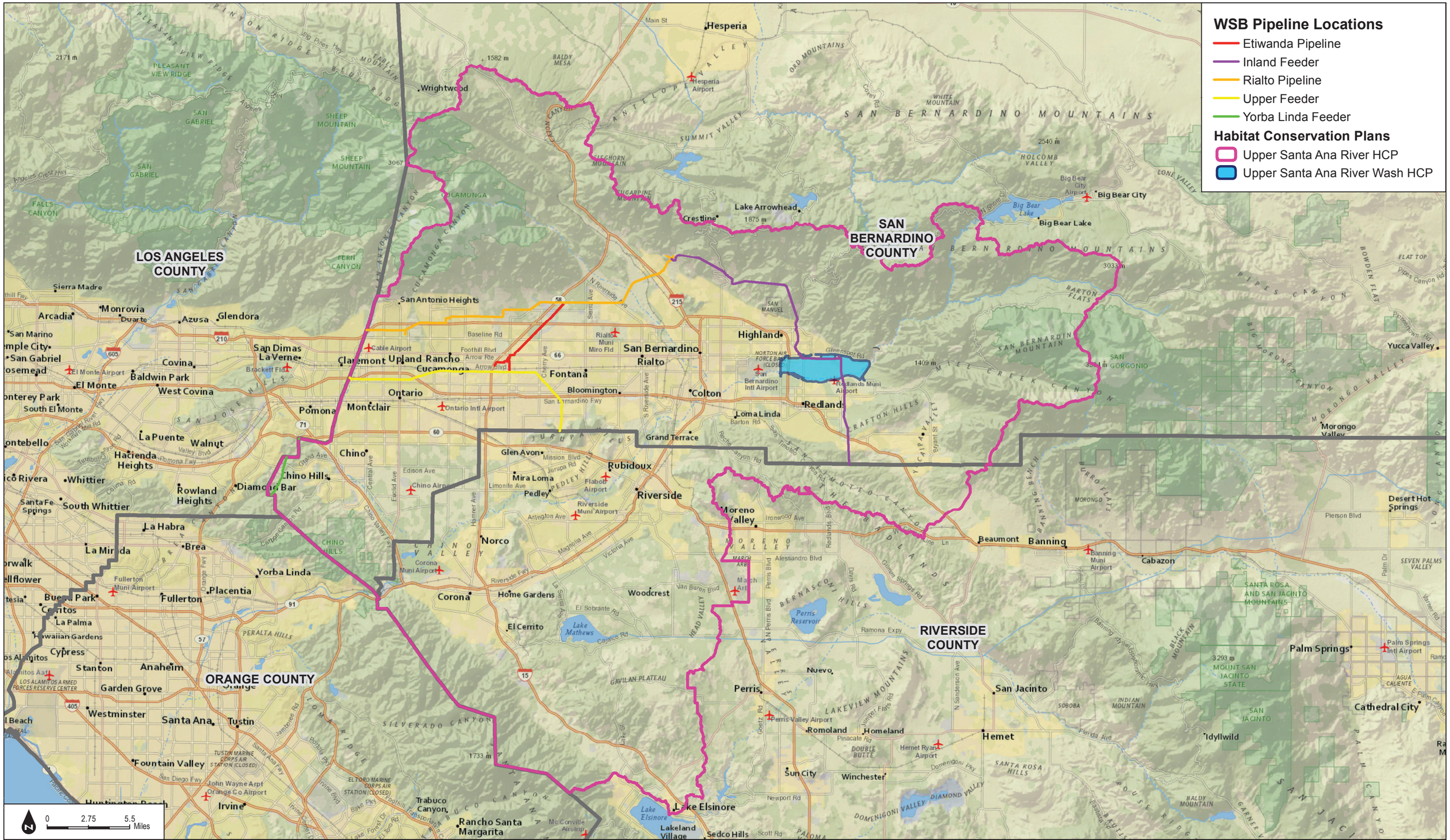

SOURCE: Nat Geo 2019, MWD, Upper Santa Ana River Habitat Conservation Plan Draft

FIGURE 4.3-2

Conservation Area Boundaries

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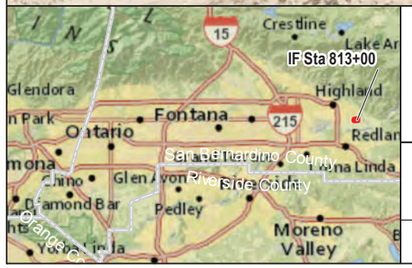

Impacts
- Permanent
- Temporary

Special-Status Plant Occurrences
- Parry's spineflower
- Santa Ana River woollystar

0 75 150 Feet

SOURCE: Eaggle Aerial 2015

FIGURE 4.3-3A

Mapped Special-Status Plants - Work Area IF Sta 813+00

The Metropolitan Water District of Southern California

Western San Bernardino County Distribution System Infrastructure Protection Program

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Impacts
- Permanent
- Temporary

Special-Status Plant Occurrences
- Parry's spineflower
- Santa Ana River woollystar

0 190 380 Feet

SOURCE: Eagle Aerial 2015

FIGURE 4.3-3B

Mapped Special-Status Plants - Work Area IF Sta 822+10

The Metropolitan Water District of Southern California

Western San Bernardino County Distribution System Infrastructure Protection Program

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4.4 Cultural Resources

This section describes the existing cultural resources of the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program) and future Operations and Maintenance (O&M) work areas within the footprint of the proposed program, identifies associated regulatory framework and methodology, evaluates potential impacts that would result from the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed program. The term "cultural resources" as used in this document refers to all "built environment" resources (e.g., structures, bridges, railroads, water conveyance systems), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Cultural resources also refer to paleontological resources. Paleontological resources are fossilized remains of ancient plants and animals typically greater than 5,000 years old (older than recorded human history) and usually preserved in sedimentary rock. The information in this section is based on the Phase I Archaeological Resources Assessment for the Western San Bernardino County Distribution System Infrastructure Protection Program for The Metropolitan Water District of Southern California for San Bernardino County, California (Applied Earthworks Inc. 2019a) and the Paleontological Resource Assessment for the Western San Bernardino County Distribution System Infrastructure Protection Program for The Metropolitan Water District of Southern California for San Bernardino County, California (PRA; Applied Earthworks Inc. 2019b).

4.4.1 Existing Conditions

The program area is located throughout both the urban and rural areas of Western San Bernardino County. San Bernardino County is characterized by three distinct topographic regions: the mountains, the valley, and the desert (County of San Bernardino 2014). The proposed program is located within the valley and mountain regions, whereas the desert region is located farther east and is outside the DSIPP study area. The valley region consists of the area south of the San Gabriel and San Bernardino Mountains and includes the Upper Santa Ana Valley and Chino Hills. It is characterized by a large coastal plain underlain by loose (geologically young) deposits of sand, silt, and gravel. The upland areas in the mountain region are generally characterized by less development and large expanses of open space underlain by older bedrock units consisting of pre-Cambrian igneous and metamorphic rocks, Miocene sedimentary rocks, and Mesozoic granitic rocks (CGS 2010; County of San Bernardino 2007). A number of streams originate in the mountain range and drain westward into the Pacific Ocean in this area.

Prior to urban development, large portions of the program area were characterized by two major plant communities: valley grassland and sage scrub in the higher elevation areas. Additionally, riparian communities occurred near springs and along water courses. Depending upon elevation and climate, various floral species from these communities were available from early spring until winter, and the

leaves, stems, seeds, fruits, roots, and tubers from many of these plant species formed an important subsistence base for the Native American inhabitants of the study region (Applied Earthworks Inc. 2019a). Archival and published reports suggest that the study area is situated within territories traditionally assigned to the Serrano and Gabrielino Native American cultural groups, and skirts along the fringes of territories occupied by the Cahuilla and Juaneño Native American cultural groups.

Euro-American settlement began in the area in the early 1800s as people made their way west across the United States. The Catholic missionaries were key in the expansion of Euro-American influences in the region. General agriculture and livestock raising pursuits were quickly overshadowed by the citrus industry in the 1870s, and rail lines were constructed, connecting towns and industries. The Santa Ana River is the chief source of water for the irrigation canal system in San Bernardino County and crosses the central section of the DSIPP.

Massive population growth has effectively suburbanized San Bernardino County and led to increasing demands on available water supplies. The Metropolitan Water District of Southern California's (Metropolitan's) distribution system in western San Bernardino County initially consisted of the Upper Feeder. Today, the Western San Bernardino County Operating Region includes approximately 74 miles of pipeline, 392 pipeline structures, and approximately 50 miles of patrol roads.

Five pipelines traverse the Western San Bernardino County Operating Region. The size of these pipelines ranges from 84 to 168 inches in inside diameter. Most of the pipelines are buried 5–10 feet below the modern ground surface, although in some areas it may be substantially more due to topography or the need to avoid existing facilities. Shoring was used in developed areas and along public streets. In undeveloped areas, the trench was generally open-cut excavation with 1:1 side slopes. Open cut trenches were generally 30–50 feet in width and were excavated to a depth of 15–20 feet. The areas surrounding the pipeline trench also experienced extensive ground disturbance during construction. It is estimated that for most open-cut trench excavations, a 50- to 200-foot-wide area on either side of the trench may have been disturbed in order to ensure access to construction equipment and materials (Applied Earthworks Inc. 2019a). Figure 4.4-1 depicts the proposed program study area.

4.4.2 Relevant Plans, Policies, and Ordinances

Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) (16 USC 470 et seq.) establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (e.g., historic properties) prior to undertakings.

Section 106 of the NHPA requires federal agencies to take into account the effects of projects on historic properties (resources included in or eligible for the National Register of Historic Places). It also gives the Advisory Council on Historic Preservation and the state historic preservation offices an opportunity to consult. Federal agencies issuing permits for the proposed program will be required to comply with NHPA requirements.

Executive Order 11593 – Protection and Enhancement of the Cultural Environment

Executive Order 11593 (36 FR 8921) (1) orders the protection and enhancement of the cultural environment by requiring federal agencies to administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations; (2) initiates measures necessary to direct their policies, plans, and programs in such a way that federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people; and (3) in consultation with the Advisory Council on Historic Preservation, institutes procedures to ensure that federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance (16 USC 470 1). Federal agencies issuing permits for the proposed program will be required to comply with Executive Order 11593.

State

California Environmental Quality Act

Under California law, archaeological and paleontological resources are protected by the California Environmental Quality Act (CEQA). CEQA is the principal statute governing environmental review of projects occurring in the state. CEQA requires lead agencies to determine if a proposed project would have a significant effect on archaeological resources (California Public Resources Code Section 21000 et seq.). Historical resources are also considered under CEQA, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources. If an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the proposed program on those resources shall not be considered a significant effect on the environment (14 CCR 15064.5[c][4]).

California Public Resources Code

California Public Resources Code Sections 5097–5097.6 state that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the intentional destruction of objects of antiquity without a permit (express permission) on public lands, and it provides for criminal sanctions. This section was amended in 1987 to require consultation with the Native American Heritage Commission (NAHC) whenever Native American graves are found.

California Health and Safety Code

California Health and Safety Code Section 7050.5 et seq. requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (California Health and Safety Code Section 7050.5b).

4.4.3 Thresholds of Significance

Cultural Resources

As defined in the California Public Resources Code Section 21083.2, a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

Paleontological Resources

In California, unique paleontological resources, sites, and geologic features, particularly with regard to fossil localities, are afforded protection under a number of state environmental statutes, including CEQA. Under CEQA, a lead agency must evaluate whether the project would result in the direct or indirect destruction of a unique paleontological resource or site or unique geologic feature, and if that impact is significant. The CEQA lead agency is responsible for ensuring that feasible mitigation measures are implemented to reduce impacts to a level of less than significant. CEQA does not include a specific definition of "unique paleontological resource or site," nor does it establish thresholds for significance. Further guidance can be found in the following literature:

In a 2003 article discussing CEQA and Fossil Preservation in California, Scott and Springer stated that significant paleontological resources can include "fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy, and fossils that might aid stratigraphic correlations, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species." Furthermore, they advised that impacts might be considered less than significant if dense concentrations of plant and/or invertebrate fossil

remains were "so locally abundant that the impacts to the resources do not appreciably diminish their overall abundance or diversity" (Scott and Springer 2003).

More recent guidance has been developed by the Society for Vertebrate Paleontology's 2010 (SVP 2010) Standard Procedures for the Assessment and Mitigation of Adverse impacts to Paleontological Resources, which defines significant paleontological resources as "fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."

Therefore, any identifiable vertebrate fossil remains would be considered unique under CEQA, and direct or indirect impacts would be considered significant. Identifiable invertebrate and plant fossils would be considered unique if they meet the criteria presented above. Determinations shall take into account the abundance and densities of fossil specimens or newly and previously recorded fossil localities in exposures of the rock units within the proposed program area.

The significance criteria used to evaluate the proposed program impacts are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to cultural resources would occur if the proposed program would have any of the following effects:

Impact CR-1: **Would the program cause a substantial adverse change in the significance of a historical resource as defined in § 15064.4?**

Impact CR-2: **Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.4?**

Impact CR-3: **Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

Impact CR-4: **Would the program disturb any human remains, including those interred outside of formal cemeteries?**

4.4.4 Methodology

Cultural Resources

Literature and Records Search

An archaeological literature and records search was conducted by Applied Earthworks Inc. for the study area, which includes the proposed program area plus a 0.5-mile buffer area. The record search was conducted at the South Central Coastal Information Center at California State University, Fullerton.

The records search indicated that 59 recorded archaeological resources are located within the program area. Four of the 59 sites have been evaluated and determined not eligible for listing on the National Register of Historic Places. The remaining 55 archaeological resources have not been evaluated for eligibility to the National Register of Historic Places or the California Register of Historical Resources to determine if they qualify as historic properties under the NHPA or as historical resources under CEQA. Mitigation is included to mitigate any impacts resulting from the proposed program to historic properties and/or historical resources. Figure 4.4-2 depicts the sensitive archaeological areas in the program area.

Phase I Archaeological Survey

An intensive cultural resource pedestrian survey was conducted for DSIPP work areas that were identified as having the potential for impacts to intact native sediments. This analysis first identified the types of activities proposed in each of the proposed project or activity areas, and then assessed whether proposed ground-disturbing activities would occur primarily within the previously disturbed pipeline corridor or if there is a potential to impact intact native sediments. To accomplish the desktop analysis, each of the locations within the programmatic footprint with the potential to impact archaeological resources were visually examined spatially using ArcGIS software. As a result of this desktop analysis, potential future O&M activities at 33 locations are not expected to result in impacts to intact native sediments or archaeological resources; therefore, these were excluded from the Phase I archaeological field survey. However, 13 locations were identified for which proposed activities may extend into undisturbed portions of the programmatic footprint.

Because most of these areas have not been previously surveyed, an intensive pedestrian (Phase I) survey was recommended at each. The intensive pedestrian surveys were conducted between January 19 and February 2, 2017, and on September 23, 2019.

The archaeologists systematically characterized and defined the horizontal extent of each archaeological resource identified during the surveys. For the purposes of this Phase I assessment, an archaeological site was identified according to the following criteria:

- One or more archaeological feature(s) greater than 45 years of age or
- Three or more artifacts greater than 45 years of age within 30 meters (98 feet) of each other

Archaeological features or clusters of artifacts more than 30 meters away from another archaeological resource were generally considered separate sites. An isolated find was defined as fewer than three prehistoric or historical artifacts within 30 meters of each other but outside a known site.

During the field inventory, systematic efforts were made to characterize and define the extent of each cultural resource. When encountered, any newly identified cultural resources were recorded on State of California Department of Parks and Recreation Primary Records and Archaeological Site Forms

(DPR 523 [1995]). Systematic efforts were made to characterize and define the boundaries of each archaeological site and the discrete activity loci and cultural features. All cultural features were documented fully, inventoried, and mapped. No archaeological resources were identified within any of the 13 locations during the survey, including the locations of two previously recorded archaeological sites. In addition, the field surveys confirmed the disappearance of the two previously recorded sites. No artifacts were collected during the survey.

Native American Coordination

The NAHC was contacted to review the Sacred Lands File and determine if any known Native American sacred sites were present within or adjacent to the program area. The NAHC indicated that traditional sites or sacred places exist within the program area. NAHC provided a list of Native American tribes, individuals, and organizations that may have knowledge of cultural resources in or near the proposed program area. Native American consultation shall occur at the discretion of Metropolitan. If a federal agency becomes involved with this proposed program in a manner that requires the agency to comply with the NHPA, then government-to-government consultation with Native American groups will be conducted by the lead federal agency as part of the Section 106 process.

Paleontological Resources

A PRA was completed by Applied EarthWorks Inc. for the DSIPP through a combination of desktop research and fieldwork. The purpose of the desktop studies was to identify the geologic units in and close to the DSIPP and to determine whether previously recorded fossil localities occur either within the DSIPP or within the same geologic units elsewhere nearby. These studies also informed fieldwork decisions. The purpose of the fieldwork was to confirm or refute the results of the desktop studies. The results of both desktop studies and fieldwork are important for assessing paleontological potential of surficial geologic units and those at unknown depths within the DSIPP.

The Western San Bernardino County DSIPP currently includes 13 proposed CIP projects near and within existing pipeline and feeder alignments for which preliminary designs have been prepared (one of these will require single-occurrence O&M activities). The PRA prepared for the DSIPP provides a project-level analysis for these 13 proposed CIP projects. Single-occurrence O&M activities are mostly restricted to currently maintained portions of the DSIPP, in which sediments at or near the ground surface have already been disturbed.

Literature Review and Museum Records Search

A review was conducted of relevant scientific literature and museum collections records maintained by the Natural History Museum of Los Angeles County and the University of California Museum of Paleontology's online collections database. The Natural History Museum of Los Angeles County records search did not yield any fossil localities within the DSIPP, although several localities are

reported from the same or similar geologic units that occur in the DSIPP, including the Puente Formation and older Quaternary deposits (McLeod 2016).

The program area is underlain by four geologic units: (1) the highly sensitive Puente Formation; (2) Quaternary surficial deposits, which have low to high paleontological sensitivity depending on their age and depth; (3) Igneous and Metamorphic Basement Rocks, which have little to no fossil potential; (4) and Fault-bounded Conglomerate and Sandstone, which have no known fossil potential. The majority of the proposed program area is underlain by Quaternary surficial deposits ranging in age from the earliest Pleistocene to the most recent Holocene.

Paleontological Sensitivity Rankings

Based on the information obtained from the literature review and records search, and according to SVP's (2010) criteria, preliminary sensitivity rankings were assigned to the geologic units mapped throughout the DSIPP. The paleontological resource potential of the program area ranged from no potential (for artificial fill) to high potential, depending upon the underlying geologic unit. These rankings informed the selection process for areas where field work was then conducted.

Field Survey

Surface reconnaissance surveys were conducted for 8 of the 13 proposed CIP project sites and the surrounding area in January 2017 and September 2019. Work areas were selected for field surveys based on the paleontological sensitivity of the underlying geologic units. Prior to conducting field surveys, aerial photographs were examined for each work area to determine the likely locations of geologic outcrops and identify potential survey routes. The purpose of the field survey was to visually inspect the ground surface for exposed fossils and to evaluate geological exposures for their potential to contain preserved subsurface fossil material. Field surveys were primarily conducted in work areas with a preliminary ranking of High or Undetermined paleontological sensitivity in order to confirm the presence or absence of exposed fossils on the ground surface and to evaluate geologic exposures for their potential to yield subsurface paleontological resources. Two additional CIP project areas that were determined to have Low paleontological sensitivity were also surveyed solely to further ground-truth the literature. Final sensitivity rankings were determined for each work area. The rankings relate to the native sediments or rocks below the existing disturbed and developed layers, and not to the immediate ground surface. Figure 4.4-3 depicts the highly sensitive paleontological areas in the proposed program area.

The surveys consisted of a combination of close visual examination and spot-checking to inspect the ground surface for evidence of paleontological resources while using a GPS Trimble Geo XH to navigate throughout the work areas and collect field data for subsequent geographic information system (GIS) mapping, if needed. Close visual examination was conducted only where the ground surface was visible or where erosion and grading had exposed native sediments or underlying geologic formations. Since the ground surface had been disturbed previously by trail and road-

building, residential developments, and Metropolitan infrastructure, or dense vegetation precluded the ground-surface visibility, spot-checking was conducted throughout the majority of work areas.

4.4.5 Applicant Proposed Measures

Best management practices are included in this program environmental impact report (PEIR) as applicant proposed measures (APMs) (see also Chapter 3, Program Description). The APM for cultural resources, described below, is standard practice for Metropolitan and will reduce impacts to cultural resources. The APM's specific relevance to impact topics is detailed in Section 4.4.6, Impact Analysis by Impact Threshold (see also Executive Summary, Table E-4).

APM-CR-1 **Treatment of Human Remains.** If human remains are discovered during construction, no further disturbance shall occur until the county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the county coroner determines the remains are Native American, the Native American Heritage Commission (NAHC) shall be contacted within a reasonable time. Subsequently, NAHC shall identify the most likely descendant (MLD). The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in California Public Resources Code Section 5097.98.

4.4.6 Impact Analysis by Impact Threshold

4.4.6.1 CIP Projects (All)

The proposed CIP projects generally consist of substantial repair, upgrade, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of CIP projects: patrol road improvements and paving, engineered erosion control, and slope stabilization.

Impact CR-1: Would the program cause a substantial adverse change in the significance of a historical resource as defined in § 15064.4?

Ground-disturbing activities associated with the widening of existing roads, use of mechanical equipment for culvert maintenance activities, installation or repair of erosion control structures, or slope stabilization may disturb intact native sediments, which could contain historical resources. Therefore, the CIP projects that involve these activity types were assessed through a Phase I survey, and no significant historical resources were identified within CIP project work areas. However, Mitigation Measure (MM) CR-1 would be required to avoid significant impacts to historical resources that may be discovered during construction activities.

Mitigation Measures

MM-CR-1 **Avoidance of Impacts to Cultural Resources.** Metropolitan shall minimize or avoid impacts to potentially significant cultural resources discovered unexpectedly during construction by developing and implementing the following:

- All work shall halt within 50 feet of the discovery site and the discovery shall be protected in place.
- Metropolitan, in consultation with the qualified cultural resources specialist, shall designate an area surrounding the area as a restricted area.
- A qualified cultural resources specialist shall evaluate the significance of the discovery.
- A qualified cultural resources specialist shall develop appropriate treatment measures for the discovery in consultation with Metropolitan and other appropriate agencies.
- Work shall be prohibited in the restricted area until Metropolitan provides written authorization.

Level of Significance: Less than significant with implementation of MM-CR-1.

Impact CR-2: Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.4?

Ground-disturbing activities associated with the widening of existing roads, use of mechanical equipment for culvert maintenance activities, installation or repair of erosion control structures, or slope stabilization may disturb intact native sediments that could contain archaeological resources. Therefore, this type of activity was assessed through a Phase I survey, and no significant resources were identified within CIP project work areas, including the locations of the two previously recorded archaeological sites. In addition to no newly discovered archaeological resources, the field surveys also confirmed the disappearance of the two previously recorded archaeological sites. In particular, no evidence of the Kaiser Steel Mill (CA-SBR-4131H) currently exists at Upper Feeder Station 1073+90, and CA-SBR-6548H was destroyed in Inland Feeder Station 592+31 by construction and paving of roads and development of other modern infrastructure sometime after 1990. Because all 13 CIP project areas exhibited a high level of ground disturbance (e.g., hardscapes, modified drainages and channels, alluvial erosion and deposition, pipeline construction, grading, riprap, and trash dumping), the likelihood of encountering intact, buried archaeological resources is low. However, mitigation would be required to avoid significant impacts to archaeological resources that may be discovered during construction activities.

Mitigation Measures

MM-CR-1 would be implemented to reduce impacts.

Level of Significance: Less than significant with implementation of MM-CR-1.

Impact CR-3: Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

As previously discussed, the PRA completed for the proposed program revealed that a review of relevant scientific literature and museum collections records maintained by the Natural History Museum of Los Angeles County and the University of California Museum of Paleontology online collections database did not yield any fossil localities within the proposed program footprint. However, there are several potentially fossiliferous geologic units mapped within the programmatic footprint, such as Puente Formation, as well as older Quaternary alluvium (i.e., Pleistocene surficial deposits). No paleontological resources were encountered during any of the field surveys. Observations from the field surveys indicate most of the work areas are heavily disturbed at or near the ground surface and/or the surficial geology is obscured by vegetation and development. Paleontological sensitivity rankings were assigned to the geologic units underlying the proposed program area, and range from no potential to high and undetermined sensitivity.

Proposed program-related construction that extends into native sediments could potentially impact intact and unique paleontological resources. Ground-disturbing activities associated with patrol road improvements and paving, engineered erosion control, and slope stabilization may disturb intact native sediments, which could contain paleontological resources. As such, CIP projects that involve this type of activity have the potential to significantly impact paleontological resources in the proposed program area. MM-CR-2 and MM-CR-3 would be required to reduce potential impacts to unique paleontological resources or geologic features below a level of significance.

Mitigation Measures

MM-CR-2 **Paleontological Resource Impact Mitigation Program.** Prior to the start of ground-disturbing activities in previously undisturbed areas with high paleontological sensitivity, a qualified professional paleontologist meeting the Society of Vertebrate Paleontology's (2010) standards ("project paleontologist") shall be retained to provide project-level analysis. The project paleontologist shall prepare and implement a paleontological resource impact mitigation program (PRIMP) for areas that will include excavation into native soils with high or undetermined geologic sensitivity. The PRIMP shall provide management strategies based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance.

As part of the PRIMP, where new ground disturbance would occur at 4 feet or more below ground surface, full-time monitoring may be required in program work areas determined to have a high or undetermined paleontological sensitivity (i.e., Puente Formation, early Holocene or older axial-channel and alluvial-fan deposits, fault-bounded conglomerate and sandstone), or spot check monitoring in proposed program work areas determined to have low paleontological sensitivity (i.e., Holocene age surficial deposits).

In addition, the PRIMP shall require that the project paleontologist conduct a Worker's Environmental Awareness Program (WEAP) training for all field personnel regarding the types of fossils that could be found in the work areas and the procedures to follow should paleontological resources be encountered. Specifically, the training shall provide a description of the fossil resources that may be encountered in the work areas, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the project paleontologist and on-site monitor(s). The training shall be developed by the project paleontologist and may be conducted concurrent with other environmental training (e.g., biological, cultural, and natural resources awareness training, safety training).

MM-CR-3 **Preparation, Curation, and Reporting of Vertebrate Fossils.** All unique identifiable vertebrate fossil remains that are collected during the course of the proposed program will be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation will include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens will be identified to the lowest taxonomic level possible, cataloged, analyzed, and delivered to an accredited museum repository for permanent curation and storage. Fossil specimens will be submitted for permanent curation in a museum repository approved by Metropolitan, such as the San Bernardino County Museum or Western Science Center. The cost of curation is assessed by the repository and is the responsibility of Metropolitan.

At the conclusion of laboratory work and museum curation, a final report will be prepared describing the results of the paleontological inventory and evaluation. The report will include an overview of the proposed program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If fossils will be donated for permanent curation, a copy of the report will be submitted to the curation institution along with the fossil assemblage.

Level of Significance After Mitigation: Less than significant with implementation of MM-CR-2 and MM-CR-3.

Impact CR-4: Would the program disturb any human remains, including those interred outside of formal cemeteries?

There is no evidence of human remains in the program area, but given the prehistoric and historic use of the area, human remains may be encountered during ground-disturbing activities. Additionally, existing regulations through California Health and Safety Code Section 7050.5 et seq. state that if human remains are discovered during construction, no further disturbance shall occur until the appropriate county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the county coroner determines the remains are Native American, the NAHC shall be contacted within a reasonable time. Subsequently, the NAHC shall identify the MLD. The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in California Public Resources Code Section 5097.98. Given the required compliance with existing regulations pertaining to the discovery of human remains, as detailed in APM-CR-1 (see Section 4.4.5, Applicant Proposed Measures), the proposed program would result in less than significant impacts to human remains.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.4.6.2 O&M Activities (Routine and Single-Occurrence)

Impact CR-1: Would the program cause a substantial adverse change in the significance of a historical resource as defined in § 15064.4?

A total of 15 different O&M activities (both routine and single-occurrence) are addressed in the O&M Manual (see Appendix A to this PEIR). A total of 12 of these activities (O&M Activity Code Nos. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) would likely result in no ground disturbance or only minor ground disturbance and, as such, have little to no potential of impacting historical resources. Routine O&M activities that involve culvert maintenance using heavy equipment (O&M Activity Code No. 3) and single-occurrence O&M activities that involve culvert maintenance and/or patrol road structural repairs (O&M Activity Code No. 15) may result in ground disturbance that extends into intact native sediments, which could contain historical resources. O&M Activity Code No. 14 is emergency work, and it is not addressed in this analysis because it would be exempt under CEQA. Mitigation would be required to reduce the potential for significant impacts from the proposed program.

Mitigation Measures

Implementation of MM-CR-1 and then MM-CR-4 through MM-CR-7, if necessary, would reduce potentially significant impacts to historical resources:

MM-CR-4 **Phase I Cultural Resource and/or Paleontological Survey.** For areas not already surveyed, a pre-activity review should be performed for future ground-disturbing activities associated with Operations and Maintenance (O&M) activities (O&M Activity Code Nos. 3 and 15). For each location where these activities will take place, the proposed activity footprint will first be examined by Metropolitan staff to determine if the proposed ground-disturbing activities will be confined to the area of previous disturbance or if there is a potential for additional ground disturbance within intact native sediments. If it is determined that the proposed activities have the potential to impact undisturbed native sediments, then a Phase I cultural resource and/or a paleontological survey will be required. The purpose of the field surveys will be to visually inspect the ground surface for evidence of archaeological remains and for exposed fossils or traces thereof and to evaluate geologic exposures for their potential to contain preserved fossil material at the subsurface. All archaeological resources observed during the course of fieldwork shall be adequately recorded at the time of discovery following standard documentation procedures. All fossil occurrences observed during the course of fieldwork, significant or not, shall be adequately documented and recorded at the time of discovery.

MM-CR-5 **Protective Measures for Archaeological Resources.** For future ground-disturbing O&M activities (O&M Activity Code Nos. 3 and 15) in the vicinity of an archaeological resource, protective measures shall be implemented for significant archaeological sites in close proximity to a proposed program work area. If the pre-activity review (MM-CR-4) identifies a known archaeological site within 50 feet of a Distribution System Infrastructure Protection Program (DSIPP) work area, the following protective measures are required as warranted:

- Exclusion fencing and flagging shall be established around any significant or potentially significant archaeological site located within 50 feet of a DSIPP work area.
- A qualified archaeologist shall monitor all ground-disturbing activities in all DSIPP work areas located within 50 feet of a significant or potentially significant archaeological site.

MM-CR-6 **Phase II Cultural Resources Evaluation.** For future ground-disturbing O&M activities (O&M Activity Code Nos. 3 and 15) in areas where archaeological resources cannot be avoided by implementation of MM-CR-5, development of a Phase II cultural resources evaluation program would be required to be implemented by a qualified archaeologist. The evaluation program will include the development of an appropriate research

design and methodological approach to evaluate the archaeological resources that have the potential to be impacted during proposed program-related activities. The findings of the cultural resources evaluation program shall be presented in a technical report to be submitted to Metropolitan (and the federal lead agency, if applicable) for review and approval.

MM-CR-7 **Phase III Data Recovery Plan.** For those archaeological resources determined to be eligible for listing in the California Register of Historical Resources and/or the National Register of Historic Places, a Phase III data recovery plan shall be prepared by a qualified archaeologist prior to the onset of excavations. The plan shall detail the field, laboratory, and archival methods that shall be used during the data recovery program; the curation of archaeological materials at an appropriate facility for future research; and provisions for a report detailing the findings and significance of the archaeological resources. The plan shall be submitted to Metropolitan for review and approval prior to the commencement of data recovery investigations. For prehistoric archaeological sites, a Native American monitor shall be present during the Phase III fieldwork efforts. Results of the Phase III data recovery plan shall be presented in a technical report submitted to Metropolitan for review and approval prior to the commencement of ground-disturbing activities. A final version of the report shall be submitted to the regional California Historic Resources Information System repository.

Level of Significance: Less than significant with implementation of MM-CR-1 and then MM-CR-4 through MM-CR-7, if necessary.

Impact CR-2: Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.4?

A total of 15 different O&M activities (both routine and single-occurrence) are addressed in the O&M Manual. A total of 12 of these activities (O&M Activity Code No. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) would likely result in no ground disturbance or only minor ground disturbance and, as such, have little to no potential of impacting archaeological resources. Routine O&M activities that involve culvert maintenance using heavy equipment (O&M Activity Code No. 3) and single-occurrence O&M activities that involve culvert maintenance and/or patrol road structural repairs (O&M Activity Code No. 15) may result in ground disturbance that extends into intact native sediments, which could contain archaeological resources. O&M Activity Code No. 14 is emergency work, and it is not addressed in this analysis because it would be exempt under CEQA. Mitigation would be required to reduce the potential for significant impacts from the proposed program.

Mitigation Measures

Implementation of MM-CR-1, and then MM-CR-4 through MM-CR-7, if necessary, would reduce impacts to below a level of significance.

Level of Significance: Less than significant with implementation of MM-CR-1 and then MM-CR-4 through MM-CR-7, if necessary.

Impact CR-3: Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

A total of 15 different O&M activities (both routine and single-occurrence) are addressed in the O&M Manual. A total of 12 of these activities (O&M Activity Code Nos. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) would likely result in no ground disturbance or only minor ground disturbance and, as such, contain little to no potential of impacting paleontological resources. Routine O&M activities that involve culvert maintenance using heavy equipment (O&M Activity Code No. 3) and single-occurrence O&M activities that involve culvert maintenance and/or patrol road structural repairs (O&M Activity Code No. 15) may result in ground disturbance that extends into intact native sediments, which could contain paleontological resources. If no pre-activity survey has been done, then MM-CR-4 would apply. If resources are present based on MM-CR-4 review results, then MM-CR-2 and MM-CR-3 would be required to reduce significant impacts to unique paleontological resources. O&M Activity Code No. 14 is emergency work, and it is not addressed in this analysis because it would be exempt under CEQA.

Mitigation Measures

Implementation of MM-CR-4, and then MM-CR-2 and MM-CR-3, if necessary, would reduce any impacts below a level of significance.

Level of Significance: Less than significant with implementation of MM-CR-4, and then MM-CR-2 and MM-CR-3, if necessary.

Impact CR-4: Would the program disturb any human remains, including those interred outside of formal cemeteries?

There is no evidence of human remains in the program area, but given the prehistoric and historic use of the area, human remains may be encountered during ground-disturbing activities. Additionally, existing regulations through California Health and Safety Code Section 7050.5 et seq. state that if human remains are discovered during program construction, no further disturbance shall occur until the appropriate county coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the county coroner determines the remains are Native American, NAHC shall be contacted within a reasonable time. Subsequently, NAHC shall identify the MLD. The MLD shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in California Public Resources Code Section 5097.98. Given the required compliance with existing regulations pertaining to the discovery of human remains (per APM-CR-1), the proposed program would result in less than significant impacts to human remains.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.4.6.3 Impacts Summary

Table 4.4-1 summarizes the impacts for proposed CIP projects and O&M activities under each impact threshold.

Table 4.4-1. Cultural Resources Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures		Level of Significance
Impact CR-1: Would the program cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				
CIP Projects				
Patrol Road Improvements and Paving	Significant	MM-CR-1	—	Less than significant
Engineered Erosion Control	Significant	MM-CR-1	—	Less than significant
Slope Stabilization	Significant	MM-CR-1	—	Less than significant
O&M Activities				
Routine	Significant	MM-CR-1 MM-CR-4 through MM-CR-7	—	Less than significant
Single-Occurrence	Significant	MM-CR-1 MM-CR-4 through MM-CR-7	—	Less than significant
Impact CR-2: Would the program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?				
CIP Projects				
Patrol Road Improvements and Paving	Significant	MM-CR-1	—	Less than significant
Engineered Erosion Control	Significant	MM-CR-1	—	Less than significant
Slope Stabilization	Significant	MM-CR-1	—	Less than significant
O&M Activities				
Routine	Significant	MM-CR-1 MM-CR-4 through	—	Less than significant

Table 4.4-1. Cultural Resources Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures		Level of Significance
		MM-CR-7		
Single-Occurrence	Significant	MM-CR-1 MM-CR-4 through MM-CR-7	—	Less than significant
Impact CR-3: Would the program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				
CIP Projects				
Patrol Road Improvements and Paving	Significant	MM-CR-2 MM-CR-3	—	Less than significant
Engineered Erosion Control	Significant	MM-CR-2 MM-CR-3	—	Less than significant
Slope Stabilization	Significant	MM-CR-2 MM-CR-3	—	Less than significant
O&M Activities				
Routine	Significant	MM-CR-2 MM-CR-3 MM-CR-4	—	Less than significant
Single-Occurrence	Significant	MM-CR-2 MM-CR-3 MM-CR-4	—	Less than significant
Impact CR-4: Would the program disturb any human remains, including those interred outside of formal cemeteries?				
CIP Projects				
Patrol Road Improvements and Paving	Less than significant	—	APM-CR-1	Less than significant
Engineered Erosion Control	Less than significant	—	APM-CR-1	Less than significant
Slope Stabilization	Less than significant	—	APM-CR-1	Less than significant
O&M Activities				
Routine	Less than significant	—	APM-CR-1	Less than significant
Single-Occurrence	Less than significant	—	APM-CR-1	Less than significant

4.4.7 Impacts Found Not to Be Significant

All impact thresholds were assessed in this PEIR.

SOURCE: National Geographic 2019

FIGURE 4.4-1

Proposed Program Study Area

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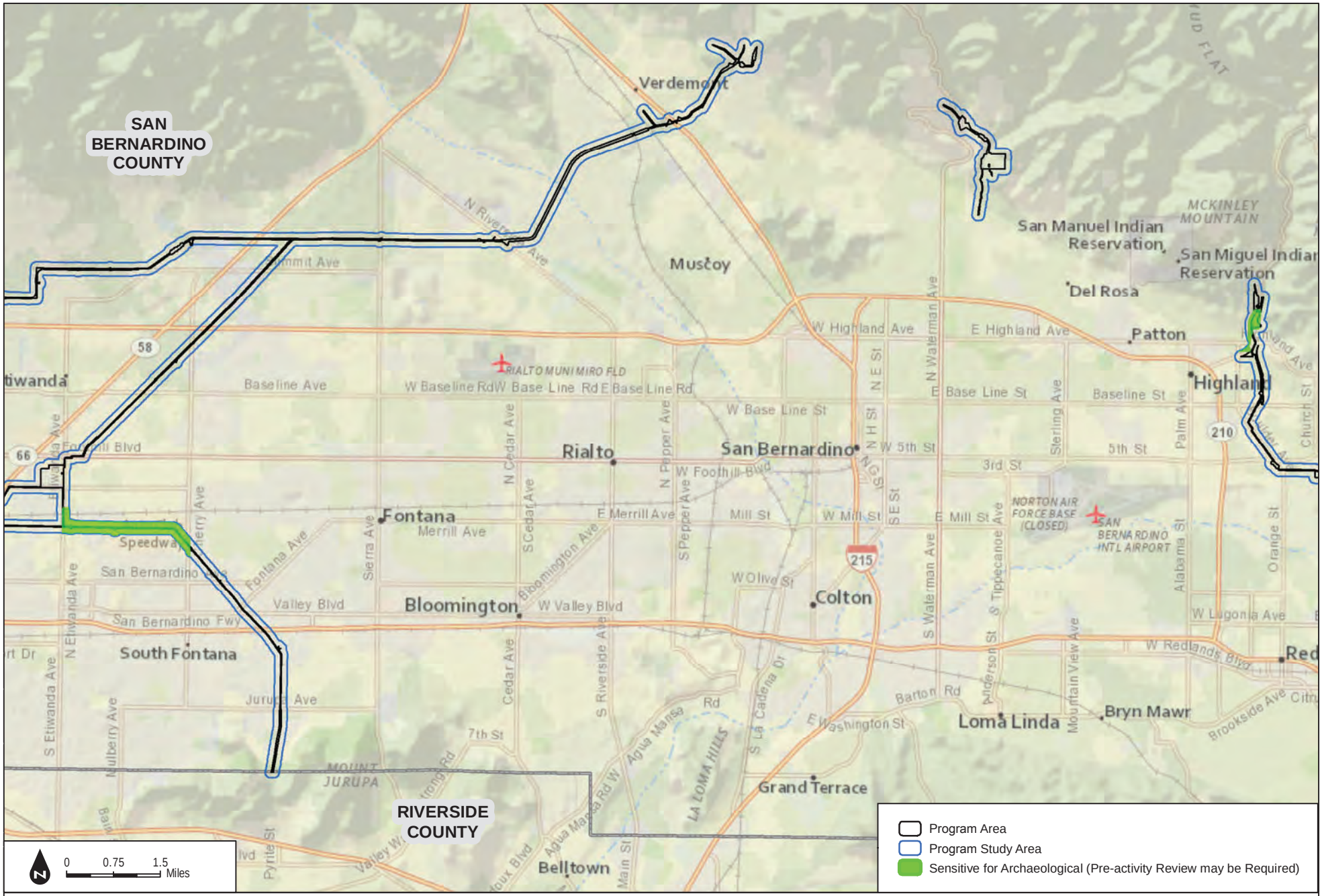

SOURCE: National Geographic 2019; Applied Earthworks 2019

FIGURE 4.4-2

Archaeological Sensitivity

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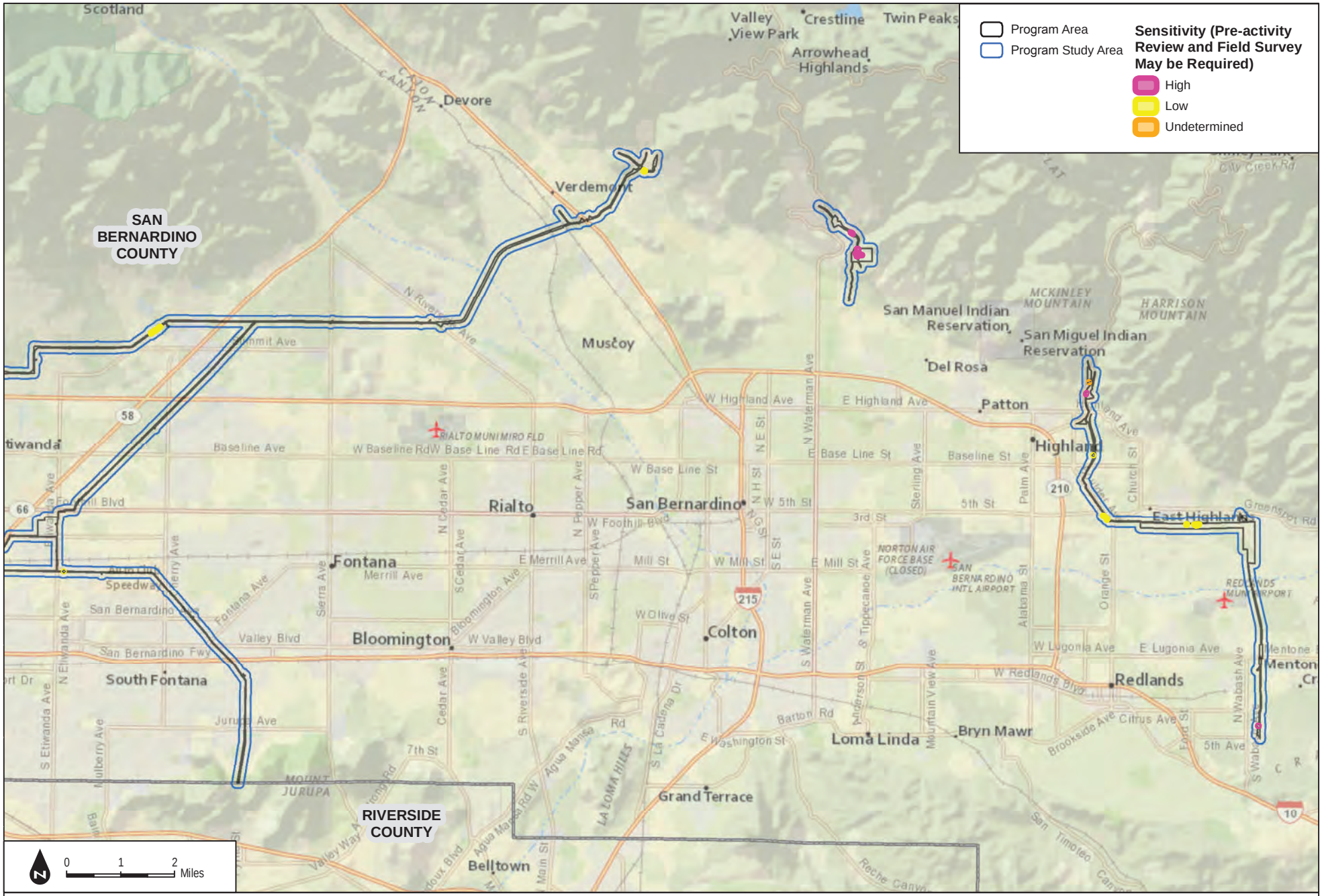

SOURCE: National Geographic 2019; Applied Earthworks 2019

FIGURE 4.4-3

Paleontological Sensitivity

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4.5 Geology and Soils

This section describes the existing geology and soils setting of the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), identifies the associated regulatory framework, evaluates potential impacts associated with geology and soils that would result from the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed program. The following topic related to geology and soils is examined in this section:

- Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), the proposed program would result in no impact or less than significant impacts for seismic hazards, soil erosion or loss of topsoil, expansive soils, and soils adequate for septic tanks; therefore, these topics are not further analyzed in this PEIR. The short-term effects of construction activities as they relate to soil erosion are discussed in Section 4.8, Hydrology and Water Quality. The information in this section is primarily based on the San Bernardino County General Plan and associated geologic hazard maps (County of San Bernardino 2007) and Esri mapping.

4.5.1 Existing Conditions

The Metropolitan Water District of Southern California's (Metropolitan's) Western San Bernardino County Operating Region is geologically diverse. The San Bernardino County General Plan divides the region into different geographic areas; the proposed program is within the Valley and Mountain regions. Farther east is the Desert Region, which is outside the DSIPP study area. The Valley Region consists of the area south of the San Gabriel and San Bernardino mountains and includes the Upper Santa Ana Valley and Chino Hills. It is characterized by a large coastal plain underlain by loose (geologically young) deposits of sand, silt, and gravel. The upland areas in the Mountain Region are generally characterized by less development and large expanses of open space underlain by older bedrock units consisting of pre-Cambrian igneous and metamorphic rocks, Miocene sedimentary rocks, and Mesozoic granitic rocks (CGS 2010a; County of San Bernardino 2007).

Soil and geologic hazards that can threaten infrastructure include landslides, land subsidence, erosional channels and gullies, and potentially detrimental soil characteristics (such as expansive soils, peat, sulfate, corrosive soils, and/or soils subject to hydroconsolidation). Typically, underground pipelines are placed in a trench that is backfilled with engineered fills and compacted to avoid such instabilities. However, over time, excessive surface water flows can cause erosion along patrol roads and undermine the soils supporting the pipe and aboveground vaults, valves, and manholes. Figure

4.5-1, Geologic Hazards, shows the various geologic hazards present in the region, including liquefaction hazard zones, landslide hazard zones, and fault zones.

Fault Zones

The faulting and seismicity of Southern California is dominated by the San Andreas Fault. This fault system generally trends northwest–southeast; however, north of the Transverse Ranges Province,[1] the fault trends more in an east–west direction, causing a north–south compression between the two plates. Nearly all of the mountain ranges that border the Valley Region are fault-bounded (County of San Bernardino 2007).

The closest known active faults[2] to the proposed program area that have the potential to generate a damaging earthquake are the San Andreas, San Jacinto, San Gabriel, and Cucamonga faults (County of San Bernardino 2007; CGS 2010b). As indicated in Figure 4.5-1, the active fault zones[3] crossing the proposed program area are the San Gabriel Fault Zone, Cucamonga Fault Zone, the San Jacinto Fault Zone, and the San Andreas Fault Zone (Rialto Pipeline and Inland Feeder) (CGS 2010b). The Rialto Pipeline crosses the San Gabriel Fault approximately between Stations 3910+00 and 3965+00 and crosses the San Andreas Fault between Station 4105+00 and the end of the pipeline where it connects with Inland Feeder. The Inland Feeder crosses or closely parallels the San Andreas Fault Zone between the beginning of the alignment and Station 620+00. Rocks within fault zones are likely to be sheared and weakened, and thus more susceptible to failure.

Landslides

The most common types of landslides that occur in southern California include mudflows, debris avalanches, rockfalls, rockslides, and gravity sliding. Mudflows are particularly likely when heavy rainfall occurs on former burn areas due to the decrease in water-holding capacity of soils and vegetation.

Landslide susceptibility zones (shown in Figure 4.5-1) indicate areas characterized by steep slopes composed of weak materials that are more prone to failure in response to triggering factors such as heavy rainfall or an earthquake (County of San Bernardino 2007). The process for zonation of landslide susceptibility zones incorporates evidence of existing landslides, slope gradient, and strength of slope materials. Landslide hazard zones in the Western San Bernardino County Operating Region are most prevalent in the San Bernardino Mountains, San Gabriel Mountains, and Chino Hills. Pipelines crossing areas of high landslide susceptibility include the Yorba Linda Feeder (Chino Hills) and the Inland Feeder (foothills of the San Bernardino Mountains). In these areas, steep slopes, weak

[1] The Transverse Ranges are an east–west-trending series of steep mountain ranges and valleys. The east–west structure of the Transverse Ranges is oblique to the normal northwestern trend of coastal California; hence the name "Transverse."

[2] A fault is classified as active by the state if it has moved during the Holocene epoch (i.e., during the last 11,000 years).

[3] Fault zones referred to herein are those delineated by the California Geological Survey and can encompass a number a fault traces within a wider zone of variable distance on either side of a fault, but not less than 500 feet.

soils, or existing mapped landslides indicate an elevated likelihood of failure in an earthquake or heavy rains.

Liquefaction and Lateral Spreading

Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. Liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid. The process of zonation for liquefaction combines Quaternary geologic mapping, historical groundwater information, and subsurface geotechnical data. The liquefaction hazard zone boundaries are based on the presence of shallow (less than 40 feet in depth) historic groundwater in uncompacted sands and silts deposited during the last 15,000 years and sufficiently strong levels of earthquake shaking expected during the next 50 years. Liquefaction-induced lateral spreading is defined as the finite lateral displacement of gently sloping ground as a result of liquefaction in a shallow underlying deposit during an earthquake.

Liquefaction zones are identified on Figure 4.5-1, and areas susceptible to liquefaction are limited to the Rialto Pipeline as it crosses the Lytle Creek and Cajon Creek washes, and the Inland Feeder, as it crosses the Santa Ana River.

Subsidence

Subsidence is the gradual sinking of the Earth's surface in response to geologic or human-induced causes. In the proposed program area, subsidence has historically occurred due to excessive withdrawal of groundwater. This is a regional phenomenon that does not typically have adverse effects on specific buildings or sites but that can adversely affect linear infrastructure if rates of subsidence are high enough. According to the Department of Water Resources (DWR 2016), valley areas east of Cajon Wash (which approximately follows the San Gabriel and San Jacinto fault zones [see Figure 4.5-1]) have a low to moderate subsidence potential, whereas valley areas to the west have a moderate to high subsidence potential. There do not appear to be recorded instances of recent subsidence in the valley areas crossed by the proposed program area (DWR 2016).

4.5.2 Regulatory Framework

State

The statewide minimum public safety standard for earthquake hazards is that the minimum level of mitigation for a project should reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings with human occupancy; however, in most cases, mitigation is not required to prevent or avoid the ground failure itself. Statewide regulations concerning geologic, soil, and seismic hazards are primarily contained in Title 24 of the California Code of Regulations (CCR) (the California Building Code, or CBC), the Alquist-Priolo Earthquake Fault Zoning Act, and the Seismic Hazards Mapping Act. These regulations collectively establish administrative procedures, investigation requirements, and earthwork/engineering design standards to ensure that public risks

stemming from geologic and seismic conditions are minimized to an acceptable level. Cities and counties cannot adopt building codes that are in conflict with the CBC, but they may amend the CBC in a manner that is more protective of public safety and is more appropriate to local conditions.

The proposed program addresses surface infrastructure issues along Metropolitan's existing system of pipelines and patrol roads, rather than the construction of new structures for human occupancy.[4] The proposed program would be limited to maintenance of existing surface facilities (which are not designed or used for human occupancy) and installation or repair of erosion control and drainage structures that are generally located within Metropolitan's right-of-way. Because Metropolitan is a special district involved in the conveyance and distribution of water, Metropolitan's activities under the proposed program do not meet the definitions of a "project" under California's seismic hazard regulations (which generally pertain to construction, alteration, or repair of structures for human occupancy). For these reasons, with the exception of grading and earthwork standards, the previously mentioned building standards and geologic hazard regulations do not apply to the proposed program. Basic grading and earthwork standards in the CBC (e.g., slope limits, fill compaction requirements) would be followed by Metropolitan and/or its contractors in accordance with standard practices in the construction and engineering professions.

Local

Local grading ordinances set forth rules and regulations to control excavation, grading, and earthwork construction, including fills and embankments, and establish administrative requirements for issuance of permits and approval of plans in accordance with the requirements for grading and excavation in the CBC. Grading permits require submittal of a site plan and conformance with local grading standards, such as proper surface preparation, slope limits, benching requirements, fill compaction, site inspections, setbacks, drainage provisions, and erosion control.

The County of San Bernardino requires a grading permit for all grading activities within the county to ensure that there is no deposition of sediment or debris in the public right-of-way, on private property, or in natural watercourses. The grading permit is fulfilled through a general permit application with the Building and Safety Department. Grading permits also require submission of an erosion control plan for the construction on sites smaller than 1 acre that are exempt from the Construction General Permit. A grading permit from San Bernardino County is required during the following situations:

- Excavation greater than 2 feet in depth
- Excavation creates a cut slope from 2 to 5 feet in height and sloped more than one-half horizontal to one vertical
- Excavation creates a cut slope greater than 5 feet in height

[4] A structure for human occupancy is any structure used or intended for supporting or sheltering any use or occupancy that is expected to have a human occupancy rate of more than 2,000 person-hours per year (14 CCR, Section 3601).

- A fill of 1 foot or more in thickness, except for a fill less than 3 feet and 50 cubic yards
- A fill of less than 1 foot that is placed on natural terrain steeper than five horizontal to one vertical

Grading ordinances generally contain exceptions for work performed by governmental entities and public utilities for construction of pipelines or utility lines within easements. These exemptions, however, typically only apply when the earthwork takes place on the utility's dedicated rights-of-way or easements. In situations where grading may affect adjacent properties or would encroach on a public right-of-way or property outside of Metropolitan's easement or where work is performed by a contractor, specific grading permit requirements (or waivers from such requirements) would be at the discretion of the local jurisdictions. In addition, California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. However, Metropolitan understands the importance of consistency with the local jurisdictions' plans; therefore, Metropolitan and its contractors would coordinate with local jurisdictions, including the San Bernardino County Department of Public Works, as needed and as appropriate regarding grading permit requirements.

Local General Plans Policies and Building Codes

Local jurisdictions have independent planning documents that guide urban/economic development in a manner that protects the public from geologic and seismic hazards and minimizes adverse impacts with respect to soil loss and accelerated erosion. Each of the 10 cities through which Metropolitan's pipelines in the Western San Bernardino County Operating Region pass has prepared its own general plan that addresses geology, soils, and seismicity to varying degrees. All entities have local building codes built into their code of ordinances, which either incorporate the CBC by reference or amend the CBC to be more applicable to local issues. Local jurisdictions are also required to incorporate state policies and regulations pertaining to assessment and mitigation of geologic hazards (i.e., Alquist-Priolo Earthquake Fault Zoning Act, Seismic Hazards Mapping Act) into their land development policies. As indicated in the previous discussion, most local policies are not applicable to the proposed program.

4.5.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's impacts to geology and soils are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to geology and soils would occur if the proposed program would meet or exceed any of the following impact thresholds:

Impact GEO-1: Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Impact GEO-2: Would the program expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
- Strong seismic ground shaking?
- Seismic-related ground failure, including liquefaction?
- Landslides?

Impact GEO-3: Would the program result in substantial soil erosion or the loss of topsoil?

Impact GEO-4: Would the program 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?

Impact GEO-5: Would the program have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Based on the findings of the November 2014 Initial Study, the following topics were determined to have less than significant impacts or no impacts for geology and soils and are not further analyzed in this document:

Impact GEO-2: Exposure of People/Structures to Adverse Geological Effects

Impact GEO-3: Soil Erosion or Loss of Topsoil

Impact GEO-4: Location on Expansive Soil

Impact GEO-5: Incapability of Supporting Septic Tanks/Alternative Wastewater Systems

4.5.4 Applicant Proposed Measures

Applicable best management practices (BMPs), included in this PEIR as applicant proposed measures (APMs), are presented in full in this section (also see Chapter 3). These APMs, which are standard practice for Metropolitan, will minimize impacts to geology and soils. Their specific relevance to impact topics is detailed in Section 4.5.5 (see also Executive Summary, Table E-4).

APM-GEO-1 **Earthwork and Grading Best Practices.** Metropolitan's design plans, including proposed site grading and earthwork activities, for the proposed program will seek to minimize ground disturbance and shall be coordinated with local jurisdictions, as appropriate. Local jurisdictional restrictions and requirements will be included in the development of project designs. Metropolitan's design plans will be submitted to local jurisdictions for their review and approval as necessary. Comments received

from the local jurisdictions will be incorporated into project designs to the extent possible. Metropolitan's contractors shall obtain grading permits as required by the local jurisdictions.

Proposed projects shall implement the following earthwork considerations, as applicable:

- *Remedial Grading:* Prior to grading, any fill zone shall be cleared of surface and subsurface obstructions. Voids created by removal of buried material shall be backfilled with properly compacted soil. Exposed subgrade in fill zones shall be scarified to a depth of at least 6 inches, moisture conditioned to above optimum, and compacted to at least 90 percent of the American Society for Testing and Materials (ASTM) D 1557-12 (modified Proctor) laboratory maximum density. In some cases, wet subgrades may need to be stabilized with crushed rock, geogrids, and/or other methods.
- *Compacted Fill/Backfill:* Fill materials shall be naturally occurring, well-graded soil or soil/rock combinations free of wood, trash, construction debris, and organic, contaminated, or deleterious material.
- *Temporary Excavations*: When necessary to prevent caving and to protect adjacent structures or property, trenches and excavations shall be protected, shored, sheeted, braced, or sloped in accordance with CCR Title 8 and the regulations of local authorities having jurisdiction. Excavation requirements are outlined in Metropolitan's construction specifications, and Metropolitan staff will review and approve the contractor's excavation plans. Safety standards established within the California Occupational Safety and Health Administration (Cal/OSHA) CCR Construction Safety Orders (CSOs) and General Industry Safety Orders (GISOs) that are applicable to the work shall be adhered to. Metropolitan construction inspectors will also monitor compliance with regulations.

An additional APM from Section 4.8, Hydrology and Water Quality, would also reduce impacts to geology and soils:

APM-HYD-1 (Implementation of a SWPPP or Water Pollution Control Plan, as Applicable)

4.5.5 Impact Analysis

This analysis evaluates the potential impacts due to the proposed program being located on potentially unstable geologic units or soil, as well as impacts to areas underlain with geologic units or soil that could become unstable as a result of the proposed program. The analysis determines whether or not the proposed program creates or exacerbates public exposure to hazards stemming from landslides, lateral spreading, subsidence, liquefaction, or soil collapse.

It should be noted that impacts of the environment on a project or plan (as opposed to impacts of a project or plan on the environment) are beyond the scope of required CEQA review. "The purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project" (*Ballona Wetlands Land Trust v. City of Los Angeles* [2011] 201 Cal.App.4th 455, 473 and *California Building Industry Association v. Bay area Air Quality Management District* [2015] Cal.App 4th). The proposed program does not include activities that would increase the extent, magnitude, timing, or probability of occurrence of existing liquefaction, lateral spreading, or subsidence hazards. Although these hazards could result in periodic damage to Metropolitan's surface infrastructure, activities proposed under the proposed program would not expose the public or adjacent properties to an increased level of risk.

The proposed program would facilitate Metropolitan's ability to access its conveyance and distribution system infrastructure for maintenance and repairs and to better respond to infrastructure issues stemming from an earthquake or due to subsidence. The discussion that follows is, therefore, limited to soil and slope stability issues (i.e., landslides or soil slumps).

4.5.5.1 CIP Projects

Certain proposed Capital Investment Plan (CIP) projects would be located within areas of western San Bernardino County that are susceptible to landslides (which include small-scale soil slumps on cut banks along washes and creeks). Potentially affected areas exist along portions of the Rialto Pipeline, Inland Feeder, and Yorba Linda Feeder that traverse open space and steep terrain.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact GEO-1: Location on/Causing of Unstable Soil

The majority of proposed CIP projects would involve patrol road improvements and paving around structures. Paving activities would include grading of the road to a maximum of 16 feet in width; removal of old, damaged paving; removal of vegetation; placement and compacting of base material; and placement of asphalt, concrete paving materials, or gravel along patrol roads and around structures. Certain proposed projects along the Rialto Pipeline and Inland Feeder would be located in hilly terrain or would cross streambeds. It should be noted that the portions of the Inland Feeder crossing high landslide susceptibility zones are tunneled and are not planned for CIP projects. Therefore, the only issues associated with unstable soils relate to stream banks and areas within narrow canyons/valleys. Proposed projects are situated within Santa Ana Wash, San Sevaine Creek Wash, City Creek, Plunge Creek, and Waterman canyons; and at the mouth of Devil Canyon. Where the existing system of patrol roads in these areas create cut slopes or cross washes with sandy unvegetated banks, there could be localized instabilities associated with grading and paving activities. Although the location of the proposed projects in primarily open space areas would minimize the impact of slope failures on the public and habitable structures, the consequences of a slope failure could include sediment sloughing into local creeks and streams. However, with

implementation of APM-GEO-1 (see Section 4.5.4, Applicant Proposed Measures), grading would be conducted in accordance with applicable standards governing construction safety and excavations (including the CCR Title 8 Cal/OSHA CSOs and GISOs) and coordinated with local jurisdictions.

APM-HYD-1 would also require Metropolitan to prepare a SWPPP in areas of anticipated land disturbance in excess of 1 acre in size, and would ensure that proper BMPs are implemented so as not to cause excessive or accelerated erosion. BMPs to be implemented as part of a SWPPP would include measures such as placing erosion control structures and sediment traps (e.g., wattles, erosion matting, sand bags, and/or hydroseed) around the construction work area to prevent turbid water from leaving the construction site. For sites less than 1 acre in size, Metropolitan's Master Specifications (Section 01072) require preparation and implementation of a Water Pollution Control Plan that requires personnel and contractors to install and maintain erosion control devices, as specified in the California Department of Transportation (Caltrans) Stormwater Quality Manuals and Handbooks, within and around the construction work area, to minimize or avoid sediment-laden runoff from being emitted from the construction zone.

Implementation of APM-GEO-1 and APM-HYD-1 as part of Metropolitan's standard practice would ensure that impacts with respect to unstable soils would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact GEO-1: Location on/Causing of Unstable Soil

Repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls for drainage and erosion control purposes, would not affect the potential for unstable soils or landslides to adversely affect the public or adjacent properties. Provisions for proper drainage are an important aspect in reducing erosive scour, which in turn can destabilize soils that support Metropolitan infrastructure. Most of the proposed engineered erosion control activities would occur on valley bottoms and near creeks and drainages, where the terrain is relatively flat to gently sloping, and thus would not occur in areas mapped as landslide areas. In addition, with implementation of APM-GEO-1, soils and slope excavations would be conducted in accordance with applicable standards governing construction safety and excavations (including the CCR Title 8 Cal/OSHA CSOs and GISOs) and coordinated with local jurisdictions, further ensuring that engineered erosion control activities would not destabilize on-site soils. Proposed engineered erosion control activities would also include repair of unstable slopes that currently threaten infrastructure. Such repairs would include installation of retaining walls, secant walls, or concrete structure protection to

prevent damage to aboveground appurtenant facilities and/or patrol roads. In areas that experience scour and stream bank instabilities, engineered erosion control activities would ensure that such issues are corrected through placement of riprap, buttressing soils, or other means (such as secant walls). Furthermore, similar to CIP Activity Code No. 1, APM-HYD-1 would be implemented for construction activities requiring temporary land disturbances of more than 1 acre in size, and would ensure that proper BMPs are implemented so as not to cause excessive or accelerated erosion.

Because repair and upgrading of erosion control features would contribute to stabilizing on-site soils, in combination with incorporation of APM-GEO-1 and APM-HYD-1 into the proposed program as part of Metropolitan's standard practice, impacts would be beneficial and therefore less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact GEO-1: Location on/Causing of Unstable Soil

Slope stabilization activities (e.g., regrading and compacting of the slope; installation of rock slope protection, soil cement, anchors, tie-backs, and/or stepped retaining walls) would lessen the potential for weak soils and unstable slopes to adversely affect Metropolitan's surface infrastructure, and by extension would lessen risks to adjacent properties and the public. Construction activities necessary to complete slope stabilization projects would be carried out in a manner that does not further destabilize slopes. For example, if regrading and compaction of a slope is proposed, it would be regraded to a lower slope; if stepped retaining walls are proposed, the walls would be installed using secant piles prior to removing excess soils. Therefore, there would be a beneficial effect with respect to unstable soil and landslides, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.5.5.2 O&M Activities

Proposed Operations and Maintenance (O&M) activities would be located within areas of western San Bernardino County that have unstable soils and are susceptible to landslides. Potentially affected areas are located along portions of all the pipelines that traverse open space and steep terrain (see Figure 4.5-1).

Routine O&M Activities

Impact GEO-1: Location on/Causing of Unstable Soil

The impacts of proposed routine O&M activities would not be significant because they would not involve installation of new structures and are intended to protect and/or improve existing conditions with respect to unstable soils. There would be no major grading or excavation activities associated with routine O&M activities that would create unstable soils, potentially resulting in landslides. Routine O&M activities would have no impact with respect to unstable soils and resulting hazards, such as landslides.

Mitigation Measures

None are required.

Level of Significance: No impact.

Single-Occurrence O&M Activities

Impact GEO-1: Location on/Causing of Unstable Soil

Proposed single-occurrence O&M activities include installation of new culverts, or construction of low water or Arizona crossings to reestablish or maintain vehicle access on existing patrol roads. Similar to the analysis in the previous text for engineered erosion control (CIP Activity Code No. 2), proposed single-occurrence O&M activities would occur on valley bottoms and near creeks where the terrain is relatively flat to gently sloping, and thus would not occur in steeply sloped areas. However, installation of the structures would occur in areas with very loose soils and possibly steep cut banks, potentially exacerbating the potential for soil collapse to occur.

With incorporation of APM-GEO-1 and APM-HYD-1 into the proposed program as part of Metropolitan's standard practice, impacts of single-occurrence O&M activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.5.5.3 Impacts Summary

Table 4.5-1 summarizes the impacts for CIP projects and O&M activities under each impact threshold analyzed in this PEIR.

Table 4.5-1. Geology and Soils Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact GEO-1: Would the program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-GEO-1 APM-HYD-1	Less than significant
Engineered Erosion Control	Less than significant	APM-GEO-1 APM-HYD-1	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	No impact	—	No impact
Single-Occurrence	Less than significant	APM-GEO-1 APM-HYD-1	Less than significant

4.5.6 Impacts Found Not to Be Significant

Impact GEO-2: Exposure of People/Structures to Adverse Geological Effects

Regardless of the location, extent, and magnitude of seismic hazards present within the Western San Bernardino County Operating Region, the proposed program would not increase public exposure to adverse geologic effects, including surface ruptures, strong seismic ground shaking, ground failure, and landslides. This is because neither proposed CIP projects nor O&M activities involve structures for human occupancy, increased public access to hazardous areas, or any other activity that could exacerbate the severity of existing geologic and seismic risks. On the contrary, certain proposed program elements, such as repair of slopes and/or embankments, actually provide enhanced protection to surface infrastructure against such risks. The majority of proposed program activities would occur along Metropolitan's existing pipelines and patrol roads, which are generally inaccessible to the public. Proposed CIP projects and single-occurrence O&M activities would be designed by qualified individuals using industry standard practices. Infrastructure would be inspected and repaired, if necessary, in the event it experiences damage in an earthquake. The impacts of the proposed program with respect to public safety (i.e., loss, injury, or death) and/or property damage would be negligible; therefore, the impact would be less than significant.

Impact GEO-3: Soil Erosion or Loss of Topsoil

Stormwater runoff along patrol roads and intermittent flows within ephemeral creeks are locally resulting in scour, erosion, and gullying sufficient in magnitude to hinder passage of Metropolitan

maintenance vehicles and threaten the integrity of Metropolitan's pipelines, appurtenant structures, and patrol roads. The proposed program would be implemented to repair this erosion and protect existing infrastructure. The proposed CIP projects include actions to minimize the potential for erosion to adversely affect Metropolitan's facilities, such as repairing/restoring existing rills and gullies through natural or engineered means, as well as constructing drainage improvements or stabilization structures to avoid excessive volume and velocity of stormwater runoff. Among the O&M activities proposed are routine inspections to detect and repair erosion issues as they appear, installation of erosion control features as needed, and grading of patrol roads to address existing erosion problem areas. These activities are limited to Metropolitan's existing facilities, are generally confined to previously disturbed areas, and will decrease the potential for existing erosion problems to continue or worsen in the future. The long-term impacts with respect to substantial soil erosion or the loss of topsoil would be less than significant.

The potential for construction-related activities associated with proposed CIP projects and single-occurrence O&M activities, such as earthmoving activities and soil compaction caused by heavy-duty construction vehicles, to temporarily increase the rate of erosion and adversely affect sediment loads in stormwater runoff, is addressed earlier in this section and in and Section 4.8, Hydrology and Water Quality.

Impact GEO-4: Location on Expansive Soil

Section 1803A.5.3 of the CBC provides criteria for soil expansion testing in association with structural design. The expansive potential of soils is typically related to the type and amount of clay minerals in a soil, along with the moisture content of the soil and how often it changes (i.e., wet/dry cycles). Expansive soils can be widely dispersed and are found in hillside areas as well as in low-lying areas in alluvial basins. Therefore, the proposed program area likely includes expansive soils.

This threshold of significance does not apply to routine O&M activities because Metropolitan's existing surface infrastructure would simply be maintained and would not require or involve the construction of new or expanded facilities. The type of facilities that would be installed for proposed CIP projects and single-occurrence O&M activities, such as paving, Arizona crossings, culverts, grouted riprap, and concrete ditches, are not habitable structures and would not expose the public to substantial risks to life or property if they were damaged by expansive soils. Standard engineering practices, such as use of sandy (i.e., non-clay-rich) fill soils, and other methods would be used to ensure that proposed facilities do not experience damage or failure due to expansive soil. For these reasons, the impact of the proposed program to life or property from expansive soils would not be significant.

Impact GEO-5: Incapability of Supporting Septic Tanks/Alternative Wastewater Systems

Proposed CIP projects and O&M activities would not involve any septic tanks or alternative wastewater disposal systems; therefore, there would be no impact on this topic from the proposed program.

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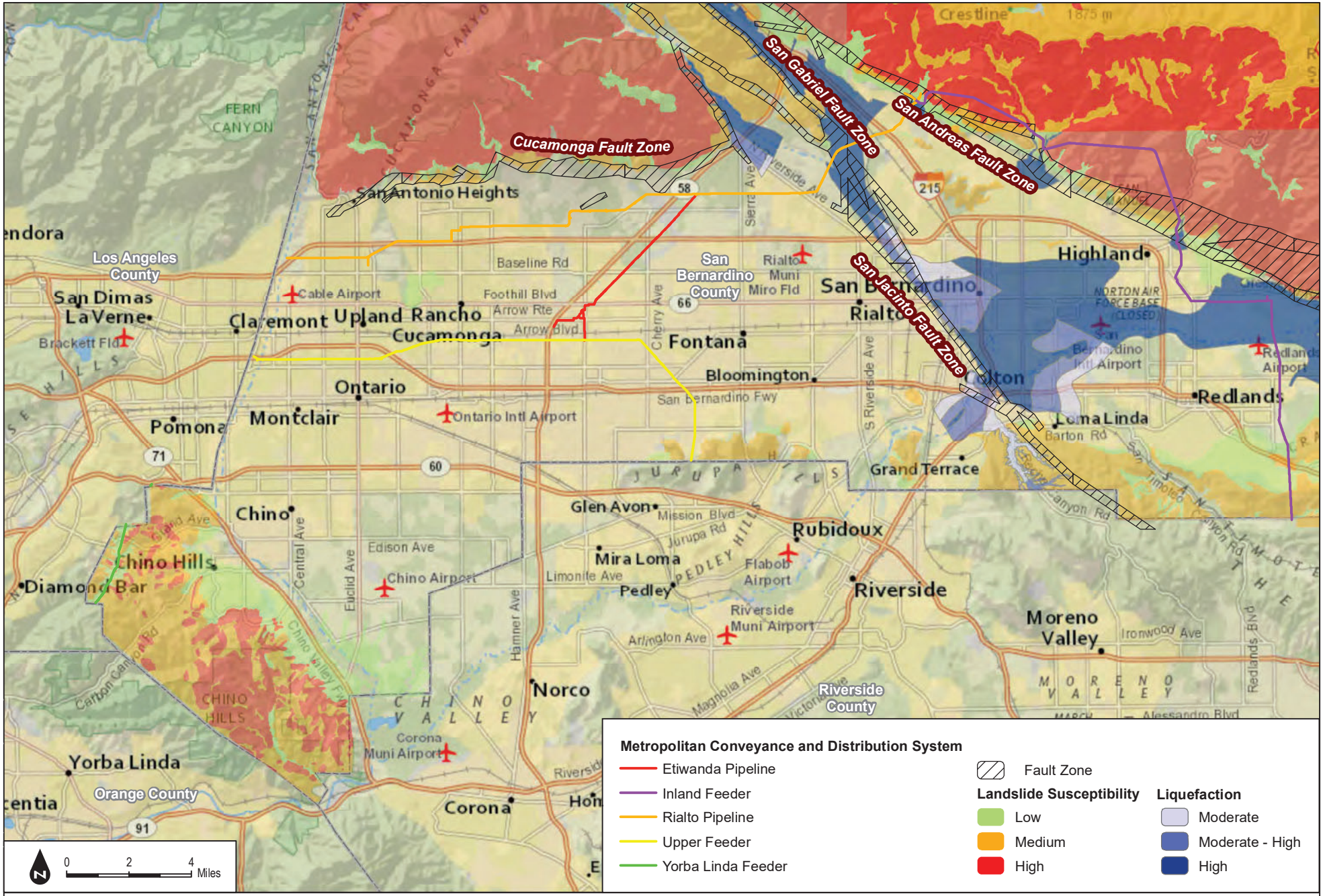

SOURCE: National Geographic 2020; County of San Bernardino 2011

FIGURE 4.5-1

Geologic Hazards

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4.6 Greenhouse Gas Emissions

This section describes the existing conditions related to greenhouse gas (GHG) emissions sources for the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), discusses applicable regulations, and evaluates the GHG emissions and climate change impacts associated with the proposed program. The following topics related to GHGs are examined in this section:

- Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the program conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

4.6.1 Existing Conditions

The Greenhouse Gas Effect and Greenhouse Gases

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called GHGs The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor (H_2O). Some GHGs, such as CO_2, CH_4, and N_2O, can occur naturally and are emitted into to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely byproducts of fossil-fuel combustion, whereas CH_4 results mostly from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3), which are associated with certain industrial products and processes (CAT 2006).

The greenhouse effect is a natural process that contributes to regulating the Earth’s temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its current 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e). The current version of the California Emissions Estimator Model (CalEEMod) (version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT CH_4 are equivalent to emissions of 25 MT CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed program.

Contributions to Greenhouse Gas Emissions

National and State Inventories. Per the 2019 U.S. Environmental Protection Agency (EPA) Inventory of U.S. GHG Emissions and Sinks: 1990–2017, total U.S. GHG emissions were approximately 6,457 MMT CO_2e in 2017 (EPA 2019). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6 percent of total GHG emissions (6,457 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.2 percent of CO_2 emissions in 2017 (4,912.0 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2017 are 1.3 percent higher; however, the gross emissions are down from a high of 15.7 percent above the 1990 level that occurred in 2007. GHG emissions decreased from 2016 to 2017 by 0.5 percent (35.5 MMT CO_2e) and, overall, net emissions in 2017were 13 percent below 2005 levels (EPA 2019).

According to California's 2000–2017 GHG emissions inventory (2019 edition), California emitted 424.09 MMT CO_2e in 2017, including emissions resulting from out-of-state electrical generation (CARB 2019). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emissions source categories (as defined in CARB's 2008 Climate Change Scoping Plan: A Framework for Change [Scoping Plan], CARB 2008) and their relative contributions in 2017 are presented in Table 4.6-1.

Table 4.6-1. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percentage of Total[a]
Transportation	169.86	40%
Industrial uses	89.40	21%
Electricity generation[b]	62.39	15%
Residential and commercial uses	41.14	10%
Agriculture	32.42	8%
High global warming potential substances	19.99	5%
Recycling and waste	8.89	2%
Totals	**424.09**	**100%**

Source: CARB 2019.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
Emissions reflect 2017 California GHG inventory.
[a] Percentage of total has been rounded; total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 23.94 MMT CO_2e.

Between 2000 and 2017, per-capita GHG emissions in California have dropped from a peak of 14.1 MT per person in 2001 to 10.7 MT per person in 2017, representing a 24 percent decrease. In addition, total GHG emissions in 2017 were approximately 5 MMT CO_2e less than 2016 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2019).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice have, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a 0.2°C (0.36°F) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of approximately 0.2°C per decade is projected, and there are identifiable signs that global warming could take place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010). Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers, with seasonal, year-to-year, and decade-to-decade variability.

4.6.2 Regulatory Framework

Federal

Massachusetts v. EPA

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that

may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

The EPA and NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016 (April 2010) that is intended to reduce GHG emissions and improve fuel economy. The EPA approved the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA approved Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (75 FR 25324–25728), which became effective on July 6, 2010 (75 FR 25324–25728). In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. The 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2–3 percent of total daily

consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018).

State

The statewide GHG emissions regulatory framework provides a general summary and overview of GHG regulations and goals. The following text describes Executive Orders (EO), Assembly Bills (ABs), Senate Bills (SBs), and other regulations and plans that would directly or indirectly reduce GHG emissions.

Executive Order S-3-05

EO S-3-05 (June 2005) established California's GHG emissions-reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32

In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020, and initiate the transformations required to achieve the state's long-range climate objectives.

One specific requirement of AB 32 is for CARB to prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561(a)), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan: The *Climate Change Proposed Scoping Plan: A Framework for Change* (Scoping Plan).

In December 2017, CARB adopted the *2017 Climate Change Scoping Plan Update* (Second Update) (CARB 2017). The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the EOs; it also establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it meets the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and does not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goal to be consistent. A project would be consistent if it will further the objectives and not obstruct their attainment.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG-reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050, as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission-reduction programs in support of the reduction targets.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions-reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions-reduction measures when updating the scoping plan.

Executive Order B-55-18

EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality as soon as possible (no later than 2045), and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions.

Executive Order S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

Senate Bill 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG-reduction targets for the automobile and light-truck sector for 2020 and 2035, and to update those targets every 8 years. It also requires the state's 18 regional metropolitan planning organizations to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG-reduction targets set by CARB.

Local

County of San Bernardino

The County developed and adopted a GHG Reduction Plan in September 2011, which presents a comprehensive set of actions to reduce its internal and external GHG emissions to 15 percent below current levels by 2020, consistent with the AB 32 Scoping Plan. The GHG Reduction Plan includes goals and objectives aimed to reduce emissions generated during construction of projects. With respect to the proposed program, the GHG Reduction Plan specifies the following:

- **GHG Goal TL 4:** Reduce GHG emissions by regulating the idling of diesel-fueled vehicles and equipment and encouraging the use of alternative fuels and transportation technologies.
- **Objective GHG TL 4.1:** Reduce the exhaust emissions of diesel-fueled vehicles and equipment.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated Metropolitan Planning Organization for the Southern California region and is the largest Metropolitan Planning Organization in the United States. SB 375 requires metropolitan planning organizations to prepare an SCS in their RTP. The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012 (SCAG 2012), and the 2016–2040 RTP/SCS (2016 RTP/SCS) was adopted in April 2016 (SCAG 2016). Both the 2012 and 2016 RTP/SCSs establish a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement).

4.6.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's GHG emissions impacts incorporate recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, a significant impact would occur if the proposed program would meet or exceed the following impact thresholds:

Impact GHG-1: Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-2: Would the program conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009). The State of California has not adopted emission-based thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research's Technical Advisory titled "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review" states that "lead agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2018). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

In October 2008, SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (SCAQMD 2008). The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008).

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. The most recent proposal, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

- **Tier 1:** Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.
- **Tier 2:** Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.
- **Tier 3:** Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used

for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

- **Tier 4:** Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per service population for project level analyses and 6.6 MT CO_2e per service population for plan level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.
- **Tier 5:** Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

The SCAQMD recommends that construction emissions be "amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies" (SCAQMD 2008).

Although the proposed program does not fall into one of the specific land use categories mentioned in Tier 3 (i.e., residential, commercial, mixed-use, industrial), Metropolitan has determined that the proposed program's construction GHG emissions would be amortized over a 30-year period and compared to Tier 3, Option 2 of the SCAQMD recommendations of a threshold of 3,000 MT CO_2e per year for all residential and commercial projects.

4.6.4 Applicant Proposed Measures

There are no applicant proposed measures relating to GHG emissions.

4.6.5 Impact Analysis

The following GHG emission impact analysis is organized by threshold, as identified in Section 4.6.5.3, Impact Analysis by Impact Threshold. Consistent with the cumulative nature of GHGs and climate change, the impact determination for the two thresholds is for the proposed program as a whole. When applicable, the analysis of impacts resulting from implementation of proposed Capital Investment Plan (CIP) projects and Operations and Maintenance (O&M) activities is presented separately; however, the determination of the level of significance for each threshold is for the collective activities proposed under the proposed program.

CIP Projects

Types of CIP projects under the proposed program consist of the following: patrol road improvements and paving (CIP Activity Code No. 1); engineered erosion control (CIP Activity Code No. 2); and slope stabilization (CIP Activity Code No. 3).

Table 4.6-2 presents a summary of the proposed CIP projects and their associated activity codes.

Table 4.6-2. CIP Projects and Activity Code Summary

Feeder	Number of Projects	CIP Activity Code No.						
		1	*2*	*3*	*1, 2*	*1, 3*	*2, 3*	*1, 2, 3*
Inland Feeder Station	11	0	2	1	6	0	1	1
Rialto Pipeline Station	1	0	0	0	0	0	0	1
Upper Feeder Station	1	0	1	0	0	0	0	0
Total	**13**	**0**	**3**	**1**	**6**	**0**	**1**	**2**
Percentage of total		**0%**	**23%**	**8%**	**46%**	**0%**	**8%**	**15%**
		Combined CIP Activity Code No.						
		1[b]		***2[c]***		***3[d]***		
Total projects that include a CIP activity code[a]		8		12		3		
Percentage of projects that include a CIP activity code[a]		62%		92%		23%		

Source: Metropolitan 2016.

Notes:

[a] This calculation (total and percent of total) is all-inclusive and does not sum to the total number of CIP projects because individual projects are included in more than one combined CIP total.

[b] Combined CIP 1 = projects coded CIP Activity Code No. 1, CIP Activity Code Nos. 1 and 2, CIP Activity Code Nos. 1 and 3, and CIP Activity Code Nos. 1, 2, and 3.

[c] Combined CIP 2 = projects coded CIP Activity Code No. 2, CIP Activity Code Nos. 1 and 2, CIP Activity Code Nos. 2 and 3, and CIP Activity Code Nos. 1, 2, and 3.

[d] Combined CIP 3 = projects coded CIP Activity Code No. 3, CIP Activity Code Nos. 1 and 3, CIP Activity Code Nos. 2 and 3, and CIP Activity Code Nos. 1, 2, and 3.

Estimates for work areas and limits of construction for CIP projects were based on the best information available at the time of preparation. The estimated work area describes the area of proposed activity and the CIP project's impact footprint on the environment, whereas the limits of construction acreages reflect the outermost boundary of potential disturbance. Accordingly, the work area estimate for these feeder and station locations were used to estimate fugitive dust emissions generated during the grading phase of the projects analyzed herein.

O&M Activities

There are 15 proposed O&M activities that have been identified. These activities are divided into two general categories: routine O&M activities and single-occurrence O&M activities. Emergency O&M activities, as discussed in Chapter 3, Program Description, would correlate with activities assessed in the single-occurrence O&M activities or they would be exempt under CEQA (14 CCR 15269); therefore, emergency O&M activities are not analyzed herein. Routine O&M activities include six O&M activity codes that involve patrol road maintenance (O&M Activity Code Nos. 1–6); one activity code that involves patrol and inspection (O&M Activity Code No. 7); five activity codes that involve routine structure maintenance, repair, and replacement (O&M Activity Code Nos. 8–12), and two activity codes that involve other activities such as shutdowns/dewatering and emergency work (O&M Activity Code Nos. 13 and 14). Single-occurrence O&M activities

include one O&M activity code (O&M Activity Code No. 15), which involves patrol road structural repairs (low water crossings, Arizona crossings, culverts, bridges).

Many of the O&M activities do not necessitate the use of diesel construction equipment, trucks transporting materials, and/or a construction crew, such as O&M Activity Code No. 8, which involves cleaning of equipment and structures, and O&M Activity Code No. 9, which involves graffiti removal and coating of structures.

Construction Timing and Duration

The DSIPP Preliminary Design Report for the Western San Bernardino County Region (Metropolitan 2014) identified proposed CIP projects and single-occurrence O&M activities and provided location specifics, details of existing site issues, potential options for addressing the identified issues, and the proposed solution. For emissions modeling purposes, construction activities associated with the proposed CIP projects and single-occurrence O&M activities are assumed to occur over 2 years, 2020 and 2021. It is estimated that 60 percent of the required activities would occur in 2020, and the remaining 40 percent would occur in 2021. All CIP projects are expected to be completed during 2020 and 2021.

Future unidentified O&M activities described in the O&M Manual (see Appendix A to this program environmental impact report [PEIR]) may be implemented anywhere along Metropolitan's Western San Bernardino County Operating Region right-of-way and patrol roads. Before implementation, these future O&M activities would be subject to internal review by Metropolitan to ensure that they are in compliance with the activity descriptions set forth in the O&M Manual and the conditions of this PEIR.

Approach and Methodology

To provide a conservative analysis of typical proposed CIP projects and O&M activities, representative projects and activities were identified based on the DSIPP Preliminary Design Report for the Western San Bernardino County Operating Region (Metropolitan 2014) and input from Metropolitan engineers and operations staff. Information regarding a typical construction scenario, including anticipated phasing and phase duration, construction equipment, worker trips, vendor truck tips (including water trucks), and haul truck trips, was generated for each of these representative projects.

These representative projects are intended to represent a maximum, or worst-case, scenario associated with proposed program construction. Construction specifications of each proposed CIP project and O&M activity will vary depending on the subject site characteristics, maintenance or improvement needs, and type of proposed solution; however, construction requirements for activities within the same category are not expected to differ substantially. Because several of the proposed CIP projects and O&M activities address similar issues, the proposed solutions include similar procedures, many of which are techniques Metropolitan has historically used to resolve common issues, and include routine activities that do not require advance planning and design. Therefore, although construction of the other proposed activities will differ from the scenarios analyzed in this PEIR, the modeled projects and estimated maximum daily

emissions included herein would represent a conservative assessment of GHG emissions impacts associated with anticipated project construction. Project plans may potentially change during final design; however, it is anticipated that footprints would be reduced as a result of a more refined design plan.

GHG emissions associated with proposed CIP projects and O&M construction activities were quantified using CalEEMod (version 2016.3.2). Project-specific information was assumed in CalEEMod based on information provided by Metropolitan staff and review of preliminary design plans, when available. Default values provided in CalEEMod were used where detailed project information was not available.

The number of workers would vary depending on the construction activity and would range from two to six workers per day. The CalEEMod default value for a worker trip distance of 14.7 miles one way was assumed in the analysis. Vendor trucks were each assumed to result in two one-way trips per day. It was assumed that average one-way trip distance for vendor trucks is 16 miles based on conservative estimates provided by Metropolitan. Haul trucks were each assumed to result in two one-way trips per day. The CalEEMod default value of 20 miles one way for haul truck trips was assumed in the analysis. Estimated average daily haul truck trips were multiplied by the total days of the respective construction phase to estimate total haul truck trips in CalEEMod.

The representative CIP projects and O&M activities selected for this GHG emissions analysis are described in Sections 4.6.5.1 and 4.6.5.2, respectively.

4.6.5.1 Representative CIP Projects

The representative proposed CIP projects selected for this GHG emissions analysis, consistent with the analysis in Section 4.2, Air Quality, are described in this section. Table 4.6-3 presents a summary of the representative proposed CIP projects analyzed herein.

The maximum number of CIP projects that would be constructed concurrently is anticipated to be three (Harriger, pers. comm. 2016).

Table 4.6-3. Representative CIP Projects Summary

Representative Project	CIP Activity Code No.	CIP Project Category	Selected Representative Project
A	1	Patrol Road Improvements and Paving	Inland Feeder Station 660+00
B	2	Engineered Erosion Control	Inland Feeder Station 592+31
C	3	Slope Stabilization	Inland Feeder Station 19+55

Source: Metropolitan 2016.
Note: CIP = Capital Investment Plan.

Details and construction assumptions for each representative CIP project are provided below.

Representative CIP Project A: Patrol Road Improvements and Paving (CIP Activity Code No. 1)

As previously discussed, of the 13 proposed CIP projects, 8 projects involve patrol road paving or paving around structures as the primary purpose of the improvement project or in combination with another CIP project category. The average work area (i.e., footprint) of CIP Activity Code No. 1 projects, including projects that are categorized as CIP Activity Code No. 1, CIP Activity Code Nos. 1 and 2, and CIP Activity Code Nos. 1, 2, and 3, is 0.64 acres. Work areas range in size from 0.16 to 2.07 acres. This air quality analysis used the estimated work area (largest area for potential disturbance, including temporally impacted areas), which represents the area of proposed activity and the project's impact footprint on the environment, to estimate project emissions.

The proposed CIP project located at Inland Feeder Station 660+00 was selected to represent the road paving project type (CIP Activity No. 1). To improve access to Inland Feeder Station 660+00, the existing patrol road would be regraded or redirected. Construction scenario details for Representative CIP Project A (CIP Activity Code No. 1, patrol road improvements and paving) are provided in Table 4.6-4.

Table 4.6-4. Representative CIP Project A – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	2	6	2[a]	8	Motor graders (graders)	1
Grading – over-excavation	3	9	2[a]	0	Motor graders (graders)	1
Building construction 1 – lay base	3	9	14[a]	12	Motor graders (graders)	1
					Rollers	1
Paving	1	18	8	4	Paving equipment	1
					Rollers	1
					Skid steer loaders	1
Building construction 2 – finish work	1	6	0	0	Motor graders (graders)	1
					Skid steer loaders	1

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Plan.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.

Engineered Erosion Control (CIP Activity Code No. 2)

Representative CIP Project B: Engineered Erosion Control (CIP Activity Code No. 2)

Of the 13 CIP projects in the San Bernardino County Operating Region, approximately 12 projects involve engineered erosion control, either as the primary activity or in combination with another CIP

project. Typical engineered erosion control (CIP Activity Code No. 2) projects would include installation of permanent structures or repair of existing structures, such as culverts, corrugated metal pipes, flared inlets, and/or upstream wing walls/head walls, necessary to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. The average work area of CIP Activity Code No. 2 projects, including projects that are categorized as CIP Activity Code No. 2, CIP Activity Code Nos. 1 and 2, CIP Activity Code Nos. 2 and 3, and CIP Activity Code Nos. 1, 2, and 3, is 0.70 acres. Work areas range in size from 0.03 to 1.81 acres.

The proposed CIP project located at Inland Feeder Station 592+31 was selected to represent the engineered erosion control project type. Improvements made to the Inland Feeder Station 592+31 would include slope stabilization at the structure and regrading the existing road to drain to V-ditch. In addition, a V-ditch would be added to one side of the road. Construction scenario details for Representative CIP Project B (CIP Activity Code No. 2, engineered erosion control) are provided in Table 4.6-5.

Table 4.6-5. Representative CIP Project B – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation – removing materials and mobilization	4	9	2[a]	24	Excavators	1
					Rubber-tired loaders	1
Grading	2	9	8[a]	0	Excavators	1
					Rubber-tired loaders	1
Building construction 1– place riprap rock	4	12	12	0	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Building construction 2 – concrete grout	2	15	10[a]	0	Loader (Tractors/loaders/ backhoes)	1
Building construction 3 – finish work and place base rock	3	15	10[a]	0	Loader (Tractors/loaders/ backhoes)	1
Building construction 4 – demobilization	1	9	0	6	N/A	N/A

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Plan.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.

Slope Stabilization (CIP Activity Code No. 3)

Representative CIP Project C: Slope Stabilization (CIP Activity Code No. 3)

Of the 13 CIP projects, 4 projects involve slope stabilization, with all projects occurring in combination with another CIP project. The average acreage of CIP Activity Code No. 3 projects, including projects that are categorized as CIP Activity Code Nos. 1, 2, and 3 or CIP Activity Code Nos. 2 and 3, is 0.69 acres. Work areas range in size from 0.40 to 1.38 acres.

The proposed CIP project located at Inland Feeder Station 19+55 was selected to represent the slope stabilization project type (CIP Activity Code No. 3), which is analyzed herein as Representative CIP Project C. The concrete embankment west of the blow-off structure at Station 19+55 is failing and needs reinforcing to prevent further damage to structure. The reason for failure is erosion and channel migration, as well as seepage and drainage from the parallel patrol road. Concrete below the blow-off by the creek is cracked and has fallen. Boulders have been placed at the bottom of the concrete embankment to temporarily support the feature.

To address the issues at Inland Feeder Station 19+55, this proposed CIP project would demolish the existing panels, grade/excavate the channel walls, and channel bottom to "toe-in" structural components and stabilize soil. Geotextile material and grouted riprap would be installed to strengthen the embankment. The site would then be regraded with rock fill material that would redirect migrating flow back to the channel and protect the blow-off structure. Also, the patrol road would be regraded to direct drainage away from the channel wall.

Construction scenario details for Representative CIP Project C (CIP Activity Code No. 3, slope stabilization) are provided in Table 4.6-6.

Table 4.6-6. Representative CIP Project C – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks[a]	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	10	12	8[a]	40	Excavator	1
					Loader	1
Building construction 1 – restore the slope	6	12	8[a]	12	Excavator	1
					Loader	1
Building construction 2 – geotextile and riprap	20	12	22[a]	40[b]	Excavator	1
					Loader	1

Source: Metropolitan 2016.
Notes: CIP = Capital Investment Plan.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Water trucks are included as vendor trips for construction modeling.
[b] Dump trucks were accounted for in haul trips.

4.6.5.2 Representative O&M Activities

The representative proposed O&M activities selected for this GHG emissions analysis are described in this subsection. Table 4.6-7 presents a summary of the representative proposed O&M activities analyzed herein.

Table 4.6-7. Representative O&M Activities Summary

Representative Activity	O&M Activity Code No.	O&M Activity Category	Selected Representative Activity
A	1	Patrol Road Grading	Three levels of patrol road grading and maintenance were assessed: high, moderate, and low.
B	6	Erosion Control	Upper Feeder Station 728+50
C	11	Structure Maintenance, Repair, and Replacement	Inland Feeder Station 573+94
D	15	Patrol Road Structural Repairs	Inland Feeder Station 3571+01

Source: Metropolitan 2016.
Note: O&M = Operations and Maintenance.

For some O&M activities, there is also a proposed CIP project at the same location (same feeder and station ID). The following O&M activities emissions analysis is based on the proposed O&M activities described for each site, which are a generally of shorter duration and/or lower intensity than the CIP projects proposed at the site.

The annual frequency of each activity analyzed was determined by Metropolitan staff to estimate the total annual activity expected under the proposed program. Metropolitan estimated that the annual frequency of O&M Activity Code No. 1 would be every year from January to March. Accordingly, it was assumed that there would be 55 days (22 working days per month) of patrol road grading in 2020 and 2021, as well as in future years. For O&M Activity Codes Nos. 6, 11, and 15, Metropolitan provided estimated annual occurrences of 15, 15, and 1 occurrences per year, respectively.

Details and construction assumptions for representative O&M activities are provided below.

Patrol Road Grading (O&M Activity Code No. 1)

Representative O&M Activity A: Patrol Road Grading (O&M Activity Code No. 1)

Representative O&M Activity A is broken down into three levels of patrol road grading: (1) high maintenance (average completion of 1 mile per day), (2) moderate maintenance (average completion of 2 miles per day), and (3) low maintenance (average completion of 4.5 miles per day). High-level maintenance requirements may occur when one or more of the following conditions are present: a severe level of erosion, a large amount of vegetation, close proximity to residences, or an impeded road with excessive gates. Moderate-level maintenance conditions are associated with a moderate level of erosion, proximity to residences, and partially restricted access. Low-level maintenance

conditions are associated with a low level of erosion with unimpeded road access, such as a road with a few gates or location along an existing canal.

Construction scenario details for patrol road grading for the three typical maintenance levels (Representative O&M Activity A, O&M Activity Code No. 1) are provided in Table 4.6-8.

Table 4.6-8. Representative O&M Activity A – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
High Maintenance (1 mile/day)						
Grading	1	12	6	6[a]	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Moderate Maintenance (2 miles/day)						
Grading	1	12	4	6[a]	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Low Maintenance (4.5 miles/day)						
Grading	1	6	4	0	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.
[a] Dump trucks were accounted for in haul trips.

Representative O&M Activity B: Erosion Control (O&M Activity Code No. 6)

Upper Feeder Station 728+50 was selected to represent a location where erosion control activities (O&M Activity Code No. 6) are proposed, which is evaluated as Representative O&M Activity B. The issues presented at this site include flooding and drainage issues during the rainy season. Periodic grading and/or road improvements, as well as drainage improvements, are necessary for better accessibility to the patrol road through the area and to the aboveground structure at Station 728+50 during the rainy season.

The recommended solution to address the issues at this site grading and paving patrol the roadway from Station 728+50 to Station 745 and installation of drainage features (concrete curb/ditch) along patrol road and around structure at Station 736+64 to improve drainage through the area and accessibility during rainy season.

Construction scenario details for proposed O&M activities at Upper Feeder Station 728+50 (Representative O&M Activity B, O&M Activity Code No. 6) are provided in Table 4.6-9.

Table 4.6-9. Representative O&M Activity B – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks Per Day	Equipment	
					Equipment Type	*Quantity*
Site preparation – clear and grub	3	6	6	6	Motor graders (graders)	1
Grading – earthwork	3	9	8	12	Skid steer loaders	1
					Tractors/loaders/ backhoes	1
Building construction 1 – concrete masonry curb and ditch	2	12	2	4	Pumps	1
Building construction 2 – finish work	2	6	2	8	Skid steer loaders	1
					Tractors/loaders/ backhoes	1

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance.
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

Structure Maintenance, Repair, and Replacement (O&M Activity Code Nos. 11 and 15)

Representative O&M Activity C: Structure Maintenance, Repair, and Replacement (O&M Activity Code No. 11)

Inland Feeder Station 573+94 was selected to represent an O&M activity location where structure maintenance, repair, and replacement activities (O&M Activity Code 11) are proposed, which is evaluated as Representative O&M Activity C. The issues at this site include trash and construction debris dumping by the public. The proposed solution includes installing a gate across the existing patrol road and connecting the gate to the existing chain-link fence.

Construction scenario details for proposed O&M activities at Inland Feeder Station 573+94, which include structure maintenance, repair, and/or replacement (Representative O&M Activity C, O&M Activity Code No. 11), are provided in Table 4.6-10.

Table 4.6-10. Representative O&M Activity C – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation/ clean-up	2	9	2	8	Motor graders (graders)	1
					Tractors/loaders/ backhoes	1
Gate installation	1	6	0	0	N/A	N/A

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance; N/A = not applicable (no equipment associated with the proposed construction phase).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

Representative O&M Activity D: Patrol Road Structural Repairs (O&M Activity Code No. 15)

Inland Feeder Station 3571+01 was selected to represent an O&M activity location where patrol road structural repairs activities (O&M Activity Code 15) are proposed, which is evaluated as Representative O&M Activity D. The issues at this site include grades through crossing and access and the need for regrading after rain events. The proposed solution would potentially involve grading and reconstruction of the patrol road and turnaround. Additionally, two Arizona or low water crossings would be constructed.

Construction scenario details for proposed O&M activities at Inland Feeder Station 3571+01, which represents patrol road structural repairs (Representative O&M Activity D, O&M Activity Code No. 15), are provided in Table 4.6-11.

Table 4.6-11. Representative O&M Activity D – Construction Scenario

Construction Phase	Days	One-Way Worker Trips Per Day	One-Way Vendor Trips Per Day	Total Haul Trucks	Equipment	
					Equipment Type	*Quantity*
Site preparation	4	6	0	0	Motor graders (graders)	1
Grading	4	6	0	0	Motor graders (graders)	1
					Rubber-tired loaders	1
					Tractors/loaders/ backhoes	1
Building construction 1 – install riprap	8	9	6	0	Tractors/loaders/ backhoes	1
Building construction 2 – concrete grout	4	18	2	0	N/A	N/A
Building construction 3 – finish work	4	6	2	0	Motor graders (graders)	1

Source: Metropolitan 2016.
Notes: O&M = Operations and Maintenance; N/A = not applicable (no equipment proposed during this activity).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod construction modeling.

4.6.5.3 Impact Analysis by Impact Threshold

Impact GHG-1: Generation of Greenhouse Gas Emissions

Construction of the projects under the proposed program would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. As discussed in Section 4.6.3, SCAQMD's Interim CEQA GHG Significance Threshold recommends that construction emissions be "amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG

reduction strategies" (SCAQMD 2008). Thus, the total construction GHG emissions were calculated and amortized over 30 years. The proposed program would not generate operational emissions. Annualized construction emissions over 30 years are compared with the GHG significance threshold of 3,000 MT CO_2e to determine the significance of proposed program-generated GHG emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 4.6.5, Impact Analysis. The GHG emissions are expressed in units of MT CO_2e. On-site sources of GHG emissions include off road equipment and off-site sources including hauling and vendor trucks and worker vehicles.

CIP Projects

Construction assumptions for Representative CIP Projects A through C are presented in Table 4.6-4 through Table 4.6-6. Table 4.6-12 presents annual construction emissions for each representative CIP project analyzed from on-site and off-site emission sources.

Table 4.6-12. CIP Projects Estimated Annual Construction GHG Emissions

Project Element	CIP Activity Code No.	CO_2	CH_4	N_2O	CO_2e
		metric tons			
Representative CIP Project A: Patrol Road Improvements and Paving	1	6.14	<0.01[a]	0.00	6.16
Representative CIP Project B: Engineered Erosion Control	2	11.01	<0.01[a]	0.00	11.06
Representative CIP Project C: Slope Stabilization	3	32.39	0.01	0.00	32.52

Notes: CIP = Capital Investment Plan; GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix E for complete results.
Emission factors for 2020 were used in CalEEMod to estimate construction emissions.
[a] <0.01 = value less than reported 0.01 metric tons per year.

As discussed in Section 4.6.5 under Construction Timing and Duration, it is estimated that 60 percent of the required activities would occur in 2020, and the remaining 40 percent would occur in 2021. All CIP projects are expected to be completed during 2020 and 2021.

As presented in Table 4.6-12, Representative CIP Project C was estimated to result in the greatest emissions of the CIP projects analyzed (i.e., result in emissions greater than Representative CIP Project B, which represented erosion control projects). Representative CIP Project C would also result in emissions greater than Representative CIP Project A; therefore, the emissions estimated for CIP Activity Code No. 3 were assumed to conservatively estimate total annual GHG emissions for CIP projects categorized as CIP Activity Code Nos. 1, 2, and 3 or CIP Activity Code Nos. 2 and 3.

Table 4.6-13 presents the proposed annual total number of projects for all CIP Activity Codes and the assumed annual project total for CIP Activity Code Nos. 1, 2, and 3 in 2020 and 2021.

Table 4.6-13. Annual Total Number of CIP Projects

Year	Proposed						
	CIP Activity Code No.						
	1	*2*	*3*	*1, 2*	*1, 3*	*2, 3*	*1, 2, 3*
2020	0	2	1	4	0	1	1
2021	0	1	0	2	0	0	1
Total	**0**	**3**	**1**	**6**	**0**	**1**	**2**

Year	Assumed		
	CIP Activity Code No.		
	1	*2*	*3*
2020	0	6	3
2021	0	3	1
Total	**0**	**9**	**4**

Notes: CIP = Capital Investment Plan.
See Appendix E for complete results.
CIP Projects: 60 percent in 2020, 40 percent in 2021.

Table 4.6-14 presents estimated annual construction emissions in 2020 from on-site and off-site emission sources.

Table 4.6-14. CIP Projects 2020 Estimated Annual Construction GHG Emissions

Program Element	CIP Activity Code No.	CO_2e Estimated Emissions (Metric Tons per Year)	Number of 2020 Projects	Combined Annual CO_2e Emissions (Metric Tons per Year)
Representative CIP Project A: Patrol Road Improvements and Paving	1	6.16	0	0.00
Representative CIP Project B: Engineered Erosion Control	2	11.06	6	66.36
Representative CIP Project C: Slope Stabilization	3	32.52	3	97.56
			Total	**163.92**

Notes: CIP = Capital Investment Plan; GHG = greenhouse gas; CO_2e = carbon dioxide equivalent.
See Appendix E for complete results.

As shown in Table 4.6-14, construction of CIP projects would result in approximately 164 MT CO_2e in 2020.

Table 4.6-15 presents estimated annual construction emissions in 2021 from on-site and off-site emission sources.

Table 4.6-15. CIP Projects 2021 Estimated Annual Construction GHG Emissions

Program Element	CIP Activity Code No.	CO_2e Estimated Emissions (Metric Tons per Year)	Number of 2021 Projects	CO_2e Estimated Emissions (Metric Tons per Year)
Representative CIP Project A: Patrol Road Improvements and Paving	1	6.16	0	0.00
Representative CIP Project B: Engineered Erosion Control	2	11.06	3	33.18
Representative CIP Project C: Slope Stabilization	3	32.52	1	32.52
			Total	65.70

Notes: CIP = Capital Investment Plan; GHG = greenhouse gas; CO_2e = carbon dioxide equivalent.
See Appendix E for complete results.

As shown in Table 4.6-15, construction of CIP projects would result in approximately 66 MT CO_2e in 2021.

O&M Activities

Construction assumptions for Representative O&M Activities A through D are presented in Tables 4.6-8 through 4.6-11. Table 4.6-16 presents estimated annual construction emissions resulting from routine and single-occurrence O&M activities.

Table 4.6-16. O&M Activities Estimated Annual Construction GHG Emissions

Program Element	O&M Activity Code No.	CO_2	CH_4	N_2O	CO_2e[a]
		Metric Tons per Year			
Routine: Patrol Road Maintenance					
Representative O&M Activity A: Patrol Road Grading	1	—	—	—	—
High Maintenance	—	0.86	<0.01[a]	0.00	0.86
Moderate Maintenance	—	0.81	<0.01[a]	0.00	0.81
Low Maintenance	—	0.55	<0.01[a]	0.00	0.56
Representative O&M Activity B: Erosion Control	6	4.40	<0.01[a]	0.00	4.42
Routine: Structure Maintenance, Repair, and Replacement					
Representative O&M Activity C: Structure Maintenance, Repair and Replacement	11	1.37	<0.01[a]	0.00	1.37

Table 4.6-16. O&M Activities Estimated Annual Construction GHG Emissions

Program Element	O&M Activity Code No.	CO_2	CH_4	N_2O	CO_2e[a]
		Metric Tons per Year			
Single-Occurrence					
Representative O&M Activity D: Patrol Road Structural Repairs	15	9.37	<0.01[b]	0.00	9.43

Notes: O&M = operations and maintenance; GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix E for complete results.

[a] CO_2e is a term used for describing different GHG gases (e.g. CO_2, CH_4, and N_2O) in a common unit and signifies the amount of CO_2 which would have the equivalent global warming impact. CalEEMod assumes that the GWP for CH_4 is 25 (so emissions of 1 MT CH_4 are equivalent to emissions of 25 MT CO_2) and the GWP for N_2O is 298. CH_4 and N_2O values presented within the table could be minimal, and therefore not equal to zero.

[b] <0.01 = value less than reported 0.01 metric tons per year.

The annual frequency of each activity analyzed was determined by Metropolitan staff to estimate the total annual activity proposed under the proposed program. Metropolitan estimated that the annual frequency of O&M Activity Code No. 1 would be every year from January to March. Accordingly, it was assumed that there would be 55 days (22 working days per month) of patrol road grading in 2020 and 2021, as well as in future years. Emissions generated during Representative O&M Activity A construction was estimated on a per-day basis. As such, the greatest emissions associated with O&M Activity Code A were multiplied by 55 days to conservatively estimate annual GHG emissions. For O&M Activity Code Nos. 6, 11, and 15, Metropolitan provided estimated annual occurrences of 15, 15, and 1 occurrences per year, respectively. The estimated GHG emissions for Representative O&M Activities B, C, and D were multiplied by the estimated annual occurrences to estimate annual emissions.

Table 4.6-17 presents estimated total annual construction emissions resulting from all proposed O&M activities. Emission factors for 2020 were used in CalEEMod to conservatively estimate construction emissions during the first anticipated year of construction.

As shown in Table 4.6-17, O&M activities would result in approximately 144 MT CO_2e per year. It is anticipated that O&M activities would occur in 2020 and 2021, and would continue to occur over the duration of proposed program implementation. Future activities would potentially involve fewer projects (daily and annual) and the intensity of activities may be reduced; as such, GHG emissions associated with O&M activities in 2020 through 2050 are expected to result in lower GHG emissions than analyzed herein for the proposed program. Emissions associated with O&M activities in 2020 and beyond are based on emission factors for 2020 and assume the same frequency and intensity of activities in 2020, which result in a conservative estimate of construction emissions.

Table 4.6-17. O&M Activities Estimated Annual Construction GHG Emissions

Program Element	O&M Activity Code No.	Estimated Emissions (Metric Tons per Year)	Annual Frequency	Combined Annual Emissions (Metric Tons per Year)
Routine: Patrol Road Maintenance				
Representative O&M Activity A: Patrol Road Grading	1	—	—	47.30
High Maintenance	—	0.86	55	—
Moderate Maintenance	—	0.81	55	—
Low Maintenance	—	0.56	55	—
Representative O&M Activity B: Erosion Control	6	4.42	15	66.30
Routine: Structure Maintenance, Repair, and Replacement				
Representative O&M Activity C: Structure Maintenance, Repair and Replacement	11	1.37	15	20.55
Single-Occurrence				
Representative O&M Activity D: Patrol Road Structural Repairs	15	9.43	1	9.43
			Total	**143.58**

Notes: O&M = Operations and Maintenance; GHG = greenhouse gas.
See Appendix E for complete results.

Combined CIP Projects and O&M Activities

Table 4.6-18 presents estimated total annual construction emissions from CIP projects in 2020 and 2021, and O&M activities from 2022 through 2050. Total proposed program-generated construction GHG emissions were estimated over a 30-year implementation period and amortized to determine the average annual GHG emissions, which is then compared to the SCAQMD operational GHG emissions threshold of 3,000 MT CO_2e used in this analysis to determine the potential significance of proposed program-generated GHG emissions.

Table 4.6-18. Combined CIP Project and O&M Activity Annual Emissions

Program Element	MT CO_2e
Year 2020 Emissions	
CIP Projects	163.92
O&M Activities	143.58
2020 combined total	**307.50**
Year 2021 Emissions	
CIP Projects	65.70
O&M Activities	143.58
2021 combined total	**209.28**

Table 4.6-18. Combined CIP Project and O&M Activity Annual Emissions

Program Element	MT CO_2e
2022–2050 Emissions	
O&M Activities	4,020.24
2022–2050 total	**4,020.24**
Total 30-Year Emissions	
Total proposed program emissions	*4,537.02*
Total proposed program emissions amortized over 30 years	**151.23**

Notes: CIP = Capital Investment Plan; O&M = Operations and Maintenance; MT CO_2e = metric tons carbon dioxide equivalent.
See Appendix E for complete results.
Emission factors for 2020 were used in CalEEMod to conservatively estimate construction emissions from 2022-2050.
[a] Estimated total emissions from O&M Activities in 2022 through 2050 reflect estimated annual emissions of 143.58 MT CO_2e multiplied by 28 years (i.e., the remaining duration of the 30-year proposed program)

As shown in Table 4.6-18, construction of CIP projects in 2020 and 2021 and construction of O&M activities over 30 years is estimated to result in a combined total of approximately 4,537 MT CO_2e. Program construction emissions amortized over 30 years would be approximately 151 MT CO_2e. Estimated average annual construction emissions would not exceed the SCAQMD thresholds of 3,000 MT CO_2e. Therefore, the proposed program (all CIP projects and O&M activities) would not result in cumulatively considerable emissions. Impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact GHG-2: Conflict with Applicable Plan, Policy, or Regulation for GHG Reduction

Metropolitan has not adopted a comprehensive climate action plan. However, in 2011, the County adopted the San Bernardino County GHG Reduction Plan. The GHG Reduction Plan presents a comprehensive set of actions to reduce its internal and external GHG emissions to 15 percent below current levels by 2020, consistent with the AB 32 Scoping Plan. Projects that do not exceed 3,000 MT CO_2e per year are considered to be consistent with the GHG Reduction Plan and determined to have a less than significant individual and cumulative impact for GHG emissions (County of San Bernardino 2011). Construction of the proposed program would not exceed the screening threshold of 3,000 MT CO_2e per year. As discussed previously, the proposed program would result in approximately 4,537 MT CO_2e. Program construction emissions amortized over 30 years would be approximately 151 MT CO_2e. Therefore, the proposed program would not conflict with the County's GHG Reduction Plan.

Consistency with the 2016 RTP/SCS

At the regional level, SCAG has adopted the 2016 RTP/SCS for the purpose of reducing GHG emissions attributable to passenger vehicles in western San Bernardino County and surrounding areas. Although the RTP/SCS does not regulate land use or supersede the exercise of land use authority by SCAG's member jurisdictions (i.e., the County), the RTP/SCS is a relevant regional reference document for purposes of evaluating the connection of land use and transportation patterns and the corresponding GHG emissions. The RTP/SCS is not directly applicable to the proposed program because the underlying purpose of the RTP/SCS is to provide direction and guidance on future regional growth (i.e., the location of new residential and non-residential land uses) and transportation patterns throughout the region, as stipulated under SB 375. The proposed program involves implementation of improvement projects and maintenance activities on an existing infrastructure, which entails short-term use of construction equipment and worker vehicle trips. As such, the proposed program would not conflict with the goals and policies of the RTP/SCS.

Consistency with the Scoping Plan

The Scoping Plan provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others. To the extent that these regulations are applicable to the proposed program, the proposed program would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Consistency with Executive Order S-3-05 and Senate Bill 32

The proposed program would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because—as evidenced previously—the proposed program's amortized GHG emissions of 151 MT CO_2e would be substantially lower than the SCAQMD significance threshold of 3,000 MT CO_2e. Therefore, the proposed program would not conflict with the state's trajectory toward future GHG reductions and the proposed program's impacts on GHG emissions in the 2030 and 2050 horizon years would be less than significant.

Based on the preceding considerations, the proposed program would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, the proposed program would result in a less than significant impact.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.6.5.4 Impacts Summary

Table 4.6-19 presents a summary of the potential GHG emissions impacts associated with implementation of the proposed program.

Table 4.6-19. Greenhouse Gas Emissions Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact GHG-1: Would the program generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			
All Proposed CIP Projects and O&M Activities	Less than significant	—	Less than significant
Impact GHG-2: Would the program conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			
All Proposed CIP Projects and O&M Activities	Less than significant	—	Less than significant

4.6.6 Impacts Found Not to Be Significant

No topics were eliminated in the Initial Study (Appendix C to this PEIR); therefore, all impacts were analyzed in this PEIR.

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4.7 Hazards and Hazardous Materials

This section describes the existing hazards and hazardous materials setting for the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), identifies the associated regulatory framework, evaluates potential impacts of the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed program. The following hazards and hazardous materials topics are examined in this section:

- Would the program 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 result, would it create a significant hazard to the public or the environment?
- Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The current descriptions of hazardous materials used in federal and state legislation are as follows:

a. As defined in the Resource Conservation and Recovery Act (RCRA), a hazardous material is one that is ignitable, reactive, corrosive, toxic, or any combination of these properties.

b. As defined in the California Health and Safety Code, Chapter 6.5, a hazardous material is a substance or combination of substances that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

    - Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness and/or
    - Pose a substantial present or potential hazard to humans or the environment.

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), potential impacts associated with routine transport, use, or disposal of hazardous materials; accidental release of hazardous materials; emissions or handling of acutely hazardous materials within the vicinity of existing or proposed schools; and safety issues related to airports and aviation were less than significant. Therefore, these topics are not further analyzed in this PEIR.

4.7.1 Existing Conditions

Sources/Locations of Hazardous Materials

Urban and agricultural land uses crossed by The Metropolitan Water District of Southern California (Metropolitan) right-of-way (ROW) within the Western San Bernardino County Operating Region are varied, and all, to various degrees, involve activities that require use, transport, and/or storage of hazardous materials. Undeveloped areas, with the exception of those areas that were formerly part of military bases, have a lower likelihood of having contaminant releases to soil and groundwater. All of Metropolitan's pipelines in western San Bernardino County extend through open space areas, however they are primarily situated in highly urban areas within public streets and ROWs, which in places are flanked by industrial and service-commercial land uses. These industrial and service-commercial land uses have the greatest potential to have current or legacy contamination issues.

Methodology

A review of hazardous material sites was conducted to identify (1) sites listed in Section 65962.5 of the California Government Code, also known as the "Cortese List," and (2) sites that are not on the Cortese List (non-Cortese List sites), but which may have environmental contamination that may impact the proposed program footprint. All Cortese List sites are identified in this section. Non-Cortese List sites with the potential to impact the proposed program footprint are also identified in this section. Additional information is provided in Appendix G-1, as discussed below. Potential impacts associated with these sites is further discussed in Section 4.7.5, Impact Analysis.

Cortese List Sites

The following hazardous materials site lists (compiled pursuant to the Cortese List) were reviewed for sites located within 1 mile of the proposed program footprint:

- Hazardous waste and substance sites from the California Department of Toxic Substance Control (DTSC) EnviroStor database
- List of open and active leaking underground storage tank sites from the State Water Resources Control Board (SWRCB) GeoTracker database (search radius is only 0.5 miles, as impacts reported in this database [e.g. leaking underground storage tanks] generally do not extend beyond 0.5 miles)
- List of solid waste disposal sites identified by SWRCB with waste constituents higher than hazardous waste levels outside the waste management unit
- List of active cease and desist orders and cleanup and abatement orders from SWRCB
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, as identified by DTSC

The database search was conducted in February 2020. Sites may be added to these databases, or the status of sites may be updated, between the date of this PEIR and when the proposed program is completed. There were no records for SWRCB solid waste disposal sites, active cease and desist orders, or cleanup and abatement orders within 0.5 miles of the proposed program site. No sites subject to Section 25187.5 of the California Health and Safety Code are within the proposed program area. Four sites were identified on Cortese List databases within 1 mile of the proposed program footprint. The four Cortese List sites identified are listed below, and their location relative to the proposed program footprint is provided. The site details are summarized in Appendix G-1 of this PEIR, and each site is shown on Figure 4.7-1. Impacts from these sites to the proposed program footprint are discussed in Section 4.7.5.

- **Newmark Groundwater Contamination (Appendix G-1, Grid 7)**. This Superfund site (see Section 4.7.2, Regulatory Framework) comprises an 8-square-mile area of groundwater contamination located in San Bernardino, north of Muscoy. Based on the most recent 5-year review report (ACOE 2018), the contaminant plume extends across the proposed program footprint, near Cajon Boulevard (Historic Route 66) and the Mojave Freeway (I-215).
- **Rialto Perchlorate Release (Appendix G-1, Grid 3)**: This is a Superfund site with extensive groundwater contamination that extends southeast of the original 160-acre site. The proposed program footprint is adjacent to, but does not cross, the northern edge of the site along West Casa Grande Drive, and likely does not cross the existing groundwater plume.
- **Stringfellow Acid Quarry Pits (Figure 4.7-1):** The Stringfellow Acid Quarry Pits are a former industrial liquid waste disposal facility, located approximately 0.50 miles south of, and topographically and hydraulically downgradient of, the proposed program footprint.
- **Mid-Valley Landfill (Appendix G-1, Grid 3):** This site consists of two sanitary landfills under a current cleanup and abatement order. The landfills are located approximately 0.50 miles south of the proposed program footprint. Groundwater monitoring indicates contamination does not extend northward toward the proposed program footprint (see Appendix G-1).

Non-Cortese List Sites

A spatial query was performed in February 2020 on the EnviroStor and GeoTracker databases to identify all cleanup site locations in the databases within 0.25 miles of the proposed program footprint. This search distance encompasses the approximate 1/8-mile buffer along the proposed program footprint where work and staging areas may occur. EnviroStor and GeoTracker are state databases that track the status and compliance activities of sites undergoing cleanup or remediation under the jurisdiction of DTSC and SWRCB, respectively. The list of sites identified within 0.25 miles of the proposed program area is provided in Appendix G-1 to this PEIR in both table and mapbook format. The table and figures (Grids 1 through 9) in Appendix G-1 includes sites where cases have obtained closure or that were determined to require no further action, as well as sites that are currently open and undergoing site assessment or remediation. Results of this query are based on

the regulatory status as of February 2020. Sites may be added to these databases, or the status of sites may be updated between the date of this PEIR and when the proposed program is completed.

Review of the database search results indicates that, based on the environmental conditions (e.g. depth to groundwater, groundwater flow direction), documented extent of contamination, and distance from the proposed program footprint, the only non-Cortese List sites with potential relevance to the proposed program footprint include the following:

- **Highland Fifth-Orange Partners, LLC (Appendix G-1, Grid 8)**: The Highland Fifth-Orange Partners site (Highland Site) consists of 22 acres of undeveloped land in a rectangular shape. The Inland Feeder portion of the proposed program footprint crosses through this site. The Highland Site was once part of the Inland Fish and Game Conservation Association skeet and rifle range that operated from the mid-1940s until 2009 (The Reynolds Group 2013). Site soil contains elevated levels of lead (DTSC 2020). Antimony, arsenic, and nickel were also detected in the soil, but at low concentrations that did not exceed applicable screening levels (The Reynolds Group 2013). The site owner, Highland Fifth-Orange Partners LLC, plans to construct single-family residential homes on this site, with a community trail on Metropolitan's Inland Feeder easement. The most recent correspondence on the EnviroStor database (DTSC 2020) states that the lead response plan submitted by the site owner is on hold awaiting a biological assessment of the San Bernardino kangaroo rat, and no additional information has been received. Based on a site assessment conducted in 2013 (The Reynolds Group 2013), the lead shot fall area encompasses a large portion of the Metropolitan Inland Feeder easement. Lead was detected within the Metropolitan easement at concentrations ranging from 2 to 33 milligrams per kilogram (mg/kg) in samples where no lead shot pellets were found, and from 6 to 2,764 mg/kg where lead shot pellets were found (The Reynolds Group 2013). A copy of three figures from the 2013 Reynolds Group report have been included as Appendix G-2, which illustrate the sampling locations, results, and lead-impacted areas.
- **DP Etiwanda (Appendix G-1, Grid 5)**: This site is located adjacent to the proposed program footprint, west of the Etiwanda Feeder and north of the Upper Feeder. Redevelopment plans for this site were submitted to DTSC. In response, DTSC requested additional investigation of soil and soil vapor conditions, as the property has a history of agricultural and industrial use. Preliminary data provided in a work plan (Ramboll 2018) revealed elevated concentrations of metals, petroleum hydrocarbons, and polychlorinated biphenyls (PCBs) in soils. Full characterization at the site has not yet been completed; therefore, the full nature and extent of the contamination is unknown.

Fire Hazard Severity Zones

CAL FIRE uses Fire Hazard Severity Zones to classify anticipated fire-related hazard for the entire state. Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement. The Very High

Fire Hazard Severity designation can be attributed to a variety of factors, including highly flammable, dense, drought-adapted chaparral vegetation; seasonal strong winds; and a Mediterranean climate that results in vegetation drying during the months most likely to experience high winds. Based on Fire Hazard Severity Zone mapping data (CAL FIRE 2006, 2007), the proposed program is partially located within the Very High Fire Hazard Severity Zone, with smaller parts of the proposed program area located in the High Fire Hazard Severity Zone or Moderate Fire Hazard Severity Zone (Figure 4.7-1, Site Hazards). Portions of the Rialto Pipeline, Inland Feeder, and Upper Feeder, where they are near upland or open space areas, are located within a Fire Hazard Severity Zone. Proposed CIP projects within Moderate, High, or Very High fire hazard severity zones are listed in Table 4.7-1 and shown on Figure 4.7-1. O&M activities can take place anywhere within the proposed program footprint. Therefore, O&M activities could occur within any of the identified fire hazard severity zones shown on Figure 4.7-1.

Table 4.7-1. CIP Work Areas within a Fire Hazard Severity Zone

Pipeline	Station
Rialto Pipeline	Stations 3571+01
Inland Feeder	Stations 19+55, 266+15, 290+15, 573+94, 592+31

Sources: CAL FIRE 2006, 2007.

4.7.2 Regulatory Framework

Federal

Resource Conservation and Recovery Act of 1976, as Amended by the Hazardous and Solid Waste Amendments of 1984

Federal hazardous waste laws are generally promulgated under RCRA. RCRA establishes a framework for national programs to achieve environmentally sound management of hazardous and non-hazardous wastes. RCRA was designed to protect human health and the environment, reduce/eliminate generation of hazardous waste, and conserve energy and natural resources. The Hazardous and Solid Waste Amendments of 1984 both expanded the scope of RCRA and increased the level of detail in many of its provisions. The hazardous waste management subchapter of RCRA deals with a variety of issues regarding the management of hazardous materials, including the export of hazardous waste, state programs, inspections of hazardous waste disposal facilities, enforcement, and identification and listing of hazardous waste.

Comprehensive Environmental Response, Compensation, and Liability Act and Superfund Amendments and Reauthorization Act of 1986

Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly known as "Superfund") on December 11, 1980. CERCLA established

prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA on October 17, 1986. SARA stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites, required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations, provided new enforcement authorities and settlement tools, increased state involvement in every phase of the Superfund program, increased the focus on human health problems posed by hazardous waste sites, encouraged greater citizen participation in making decisions on how sites should be cleaned up, and increased the size of the trust fund to $8.5 billion.

State

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and to notify workers of exposure (8 CCR 330 et seq.). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

California Government Code, Section 65962.5(a) (Cortese List)

Section 65962.5 of the California Government Code requires the California Environmental Protection Agency (CalEPA) to develop, at least annually, an updated list of hazardous materials release sites requiring cleanup. The provisions in Section 65962.5 are commonly referred to as the "Cortese List" (after the legislator who authored the legislation enacting it). The Hazardous Waste and Substance Sites Cortese List, or a site's presence on the list, has bearing on the local permitting process and on compliance with the California Environmental Quality Act (CEQA). The majority of sites on the Cortese List are now found on databases managed by DTSC (EnviroStor), SWRCB (GeoTracker), and CalEPA (various).

California Emergency Services Act

Under the Emergency Services Act (California Government Code, Section 8550 et seq.), California developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government, and private agencies. The Emergency Response Plan is administered by the California Emergency Management Agency and includes response to hazardous materials incidents. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services. The Office of

Emergency Services coordinates the response of other agencies, including CalEPA, California Highway Patrol, California Department of Fish and Wildlife, Regional Water Quality Control Boards, air quality management districts, and local/regional fire authorities.

Local

Regional Fire Authorities

Regional fire authorities with responsibilities in the proposed program area are described in Section 4.11, Public Services. The San Bernardino County Fire Department, which is a regional fire service agency that serves 24 cities and towns in San Bernardino County and all unincorporated areas, is the primary regional fire authority within the proposed program area. Jurisdictions in San Bernardino County that are not served by the San Bernardino County Fire Department and operate under individual city fire departments include the following: the cities of Chino Hills, Upland, Ontario, Rancho Cucamonga, Rialto, San Bernardino, and Redlands. Furthermore, fire protection within certain unincorporated open space areas within San Bernardino County is also provided by CAL FIRE.

Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program.

County Environmental Health Divisions

County environmental health divisions (under various names) are typically designated as the Certified Unified Program Agencies, which are the local administrative agencies that coordinate the regulation of hazardous materials and hazardous wastes, typically through the following program areas:

- Hazardous Materials Release Response Plans and Inventory
- California Accidental Release Prevention
- Business Emergency Plan
- Underground Storage Tanks
- Aboveground Petroleum Storage Act/Spill Prevention, Control, and Countermeasure Plan
- Hazardous Waste Generation and On-Site Treatment
- Hazardous Materials Management Plans and Inventory Statements under Uniform Fire Code Article 80

In most San Bernardino County cities, the San Bernardino County Fire Department Hazardous Materials Division administers the programs listed above.

These agencies would have a role in the event that potentially hazardous materials are unexpectedly encountered in the course of proposed program activities, as discussed in Section 4.7.5, under Impact HAZ-1.

San Bernardino County Emergency Operations Plan

The emergency response/operations plan that covers the proposed program area is the San Bernardino County Emergency Operations Plan (County of San Bernardino 2018). In addition, the Critical Incident Planning & Training Alliance's 2011 *Los Angeles Operational Area Mass Evacuation Process Guide* provides resources for jurisdictional planning efforts, and presents an all-hazards approach for conducting mass evacuations in Los Angeles and the surrounding areas, including San Bernardino County. These plans outline strategies, procedures, policies, and organizational structures that are put in place during regional emergencies; describe multi-jurisdictional coordination procedures, levels of alertness/response, and shelter/convergence points; and lay out how emergency services would be maintained.

The San Bernardino County Emergency Operations Plan does not pre-determine evacuation routes because many factors (e.g., type of incident, location, and weather conditions) play a critical role in the selection of evacuation routes; instead, the Emergency Operations Plan requires case-by-case determination of evacuation routes to be determined by local authorities and communicated via a number of channels to local residents during emergencies (County of San Bernardino 2018).

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to hazards and hazardous materials would occur if the proposed program would meet or exceed any of the following thresholds:

Impact HAZ-1: **Would the program 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 result, would it create a significant hazard to the public or the environment?**

Impact HAZ-2: **Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Impact HAZ-3: **Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

Impact HAZ-4: **Would the program create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Impact HAZ-5: Would the program 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?

Impact HAZ-6: Would the program emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Impact HAZ-7: For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the program result in a safety hazard for people residing or working in the program area?

Impact HAZ-8: For a program within the vicinity of a private airstrip, would the program result in a safety hazard for people residing or working in the program area?

Results of the analysis performed for the November 2014 Initial Study for the proposed program indicate that potential impacts would be less than significant for several hazards and hazardous materials topics. The following topics were determined to have no impact or less than significant impacts for hazards and hazardous materials, and are not further analyzed in this document:

Impact HAZ-4: Routine Transport, Use, or Disposal of Hazardous Materials

Impact HAZ-5: Release of Hazardous Materials into the Environment

Impact HAZ-6: Hazardous Emissions/Materials near Schools

Impact HAZ-7: Safety Hazard near a Public Airport

Impact HAZ-8: Safety Hazard near a Private Airstrip

4.7.4 Applicant Proposed Measures

Best management practices (BMPs), included in this PEIR as applicant proposed measures (APMs), are presented in full in this section (see also Chapter 3, Program Description). These APMs, which are standard practice for Metropolitan, will reduce impacts relating to hazards and hazardous materials. Their specific relevance to impact topics is detailed in Section 4.7.5 (see also Executive Summary, Table E-3).

APM-HAZ-1 Hazardous Materials Management. Hazardous materials storage shall be in compliance with the California Environmental Protection Agency's Department of Toxic Substances Control requirements. Metropolitan and/or its contractor shall be responsible for proper handling, packaging, transportation and disposal of all hazardous waste brought on site or generated on site through incidental use, including but not limited to aerosol spray cans and empty vehicle fluid and cleaning cans. Hazardous materials shall be stored in covered, leak-proof containers when not in use,

away from storm drains and heavy traffic areas, and shall be protected from rainfall infiltration and vandalism. Hazardous materials shall be stored separately from non-hazardous materials, on a surface that prevents spills from permeating the ground surface, and in an area secure from unauthorized entry at all times. Incompatible materials shall be stored separately from each other.

APM-HAZ-2 **Previously Unidentified Hazardous Materials.** Should hazardous materials previously not identified be discovered during construction and/or grading activities, Metropolitan and/or its contractor shall stop work in the area immediately and notify the health and safety representative, who will assess the situation and take appropriate actions, including but not limited to clearing the work area, posting signs and securing the area from unauthorized entry, and notifying the appropriate local authorities. Metropolitan and contractor personnel shall ensure that on-site workers are trained to identify and recognize potentially hazardous materials (e.g., unmarked containers, stained soils, suspicious odors, refuse from illegal dumping).

APM-HAZ-3 **Health and Safety Procedures for Lead-Contaminated Soil.** Metropolitan has standard procedures to manage potential hazards related to lead-contaminated soil: Exposure Assessments and Patrol Road Maintenance Guidelines. These standard procedures have been established by the Metropolitan Safety Regulatory Services (SRS) as follows:

- **Exposure Assessments.** In the event work activities may expose C&D and/or construction service unit (CSU) employees to lead (or other heavy metals), an exposure assessment will be conducted in the potentially contaminated area. The employees will wear an air pump with sampling cassette throughout the work day. The sampling cassette will be taken to a lab to determine the amount of airborne lead (or other metal) exposure. Based on the lab results, Metropolitan SRS will implement personal protective measures for employees required to work in the exposure area.
- **Patrol Road Maintenance Guidelines.** Special safety precautions procedures are required for maintenance work on the Inland Feeder at the approximate location of the Highland Site. These procedures include driving with windows up, driving at slow speeds to reduce airborne dust, not causing airborne dirt while working, rinsing footwear prior to entering a vehicle, and using Lead-Off wet wipes to wipe down hands and other exposed skin areas before re-entering a vehicle.

APM-HAZ-4 **Fire Protection and Fire Safety.** Metropolitan or Metropolitan's contractor shall provide fire safety measures during construction activities in compliance with Chapter 14 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during construction shall be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors. Fire containment and extinguishing equipment shall be located on site and shall be accessible during construction activities. Construction workers shall be trained in use of the fire suppression equipment and shall not be

permitted to idle vehicles on the job site when not in use. Where hot work is necessary, it shall be performed in compliance with the California Fire Code's Chapter 35, "Welding and other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention During Welding, Cutting and other Hot Work."

Due to the potential for lead contamination associated with the Highland Fifth-Orange Partners LLC site and the former shooting range site that is adjoining to the south, fugitive dust control would be required to reduce potential exposure to workers:

APM-AQ-2 **Fugitive Dust Control** (see Section 4.2, Air Quality).

The following measure will reduce impacts to hazards and hazardous materials related to emergency response:

APM-TR-1 **Traffic Control Plan** (see Section 4.12, Traffic and Circulation).

4.7.5 Impact Analysis

Due to the relatively small work area size, temporary and short-term duration of construction activities, and limited scope of the proposed maintenance activities, implementation of the proposed program is generally not expected to result in substantial or sustained effects relating to public exposure to hazards or hazardous materials. The proposed program does not involve construction of habitable structures; does not facilitate new public access to hazardous areas; does not require the transport, storage, or treatment of large quantities of hazardous materials; and does not generate large quantities of hazardous waste. For these reasons, the scope of the analysis is limited to (1) the potential for workers to be exposed to contaminated or hazardous media associated with an existing cleanup site or previously unidentified hazardous materials site, (2) the potential for proposed program-related temporary road closures to result in impaired or inadequate emergency response, and (3) the potential for proposed program activities to create a fire hazard.

4.7.5.1 CIP Projects

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact HAZ-1: Location on a Hazardous Materials Site

There are no patrol road improvements and paving projects located on a site that is included on a list of hazardous materials. Hazardous material sites are either located far enough away from the ROW to not have an impact on the proposed program or have received regulatory closure. While there are no program-specific impacts that directly require APM-HAZ-1, APM-HAZ-2, or APM-HAZ-3 to be implemented, these measures are standard practice for Metropolitan, and they would be applied generally, as needed, throughout the proposed program. The potential impacts with respect to these issues would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-2: Impairment of an Emergency Response Plan

Review of emergency response plans revealed no specific mapping or delineation of emergency evacuation or access routes; only that interstates, highways, and prime arterials could all be used in an emergency to access emergency services and facilitate evacuation of affected areas (Critical Incident Planning & Training Alliance 2011). Proposed patrol road improvements and paving projects would be constructed on Metropolitan's patrol roads and ROWs and would not impact interstates, highways, or prime arterials; therefore, conflicts with emergency response plans would not occur.

It is not anticipated that proposed patrol road improvements and paving projects would require full or partial lane closures on public road ROWs. However, should design plans require this, then prior notification and coordination with emergency services providers and other road users (e.g., residents, agencies) regarding construction, road closures, and detours, as specified in APM-TR-1 (from Section 4.12; see Section 4.7.4), would minimize temporary impacts during construction. Metropolitan would coordinate with local jurisdictions and, as necessary, prepare a Traffic Control Plan as specified in APM-TR-1 to avoid or minimize impacts to local roadways and emergency response situations.

Although there may be short-term temporary construction impacts, implementation of the proposed program would provide better and more reliable long-term access for emergency vehicles and other users locally. With implementation of APM-TR-1 as part of Metropolitan's standard practice, patrol road improvements and paving projects implemented under the proposed program would not result in inadequate emergency access and impacts would be considered less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-3: Exposure to Risk of Wildland Fires

The following patrol road improvements and paving projects are located within an area of very high fire hazard and where wildlands are adjacent to urbanized areas: Rialto Pipeline Station 3571+01, Inland Feeder Station 19+55, Inland Feeder Station 266+15, Inland Feeder Station 290+15, and Inland Feeder Station 592+31.

Short-term construction activities associated with proposed patrol road improvements and paving projects could introduce potential sources of ignition. For example, heavy equipment and worker vehicles, through heated exhausts or sparks in contact with dry vegetation, may result in ignition. The potential for patrol road paving projects to ignite a wildfire is considered low; however, the threat of starting a wildfire may be elevated during dry and windy days, and in locations with abundant fuel sources (e.g., dry grasses, shrubs, and brush).

APM-HAZ-4 (see Section 4.7.4) would be implemented to aid in reducing the potential for a fire incident and to give work crews the tools needed to respond to a small fire. Therefore, the effect of proposed patrol road improvements and paving projects on exposure of people and structures to wildfire would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact HAZ-1: Location on a Hazardous Materials Site

There are no engineered erosion control projects located on a site that is included on a list of hazardous materials. Hazardous material sites are either located far enough away from the ROW to not have an impact on the proposed program or the sites have received regulatory closure. While there are no program-specific impacts that directly require APM-HAZ-1, APM-HAZ-2, or APM-HAZ-3 to be implemented, these measures are standard practice for Metropolitan, and they would be applied generally, as needed, throughout the proposed program. The potential impacts with respect to these issues would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-2: Impairment of an Emergency Response Plan

Proposed engineered erosion control projects would primarily be constructed within Metropolitan's ROW, and would not impact interstates, highways, or prime arterials; therefore, impacts to emergency response plans would not occur. It is not anticipated that proposed engineering erosion control projects would require full or partial lane closures on public road ROWs. However, should design plans require this, then prior notification and coordination with emergency services providers and other

road users (e.g., residents, agencies) regarding construction, road closures, and detours, as specified in APM-TR-1 (see Section 4.7.4) would minimize temporary impacts during construction. Metropolitan would coordinate with local jurisdictions and, as necessary, prepare a Traffic Control Plan as specified in APM-TR-1, to avoid or minimize impacts to local roadways and emergency response situations.

With implementation of APM-TR-1 as part of Metropolitan's standard practice, engineered erosion control projects implemented under the proposed program would not result in inadequate emergency access and the impacts would be considered less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-3: Exposure to Risk of Wildland Fires

Engineered erosion control projects located on portions of the Rialto Pipeline, Inland Feeder, and Upper Feeder are located within a fire hazard severity zone (see Table 4.7-1 and Figure 4.7-1). For the same reasons described under Patrol Road Improvements and Paving (CIP Activity Code No. 1), the effect of proposed engineered erosion control projects on exposure of people and structures to wildfire would be less than significant with implementation of APM-HAZ-4 as part of Metropolitan's standard practice.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact HAZ-1: Location on a Hazardous Materials Site

There are no slope stabilization projects located on a site that is included on a list of hazardous materials. Hazardous material sites are either located far enough away from the ROW to not have an impact on the proposed program or the listed sites are closed. While there are no program-specific impacts that directly require APM-HAZ-1, APM-HAZ-2, or APM-HAZ-3 to be implemented, these measures are standard practice for Metropolitan, and they would be applied generally, as needed, throughout the proposed program. The potential impacts with respect to these issues would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-2: Impairment of an Emergency Response Plan

The impact analysis for slope stabilization projects would be the same as that for patrol road improvements and paving (CIP Activity Code No.1). It is not anticipated that proposed slope stabilization projects would require full or partial lane closures on public road ROWs. However, should design plans require this, then prior notification and coordination with emergency services providers and other road users (e.g., residents, agencies) regarding construction, road closures, and detours, as specified in APM-TR-1 (see Section 4.7.4) would minimize temporary impacts during construction. With implementation of APM-TR-1 as part of Metropolitan's standard practice, slope stabilization projects implemented under the proposed program would not result in inadequate emergency access and the impacts would be considered less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-3: Exposure to Risk of Wildland Fires

Portions of the Rialto Pipeline, Inland Feeder, and Upper Feeder, generally where they are near upland or open space areas, are located within a fire hazard severity zone (see Table 4.7-1 and Figure 4.7-1). For the reasons described under Patrol Road Improvements and Paving (CIP Activity Code No. 1), including incorporation of APM-HAZ-4 into the proposed program as part of Metropolitan's standard practice, the effect of proposed slope stabilization projects relating to exposure of people and structures to wildfire would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.7.5.2 O&M Activities

Routine O&M Activities

Impact HAZ-1: Location on a Hazardous Materials Site

Routine O&M activities may occur anywhere within the programmatic footprint of the proposed program. Proposed O&M activities are primarily related to maintenance of patrol roads and aboveground pipeline structures. There are no proposed O&M activities that would encounter groundwater during implementation. Also, groundwater resources would not be relied on for water supply, dust suppression, or any other need. Because O&M activities are not expected to encounter groundwater, no impacts from Cortese List sites with documented groundwater contamination would occur.

Routine O&M activities could occur within the segments of the Inland Feeder Pipeline that extend through the lead shot fallout zone of the Highland Site, approximately Inland Feeder Station 740+00 to Inland Feeder Station 765+00. The Highland Site is not a Cortese List site; however, O&M road grading activities associated with this segment of the Inland Feeder, although relatively brief in duration, could expose workers to an unacceptable risk of lead exposure. As discussed in Section 4.7.1, Existing Conditions, lead levels in the lead shot fallout zone were reported between 6 and 2,764 mg/kg (The Reynolds Group 2013, included in this PEIR as Appendix G-2), which are above human health screening levels for construction workers. These areas are shown on the figures from the Reynolds Group 2013 report (Appendix G-2). By implementing APM-AQ-2 and APM-HAZ-3, the potential for airborne lead particles would be reduced, as well as workers' exposure to lead, thereby reducing potential impacts related to lead-contaminated soil in this particular area. No earthwork, including any soil excavation by hand or equipment, is anticipated in this area as part of O&M activities. With implementation of APM-AQ-2 and APM-HAZ-3, a significant hazard to the public or environment would not be anticipated for routine O&M activities within the lead-impacted area, and impacts would therefore be less than significant.

Routine O&M activities are not expected to occur at the segments of the Etiwanda Pipeline that are adjacent to the DP Etiwanda site, approximately Etiwanda Pipeline Station 333+00 to Station 338+00. Therefore, no impacts due to the DP Etiwanda site would occur.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-2: Impairment of an Emergency Response Plan

Routine O&M activities would typically occur entirely within Metropolitan's ROW, and would not impact interstates, highways, or prime arterials; therefore, impacts to emergency response plans would not occur. Routine O&M activities do not normally require full or partial closure or encroachment upon public road ROWs; however, there could be instances where there may be a need to partially obstruct a public road or a Metropolitan patrol road, which could serve as an emergency access. APM-TR-1 (see Section 4.7.4) would minimize temporary impacts during construction. Metropolitan would coordinate with local jurisdictions and, as necessary, prepare a Traffic Control Plan as specified in APM-TR-1, to avoid or minimize impacts to local roadways and emergency response situations. Routine O&M activities would not result in impairment or interference with emergency response or evacuation and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-3: Exposure to Risk of Wildland Fires

Routine O&M activities could occur anywhere within the programmatic footprint of the proposed program, including portions of the Rialto Pipeline, Inland Feeder, and Upper Feeder that are located within a fire hazard severity zone. The analysis of effects from routine O&M activities is similar to that described in Section 4.7.5.1 under Patrol Road Improvements and Paving (CIP Activity Code No. 1). However, the potential effects of routine O&M activities with respect to wildfire ignition sources may be somewhat elevated in comparison, because certain O&M activities could require hot work. Implementation of APM-HAZ-4 as part of Metropolitan's standard procedure requires that where hot work is necessary, it shall be performed in compliance with the California Fire Code's Chapter 35, "Welding and Other Hot Work," and the National Fire Protection Association's 51-B, "Fire Prevention during Welding, Cutting and Other Hot Work." APM-HAZ-4 would be effective at reducing the potential for O&M activities to expose people and structures to wildfire to minimal levels. Impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Impact HAZ-1: Location on a Hazardous Materials Site

There are no single-occurrence O&M activities within or adjacent to hazardous materials sites; sites are either located far enough away from the ROW to not have an impact on the proposed program or the listed sites are closed. While there are no program-specific impacts that directly require APM-HAZ-1, APM-HAZ-2, or APM-HAZ-3 to be implemented, these measures are standard practice for Metropolitan, and they would be applied generally, as needed, throughout the proposed program. The potential impacts with respect to these issues would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-2: Impairment of an Emergency Response Plan

The analysis of impacts with respect to single-occurrence O&M activities is similar to that for patrol road improvements and paving (CIP Activity Code No. 1). Should single-occurrence O&M activities for any reason require encroachment onto a public roadway, Metropolitan would coordinate with local jurisdictions and implement a Traffic Control Plan as necessary, per APM-TR-1 (Section 4.7.4), as part of standard procedure. With implementation of APM-TR-1 as part of Metropolitan's standard practice, single-occurrence O&M activities would not result in impairment of or interference with emergency response or evacuation and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HAZ-3: Exposure to Risk of Wildland Fires

Single-occurrence O&M activities may occur in areas that are designated as Moderate, Very High, and High fire hazard areas. The analysis of effects is the same as described in Section 4.7.5.1 under Patrol Road Improvements and Paving (CIP Activity Code No. 1). With implementation of APM-HAZ-4 as part of Metropolitan's standard practice, the effect of single-occurrence O&M activities related to exposure of people and structures to wildfire would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.7.5.3 Impacts Summary

Table 4.7-2 summarizes the impacts for hazards and hazardous materials for proposed CIP projects and O&M activities under each threshold analyzed in this PEIR.

Table 4.7-2. Hazards and Hazardous Materials Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact HAZ-1: Would the program be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-HAZ-1 APM-HAZ-2 APM-HAZ-3	Less than significant
Engineered Erosion Control	Less than significant	APM-HAZ-1 APM-HAZ-2 APM-HAZ-3	Less than significant
Slope Stabilization	Less than significant	APM-HAZ-1 APM-HAZ-2 APM-HAZ-3	Less than significant
O&M Activities			
Routine	Less than significant	APM-HAZ-3 APM-AQ-2	Less than significant
Single-Occurrence	Less than significant	APM-HAZ-1 APM-HAZ-2 APM-HAZ-3	Less than significant
Impact HAZ-2: Would the program impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-TR-1	Less than significant
Engineered Erosion Control	Less than significant	APM-TR-1	Less than significant
Slope Stabilization	Less than significant	APM-TR-1	Less than significant
O&M Activities			
Routine	Less than significant	APM-TR-1	Less than significant
Single-Occurrence	Less than significant	APM-TR-1	Less than significant
Impact HAZ-3: Would the program expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-HAZ-4	Less than significant

Table 4.7-2. Hazards and Hazardous Materials Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Engineered Erosion Control	Less than significant	APM-HAZ-4	Less than significant
Slope Stabilization	Less than significant	APM-HAZ-4	Less than significant
O&M Activities			
Routine	Less than significant	APM-HAZ-4	Less than significant
Single-Occurrence	Less than significant	APM-HAZ-4	Less than significant

4.7.6 Impacts Found Not to Be Significant

Impact HAZ-4: Routine Transport, Use, or Disposal of Hazardous Materials

Small quantities of hazardous materials (i.e., able to be transported on a utility truck), such as solvents, lubricants, enamels, paint, fuel, pesticides, and herbicides, would be used during routine O&M activities, such as facility and equipment maintenance, cleaning, graffiti removal, coating, and vegetation maintenance, as well as in the construction of proposed CIP projects and single-occurrence O&M activities. These substances are currently used in the process of routine maintenance and repair activities conducted by Metropolitan along its conveyance and distribution system pipelines in accordance with all applicable federal, state, and local laws. All coatings, paint colors, and brands are approved by Metropolitan; pesticides and/or herbicide products are applied according to their material safety data sheets and product labels; and all applicable OSHA (federal and state) regulations are adhered to. Metropolitan would not be transporting, using, or disposing of hazardous materials in large quantities during implementation of the proposed CIP projects and O&M activities. No new facilities would be constructed that would require storage of hazardous materials on site. Pesticide and herbicide applications and other hazardous materials would be used only where needed and primarily in areas not frequented by the public (i.e., within Metropolitan's ROW). Additionally, Metropolitan implements APM-HAZ-1 and APM-HAZ-2 as standard BMPs, further reducing potential impacts from routine transport, use, or disposal of hazardous materials.

The use, transport, and disposal of hazardous materials associated with the proposed program would, therefore, result in a less than significant impact. Note that the potential effects of hazardous materials on water quality (as opposed to public or environmental hazards) are discussed in Section 4.8, Hydrology and Water Quality.

Impact HAZ-5: Release of Hazardous Materials into the Environment

The proposed CIP projects and O&M activities would involve the use and transport of small quantities (i.e., quantities small enough to be transported on a utility truck) of hazardous materials such as

solvents, lubricants, enamels, paint, fuel, pesticides, and herbicides, but would do so in accordance with applicable federal, state, and local laws. Hazardous materials would be used only where needed, and primarily in areas not frequented by the public (i.e., within Metropolitan's ROW). None of the proposed activities would involve permanent use or storage of hazardous materials. Additionally, Metropolitan implements APM-HAZ-1 and APM-HAZ-2 as standard BMPs, further reducing potential impacts from a potential release of hazardous materials. It is unlikely that these small quantities of hazardous materials associated with the proposed program would create a significant hazard to the public or environment through a release of hazardous materials; impacts would be considered less than significant.

Impact HAZ-6: Hazardous Emissions/Materials near Schools

No extremely hazardous materials or acutely hazardous wastes are associated with the proposed program. The proposed program would involve the use, transport, and disposal of very small quantities of hazardous materials, such as solvents, lubricants, enamels, paint, fuel, pesticides, and herbicides. Use of hazardous materials would be limited to Metropolitan's ROW. All hazardous materials would be transported and used in accordance with applicable federal, state, and local laws. The proposed program would not generate hazardous emissions that would affect an existing or proposed school; therefore, these impacts would be considered less than significant.

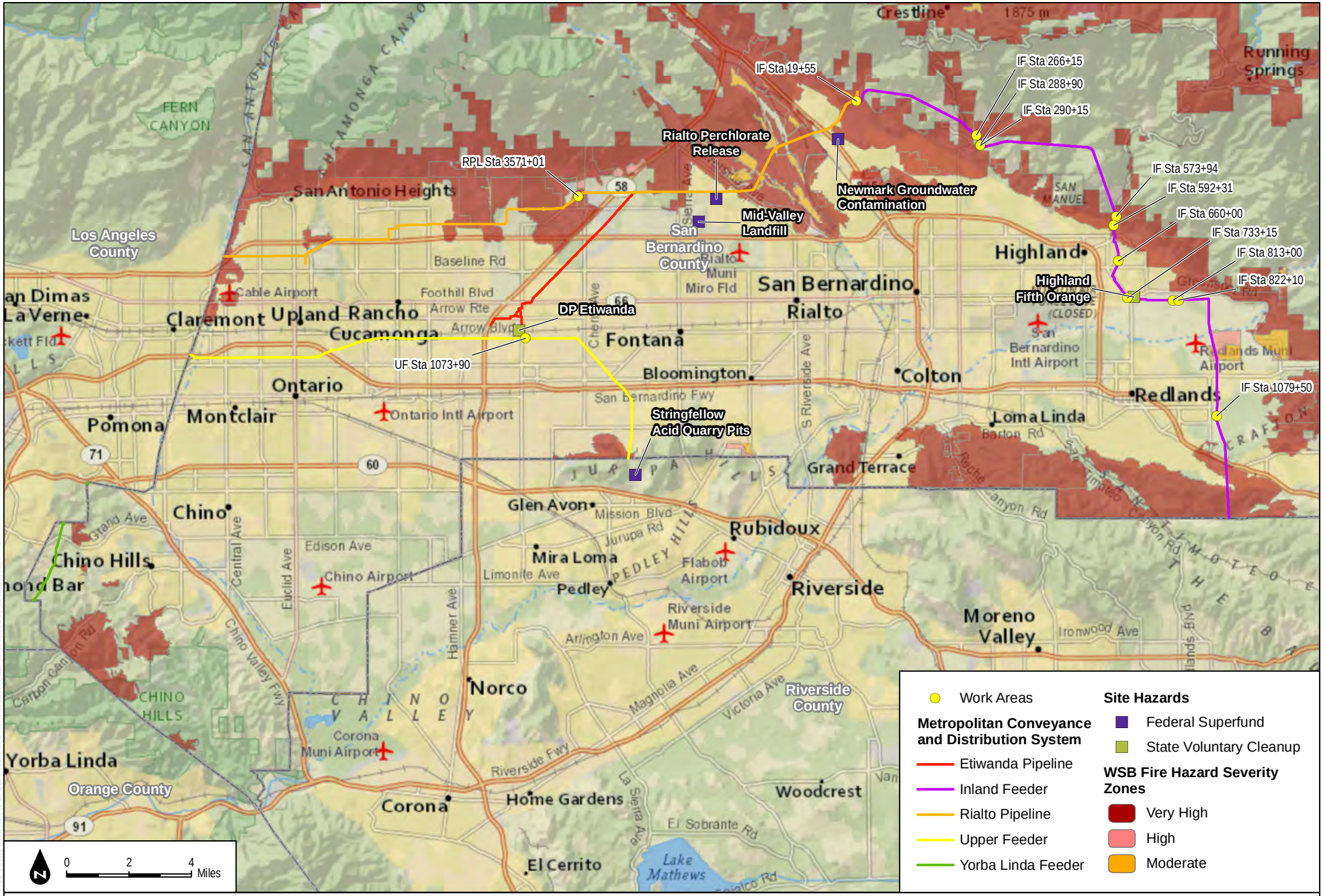
Impact HAZ-7: Safety Hazard near a Public Airport

Existing Metropolitan pipelines are located within 2 miles of Redlands Municipal Airport and San Bernardino International Airport, and the Upper Feeder is located within 2 miles of Ontario International Airport; therefore, proposed CIP projects and O&M activities would occur within this area. Program activities, however, would be unlikely to result in a safety hazard for those working or residing in the area. Proposed CIP projects and O&M activities would not result in construction of facilities or structures that could visually or physically obstruct flight paths or roads leading to Redlands Municipal Airport, San Bernardino International Airport, or Ontario International Airport, and maintenance activities are currently ongoing in this area. Federal Aviation Administration noticing criteria are not applicable to the proposed program because no new structures would be erected and all existing surface infrastructure is low profile or flush with the ground. Metropolitan employees would potentially be exposed to noise or dangers associated with nearby air traffic; however, work in these areas would be temporary and short term, reducing the likelihood that employees would be significantly impacted by these effects. These impacts would be less than significant.

Impact HAZ-8: Safety Hazard near a Private Airstrip

The Rialto Pipeline is located within 2 miles of Cable Airport, which is located in the city of Upland; therefore, proposed O&M activities would occur within this area. These activities include patrol road maintenance, graffiti removal and coating of structures, and vegetation maintenance around structures. However, proposed program activities would be unlikely to result in a safety hazard for

those working or residing in the area. Proposed CIP projects and O&M activities would not result in the construction of facilities or structures that could visually or physically obstruct flight paths or roads leading to Cable Airport, and maintenance activities already occur routinely without issue. Metropolitan employees are not likely to be exposed to noise or dangers associated with nearby air traffic because work in these areas would be temporary and short term, reducing the likelihood that employees would be significantly impacted by these dangers. No impacts would occur.



SOURCE: National Geographic 2020; County of San Bernardino 2011

FIGURE 4.7-1

Site Hazards

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4.8 Hydrology and Water Quality

This section describes the existing hydrology and water quality setting of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), identifies the associated regulatory framework, evaluates potential impacts associated with hydrology and water quality that would result from the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed program. The following hydrology and water quality topics are examined in this section:

- Would the program violate any water quality standards or waste discharge requirements?
- Would the program 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 which would result in substantial erosion or siltation on- or off-site?
- Would the program 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 which would result in flooding on- or off-site?
- Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- Would the program otherwise substantially degrade water quality?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), potential impacts associated with depletion of groundwater supplies; placement of housing in a flood hazard area; placement of structures impeding/redirecting flood flows in a flood hazard area; risk of loss/injury/death from flooding, including levee/dam failure; and risk of seiche, tsunami, or mudflow were less than significant. Therefore, these topics are not further analyzed in this PEIR.

The information in this section is largely based on the San Bernardino General Plan (County of San Bernardino 2007) and resources from the U.S. Geological Survey (USGS 2016), the State Water Resources Control Board (SWRCB 2016), and the Santa Ana Regional Water Quality Control Board (RWQCB) (Santa Ana RWQCB 2008).

4.8.1 Existing Conditions

4.8.1.1 Watersheds

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet, and includes the receiving waters. Watersheds are usually bordered and separated

from other watersheds by mountain ridges or other naturally elevated areas. The Metropolitan Water District of Southern California's (Metropolitan's) Western San Bernardino County Operating Region intersects six main watersheds (from west to east): Lower San Gabriel River, Chino Creek, Middle Santa Ana River, Lytle Creek, Upper Santa Ana River, and San Timoteo Wash (Figure 4.8-1). Aside from certain open space areas such as the foothills of the San Bernardino, San Gabriel, and Jurupa mountains, these watersheds are dominated by urban development and drained through a network of underground storm drains and engineered flood control channels.

The U.S. Geological Survey (USGS) Watershed Boundary Dataset (WBD) was used to identify the watersheds crossed by Metropolitan's conveyance and distribution system within the Western San Bernardino County Operating Region. The WBD delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code (HUC), which gets longer as the watershed boundaries get more detailed. For example, at a statewide scale, hydrologic units consist of large regions and sub-regions draining to a common outlet. At this scale, the proposed program area is within the 11,100-square-mile "Southern California Coastal" subregion (HUC 1807), which identifies areas that eventually drain to the Pacific Ocean versus those that drain to the interior deserts of California. Figure 4.8-1 shows hydrologic units at the highest level of detail possible for the area (the 10-digit and the 12-digit HUC levels, labeled as "Watershed boundaries" and "Subwatershed boundaries," respectively).

In managing water resources, other agencies such as the SWRCB and/or county governments may use different watershed names and boundaries from those used in the WBD. USGS data are used in this analysis because watershed boundaries in the WBD are determined solely using science-based hydrologic principles, not favoring any administrative boundaries or special project, program, or agency. In practice, there is typically a certain level of equivalency between the WBD and hydrologic basin boundaries drawn by other agencies, with differences arising from incorporation of administrative (e.g., county) boundaries, or decisions to combine or split USGS hydrologic units. Within Metropolitan's Western San Bernardino County Operating Region, other agencies that have also mapped and classified watersheds include the San Bernardino County Flood Control District and the Santa Ana RWQCB.

4.8.1.2 Watercourses

The USGS National Hydrography Dataset was used to identify the watercourses crossed by Metropolitan's conveyance and distribution system within the Western San Bernardino County Operating Region. Watercourses in the proposed program area range from the merest trickling stream to the Santa Ana River. Nearly all are intermittent, flowing mostly in the rainy winter months. Deep in the San Gabriel and San Bernardino mountains, a few streams and springs run year-round, but there is generally only a trickle in the Santa Ana River in its upper reaches during the summer.

Many watercourses in Metropolitan's Western San Bernardino County Operating Region have been altered, most notably the Santa Ana River and the portions of Etiwanda Creek, Cucamonga Creek, Lytle Creek, and Cajon Wash that pass through urban areas. Many watercourses have been straightened and fortified with sand levees or concrete channels for flood control purposes. Most of the larger watercourses have unlined stream bottoms to maintain the capacity for water absorption (groundwater recharge) or aesthetic values. In addition, in many locations where rivers and streams emerge from the mountains, percolation basins and debris basins have been constructed to recharge the underlying groundwater and prevent excessive debris flows from affecting the valley floor. Seven Oaks Reservoir (east of Highland) and the Prado Flood Control Basin (near Chino Hills) have been constructed on the Santa Ana River for flood control purposes (County of San Bernardino 2007).

Metropolitan's system of pipelines traverses both open space areas, which feature ephemeral creeks and drainages, and entirely urbanized areas, which are served by an extensive system of storm drains and engineered channels (USGS 2016). Urbanization has irreversibly altered the natural watershed processes and hydrologic regimes in the flatland portion of the Western San Bernardino County Operating Region, although some of the pipelines cross upland open space areas where the hydrology remains largely governed by natural processes. Upland and/or open space areas traversed by pipelines in Metropolitan's Western San Bernardino County Operating Region include Chino Hills (Yorba Linda Feeder Stations 560+44 to 704+21), the Jurupa Mountains (Upper Feeder Stations 687+00 to 736+54), Lytle Creek and Cajon Wash (Rialto Pipeline Stations 3843+00 to 4000+00), and the mouths of Waterman Canyon/Twin Canyon (Inland Feeder Stations 225+00 to 295+00) and Cable Creek/Devils Canyon (Inland Feeder Stations 0+00 to 42+00).

Table 4.8-1 describes the watersheds, creeks, and channels crossing each of the proposed program pipelines.

Table 4.8-1. Watersheds and Watercourses

USGS Watershed	Size (sq mi)	Metropolitan Pipelines	Creeks and Drainages That Cross the Proposed Program Footprint
Lower San Gabriel River	277	Yorba Linda Feeder	Unnamed creeks/ditches
Chino Creek	231	Upper Feeder, Rialto Pipeline	Deer Creek, Cucamonga Creek, San Antonio Creek Channel, unnamed creeks/ditches
Middle Santa Ana River	292	Upper Feeder, Rialto Pipeline, Etiwanda Pipeline	East Etiwanda Creek, Day Creek, unnamed creeks/ditches
Lytle Creek	162	Rialto Pipeline, Inland Feeder	Lytle Creek, Cajon Wash, Cable Creek, unnamed creeks/ditches

Table 4.8-1. Watersheds and Watercourses

USGS Watershed	Size (sq mi)	Metropolitan Pipelines	Creeks and Drainages That Cross the Proposed Program Footprint
Upper Santa Ana River	254	Inland Feeder	Santa Ana River, City Creek, Plunge Creek, Twin Creek, Highland Canal, Redlands Aqueduct, unnamed creeks/ditches
San Timoteo Wash	122	Inland Feeder	Unnamed creeks/ditches

Source: USGS 2016.
Note: USGS = U.S. Geological Survey; sq mi = square miles.

4.8.1.3 Water Quality

Surface Water

Water quality impairments as defined in Clean Water Act (CWA) Section 303(d) for waters crossed by or downstream of Metropolitan rights-of-way are identified in Table 4.8-2 (see Section 4.8.2 for more information about CWA Section 303[d]). Waters in the Western San Bernardino County Operating Region are impaired with a wide variety of point-source (e.g., industrial process water discharges, cleanup sites, sewer system overflows) and non-point-source (e.g., agricultural runoff, urban runoff/storm sewers, construction/land development) pollutants.

Table 4.8-2. Water Quality Limited Segments Crossed by or Downstream of Proposed Program Activities

Water Body	List of Water Quality Impairments
Cucamonga Creek	Cadmium, copper, lead, coliform bacteria
Santa Ana River, Reaches 3 and 4	Copper, lead, pathogens
Lytle Creek	Pathogens
San Antonio Creek	pH

Source: SWRCB 2016.

The main water quality concern with respect to the proposed program is sedimentation/siltation, because short-term construction and maintenance activities would have the potential to contribute sediment to receiving water bodies. The proposed program would not involve work within a "High Receiving Water Risk Watershed," as defined in the SWRCB Construction General Permit Guidance (SWRCB n.d.). High Receiving Water Risk Watersheds are watersheds that drain either directly or indirectly to water bodies that (1) are 303(d)-listed as being impaired for sediment/siltation; (2) have a U.S. Environmental Protection Agency (EPA)-approved sediment-related total maximum daily load; or (3) have the existing beneficial uses of fish spawning, fish migration, and cold-water habitat according to the most recent applicable RWQCB Water Quality Control Plan (Basin Plan).

According to the Santa Ana RWQCB, the main water quality issues in the basin relate to total dissolved solids, salinity, excess nutrients, and toxic pollutants. Over the past century, changes in land use from grazing to farmland have resulted in the discharge of nutrients into the region's creeks and bays. Nutrients are also discharged from landscaped areas of residential and commercial developments. The increased nutrient loading can result in algal growth. Runoff caused by changes in land use from grazing to farming, as well as runoff from residential, industrial, and military development, has resulted in the discharge of metals (cadmium, copper, lead, selenium, and zinc) and toxic organic compounds into the region's waterways. Further, land use activities that cause erosion have increased the delivery of toxic substances to the waterways. Finally, historic and ongoing agricultural activities and the import of large quantities of water with naturally high total dissolved solids have resulted in excess salt within the groundwater basin (Santa Ana RWQCB 2008).

4.8.2 Regulatory Framework

Federal and State

The statutes that govern proposed program activities that may affect water quality are the federal CWA (33 U.S.C. 1251 et seq.) and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act; California Water Code Section 13000 et seq.). These acts provide the basis for water quality regulation in the proposed program area.

The California legislature has assigned the primary responsibility for administering and enforcing statutes for the protection and enhancement of water quality to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of federal and state regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. Each RWQCB adopts and implements a Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, Sections 13240–13247). These plans and policies filter down to the local level because the Basin Plans and National Pollutant Discharge Elimination System (NPDES) permits require cities and counties to incorporate water quality protection measures into their ordinances and permitting processes.

The proposed program area is located within the jurisdiction of the Santa Ana RWQCB; therefore, the remaining discussion focuses on the Santa Ana RWQCB.

Beneficial Use and Water Quality Objectives (CWA Section 303)

The Santa Ana RWQCB is responsible for the protection of the beneficial uses of waters within the proposed program area and has adopted a Basin Plan to implement plans, policies, and provisions for water quality management (Santa Ana RWQCB 2008). The Basin Plan also includes water quality

objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively make up the water quality standards for the region. Table 4.8-3 presents selected water quality objectives from the Basin Plan that apply to receiving water bodies within the Western San Bernardino County Operating Region.

Table 4.8-3. Applicable Water Quality Objectives within the Santa Ana RWQCB Region

Pollutant	Objective Type	Applicability	Description
Turbidity (measure of light scattered due to particulates in water)	Narrative	All inland surface waters	All inland surface waters of the region shall be free of changes in turbidity that adversely affect beneficial uses.
	Numeric	Where the natural turbidity of the receiving water body is below 50 nephelometric turbidity units (NTU)	Controllable water quality factors shall not cause an increase in NTU of more than 20% over the ambient level.
	Numeric	Where the natural turbidity of the receiving water body is between 50 and 100 NTU	Controllable water quality factors shall not cause an increase of more than 10 NTU.
	Numeric	All inland surface waters	Controllable water quality factors shall not cause an increase in NTU of more than 10% over the ambient level.
Floating material (e.g., trash)	Narrative	All inland surface waters	Waste discharges shall not contain floating materials, including solids, liquids, foam, or scum, that cause a nuisance or adversely affect beneficial uses.
pH	Numeric	All inland surface waters	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 pH units as a result of controllable water quality factors.
Temperature	Narrative	All inland surface waters	The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the RWQCB that such alteration in temperature does not adversely affect beneficial uses.
	Numeric	Receiving water with a "cold-water habitat" beneficial use	Controllable water quality factors shall not cause an increase of more than 5°F over the ambient level.
	Numeric	Receiving water with a "warm-water habitat" beneficial use	Controllable water quality factors shall not raise the temperature above 78°F in November through May, and 90°F in June through October.
	Numeric	Lakes	Controllable water quality factors shall not cause an increase of more than 4°F over the ambient level.

Source: Santa Ana RWQCB 2008.
Note: RWQCB = Regional Water Quality Control Board.

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." Under Section 303(d) of the CWA, California is required to develop a list of

impaired water bodies that do not meet water quality standards and objectives and is required to establish total maximum daily loads for each pollutant/stressor. A total maximum daily load defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards.

Water Quality Certification (CWA Section 401)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a U.S. Army Corps of Engineers (ACOE) Section 404 permit) obtain certification from the state that the discharge would comply with other provisions of the CWA and with state water quality standards. Section 404 of the CWA requires a permit from ACOE prior to discharging dredged or fill material into waters of the United States, unless such a discharge is exempt from CWA Section 404. For the proposed program area, the Santa Ana RWQCB must provide the water quality certification required under Section 401 of the CWA. Water quality certification under Section 401 of the CWA, and the associated requirements and terms, is required to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit.

NPDES Program (CWA Section 402)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. In November 1990, EPA published final regulations that also establish stormwater permit application requirements for discharges of stormwater to waters of the United States from construction projects that encompass 5 acres or more of soil disturbance. Regulations that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres. The regulations also require that stormwater discharges from small municipal separate storm sewer systems (MS4s) be regulated by an NPDES permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the basic water quality control law for California. It is implemented by the SWRCB and the nine RWQCBs. The SWRCB establishes statewide policies for water quality control, and provides oversight of RWQCB operations. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup when discharges or threatened discharges of waste to waters of the state could cause pollution or nuisance, including impacts to public health and the environment. The Porter-Cologne Act and CWA overlap in many respects because the entities established by the Porter-Cologne Act are, in many cases, enforcing and implementing federal laws and policies.

Construction General Permit (SWRCB Order 2009-0009-DWQ (as amended))

For stormwater discharges associated with construction activity in California, the SWRCB adopted the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit, or CGP) to avoid and minimize water quality impacts attributable to such activities.

Metropolitan is required to comply with the CGP, which regulates stormwater runoff from construction sites that disturb 1 or more acres of soil (or projects that disturb less than 1 acre but are part of a large common plan of development that in total disturbs 1 or more acres). The CGP specifically exempts routine operations and maintenance (O&M) activities conducted by utility service providers as long as they maintain the original line and grade, hydraulic capacity, or original purpose of the facility. O&M activities would thus be exempt from requiring coverage under the CGP provided that such activities remain within Metropolitan's right-of-way; however, some Capital Investment Plan (CIP) projects with land disturbance in excess of 1 acre may require coverage under the CGP.

Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. The CGP requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which must list the best management practices (BMPs) the discharger will use to protect stormwater runoff and the placement of those BMPs. Routine inspection of all BMPs is required under the provisions of the CGP. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

MS4 Permit (Order No. R8-2010- 0036, as amended)

Under the authority of the CWA, the RWQCBs have adopted NPDES MS4 permits for the counties and incorporated cities in California. These MS4 permits require the counties and cities (co-permittees) to implement SWPPPs to reduce the discharge of pollutants in urban stormwater runoff to the maximum extent practicable. Order No. R8-2010-0036, adopted by the Santa Ana RWQCB, applies to stormwater and urban runoff conveyance systems owned and/or operated by the San Bernardino County Flood Control District (as "principal permittee") and 17 co-permittees, which includes the County and the 16 incorporated cities within the Santa Ana Region. Although Metropolitan is not directly regulated under MS4 permits, each permittee (i.e., flood control district, county, and city) adopts ordinances, permitting requirements, BMPs, and other measures to meet the water quality standards for the receiving waters that the MS4 systems flow into. Metropolitan is therefore required to comply with all applicable county and/or city stormwater ordinance requirements and obtain all required local jurisdiction permits prior to any discharges to the MS4 (e.g., flood control permits, encroachment permits). City and/or county ordinances may be different and should be reviewed to ensure that all compliance requirements are met prior to discharges occurring. Additionally, some

cities and counties also require that appropriate permits (from Public Works or the Flood Control District) be obtained prior to allowing any discharges to the MS4.

Waiver of Waste Discharge Requirements for Specific Types of Discharges (Resolution No. R8-2013-0015)

The RWQCB prescribes waste discharge requirements for waste discharges in accordance with Section 13263 of the California Water Code. Many types of discharges, however, do not contain a significant amount of pollutants, and have no significant effect on the quality and beneficial uses of the waters of the state. The SWRCB issues waivers for certain types of activities that are considered to pose an insignificant threat to water quality, such as groundwater dewatering. Coverage under this waiver is only possible when specific conditions and criteria are met; namely, discharges must be made to the land and allowed to percolate into the ground, and must not, for any reason, affect water quality or beneficial uses. The discharger must submit a specific request for such a waiver; requests are considered on a case-specific basis by RWQCB staff. The RWQCB retains its authority to issue waste discharge requirements or to take other requisite regulatory action when site-specific conditions warrant.

General Waste Discharge Requirements for Discharges from Drinking Water Systems to Surface Waters (SWRCB Order No. 2014-0194-DWQ, NPDES No. CAG140001) – Statewide General Permit

This order provides regulatory coverage for short-term or seasonal planned and emergency (unplanned) discharges resulting from a water purveyor's essential O&M activities undertaken to comply with the federal Safe Drinking Water Act, the California Health and Safety Code, and the SWRCB's Division of Drinking Water permitting requirements for providing reliable delivery of safe drinking water. The Statewide General Permit regulates low-threat-type discharges which are required to properly maintain and operate drinking water treatment, conveyance, and distribution systems, and is applicable to Metropolitan's pipeline dewatering activities. The provisions of the Statewide General Permit include, but are not limited to, providing advance notice of dewatering activities to the MS4 operator, implementing a monitoring and reporting program, implementing BMPs, dechlorinating treated water discharges, and notifying the RWQCB and MS4 operator immediately in the event of any unplanned/emergency discharges and describing the corrective measures taken.

4.8.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's impacts to hydrology and water quality are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to hydrology and water quality would occur if the proposed program's effects would meet or exceed any of the following impact thresholds:

Impact HYD-1: **Would the program violate any water quality standards or waste discharge requirements?**

Impact HYD-2: **Would the program 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 which would result in substantial erosion or siltation on- or off-site?**

Impact HYD-3: **Would the program 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 which would result in flooding on- or off-site?**

Impact HYD-4: **Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

Impact HYD-5: **Would the program otherwise substantially degrade water quality?**

Impact HYD-6: **Would the program substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

Impact HYD-7: **Would the program place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

Impact HYD-8: **Would the program place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

Impact HYD-9: **Would the program 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?**

Impact HYD-10: **Would the program result in inundation by seiche, tsunami, or mudflow?**

Based on the findings of the November 2014 Initial Study, the following impact topics were determined to have less than significant impacts or no impacts for water quality and hydrology, and are not further analyzed in this document:

Impact HYD-4: (O&M activities only) Excess Runoff Water

Impact HYD-5: (O&M activities only) Other Substantial Degradation of Water Quality

Impact HYD-6: Depletion of Groundwater Supplies

Impact HYD-7: Placement of Housing in a Flood Hazard Area

Impact HYD-8: Placement of Structures Impeding/Redirecting Flood Flows in a 100-Year Flood Hazard Area

Impact HYD-9: Risk of Loss/Injury/Death from Flooding, Including Levee/Dam Failure

Impact HYD-10: Risk of Inundation by Seiche/Tsunami/Mudflow

4.8.4 Applicant Proposed Measures

BMPs, included in this PEIR as applicant proposed measures (APMs), are presented in full in this section (see also Chapter 3). These APMs, which are standard practice for Metropolitan, will reduce impacts to hydrology and water quality. Their specific relevance to impact topics is detailed in Section 4.8.5 (see also Executive Summary, Table E-4).

APM-HYD-1 **Implementation of a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan, as Applicable.** For projects or activities subject to the State Water Resources Control Board (SWRCB) Construction General Permit (i.e., where construction disturbances would exceed 1 acre), mobilization or construction shall not begin on the project/activity site until Metropolitan has submitted permit registration documents, including a SWPPP, to the SWRCB and obtained a waste discharge ID number.

APM-HYD-2 **Grading of Patrol Roads.** Patrol roads will be graded in a manner that minimizes the channelization and ponding of stormwater and maximizes the dispersion of runoff via sheet flow (rather than erosive, high-velocity flows). Metropolitan's Patrol Road Maintenance Guidelines, which are used by Metropolitan staff during road grading, call for creation of a cross-slope on the road bed of 0.25 inches per foot of road width toward the outside edge, with crowning of the road to be done only on double-lane roads. Where outsloping the road is not possible due to land contours, ditches shall be created along the side of the road to contain water and direct it away from the road. The bank of the ditch from the edge of the road to the bottom of the ditch shall be at an angle of no less than 3 inches per foot, and shall be a minimum of 1 foot wide and 1 foot deep. In high runoff areas, the ditch shall be larger. Modifications to these

guidelines may be made based on specific site conditions. Grade dips shall be installed where necessary to direct water across the road. Arizona crossings shall be constructed with materials that will not degrade water quality (e.g., concrete, coarse rock, riprap, and/or gabions).

APM-HYD-3 **Dewatering.** If program activities require dewatering to provide a dry work area, dewatering systems will be used to remove and dispose of accumulated surface water and/or manage groundwater seepage. As needed, groundwater will be pumped into truck-mounted storage tanks and either discharged to land in accordance with Regional Water Quality Control Board (RWQCB) regulations, or transported to an authorized discharge location. Discharges of non-stormwater from a trench or excavation that contain sediment or other pollutants directly to a sanitary sewer, storm drain, creek bed, or other receiving water shall be prohibited without first obtaining special authorization or permit from the RWQCB or local jurisdiction.

APM-HYD-4 **Avoidance of Spills and Leaks.** All equipment operating in and near a watercourse must be maintained in good working condition and free of leaks. No equipment maintenance or refueling shall occur in a channel or basin bottom. All maintenance crews working with heavy equipment shall be trained in spill containment and response procedures.

APM-HYD-5 **Equipment Servicing and Fueling.** All equipment will be serviced and fueled off site. Washing down heavy equipment on the job site shall be permitted only when limited to washing mud or dirt from equipment (engine cleaning or oily parts cleaning is not permitted), and when wash water would drain to an enclosed area where water could percolate or evaporate. Wash water shall not be allowed to enter city or county storm drain systems, and no soaps or chemicals shall be used for equipment washing on the job site.

APM-HYD-6 **Concrete Work.** For proposed CIP projects requiring concrete work, all concrete washouts shall be conducted either into excavations where the concrete was poured or within designated concrete washout stations, or shall be captured using a washout recycling system. Crews shall not be allowed to dispose of concrete directly onto the ground.

APM-HYD-7 **Maintenance of Existing Hydrology.** Stream crossing structures shall be designed to maintain water depths and water velocities comparable to those found in natural areas upstream and downstream of the crossing.

APM-HYD-8 **Avoidance of Channel Work during the Rainy Season.** Activities in earthen channels and in channels with soft bottoms and bank protection shall be avoided during the rainy season to the extent feasible to avoid work when water could be present in the drainage.

APM-HYD-9 **Materials in Waterways.** No brush, loose soils, or other construction materials/waste shall be deposited on or below the ordinary high-water mark of waterways (streams, creeks, canals, ditches). (This BMP does not apply to the use of packed earth or the planting of vegetation to repair and stabilize earthen channels.)

APM-HYD-10 **Temporary Stream Diversions.** Sandbags or other approved methods that avoid and minimize in-stream impacts and effects on wildlife shall be used if temporary stream diversions are required.

APM-HYD-11 **Herbicide Use.** Any pesticide or herbicide applications shall occur under the direction of a professional pesticide applicator with either a Qualified Applicator License or an Agricultural Pest Control Adviser License in California. Label instructions and all applicable laws and regulations are to be strictly followed in the application of pesticides and herbicides and in the disposal of excess materials and containers. Only those materials registered by the U.S. Environmental Protection Agency (EPA) for the specific purpose are authorized for use, and they shall be used only when weather conditions will minimize drift and impacts on non-target sites. Before applying any pesticides or herbicides in parks or on federal or state land, Metropolitan shall obtain approval from the appropriate agency for all pesticides and herbicides proposed for use on these lands. Only pesticides on the Metropolitan "Approved Pesticide List" and registered with the EPA and the California Environmental Protection Agency will be used.

4.8.5 Impact Analysis

The main objectives of the proposed program are to maintain access to pipelines and appurtenant structures and to address associated infrastructure issues that threaten the reliability and/or security of the conveyance and distribution system and water supply. Erosional features (e.g., bank scour, erosional channels, and gullies), drainage problems, and/or periodic flooding have caused pipelines and appurtenant aboveground structures to become inaccessible, exposed, or otherwise vulnerable to damage. Actions proposed under the proposed program include engineered erosion control, slope stabilization, routine culvert maintenance, and grading of patrol roads; together, these actions seek to minimize long-term erosion and sedimentation. Erosion and sedimentation, in addition to causing access and maintenance issues for Metropolitan, are also sources of water quality degradation in local receiving waters. As a result, the goals of the proposed program are positively aligned with the water quality objectives contained in the Santa Ana RWQCB's Basin Plan, particularly with regard to turbidity and sediment (Santa Ana RWQCB 2008). The impact analysis, therefore, focuses primarily on potential construction-related impacts and on specific activities and locations where there could be short-term or indirect adverse consequences with respect to hydrology and water quality.

4.8.5.1 CIP Projects

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact HYD-1: Violation of Water Quality Standards

Certain proposed activities associated with patrol road improvements and paving along the Rialto Pipeline and Inland Feeder would occur in hilly terrain or would cross streambanks. These include activities within Devils Canyon, and Waterman Canyon/Twin Canyon and along the banks of Twin Creek, City Creek, and the Santa Ana River. Where the existing system of patrol roads is narrow or degraded, and where steep terrain requires sharp bends and curves around hillsides, grading the roads and/or providing buffers around appurtenant facilities could require localized cuts into hillsides to create a flat surface.

Construction activities could, therefore, create land disturbances and temporarily introduce the potential for increased levels of sediment and other construction-related pollutants (e.g., fuels, grease, debris) into local receiving waters. There are two typical ways that construction activities associated with proposed CIP projects, including patrol road improvements and paving, could adversely affect water quality:

- **Land disturbances:** Land disturbances such as vegetation removal, compaction, grading, and excavation can potentially increase sediment levels in stormwater runoff by eroding soils that have been loosened or newly exposed by construction activity. Land disturbances can also decrease the infiltration capacity of soils in the work area through compaction of native soils from foot traffic, heavy machinery, and equipment laydown. Depending on the pattern, magnitude, and extent of construction activities, stormwater flows that would otherwise not be erosive can become both channelized and accelerated, leading to soil loss, rilling, and/or gullying on site or downgradient.
- **Spills and/or leaks:** Materials that could contaminate the construction area include diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and construction-related trash and debris. Due to the nature of the construction activities, only minor quantities of these materials would be required in any one work area along Metropolitan's system of pipelines and patrol roads. The amount used would be the minimum necessary to fuel vehicles, power equipment, and complete installation activities. No vehicle fueling or maintenance activities would take place within work areas (these activities would occur off site). Incidental spills or leaks of hazardous materials could locally contaminate shallow groundwater or the closest surface water body.

These potential impacts are predominantly temporary because all work areas would be restored to pre-construction conditions to the extent practicable following construction and because the ultimate intent of the proposed CIP projects is to reduce infrastructure and access problems stemming from erosion and sedimentation.

The proposed program's impacts to previously undisturbed land (i.e., native soils and vegetation) would be minimal, would be geographically dispersed in scattered locations along the linear right-of-way, and would not occur simultaneously. Temporary work areas have been located so as to maximize the use of existing roads and previously disturbed land, and new disturbances of native soils and vegetation would be geographically disconnected and generally confined to areas on the edges of existing roads, turnaround/turnout areas, and pipeline appurtenances. Disturbance of previously undisturbed land would not be anticipated in many scenarios; however, where this type of disturbance would occur, the infiltration capacity and stormwater retention provided by undisturbed soils and vegetation would be reduced.

Construction activities have the greatest potential to adversely affect water quality when conducted during the rainy season, within erosion-prone soils, and/or within sediment-sensitive watersheds or 303(d)-listed water bodies (see Section 4.8.1.3). Pollutant categories that construction activities have the potential to release include sediment, debris (trash and litter), oils and grease, fuels, and substances that can change the pH or oxygen levels (e.g., decaying organic matter, concrete washouts).

Metropolitan routinely implements standard water quality BMPs, described as APMs in this PEIR, as applicable, in all of its construction activities. APMs that avoid or substantially reduce the potential for violations of water quality standards are listed in Section 4.8.4, Applicant Proposed Measures.

In addition to the APMs described in Section 4.8.4, compliance with conditions identified in the regulatory permits issued from ACOE, RWQCB, and/or California Department of Fish and Wildlife (CDFW) would include location-specific conditions to adequately protect water quality and riparian/aquatic biota. As discussed in Section 4.3, Biological Resources, temporary impacts to riparian habitat and jurisdictional waters would be addressed by rehabilitating temporarily impacted areas. The proposed rehabilitation of impact areas could include restoration, soil salvage, and/or reseeding of native vegetation communities, including coastal sage scrub and riparian/wetland communities. Because most patrol road paving activities would be confined to previously disturbed areas, disturbance of previously undisturbed land would not be anticipated in many scenarios.

Although construction site dewatering is not anticipated due to the shallow nature of the disturbances, per APM-HYD-3, Metropolitan would obtain all approvals necessary from the Santa Ana RWQCB if conditions warrant dewatering of groundwater from excavations. This could include a waiver with conditions (i.e., under the general permit for "low-threat" discharges) or by other means as described in Section 4.8.2. In any case, Metropolitan would be required to ensure that discharges do not adversely affect a water of the state.

The required implementation of a SWPPP per the SWRCB CGP (where applicable) and implementation of APMs specified in this section, and compliance with conditions identified in the regulatory permits issued by ACOE, RWQCB, and/or CDFW would ensure that construction activities associated with the proposed program would not violate any federal, state, or regional water quality

standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality during construction. For sites less than 1 acre in size, Metropolitan's Master Specifications (Section 01072) require preparation and implementation of a water pollution control plan (WPCP) that requires personnel and contractors to install and maintain erosion control devices, as specified in the California Department of Transportation (Caltrans) Stormwater Quality Manuals and Handbooks, within and around the construction work area to minimize or avoid sediment-laden runoff exiting the construction zone. For the reasons above, with incorporation of APM-HYD-1 through APM-HYD-11 as part of Metropolitan's standard practice, impacts of proposed patrol road improvements and paving with respect to this criterion would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-2: Alteration of Drainage Pattern, Causing Erosion/Siltation

Impact HYD-3: Alteration of Drainage Pattern, Causing Flooding

Increases in impervious surfaces can cause stormwater runoff to increase in volume and velocity. An increase in impervious surfaces also decreases the surface area (e.g., pervious surfaces, soils, and vegetation) available for infiltration and evapotranspiration of stormwater. Increase in runoff volume and velocity can cause scour, erosion (sheet, rill, and/or gully), and aggradation (raising of a streambed from sediment deposition), and can change river or stream geomorphology, hydrology, and aquatic ecosystems.

Impacts HYD-2 and HYD-3 both relate to the same impact mechanism, whereby patrol road paving could locally increase the volume and velocity of stormwater runoff compared to the existing unpaved roads. The impermeability of paved roads, if not designed properly, could induce scour or channelized flow where none existed previously, or could initiate the development of gullies in steep terrain. Although the intent of the proposed CIP projects is to prevent scour and erosion that directly threaten Metropolitan's surface infrastructure, it is important to ensure that actions such as road paving do not redirect runoff with erosive velocities outside the right-of-way.

Metropolitan would properly design the roads to avoid or substantially minimize adverse impacts due to local increases in impervious surfaces associated with patrol road paving. All new road paving projects would be designed to match the pre-paving hydrology to the greatest extent feasible, would promote sheet flow and avoid concentrated flow, and would incorporate velocity dissipation devices (e.g., armored ditches and outlets) where necessary to avoid substantial erosion or scour. Road designs would be prepared or reviewed by a qualified licensed (professional) engineer with relevant expertise in small roadway drainage designs. The designed drainage solution(s) would be included in

the approved project to ensure the avoidance or minimization of substantial damage, soil loss, or flooding along the identified road segments. Examples of such solutions could include the following:

- Outsloping roads wherever possible to minimize concentrated flows
- Where required for proper maneuvering and safety, creating properly designed ditches that will carry anticipated flows away from the roads
- Installing rolling dips, ditch relief culverts, and/or water bars at intervals appropriate for the road grade and soil erosivity
- Armoring ditches and outlets with riprap or heavy woody debris
- Minimizing the number of water crossings and maintaining crossings as close to a 90-degree angle as possible to the streambed
- Constructing perennial and seasonal/ephemeral stream crossings so as not to change the cross-sectional area of the stream channel or impede fish migration
- Constructing perennial and seasonal/ephemeral stream crossings with materials that will not degrade water quality (e.g., concrete, coarse rock, riprap, and/or gabions)

Proper design of patrol road paving segments described above is consistent with APM-HYD-2 and APM-HYD-7, described in Section 4.8.4. Implementation of APM-HYD-1 would ensure that BMPs are prescribed to protect stormwater runoff and ensure avoidance of substantial degradation of water quality. In addition, with implementation of APM-HYD-2, APM-HYD-3, and APM-HYD-7 through APM-HYD-10 as part of Metropolitan's standard practice, alteration of the drainage pattern would not cause substantial erosion/siltation and/or flooding. As previously discussed, for sites less than 1 acre in size, Metropolitan's Master Specifications (Section 01072) require preparation and implementation of a WPCP to minimize or avoid sediment-laden runoff exiting the construction zone. Therefore, potential impacts on stormwater runoff volumes and velocity associated with proposed patrol road improvements and paving would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-4: Excess Runoff Water

Patrol road paving and improvements would typically occur on unpaved patrol roads located in open space/undeveloped areas that are not directly served by urban storm drains. Stormwater runoff flowing through the Metropolitan right-of-way would typically enter the nearest wash or drainage channel rather than urban underground storm drains. While this criterion is generally not applicable to patrol road paving projects, there could be locations where patrol roads are situated in areas where flows

eventually run off into an urban storm drain; however, the increase in runoff due to road paving would be minimal because paving would occur on existing patrol roads that are unpaved, but have already been graded and compacted for vehicle access. Therefore, the areas to be paved are already disturbed and highly compacted, and thus have little to no capacity to slow or decrease runoff through infiltration or evapotranspiration. In addition, as discussed under Impact HYD-2 and specified in APM-HYD-2, proper design of roadways would minimize potential increases in the rate and volume of stormwater runoff. With incorporation of APM-HYD-2 into the proposed program as part of Metropolitan's standard practice, impacts of proposed patrol road improvements and paving projects on the capacity of existing or planned stormwater drainage systems would, therefore, be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-5: Other Substantial Degradation of Water Quality

Implementation of APMs as described under Impact HYD-1 and compliance with other NPDES permits (e.g., dewatering) would ensure that construction activities associated with the proposed program would not violate any federal, state, or regional water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality during construction. Proposed patrol road improvements and paving projects would not involve non-stormwater discharge or other activities that would otherwise cause substantial degradation to water quality. As a result, impacts to water quality would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact HYD-1: Violation of Water Quality Standards

The analysis and conclusions with respect to this criterion would be similar to that discussed above for proposed patrol road paving and improvement projects (CIP Activity Code No. 1). The implementation of a SWPPP per the SWRCB CGP (where applicable), implementation of APMs as described under patrol road paving and improvement projects (except APM-HYD-2, which is specific to patrol roads), and compliance with other NPDES permits (e.g., dewatering) would ensure that construction activities associated with the proposed program would not violate any federal, state, or regional water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality during construction.

Proposed engineered erosion control activities that cross streams or washes would be subject to regulatory permits from ACOE, RWQCB, and/or CDFW. In issuing these permits, the agencies would require that certain conditions be met to adequately protect water quality and riparian/aquatic biota. As discussed in Section 4.3, Biological Resources, temporary impacts to riparian habitat and jurisdictional waters would be addressed by rehabilitating the area and returning it to pre-construction conditions. For temporarily impacted areas, the proposed rehabilitation of impact areas shall include restoration, soil salvage, and/or reseeding of native vegetation communities, including coastal sage scrub and riparian/wetland communities.

Engineered erosion control projects within a wash or creek would have a higher potential to violate water quality standards during and immediately following construction. These areas include Waterman Canyon/Twin Canyon (Inland Feeder Station 225+00 to 295+00) and Cable Creek/Devil Canyon (Inland Feeder Station 0+00 to 42+00). However, implementation of APMs and compliance with regulatory permits from ACOE, RWQCB, and CDFW would ensure that impacts would be less than significant. The long-term impacts could be beneficial, because the intent of the proposed engineered erosion control projects is to prevent excess sediment deposition and accelerated erosion. In addition, incorporation of APM-HYD-1 and APM-HYD-3 through APM-HYD-11 into the proposed program as part of Metropolitan's standard practice would result in less than significant impacts.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-2: Alteration of Drainage Pattern, Causing Erosion/Siltation

Impact HYD-3: Alteration of Drainage Pattern, Causing Flooding

The preliminary hydrology report for the proposed CIP projects, included as Appendix A of the Preliminary Design Report, provided Q_5, Q_{10}, Q_{25}, Q_{50}, and Q_{100} return-period flow estimates (Metropolitan 2014). For the permanent protection of structures and pipelines, CIP projects will be designed to provide protection from a 50-year or greater design storm event. In addition, improvements within or near creeks or washes will be designed to provide a 100-year return period protection, which is derived from a traditional 50-year return period plus a factor of safety to account for the considerable variability in small stream and creek flows. For most access-type improvements, the design will assume a 15- to 20-year return frequency for storm events (Metropolitan 2014). The hydrology report defined storm events and stream flows based on the San Bernardino County Flood Control District's Hydrology Manuals and related source documents.

One of the purposes of proposed engineered erosion control projects is to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances, preventing excess sediment deposition and accelerated erosion through features that convey creek flows and/or stormwater flows without impeding or accelerating the flows. Although engineered erosion control activities could alter the existing drainage pattern of the related work areas, they would do so in a manner that prevents or substantially reduces further erosion and scour. Because the improvements would be designed to accommodate 25- and 100-year storm events, they would not have substantial adverse effects with regard to flooding. For the reasons above, the implementation of the APMs related to erosion, sedimentation, and discharge control (APM-HYD-1 and APM-HYD-3) and work in or in proximity to stream and creek crossings (APM-HYD-7 through APM-HYD-10) as part of Metropolitan's standard practice, the impacts of proposed engineered erosion control projects with respect to alteration of drainage patterns would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-4: Excess Runoff Water

Proposed engineered erosion control projects, by their nature, are intended to avoid excess runoff water, avoid scour and sediment deposition along Metropolitan facilities, and slow the velocity of runoff such that downstream impacts are minimized. In addition, engineered erosion control projects would not affect the existing volume of stormwater runoff. Therefore, the engineered erosion control elements of CIP projects would have a less than significant impact with respect to exceeding the capacity of existing or planned stormwater drainage systems.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-5: Other Substantial Degradation of Water Quality

For the same reasons described previously for patrol road improvements and paving (CIP Activity Code No. 1), including the implementation of APM-HYD-1 and APM-HYD-3 through APM-HYD-11 as part of Metropolitan's standard practice, the impacts of proposed engineered erosion control projects with respect to other substantial degradation of water quality would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact HYD-1: Violation of Water Quality Standards

The impacts of proposed slope stabilization projects with respect to violation of water quality standards would be less than significant for the same reasons described previously for engineered erosion control projects (CIP Activity Code No. 2). With the implementation of APM-HYD-1 and APM-HYD-3 through APM-HYD-10 as part of Metropolitan's standard practice, impacts from slope stabilization projects would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-2: Alteration of Drainage Pattern, Causing Erosion/Siltation

Impact HYD-3: Alteration of Drainage Pattern, Causing Flooding

The impacts of proposed slope stabilization projects with respect to alteration of drainage patterns would be less than significant for the same reasons described previously for engineered erosion control projects (CIP Activity Code No. 2). Implementation of APM-HYD-1, APM-HYD-3, and APM-HYD-7 through APM-HYD-10 as part of Metropolitan's standard practice would reduce any impacts.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-4: Excess Runoff Water

The impacts of proposed slope stabilization projects with respect to exceeding the capacity of existing or planned stormwater drainage systems, resulting in excess runoff, would be less than significant for the same reasons described previously for engineered erosion control projects (CIP Activity Code No. 2).

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-5: Other Substantial Degradation of Water Quality

For the same reasons described previously for patrol road improvements and paving (CIP Activity Code No. 1), including the incorporation of APM-HYD-1 and APM-HYD-3 through APM-HYD-11 as part of Metropolitan's standard practice, the impacts of slope stabilization projects with respect to other substantial degradation of water quality would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.8.5.2 O&M Activities

Routine O&M Activities

Impact HYD-1: Violation of Water Quality Standards

Generally, analysis and conclusions with respect to this criterion are the same as discussed above for proposed patrol road improvements and paving projects (CIP Activity Code No. 1); however, routine O&M activities are generally less intense and of shorter duration than the proposed CIP projects, and many would not require appreciable land disturbance of previously undisturbed areas.

Patrol road maintenance would include actions such as removal of soil, debris, and vegetation from drainage structures to minimize the likelihood of erosion problem areas developing in the future. As part of Metropolitan's standard practice, unpaved patrol roads may be regraded periodically to promote sheetflow by outsloping, and would include placement of additional cross-drains or armoring the inlets and outlets of drainage pipes where drainage problems are observed. These actions would be preventive, to ensure that problems associated with erosion and scour are reduced in subsequent storms. Patrol road maintenance could involve land disturbance, but with the specific purpose of preparing the patrol road to properly convey stormwater during wet weather and to discourage erosion. With implementation of APMs listed in Section 4.8.5.1 under Patrol Road Improvements and Paving (CIP Activity Code No. 1), except APM-HYD-1 (because O&M activities are exempt from the CGP), impacts from patrol road maintenance on hydrology and water quality would be less than significant.

Routine O&M activities would also involve pipeline shutdowns and dewatering activities. Discharges of raw water and treated drinking water, if performed improperly, could contribute constituents of concern and adversely affect surface water quality. As part of standard practice, prior to releasing water into storm drains or flood control facilities, Metropolitan would coordinate with the city or agency having jurisdiction over affected drains or facilities receiving the discharges. Also as part of standard practice, Metropolitan would notify the appropriate RWQCB of the discharge activity. Any chlorinated or chloraminated water would be neutralized prior to its discharging into any channel or drain. Water samples of discharged water must be submitted to the Metropolitan water quality lab for analysis. Pipeline shutdowns and dewatering activities would be performed in compliance with the specific conditions of the RWQCB waste discharge requirements (e.g., treatment prior to discharge, restrictions on rate of discharge, and armoring/protecting discharge location). For these reasons, the effect of pipeline shutdowns and dewatering activities on hydrology and water quality would be less than significant.

Vegetation maintenance activities could include application of herbicides and pest control chemicals. If improperly applied, such products could be mobilized and contribute to water quality degradation in receiving waters. Metropolitan's standard practice, per APM-HYD-11 (see Section 4.8.4), is to ensure that all pesticide and herbicide applications occur under the direction of a professional pesticide applicator with either a Qualified Applicator License or an Agricultural Pest Control Adviser License in California. Label instructions and all applicable laws and regulations are strictly followed in the application of pesticides and herbicides and in the disposal of excess materials and containers. Only those materials registered by EPA for the specific purpose are authorized for use. Before applying any pesticides or herbicides in parks or on state or federal land, Metropolitan obtains approval from the appropriate agency. Based on these standard practices, use of herbicides and pest control chemicals would occur only where needed, and in accordance with all applicable laws and regulations requiring licensed professionals to carry out the activity. For this reason, the impact associated with vegetation maintenance activities would be less than significant.

With implementation of the APMs related to erosion, sedimentation, and discharge control (APM-HYD-2 and APM-HYD-3); vehicle maintenance (APM-HYD-4 and APM-HYD-5); work in or in proximity to stream and creek crossings (APM-HYD-6 through APM-HYD-10); and herbicide use (APM-HYD-11) as part of Metropolitan's standard practice, the effect of routine O&M activities on hydrology and water quality would be less than significant and water quality standards and waste discharge requirements would not be violated.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-2: Alteration of Drainage Pattern, Causing Erosion/Siltation

Impact HYD-3: Alteration of Drainage Pattern, Causing Flooding

Routine O&M activities would not require substantial alteration of drainage patterns because the activities are minor and would involve existing infrastructure. The only grading activities required would be for the purpose of maintaining existing drainage patterns and avoiding future erosion or scour issues. For routine O&M activities, there would not be a substantial alteration of the drainage pattern that would cause erosion/siltation and/or flooding; therefore, potential impacts on stormwater runoff volumes and velocity associated with routine O&M activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Impact HYD-1: Violation of Water Quality Standards

The analysis and conclusions with respect to this criterion would be similar to that discussed above for engineered erosion control projects (CIP Activity Code No. 2). The required implementation of a SWPPP per the SWRCB CGP (if applicable), implementation of APMs as described under Impact HYD-1 for engineered erosion control projects (CIP Activity Code No. 2), and compliance with other NPDES permits (e.g., dewatering) would ensure that single-occurrence O&M activities associated with the proposed program would not violate any federal, state, or regional water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

Proposed single-occurrence O&M activities that cross streams or washes would be subject to jurisdictional permits from ACOE, RWQCB, and/or streambed alteration agreements from CDFW. In issuing these permits, the agencies would require that certain conditions be met to adequately protect water quality and riparian/aquatic biota. As discussed in Section 4.3, Biological Resources, temporary impacts to riparian habitat and jurisdictional waters would be addressed by rehabilitating the area and returning it to pre-construction conditions. For temporarily impacted areas, the proposed rehabilitation of impact areas shall include restoration, soil salvage, and/or reseeding of native vegetation communities, including coastal sage scrub and riparian/wetland communities.

Because these activities will be designed to ensure passage of stormwater flows without causing substantial erosion and scour, the impact would be less than significant. For the long term, impacts could be beneficial, because the intent of single-occurrence O&M activities is to prevent excess sediment deposition and accelerated erosion. Implementation of APM-HYD-1 and APM-HYD-3

through APM-HYD-11 as part of Metropolitan's standard practice would reduce any impacts to less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact HYD-2: Alteration of Drainage Pattern, Causing Erosion/Siltation

Impact HYD-3: Alteration of Drainage Pattern, Causing Flooding

The analysis and conclusions with respect to these criteria would be similar to those discussed above for engineered erosion control projects (CIP Activity No. 2). Although single-occurrence O&M activities within a wash or creek would have a higher potential to alter drainage patterns during and immediately following construction, implementation of APMs related to erosion, sedimentation, and discharge control (APM-HYD-1 through APM-HYD-3) and work in or in proximity to stream and creek crossings (APM-HYD-7 through APM-HYD-10) as part of Metropolitan's standard practice, along with compliance with regulatory permits from ACOE, CDFW, and RWQCB, would ensure that impacts would be less than significant. For the long term, impacts could be beneficial, because the intent of single-occurrence O&M activities is to prevent excess sediment deposition and accelerated erosion.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.8.5.3 Impacts Summary

Table 4.8-4 summarizes the impacts for proposed CIP projects and O&M activities under each threshold for hydrology and water quality analyzed in this PEIR.

Table 4.8-4. Hydrology and Water Quality Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact HYD-1: Would the program violate any water quality standards or waste discharge requirements?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-HYD-1 through APM-HYD-11	Less than significant
Engineered Erosion Control	Less than significant	APM-HYD-1 APM-HYD-3 through APM-HYD-11	Less than significant

Table 4.8-4. Hydrology and Water Quality Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Slope Stabilization	Less than significant	APM-HYD-1 APM-HYD-3 through APM-HYD-10	Less than significant
O&M Activities			
Routine	Less than significant	APM-HYD-2 through APM-HYD-11	Less than significant
Single-Occurrence	Less than significant	APM-HYD-1 APM-HYD-3 through APM-HYD-11	Less than significant
Impact HYD-2: Would the program 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 which would result in substantial erosion or siltation on- or off-site? *Impact HYD-3: Would the program 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 which would result in flooding on- or off-site?*			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant
Engineered Erosion Control	Less than significant	APM-HYD-1 APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant
Slope Stabilization	Less than significant	APM-HYD-1 APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	APM-HYD-1 through APM-HYD-3 APM-HYD-7 through APM-HYD-10	Less than significant
Impact HYD-4: Would the program create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			
CIP Projects[a]			
Patrol Road Improvements and Paving	Less than significant	APM-HYD-2	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant

Table 4.8-4. Hydrology and Water Quality Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact HYD-5: Would the program otherwise substantially degrade water quality?			
CIP Projects[a]			
Patrol Road Improvements and Paving	Less than significant	APM-HYD-1 through HYD-11	Less than significant
Engineered Erosion Control	Less than significant	APM-HYD-1 APM-HYD-3 through APM-HYD-11	Less than significant
Slope Stabilization	Less than significant	APM-HYD-1 APM-HYD-3 through APM-HYD-11	Less than significant

Note:
[a] Based on the findings of the November 2014 Initial Study, for Impacts HYD-4 and HYD-5 only CIP projects were analyzed in this PEIR; see Section 4.8.6.2 for O&M activity findings for these impacts.

4.8.6 Impacts Found Not to Be Significant

4.8.6.1 CIP Projects and O&M Activities

Impact HYD-6: Depletion of Groundwater Supplies

CIP Projects

Proposed CIP projects are not anticipated to encounter groundwater during excavation or ground-disturbing activities; however, the potential for encountering groundwater does exist. Should groundwater be encountered during ground-disturbing activities and dewatering be necessary during construction, a general NPDES dewatering permit from the local RWQCB would be obtained by the contractor, and discharges would be made in accordance with the RWQCB requirements outlined in Order No. R8-2009-0003, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (de minimus) Threat to Water Quality (Santa Ana RWQCB 2009). Groundwater would not be pumped for CIP project activities. In addition, as a condition of coverage under Order No. R8-2009-0003, construction activities would be required to comply with established discharge prohibitions, including prohibitions contained in Basin Plans and statewide water quality control plans. For these reasons, impacts to groundwater from implementation of proposed CIP projects would be less than significant.

O&M Activities

Proposed O&M activities would primarily be related to maintenance of patrol roads and aboveground pipeline structures. There are no proposed O&M activities that would be invasive enough to potentially encounter groundwater during implementation. Also, groundwater resources would not be

relied upon for water supply, dust suppression, or any other need. Therefore, impacts to groundwater resulting from O&M activities under the proposed program would be less than significant.

Impact HYD-7: Placement of Housing in a Flood Hazard Area

CIP Projects and O&M Activities

The proposed program would not place housing within a 100-year flood hazard area; therefore, no impacts would occur.

Impact HYD-8: Placement of Structures Impeding/Redirecting Flood Flows in a 100-Year Flood Hazard Area

CIP Projects and O&M Activities

Some of the proposed CIP projects and O&M activities may be located within a 100-year flood hazard area; however, proposed routine O&M activities would not result in construction of any structures that would impede or redirect flows. Proposed CIP projects and single-occurrence O&M activities could include construction of drainage structures, culverts, and crossings, which are designed to carry the flow of water so that facilities are not damaged or the damage is reduced in the event of flooding. None of the proposed CIP projects or O&M activities would require construction of structures that would impede or redirect flood flows. Therefore, this impact would be less than significant.

Impact HYD-9: Risk of Loss/Injury/Death from Flooding, Including Levee/Dam Failure

CIP Projects and O&M Activities

Proposed CIP projects and O&M activities could occur within the vicinity of the Seven Oaks and San Antonio Dams (County of San Bernardino 2019); however, these proposed projects are related to maintenance activities that would occur along existing infrastructure that is already subject to flooding due to dam failure, and the types of projects proposed would not increase the risk of loss, injury, or death as a result of flooding from levee or dam failure. No dams would be modified as part of the proposed program, and the types of projects proposed would not involve structures that people would work or reside within. Therefore, this impact would be less than significant.

Impact HYD-10: Risk of Inundation by Seiche/Tsunami/Mudflow

CIP Projects and O&M Activities

The proposed program sites are not located in proximity to the ocean and therefore would not be susceptible to inundation by tsunamis. Seiches are oscillations in an enclosed body of water (e.g., sloshing in a reservoir) due to seismically induced ground shaking. Proposed program maintenance activities would occur along existing pipeline infrastructure that is not located adjacent to reservoirs or lakes. In addition, although mudflows could potentially occur in the vicinity of pipelines and related

infrastructure, proposed maintenance activities would not result in inundation by mudflows. Therefore, impacts would be less than significant.

4.8.6.2 O&M Activities

Impact HYD-4: Excess Runoff Water

Compared to existing conditions, proposed O&M activities would result in no appreciable change in the amount of runoff draining from Metropolitan's facilities and patrol roads. O&M activities would not involve addition of impervious surfaces or construction of new drainage facilities. The only proposed O&M activities that could impact the stormwater drainage system are shutdowns/dewatering, because water from the pipelines may be discharged into the nearest storm drain inlet. Metropolitan pipelines convey raw and treated water, and would not constitute a source of polluted runoff. Additionally, Metropolitan uses Visqueen sheets, hoses, sandbags, and other BMPs to ensure that sediment is not washed into storm drains during dewatering. These activities would occur only when needed to access a segment of pipeline for inspections, repair, or emergency purposes, and are already occurring without exceeding the capacity of stormwater drainage systems or providing additional sources of polluted runoff. There are no other O&M activities that would impact stormwater drainage systems. Impacts would be less than significant for O&M activities. Potential impacts from proposed CIP projects are discussed in Section 4.8.5.1.

Impact HYD-5: Other Substantial Degradation of Water Quality

The range of potential effects of the proposed O&M activities on water quality are generally adequately captured by the previous criteria, including construction-related effects from land disturbance and long-term effects of single-occurrence O&M activities on drainage patterns. Shutdown/dewatering discharges, if improperly performed, have the potential to degrade water quality; however, as part of the proposed program, work crews, prior to discharging/dewatering treated water, would dechlorinate and pH test the water and check it for oily residue. Water samples of discharged water would be sent to the Metropolitan water quality lab for analysis. In addition, Metropolitan would notify the appropriate public and regulatory agencies with jurisdiction over affected bodies of water and drainage facilities. Impacts would be less than significant for O&M activities. Potential impacts from proposed CIP projects are discussed in Section 4.8.5.1.

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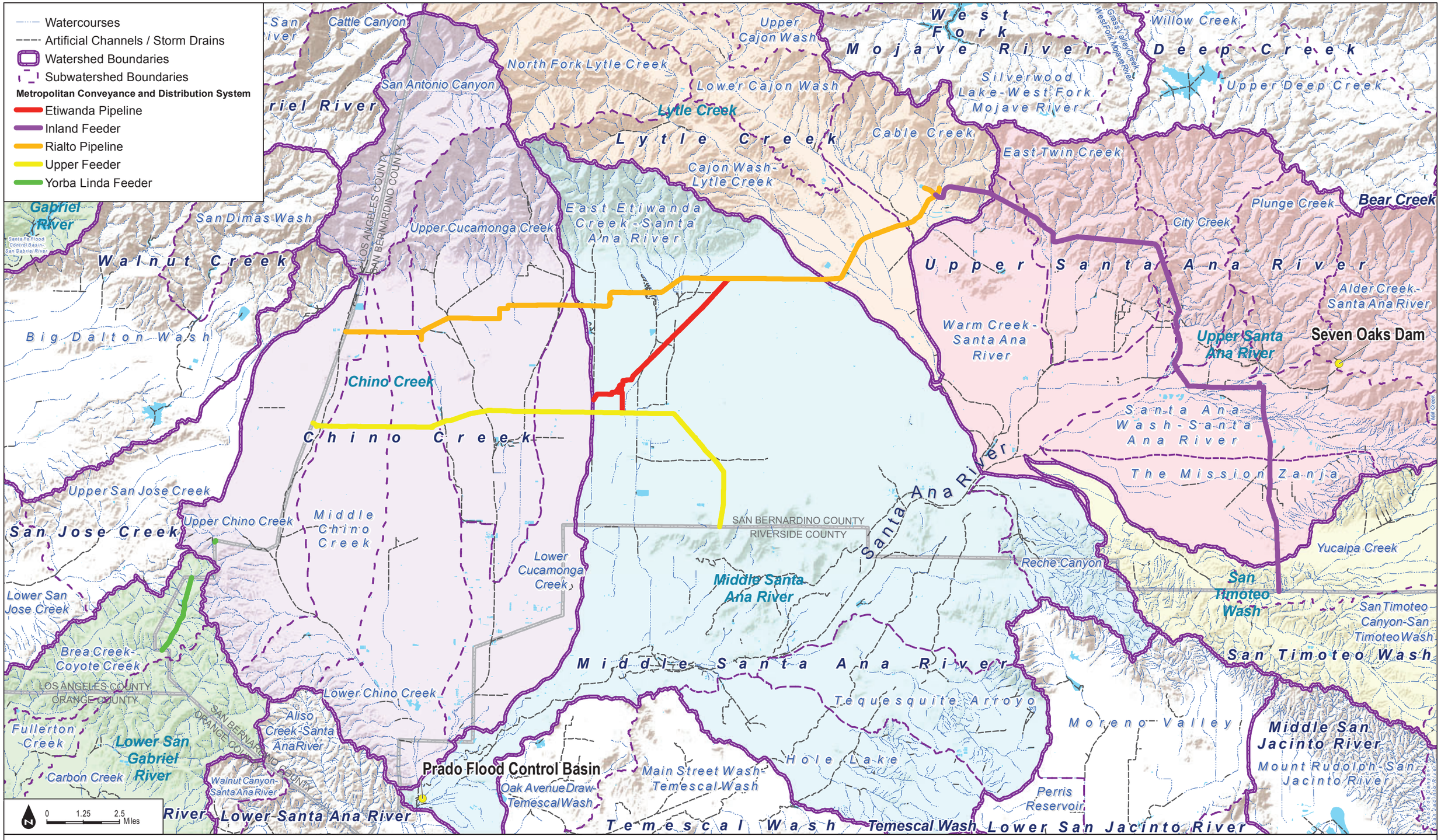

SOURCE: ESRI World Terrain 2019, USGS 2019

FIGURE 4.8-1

Watersheds and Watercourses

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4.9 Land Use and Planning

This section describes the existing land use and planning setting for the proposed program, identifies the associated regulatory framework, evaluates potential impacts, and identifies mitigation measures to reduce the level of impact associated with implementation of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program). The following topics related to land use and planning are examined in this section:

- Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (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?
- Would the program conflict with any applicable habitat conservation plan (HCP) or natural community conservation plan (NCCP)?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), the proposed program has no potential to physically divide an established community; therefore, this topic is not further analyzed in this PEIR.

The information in this section is based on the general plans for the jurisdictions in which the proposed program is located, Southern California Association of Governments data and reports, U.S. Census data, and Esri mapping.

4.9.1 Existing Conditions

The proposed program is located within western San Bernardino County, in 10 cities across the region. Table 4.9-1 identifies the sensitive land uses within the proposed program impact footprint. The types of land uses in which proposed program projects and activities would occur are as follows:

- Medical Facilities
- Single-Family and Multi-Family Residential
- Open Space
- Elementary and Junior High Schools
- Religious Facilities
- Regional Parks and Recreation
- Local Parks and Recreation
- Colleges and Universities
- Trailer Parks and Mobile Home Courts
- Federal Lands

Table 4.9-1 identifies sensitive land uses within the proposed program impact footprint by pipeline based on Esri mapping.

Table 4.9-1. Sensitive Land Uses within the Proposed Program Impact Footprint

Sensitive Land Uses	Etiwanda Pipeline	Inland Feeder	Rialto Pipeline	Upper Feeder	Yorba Linda Feeder
Schools/Universities					
Residential					
Federal Lands					
Medical Health Care Facilities					
Religious Facilities					
Local/Regional Parks					

Note: Dark-colored cells indicate that the sensitive land use listed in the first column is within the proposed program impact footprint.

4.9.2 Regulatory Framework

Agencies with jurisdiction over the proposed program may include the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Department of Agriculture Forest Service (USFS), U.S. Department of the Interior Bureau of Land Management (BLM), County of San Bernardino Flood Control District, and local governments.

Federal

The Western San Bernardino County Operating Region includes federal lands managed by USFS and BLM (see Figure 4.9-1, Federal Lands in and near the Proposed Program Area). USFS manages the San Bernardino National Forest and BLM manages a variety of wilderness areas, recreational areas, and leased land for grazing, mining, oil and gas, and energy projects. In the study area, as indicated by Esri mapping, the BLM-managed lands are called "Special Management Areas." BLM manages 5,413,035 acres within San Bernardino County, which is within the California Desert District. However, the programmatic footprint is located within the BLM Administrative Unit District Boundary, and no BLM planning documents cover this area.

San Bernardino National Forest Land Management Plan

The San Bernardino National Forest came into being in 1907 from the San Bernardino Forest Reserve, which was established by the Forest Reserve Act of 1891. The public land was set aside for conservation of natural resources such as trees, water, minerals, livestock range, recreation, and wildlife. USFS manages 676,666 acres of land in San Bernardino and Riverside counties (USFS 2016).

The Land Management Plan for the Southern California national forests describe the strategic direction at the broad program level for managing the land and its resources over the next 10 to 15 years. The purpose of the land and resource management plan is to articulate the long-term vision

and strategic management direction for each Southern California national forest and to facilitate the development of management activities that will contribute toward the realization of the national forests' desired conditions. The forest plan defines the parameters (limits) for management, but offers the flexibility to adapt decisions to accommodate rapidly changing resource conditions.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that project proponents assess potential land use impacts, including project consistency with local land use policies and plans. Consistency with local land use policies and plans is one of several criteria that can be used to assess whether a project could have significant environmental impacts under the provisions of CEQA. A discussion of local land use policies and plans and standards of significance for potential land use impacts are provided in Sections 4.9.2 and 4.9.3.

Southern California Association of Governments

The Southern California Association of Governments is the nation's largest metropolitan planning organization, representing six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), 191 cities, and more than 18 million residents. The Southern California Association of Governments undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California. The agency develops long-range regional transportation plans, including sustainable communities strategy and growth-forecast components, regional transportation improvement programs, regional housing needs allocations, and a portion of the South Coast Air Quality Management District's air quality management plans (SCAG 2014).

Local

Upper Santa Ana River Habitat Conservation Plan

The Upper Santa Ana River Habitat Conservation Plan (Upper SAR HCP) is a collaborative effort among the water resource agencies of the Santa Ana River Watershed, in partnership with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and several other government agencies and stakeholder organizations. The purpose of the Upper SAR HCP is to enable the water resource agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. The Upper SAR HCP will specify how species and their habitats will be protected and managed in the future and will provide the incidental take permits needed by the water resource agencies under the federal and state Endangered Species Acts to maintain, operate, and improve their water resource infrastructure (ICF International 2014). Figure 4.9-2, Upper Santa Ana River Habitat Conservation Plan and Wash Plan Boundaries, shows the boundaries of the Upper SAR HCP study area as it relates to the proposed program area.

The proposed program area occurs within the boundaries of the Upper SAR HCP area, although the Upper SAR HCP has not yet been adopted. Metropolitan anticipates that the proposed program would not conflict with this conservation plan once finalized, for areas where Capital Investment Plan (CIP) projects and Operations and Maintenance (O&M) activities occur in conservation areas defined by the Upper SAR HCP.

Upper Santa Ana River Wash Habitat Conservation Plan

The Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan) encompasses approximately 4,800 acres and includes lands within the jurisdiction of the County of San Bernardino, the cities of Highland and Redlands, and BLM. It includes a large reach of the Santa Ana River and Plunge Creek and a small portion of Mill Creek just above its confluence with the Santa Ana River. The existing Santa Ana River Woollystar Preservation Area also overlaps the Wash Plan. It would cover three federally endangered species, the San Bernardino kangaroo rat (*Dipodomys merriami parvus*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), and slender-horned spineflower (*Dodecahema leptoceras*); one federally threatened species, the coastal California gnatcatcher (*Polioptila californica californica*); and the cactus wren (*Campylorhynchus brunneicapillus*). It mitigates for the impacts of mining, groundwater recharge, road improvements, wells, trails, and other activities; these include both the operation and maintenance of existing facilities, as well as new facilities/activities.

Approximately 635 acres of the proposed program area associated with the Inland Feeder occur within the boundaries of the Wash Plan area. Figure 4.9-2 shows the boundaries of the Wash Plan as it relates to the proposed program area. A total of three CIP project sites are proposed within the boundaries of the Wash Plan area. Although it is not a signatory to the Wash Plan, Metropolitan would ensure no adverse impacts to Wash Plan conservation area by complying with applicable avoidance and minimization measures for similar covered activities.

San Bernardino County Flood Control District

The San Bernardino County Flood Control District (District) was established by the California Legislature in accordance with the County Flood Control District Act on April 20, 1939. The District routinely maintains approximately 530 flood control facilities within the 20,105 square miles of San Bernardino County, which includes significant portions of the Santa Ana River in the proposed program area. The District's flood control system is organized into six discrete flood control zones. Flood Control Zones 1, 2, and 3 include the Valley Region of San Bernardino County, Zone 5 includes the Mountain Region, and Zones 4 and 6 include primarily the Desert Region but some facilities are located in the Mountain Region. The proposed program study area is primarily located within District Flood Control Zones 1, 2, and 3. There are 430 acres of flood control facilities under the District's jurisdiction within the proposed program study area; however, the District has not prepared a planning document for these facilities. Figure 4.9-3 shows the District's facilities in the proposed program area.

Other Local General Plans, Policies, and Regulations

The land use element of a general plan guides future land use and development throughout a community. Zoning ordinances support the land use designations of a general plan. General plans covering the proposed program area include provisions to allow for utility system maintenance. Specifically, policies have been identified that require and prioritize the maintenance of existing infrastructure to ensure public safety. The proposed program involves maintenance of existing facilities, so proposed program activities would be consistent with existing local general plans. A compilation of the general plans and policies that were reviewed for this analysis is provided in Appendix H.

The Metropolitan Water District of Southern California (Metropolitan) understands the importance of consistency with the goals and policies identified within local jurisdictions' general plans and other local ordinances/plans; however, per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program. The proposed program is intended to maintain, repair, and improve existing infrastructure, as necessary, to ensure the reliability of Metropolitan's water conveyance and distribution system. Overall, the proposed program, which is a maintenance program, is not anticipated to conflict with any applicable land use plans, policies, or regulations of local agencies.

4.9.3 Thresholds of Significance

The significance criteria used to evaluate proposed program impacts to land use and planning are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to land use and planning would occur if the proposed program would have any of the following effects:

Impact LU-1: Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (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?

Impact LU-2: Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?

Impact LU-3: Would the program physically divide an established community?

Results of the analysis performed for the November 2014 Initial Study for the proposed program indicated that the following topic would have less than significant impacts related to land use and planning, and it is not further analyzed in this PEIR:

Impact LU-3: Division of an Established Community

4.9.4 Applicant Proposed Measures

None are required.

4.9.5 Impact Analysis

This analysis evaluates the consistency or compliance of the proposed program with relevant land use plans, policies, and regulations. The analysis determines whether there is the potential for physical incompatibilities between the underlying land use, whereby construction activities and maintenance of Metropolitan's system would cause potential impacts. Secondary effects resulting from potential land use conflicts or incompatibility (specifically during construction activities) are usually the result of other environmental effects, such as noise generation or air quality issues resulting from grading activities; those issues are addressed within other resource topic sections. Land use impacts resulting from the proposed program are evaluated below. For a detailed analysis of secondary impacts that would result from the proposed program, see Section 4.2, Air Quality; Section 4.3, Biological Resources; Section 4.10, Noise; and Section 4.12, Traffic and Circulation.

4.9.5.1 CIP Projects

The proposed CIP projects generally consist of repair, upgrade, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses the three types of CIP projects: patrol road improvements and paving; engineered erosion control; and slope stabilization.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact LU-1: Conflict with a Land Use Plan/Policy/Regulation

Patrol road improvements and paving projects, would occur throughout several local jurisdictions. There would be no new development, and patrol road improvements and paving would not require or result in changes to land uses or zoning designations. In addition, maintenance of utilities is typically considered consistent with local land use plans. As part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program. Implementation of the proposed program would not conflict with local jurisdictions' land use plans, policies, or regulations.

As discussed above, there are 430 acres of flood control facilities under the District's jurisdiction within the proposed program study area. There are no planning documents associated with these facilities; therefore, a land use plan or policy conflict would not occur. However, to ensure that the patrol road improvements and paving would not conflict with the District's maintenance activities, Metropolitan would coordinate with the District accordingly when proposed patrol road improvements and paving projects occur within the District's maintenance area.

Federal lands (BLM and USFS) are within the proposed program's study area; however, patrol road improvements and paving would not occur within federal land.

Impacts from proposed patrol road improvements and paving (CIP Activity Code No. 1) would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact LU-2: Conflict with an HCP/NCCP

A portion of the proposed program area (Inland Feeder) is within the boundaries of the Wash Plan. Metropolitan maintains a permanent maintenance easement for this pipeline, which begins at Boulder Avenue in the city of Highland, runs east along the Southern California Edison easement to Cone Camp Road in the city of Highland, and turns south across the Wash Plan planning area to Opal Avenue in the San Bernardino County community of Mentone (LSA 2008). Although not a signatory to the Wash Plan, Metropolitan would implement avoidance and minimization measures during CIP project implementation to ensure that CIP project activities do not conflict with the plan; therefore, impacts would be less than significant and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact LU-1: Conflict with a Land Use Plan/Policy/Regulation

Proposed engineered erosion control projects would be located within several local jurisdictions. Analysis of the land use impacts from implementation of engineered erosion control activities is similar to that presented under Patrol Road Improvements and Paving (CIP Activity Code No. 1). Impacts from engineered erosion control activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact LU-2: Conflict with an HCP/NCCP

As with patrol road improvements and paving projects, Metropolitan would coordinate activities to ensure that no impacts would occur to sensitive resources. Metropolitan would implement avoidance and minimization measures during CIP project implementation to ensure activities do not conflict with the Wash Plan; therefore, impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact LU-1: Conflict with a Land Use Plan/Policy/Regulation

Proposed slope stabilization projects would be located within several local jurisdictions. Analysis of the land use impacts from implementation of slope stabilization activities is similar to that presented under Patrol Road Improvements and Paving (CIP Activity Code No. 1). Impacts from slope stabilization activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact LU-2: Conflict with an HCP/NCCP

As with patrol road improvements and paving projects, Metropolitan would coordinate slope stabilization closely with the County to ensure that no impacts would occur to sensitive resources. Metropolitan would implement avoidance and minimization measures during slope stabilization implementation to ensure activities do not conflict with the Wash Plan; therefore, impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.9.5.2 O&M Activities

Proposed O&M activities would be conducted on a regular basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. O&M activities are divided into two categories: routine O&M activities and single-occurrence O&M activities.

Routine O&M Activities

Impact LU-1: Conflict with a Land Use Plan/Policy/Regulation

The proposed program is related to maintenance of the aboveground infrastructure associated with existing water conveyance and distribution pipelines. As part of the proposed program, routine O&M activities would occur throughout several local jurisdictions, including those of BLM, USFS, and the District. Routine O&M activities would not require extensive engineering or involve the construction of new facilities. There would be no new development, and the proposed program would not require or result in changes to land uses or zoning designations. In addition, maintenance of utilities is typically considered to be consistent with local land use plans. As part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program. Implementation of the proposed program would not conflict with local jurisdictions' land use plans, policies, or regulations.

Impacts would be less than significant for routine O&M activities with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact LU-2: Conflict with an HCP/NCCP

A portion of the proposed program area (Inland Feeder) is within the boundaries of the Wash Plan. Metropolitan would coordinate activities closely to ensure that no impacts would occur to sensitive resources. Metropolitan would implement avoidance and minimization measures during routine O&M activities to ensure that activities do not conflict with the Wash Plan; therefore, impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Impact LU-1: Conflict with a Land Use Plan/Policy/Regulation

Single-occurrence O&M activities could occur throughout several local jurisdictions as necessary. Analysis of the land use impacts from implementation of single-occurrence O&M activities is similar to that presented above under routine O&M activities. Impacts from single-occurrence O&M activities would be less than significant with respect to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact LU-2: Conflict with an HCP/NCCP

A portion of the proposed program area (Inland Feeder) is within the boundaries of the Wash Plan, however no single-occurrence O&M activities are proposed along the Inland Feeder or within the Wash Plan. Metropolitan would coordinate activities to ensure that no impacts would occur to sensitive resources should a single-occurrence O&M activity be required in the future. Metropolitan would implement avoidance and minimization measures during single-occurrence O&M activity implementation to ensure that activities do not conflict with the Wash Plan; therefore, impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.9.5.3 Impacts Summary

Table 4.9-2 summarizes the impacts for CIP projects and O&M activities under each land use threshold analyzed in this PEIR.

Table 4.9-2. Land Use Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact LU-1: Would the program conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (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?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant
Impact LU-2: Would the program conflict with any applicable habitat conservation plan or natural community conservation plan?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant

4.9.6 Impacts Found Not to Be Significant

Impact LU-3: Division of an Established Community

Proposed CIP projects and O&M activities would not divide an established community. Both proposed CIP projects and O&M activities are related to maintenance activities and infrastructure protection projects for existing pipeline systems; no new construction is proposed. These projects would not be invasive or large enough to physically divide a community. Rather, these projects would ensure water supply reliability for Metropolitan's member agencies and minimize the potential for emergencies, which would support the surrounding communities. The proposed program would not divide an established community and no impact would result.

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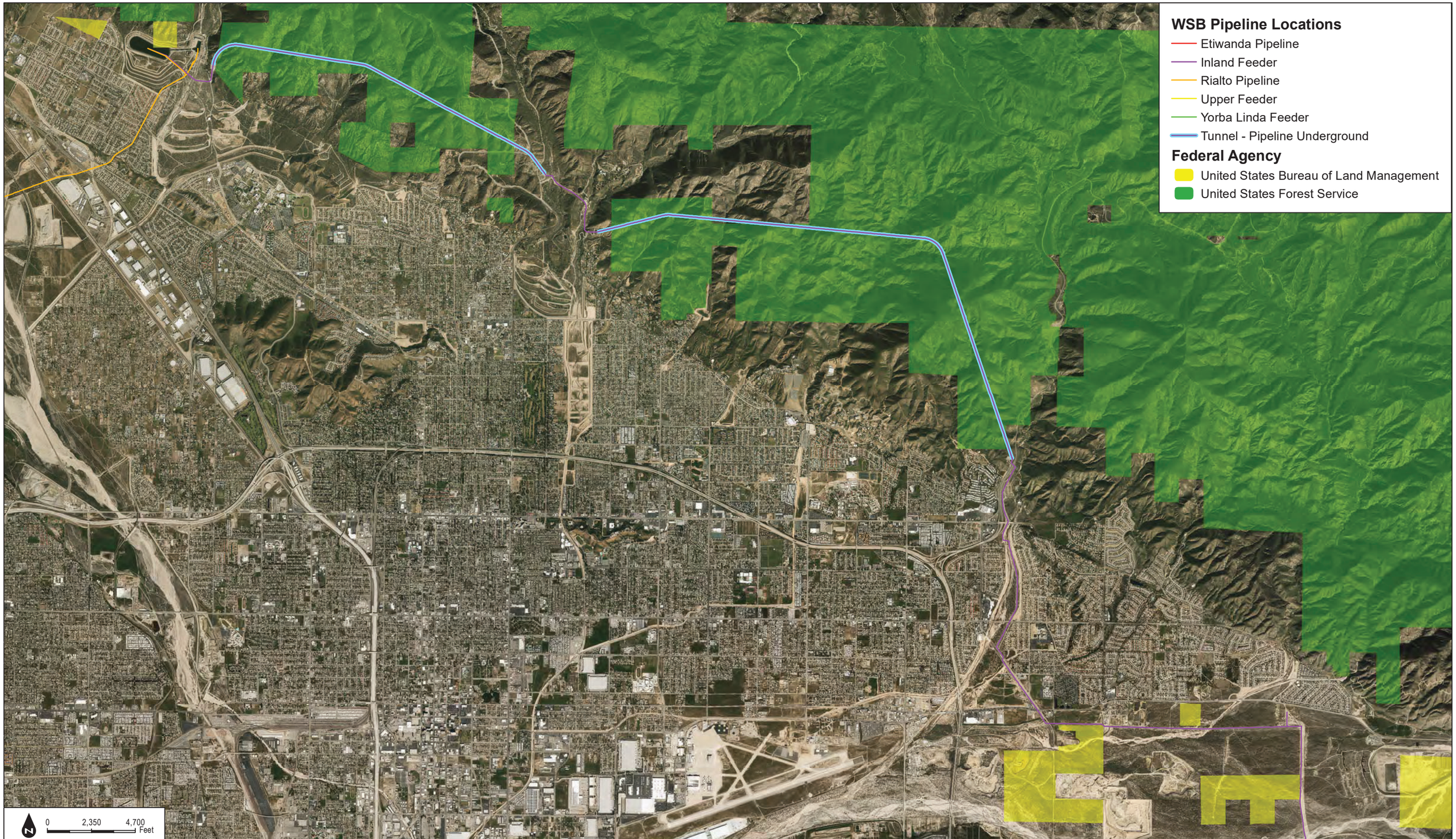

SOURCE: Eagle Aerial 2015, MWD, CPAD

FIGURE 4.9-1

Federal Lands in and near the Proposed Program Area

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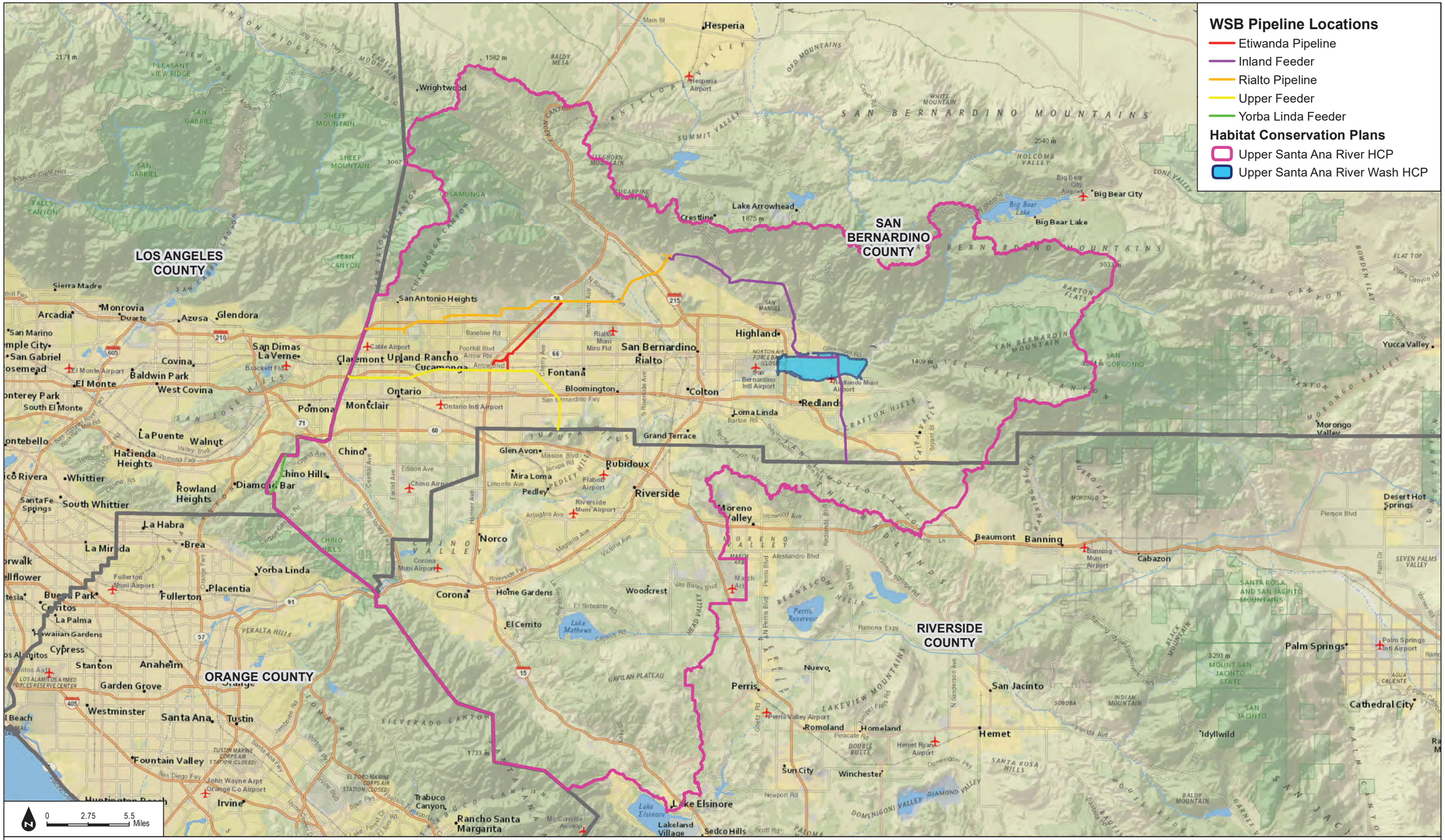

SOURCE: National Geographic 2020, Upper Santa Ana River Habitat Conservation Plan Draft

FIGURE 4.9-2

Upper Santa Ana River Habitat Conservation Plan and Wash Plan Boundaries

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SOURCE: National Geographic 2019; SBCFCD 2011

FIGURE 4.9-3

San Bernardino County Flood Control Facilities within the Proposed Program Area

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4.10 Noise

This section describes the existing noise setting for the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program), identifies associated regulatory requirements, and evaluates potential impacts associated with noise that would result from the proposed program. In addition, the section identifies best management practices (BMPs), presented as applicant proposed measures (APMs) in this program environmental impact report (PEIR), that are implemented as part of The Metropolitan Water District of Southern California's (Metropolitan's) standard practice and that will minimize impacts associated with implementation of the proposed program. The following noise topics are examined in this section:

- Would the program result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?

As stated in the November 2014 Initial Study (Appendix C to this PEIR), the proposed program would result in no impact or less than significant impacts for groundborne vibration or noise, permanent increases in ambient noise levels, and excessive noise in the vicinity of a public airport or private airstrip; therefore, these topics are not further analyzed in this PEIR.

Noise Concepts

Noise is generally defined as loud, unexpected, or undesired sound, typically associated with human activity that interferes with or disrupts normal activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

Sound is measured in terms of intensity, which describes the sound's loudness, and is measured in decibels (dB), frequency or pitch measured in cycles per second or hertz, and duration of sound. Sound-level meters adjust for the weight the human ear gives to certain frequencies, applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called "A-weighting," abbreviated dBA, which is the most commonly used and the most appropriate unit of measure for community noise.

Equivalent Noise Level and Related Noise Metrics. Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources that create a relatively steady background noise in which no particular source is identifiable. A single

descriptor called the "equivalent sound level" (L_{eq}) is used to describe the average acoustical energy in a time-varying sound. L_{eq} is the energy-mean A-weighted sound level present or predicted to occur during a specified interval. It is the "equivalent" constant sound level that a given source would need to produce to equal the fluctuating level of measured sound. It is often desirable to also know the range of acoustic levels of the noise source being measured. This is accomplished through the L_{max} and L_{min} noise descriptors. They represent the root-mean-square maximum and minimum obtainable noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location represents the quietest moment occurring during the measurement period and is often called the *acoustic floor* for that location. Likewise, the loudest momentary sound during the measurement is represented by L_{max}.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} (or other percentile values) may be used. They are the noise levels equaled or exceeded 10 percent, 50 percent, and 90 percent of the time, respectively, during the measured interval. Of particular interest in this analysis are other descriptors of noise that are commonly used to help determine noise/land use compatibility and to predict an average community reaction to adverse effects of environmental noise, including traffic-generated and industrial noise.

Community Noise Equivalent Level. A unit of measure for the cumulative effect of community noise is the community noise equivalent level (CNEL), which is the weighted average noise level for a 24-hour period. The CNEL is often used to describe the relationship of a noise source, such as traffic or other transportation noise, to the desirable ambient noise level (normal and existing noise level). The CNEL is adjusted to reflect the greater sensitivity to noise during evening and nighttime hours with 5 dB being added to noise occurring between 7:00 p.m. and 10:00 p.m. and 10 dB being added to noise occurring between 10:00 p.m. and 7:00 a.m.

Audible Noise Changes. To respond to the human ear's sensitivity to sound, the range of audible sounds exist on a logarithmic scale that takes into account the large differences in audible sound intensities. On this scale, for example, a 10 dB increase is normally perceived as a doubling of sound. A sound level of 0 dB is approximately the threshold of human hearing. Normal speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort and eventually as pain at slightly higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB.

Noise Components. There are three conceptual components to noise: the source, the transmission path, and the receiver. Noise can be reduced by modifying or controlling its source; by lengthening or interrupting the transmission path through diversion, absorption, or dissipation; or by protecting the receiver through noise insulation. The most efficient and effective means of abating noise is to reduce noise at its source. Noise sources can be classified in two forms: (1) point sources, such as stationary equipment (e.g., pumps), and (2) line sources, such as a roadway with a large number of pass-by sources (e.g., motor vehicles). Sound generated by a point source typically diminishes (attenuates)

at a rate of 6 dB for each doubling of distance from the source to the receptor. Typical sound levels generated by various activities are listed in Table 4.10-1.

Sensitive Receptors. Sensitive receptors are those receptors susceptible to the effects of noise including, but not limited to, residences, schools, playgrounds, childcare centers, religious institutions, long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, and wildlife habitat areas. For the proposed program, sensitive receptors could include any of these types of facilities.

Noise Analysis Methodology

Ambient Noise Measurements. A sound-level survey was conducted on September 29, 2016, to evaluate existing sound levels and assess potential proposed program noise impacts on the surrounding area. Short-term sound levels were measured at existing noise-sensitive receptors adjacent to certain proposed program sites, both proposed Capital Investment Plan (CIP) project and operations and maintenance (O&M) activity locations. Given the proposed program scale and number of individual projects associated with the proposed program, noise measurements could not be taken at all of the proposed project/activity sites. Instead, a total of nine representative project/activity sites were selected with the intent of representing a "maximum impact" scenario, in terms of proximity to noise-sensitive land uses and equipment/activity levels. Noise measurements at these representative sites (shown on Figure 4.10-1, Noise Measurement Locations) were taken at nearby residences, schools, and other sensitive receptors. Data from these sites were used to characterize the existing noise environment for the remaining proposed program locations. Short-term (1 hour or less) attenuated sound-level measurements were taken with a SoftdB Piccolo Sound-Level Meter. This instrument is categorized as a Type 2, General Purpose Grade device.

Table 4.10-1. Typical Noise Levels

Common Outdoor Activities	Noise 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 feet at 50 miles per hour		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		

Table 4.10-1. Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013.
Note: dBA = A-weighted decibels.

To ensure accuracy, the laboratory calibration of the instrument was field-checked before and after each measurement period using an acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established through the manufacturer and traceable to the National Institute of Standards and Technology. The sound measurement instrument meets the requirements of the American National Standards Institute S1.4-1983 (ANSI 1983) and the International Electrotechnical Commission Publications 804 and 651 (IEC 1979 and 1985). In all cases, the microphone height was 5 feet aboveground, and the microphone was equipped with a windscreen. During the field measurements, physical observations of the predominant noise sources were noted. The major noise source in most of the measurement locations consisted of noise from traffic on arterial roadways. Other, secondary noise sources included noise from distant aircraft, landscaping maintenance work, rustling leaves, birds, and neighborhood activity (e.g., children playing).

Proposed CIP Projects and O&M Activities Noise Modeling. The Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM) (FHWA 2008) and program-specific construction equipment provided by Metropolitan staff were used to estimate construction noise levels at the nearest noise-sensitive land uses.

The RCNM is a national model that is based on the noise calculations and extensive construction noise data compiled for the Central Artery/Tunnel Project. This project, which began in the early 1990s, was in Boston, Massachusetts, and was one of the largest urban construction projects ever built in the United States. The basis for the national model is a spreadsheet tool developed in support of the Central Artery/Tunnel Project. The Central Artery/Tunnel Project predictions originated from U.S. Environmental Protection Agency noise-level work and an Empire State Electric Energy Research Corporation Guide, which uses an "acoustical usage factor" to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation (FHWA 2006).

Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each equipment type (e.g., two excavators, a loader, a dump truck), the duty cycle for each piece of equipment (i.e., percentage of hours the equipment typically works per day), and the distance from the sensitive noise receptor. The RCNM has default duty cycle values for the various pieces of

equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were used for this analysis.

4.10.1 Existing Conditions

The proposed program consists of CIP projects and O&M activities located along multiple pipelines that traverse private property and public rights-of-way throughout the Western San Bernardino County Operating Region. Proposed program locations would be in unincorporated lands in San Bernardino County, as well as portions of 10 cities in western San Bernardino County. Although the majority of the proposed CIP projects and O&M activities would occur in undeveloped areas, some proposed projects and activities would occur in developed areas supporting residential, commercial, educational, and industrial land uses, as well as local and regional parks. A variety of sensitive receptors are located throughout the operating region.

The results of the sound-level measurements, the land use type of each measurement location, observed noise sources, CIP project and O&M activity codes, and details about the measurement location and measurement period for each representative project or activity site are summarized in Table 4.10-2. Measured noise levels varied from 51 dBA L_{eq} at measurement locations M5, M6, and M7 to 71 dBA L_{eq} at measurement location M8 (rounded to whole numbers as is customary for community noise measurements).

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Table 4.10-2. Short-Term Sound Level Measurement Results

Site ID	Measurement Location	Measurement Period			Noise Sources	Land Use Type/ Sensitive Receptor	Nearby Pipelines and Stations	Activity Code ID	Measurement Results (dBA)[a]					
		Date	*Start Time*	*Duration (mm:ss)*					L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
M1	6488 Carol Avenue, Rancho Cucamonga	9/29/16	10:19 a.m.	15:00	Traffic (I-210), distant aircraft, rustling leaves, birds	Residential	Rialto Pipeline Station 3094+04	O&M Activity Code Nos. 1, 10, 11	56.4	64.2	53.5	55	55	57
M2	1700 E. 7th Street, Ontario	9/29/16	11:33 a.m.	15:00	Traffic (East 7th Street), garbage truck, back-up alarm, birds	Arroyo Elementary	Upper Feeder Station 1360+00	N/A[b]	61.9	73.3	52	51	53	83
M3	13150 Garcia Drive, Rancho Cucamonga	9/29/16	12:24 p.m.	15:00	Traffic (Garcia Drive, East Avenue), distant aircraft, birds, distant street sweeper	Garcia Park	Etiwanda Pipeline Station 246+00	N/A[b]	53.4	82.9	50.6	51	51	53
M4	5541 Crestline Place, Rancho Cucamonga	9/29/16	1:17 p.m.	15:00	Traffic (San Sevaine Road), rustling leaves, birds	Residential	Rialto Pipeline Station 3571+01	CIP Activity Code Nos. 1, 2 O&M Activity Code Nos. 1, 6, 11, 15	53.3	82.8	48.4	49	51	55
M5	11962 Alpine Drive, Fontana	9/29/16	2:20 p.m.	15:00	Distant traffic, fountain, distant traffic, barking dog, distant aircraft, rustling leaves, birds, distant conversations	Residential	Upper Feeder Station 740+00	O&M Activity Nos. 1, 6, 10,11	50.9	62.9	44.4	45	53	53
M6	6495 North Ventura Avenue, San Bernardino	9/29/16	3:29 p.m.	15:00	Distant traffic, rustling leaves, birds, distant conversations	Residential	Inland Feeder Station 19+55	CIP Activity Code Nos. 2, 3	51.3	64	47.5	49	49	51
M7	4040 Piedmont Drive No. 234, Highland	9/29/16	4:40 p.m.	15:00	Distant traffic, distant aircraft, rustling leaves, birds, distant generator noise, flagpole in wind	Residential	Inland Feeder Stations 592+31, 573+94	CIP Activity Code Nos. 1, 2, 3 O&M Activity Code Nos. 1, 6, 11	51.2	62.1	48.4	49	49	53
M8	28479 Greenspot Road, Highland	9/29/16	5:10 p.m.	15:00	Traffic (Boulder Avenue), distant aircraft, rustling leaves, distant barking dogs, birds, distant gardeners	Residential	Inland Feeder Stations 733+15, 735+40, 745+00	CIP Activity Code Nos. 1, 2 O&M Activity Code Nos. 1, 6, 10, 11	71.2	84.6	59	63	69	73
M9	1348 Opal Avenue, Mentone	9/29/16	5:51 p.m.	15:00	Traffic (Opal Avenue, Mentone Boulevard), rustling leaves	Residential	Inland Feeder Station 1005+15	O&M Activity Code Nos. 1, 6, 11	64.3	79.6	52.3	53	55	67

Notes: mm:ss = minutes:seconds; dBA = A-weighted decibels; L_{eq} = equivalent sound level; L_{max} = maximum sound level; L_{min} = minimum sound level; L_{90} = sound level exceeded 90 percent of the measured time interval; L_{50} = sound level exceeded 50 percent of the measured time interval; L_{10} = sound level exceeded 10 percent of the measured time interval; O&M = Operations and Maintenance; N/A = not applicable; CIP = Capital Investment Plan.

[a] The L_{min} value obtained for a particular monitoring location represents the quietest moment occurring during the measurement period and is often called the acoustic floor for that location. The loudest momentary sound during the measurement is represented by L_{max}. To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} (or other percentile values) are the noise levels equaled or exceeded 10 percent, 50 percent, and 90 percent of the time, respectively, during the measured interval. For example, the L_{50} value would represent 30 minutes of a 1-hour period,

[b] No specific proposed CIP project or O&M activity anticipated at this time; however, routine maintenance could occur anywhere along the Metropolitan right-of-way in the future. This measurement was conducted in order to characterize the ambient environment in this area of the pipeline.

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4.10.2 Regulatory Framework

State

California Code of Regulations Section 65302(f)

California Code of Regulations Section 65302(f) requires local land use planning jurisdictions to prepare a general plan. The noise element is a mandatory component of the general plan. It may include general community noise guidelines developed by the California Department of Health Services and specific planning guidelines for noise/land use compatibility developed by the local jurisdiction. The state guidelines also recommend that the local jurisdiction should consider adopting a local noise control ordinance. The California Department of Health Services has developed guidelines (1976) for community noise acceptability for use by local agencies. Selected relevant levels are as follows (L_{dn} (day–night average sound level) may be considered nearly equal to CNEL):

- CNEL below 60 dBA—normally acceptable for low-density residential use
- CNEL of 55 to 70 dBA—conditionally acceptable for low-density residential use
- CNEL below 65 dBA—normally acceptable for high-density residential use
- CNEL of 60 to 70 dBA—conditionally acceptable for high-density residential use, transient lodging, churches, and educational and medical facilities
- CNEL below 70 dBA—normally acceptable for playgrounds and neighborhood parks

"Normally acceptable" is defined as satisfactory for the specified land use, assuming that normal conventional construction is used in buildings. "Conditionally acceptable" may require some additional noise attenuation or special study. Under most of these land use categories, overlapping ranges of acceptability and unacceptability are presented, leaving some ambiguity in areas where noise levels fall within the overlapping range.

Local General Plans

San Bernardino County and each of the 10 cities in which the proposed program would occur has prepared their own general plan, which is the primary document that establishes local noise objectives and policies. Noise elements or chapters are a mandatory component of the general plan as required by California Code of Regulations Section 65302(f). Noise-generating uses and activities within the general plan area are identified and typically sources that generate noise levels that exceed the prevailing background noise are described.

Noise Ordinances

The County of San Bernardino and each of the 10 cities have established noise regulations as part of their code of ordinances that include statutes associated with the generation of noise within their jurisdiction. Although noise regulations vary by jurisdiction, typically noise zones are established within the ordinance and are characterized by noise sensitivity or land use types. Jurisdictions typically provide a list of noise-generating sources or activities exempt from the provisions established within the noise ordinance, which in some cases includes construction, maintenance, and emergency work on public utilities (County of San Bernardino 2014).

Appendix I contains a summary of the municipal codes for jurisdictions within the Western San Bernardino County Operating Region as they pertain to noise. The proposed program was evaluated for compatibility with each of these local codes.

California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. Despite this exemption from local land use planning jurisdiction, for purposes of full disclosure of potential impacts on the environment from the proposed program, this PEIR evaluates the proposed program's compatibility with relevant general plans and local policies.

4.10.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program impacts related to noise are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to noise would occur if the proposed program would have any of the following effects:

Impact NOI-1: **Would the program result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Impact NOI-2: **Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?**

Impact NOI-3: **Would the program result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

Impact NOI-4: **Would the program result in a substantial permanent increase in ambient noise levels in the program vicinity above levels existing without the program?**

Impact NOI-5: **Would the program be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and**

if so, would the program expose people residing or working in the program area to excessive noise levels?

Impact NOI-6: Would the program be within the vicinity of a private airstrip, and if so, would the program expose people residing or working in the program area to excessive noise levels?

Based on the findings of the November 2014 Initial Study, the following topics were determined to have less than significant impacts or no impacts for noise and are not further analyzed in this PEIR:

Impact NOI-3: Excessive Groundborne Vibration or Noise

Impact NOI-4: Permanent Increase in Ambient Noise Levels

Impact NOI-5: Excessive Noise Levels near Public Airport or Public Use Airport

Impact NOI-6: Excessive Noise Levels near Private Airstrip

4.10.4 Applicant Proposed Measures

BMPs, expressed in this PEIR as APMs, are presented in full in this section (see also Chapter 3, Program Description). These APMs, which are standard practice for Metropolitan, will reduce impacts to noise. Their specific relevance to impact topics is detailed in Section 4.10.5, Impact Analysis (see also Executive Summary, Table E-4).

APM-NOI-1 **Compliance with Noise Output Regulations.** All mobile or fixed noise-producing equipment used on the proposed program that is regulated for noise output by a federal, state, or local agency shall comply with such regulation while in the course of proposed program activity.

APM-NOI-2 **Use of Electric Equipment.** Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.

APM-NOI-3 **Location of Stockpiles and Other Noise-Producing Activities.** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

APM-NOI-4 **Construction-Related Speed Limits.** Construction site and haul-road speed limits shall be established and enforced during the construction period.

APM-NOI-5 **Construction Hours Restrictions.** As feasible, the hours of construction, including all spoils and material transport, shall be restricted to the time periods and days permitted by the local noise ordinance or other applicable ordinance. As necessary, Metropolitan shall coordinate with the applicable local jurisdiction regarding activities that are not consistent with local ordinances to avoid/minimize impacts.

APM-NOI-6 **Limits on Noise-Producing Signals.** The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

APM-NOI-7 **Pre-Construction Coordination.** As necessary, Metropolitan shall voluntarily coordinate with local jurisdictions and sensitive receptors regarding the proposed program to address any potential program-specific noise-related issues prior to commencement of construction activities.

APM-NOI-8 **Noise Complaints Response and Resolution.** The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints.

4.10.5 Impact Analysis

This section evaluates potential impacts associated with noise that would result from the proposed program. Proposed CIP projects and O&M activities could generate noise from the use of heavy equipment at the sites or vehicles transporting material to or from the construction and maintenance sites. Construction and maintenance equipment anticipated for the proposed program would not include the type of equipment that is associated with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment). This type of equipment would not be necessary for implementation of the proposed program.

Table 4.10-3 provides construction equipment noise data, which are used to predict construction noise within the RCNM (FHWA 2006). The noise levels listed represent the A-weighted maximum sound level (L_{max}), measured at a distance of 50 feet from the construction equipment (FHWA 2006).

Table 4.10-3. Roadway Construction Noise Model Noise Emission Reference Levels and Usage Factors

Equipment	Acoustical Usage Factor (% of time)	Noise Level at 50 feet (dBA L_{max})
Backhoe	40	80
Compressor (air)	40	80
Concrete pump truck	20	82
Concrete mixer truck	40	85
Crane	16	85
Excavator	40	85
Front-end loader	40	80
Generator	50	82
Grader	40	85
Paver	50	85
Pickup truck	40	55
Pump	50	77
Roller	20	85
Tractor	40	84

Source: FHWA 2006.
Notes: dBA = A-weighted decibels; L_{max} = maximum sound level.

4.10.5.1 CIP Projects

The proposed CIP projects generally consist of substantial repair, upgrading, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of CIP projects: patrol road improvements and paving (CIP Activity Code No. 1), engineered erosion control (CIP Activity Code No. 2), and slope stabilization (CIP Activity Code No. 3).

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

FHWA's RCNM and information provided by Metropolitan staff regarding equipment to be used for construction of proposed CIP projects were used to estimate construction noise levels at 100 feet from the locations of proposed CIP projects. The input and output from this and the other RCNM runs are included in Appendix I. Equipment that would be used for patrol road improvements and paving would include motor graders, front-end loaders, pavers, and rollers. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of modeling, sound levels associated with proposed paving and patrol road improvements would range from 73 to 76 dBA L_{eq} at a distance of 100 feet from the construction activity.

Impact NOI-1: Exceedance of Noise Level Standards

Metropolitan is exempt through California Government Code Section 53091, as well as the local codes; however, construction activities associated with proposed CIP projects would be limited to Mondays through Fridays, 7:00 a.m. to 6:00 p.m., which is generally consistent with the applicable codes. Construction activities are not expected on Saturdays, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. In addition, implementation of APM-NOI-1 through APM-NOI-8 (see Section 4.10.4, Applicant Proposed Measures) as part of Metropolitan's standard practice would further minimize noise impacts. Therefore, impacts related to the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact NOI-2: Increase in Ambient Noise Levels

Although Metropolitan is not subject to local noise ordinances based on California Government Code Section 53091 and is exempt from the local codes though exemptions or exceptions associated with construction activities or government/public agency projects, to the extent possible, construction activities associated with proposed CIP projects would be limited to Mondays through Fridays, 7:00 a.m.

to 6:00 p.m. No construction activities are expected on Saturday, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. As part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs (described in Section 4.10.4 and in Chapter 3) to reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place, in addition to the short-term, temporary nature of the noise, impacts related to a substantial temporary or periodic increase in ambient noise levels in the proposed program vicinity above levels existing without the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

FHWA's RCNM and information provided by Metropolitan staff regarding equipment to be used for construction of proposed CIP projects were used to estimate construction noise levels at 100 feet from the locations of proposed CIP projects. Equipment that would be used for proposed engineered erosion control projects would include excavators, motor graders, and front-end loaders. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of modeling, sound levels associated with proposed engineered erosion control projects would range from 70 to 76 dBA L_{eq} at a distance of 100 feet from the construction activity.

Impact NOI-1: Exceedance of Noise Level Standards

Metropolitan is exempt through California Government Code Section 53091, as well as the local codes; however, construction activities associated with proposed CIP projects would be limited to Mondays through Fridays, 7:00 a.m. to 6:00 p.m., which is generally consistent with the applicable codes. Construction activities are not expected on Saturdays, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. In addition, implementation of APM-NOI-1 through APM-NOI-8 (see Section 4.10.4) as part of Metropolitan's standard practice would further minimize noise impacts. Therefore, impacts related to the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact NOI-2: Increase in Ambient Noise Levels

Based on the nature of the proposed CIP projects and resulting noise levels, the analysis for proposed engineered erosion control projects would be the same as that for patrol road paving and improvements (CIP Activity Code No. 1). Impacts related to a substantial temporary or periodic increase in ambient noise levels in the proposed program vicinity above levels existing without the proposed program would be less than significant. In addition, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs to reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place (see Section 4.10.4) and given the short-term, temporary nature of the noise, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

FHWA's RCNM and information provided by Metropolitan staff regarding equipment to be used for construction of proposed CIP projects were used to estimate construction noise levels at 100 feet from the locations of proposed CIP projects. Equipment that would be used for proposed slope stabilization projects would include motor graders, rollers, tractors, pumps, excavators, and front-end loaders. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of modeling, sound levels associated with proposed slope stabilization projects would range from 74 to 75 dBA L_{eq} at a distance of 100 feet from the construction activity.

Impact NOI-1: Exceedance of Noise Level Standards

Metropolitan is exempt through California Government Code Section 53091, as well as the local codes; however, construction activities associated with proposed CIP projects would be limited to Mondays through Fridays, 7:00 a.m. to 6:00 p.m., which is generally consistent with the applicable codes. Construction activities are not expected on Saturdays, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. In addition, implementation of APM-NOI-1 through APM-NOI-8 (see Section 4.10.4) as part of Metropolitan's standard practice would further minimize noise impacts. Therefore, impacts related to the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact NOI-2: Increase in Ambient Noise Levels

Based on the nature of the proposed CIP projects and resulting noise levels, the analysis for slope stabilization would be the same as that for patrol road paving and improvements (CIP Activity Code No. 1). Impacts related to a substantial temporary or periodic increase in ambient noise levels in the proposed program vicinity above levels existing without the proposed program would be less than significant. In addition, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs to further reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place (see Section 4.10.4) and given the short-term, temporary nature of the noise, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.10.5.2 O&M Activities

Proposed O&M activities would be conducted on a regular and ongoing basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. O&M activities are divided into two categories: routine O&M activities (O&M Activity Code Nos. 1 through 13) and single-occurrence O&M activities (O&M Activity Code No. 15).

Routine O&M Activities

Thirteen different routine O&M activities are addressed in the O&M Manual (O&M Activity Code Nos. 1 through 13), including patrol road maintenance; patrol and inspection; routine structure maintenance, repair, and replacement; and shutdowns/dewatering.

FHWA's RCNM (FHWA 2008) and information provided by Metropolitan staff regarding equipment to be used for routine O&M activities were used to estimate noise levels at 100 feet from proposed O&M activity locations. Rather than modeling noise generated from all of the proposed routine O&M activities, four proposed routine O&M activities were selected to represent a "maximum impact" scenario, in terms of equipment and activity levels. The proposed routine O&M activities selected for noise modeling include patrol road grading (O&M Activity Code No. 1A, for a generic set of high, medium, and low levels of activity, and O&M Activity Code No. 1B, for a specific proposed location); erosion control (O&M Activity Code No. 6); and structure maintenance, repair, and replacement (O&M Activity Code No. 11).

Equipment that could be used for proposed patrol road grading activities (O&M Activity Code No. 1) would include motor graders, front-end loaders, backhoes, flatbed trucks, concrete pump trucks, and generators. Sound levels would vary depending on the activity phase and equipment mix. Based on the

results of noise modeling, sound levels associated with proposed patrol road grading activities would range from 75 to 77 dBA L_{eq} at a distance of 100 feet from O&M Activity Code No. 1.

Erosion control (O&M Activity Code No. 6) would involve the use of motor graders, backhoes, flatbed trucks, concrete mixer trucks, and front-end loaders. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of noise modeling, sound levels associated with erosion control activities would range from 71 to 72 dBA L_{eq} at a distance of 100 feet from the O&M activity.

Structure maintenance, repair, and replacement (O&M Activity Code No. 11) would involve the use of excavators, flatbed trucks, cranes, and front-end loaders. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of noise modeling, sound levels associated with structure maintenance, repair, and replacement activities would be approximately 76 dBA L_{eq} at a distance of 100 feet from the O&M activity.

Impact NOI-1: Exceedance of Noise Level Standards

Based on a review of the local codes for jurisdictions potentially impacted by the proposed program (see Appendix I), the proposed program construction activities are exempted from local noise standards through special provisions, exemptions, or exceptions outlined in the various noise codes related to construction or public utilities. Metropolitan is exempt through California Government Code Section 53091, as well as the local codes; however, construction activities associated with proposed routine O&M activities would primarily be limited to Mondays through Fridays, 7:00 a.m. to 6:00 p.m., which is generally consistent with the applicable codes. Construction activities are not expected on Saturdays, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. In some cases, dewatering and work activities beyond these hours may be necessary. However, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs (described in Section 4.10.4 and in Chapter 3) to further reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place and given the short-term, temporary nature of the noise, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact NOI-2: Increase in Ambient Noise Levels

Although Metropolitan is not subject to local noise ordinances based on California Government Code Section 53091, and is exempt from the local codes though exemptions or exceptions associated with construction activities or government/public agency projects, construction activities associated with proposed O&M activities would primarily be limited to Mondays through

Fridays, 7:00 a.m. to 6:00 p.m.[1] No construction activities are expected on Saturday, Sundays, or during federal holidays, and construction is not expected to occur during nighttime hours. Although noise from proposed routine O&M activities would be audible and would temporarily elevate the local ambient noise level to some degree at nearby noise-sensitive land uses, construction is expected to be short term at each location and generally consistent with the types of maintenance activities that currently occur routinely throughout the system. In addition, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs to reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place (see Section 4.10.4) and given the short-term, temporary nature of the noise, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Single-occurrence O&M activities are typically conducted on a one-time basis and include projects involving rehabilitation or replacement of existing structures and patrol roads (O&M Activity Code No. 15) to support the continued operation of Metropolitan's pipelines. Single-occurrence O&M activities typically require design engineering.

Equipment that could be used for O&M Activity Code No. 15 would include motor graders, front-end loaders, and backhoes. Sound levels would vary depending on the activity phase and equipment mix. Based on the results of noise modeling, sound levels associated with proposed patrol road grading activities would range from 68 to 77 dBA L_{eq} at a distance of 100 feet from O&M Activity Code No. 15.

Impact NOI-1: Exceedance of Noise Level Standards

Based on the nature of the proposed projects and resulting noise levels, the analysis for proposed single-occurrence O&M activities would be the same as that for routine O&M activities. Impacts related to the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would be less than significant. In addition, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs to further reduce noise levels in the vicinity of sensitive receptors. With noise minimization measures APM-NOI-1 through APM-NOI-8 in place (see Section 4.10.4) and the short-term, temporary nature of the noise, impacts would be less than significant.

[1] As discussed previously, in some instances work may need to be conducted beyond these typical hours.

Mitigation Measures

None required.

Level of Significance: Less than significant.

Impact NOI-2: Increase in Ambient Noise Levels

Based on the nature of the proposed projects and resulting noise levels, the analysis for proposed single-occurrence O&M activities would be the same as that for routine O&M activities. Impacts related to a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project would be less than significant. In addition, as part of standard Metropolitan practice, where feasible, Metropolitan would implement noise minimization APMs to reduce noise levels in the vicinity of sensitive receptors. With the noise minimization measures APM-NOI-1 through APM-NOI-8 in place (see Section 4.10.4) and the short-term, temporary nature of the noise, impacts would be less than significant.

Mitigation Measures

None required.

Level of Significance: Less than significant.

4.10.5.3 Impacts Summary

Table 4.10-4 summarizes the noise impacts for proposed CIP projects and O&M activities under each threshold analyzed in this PEIR.

Table 4.10-4. Noise Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact NOI-1: Would the program result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Engineered Erosion Control	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Slope Stabilization	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
O&M Activities			
Routine	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant

Table 4.10-4. Noise Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Single-Occurrence	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Impact NOI-2: Would the program result in a substantial temporary or periodic increase in ambient noise levels in the program vicinity above levels existing without the program?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Engineered Erosion Control	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Slope Stabilization	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
O&M Activities			
Routine	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant
Single-Occurrence	Less than significant	APM-NOI-1 through APM-NOI-8	Less than significant

4.10.6 Impacts Found Not to Be Significant

Impact NOI-3: Excessive Groundborne Vibration or Noise

Construction and maintenance activities associated with proposed CIP projects and O&M activities would not result in exposure of persons to or generation of excessive ground-borne noise levels. The construction-related noise levels would be from, but not necessarily limited to, the use of heavy equipment at the site or vehicles transporting material to or from the construction site. Activities that could generate excessive ground-borne vibrations include pile-driving, blasting, and demolition; however, these activities are not required to implement CIP projects and O&M activities under the proposed program. Therefore, excessive ground-borne vibrations are not anticipated, and impacts would be considered less than significant.

Impact NOI-4: Permanent Increase in Ambient Noise Levels

Proposed CIP projects and O&M activities would not result in a substantial permanent increase in ambient noise levels in the proposed program vicinity. The proposed program is related to maintenance and repair and/or protection of the existing distribution system. The proposed program does not involve structures that currently generate, or would generate in the future, substantial amounts of noise. The proposed program would not introduce new noise sources and is not anticipated to generate a substantial increase in permanent noise levels. Noise associated with construction of proposed CIP projects and O&M activities would be short term and temporary, only

for the duration of the construction, and would not introduce a new permanent source of noise. There would be no impacts associated with a substantial permanent increase in ambient noise levels.

Impact NOI-5: Excessive Noise Levels near Public Airport or Public Use Airport

Existing Metropolitan pipelines and structures are located within 2 miles of several airports, including the Rialto Municipal Airport, San Bernardino International Airport (formerly Norton Air Force Base), Redlands Municipal Airport, Riverside Municipal Airport, and Ontario International Airport; therefore, proposed CIP projects and O&M activities could occur within this area. Proposed program activities, however, would be unlikely to result in excessive noise levels for those working or residing in the proposed program area. Proposed CIP projects and O&M activities would not result in construction of facilities or structures that would create permanent, long-term noise impacts. Although the proposed construction of CIP projects and implementation of O&M activities would result in higher noise levels associated with heavy equipment, these types of activities are currently ongoing in this area, and proposed program-related construction activities would be short term and temporary, thus reducing the likelihood that people residing or working in the area would be exposed to excessive noise levels. Impacts would be less than significant.

Impact NOI-6: Excessive Noise Levels near Private Airstrip

The Rialto Pipeline is located within 2 miles of Cable Airport, which is located in the city of Upland; therefore, proposed CIP projects and O&M activities would occur within this area (DOT 2013). These activities include graffiti removal and coating of structures, vegetation maintenance around structures, and pipeline appurtenance maintenance, repair, and replacement. However, proposed program activities would be unlikely to result in a safety hazard for those working or residing in the area. Proposed CIP projects and O&M activities would not result in the construction of facilities or structures that could visually or physically obstruct flight paths or roads leading to Cable Airport, and maintenance activities already occur routinely without issue. Metropolitan employees are not likely to be exposed to noise or dangers associated with nearby air traffic because work in these areas would be temporary and short term, reducing the likelihood that employees would be significantly impacted by these dangers. Impacts would be less than significant.

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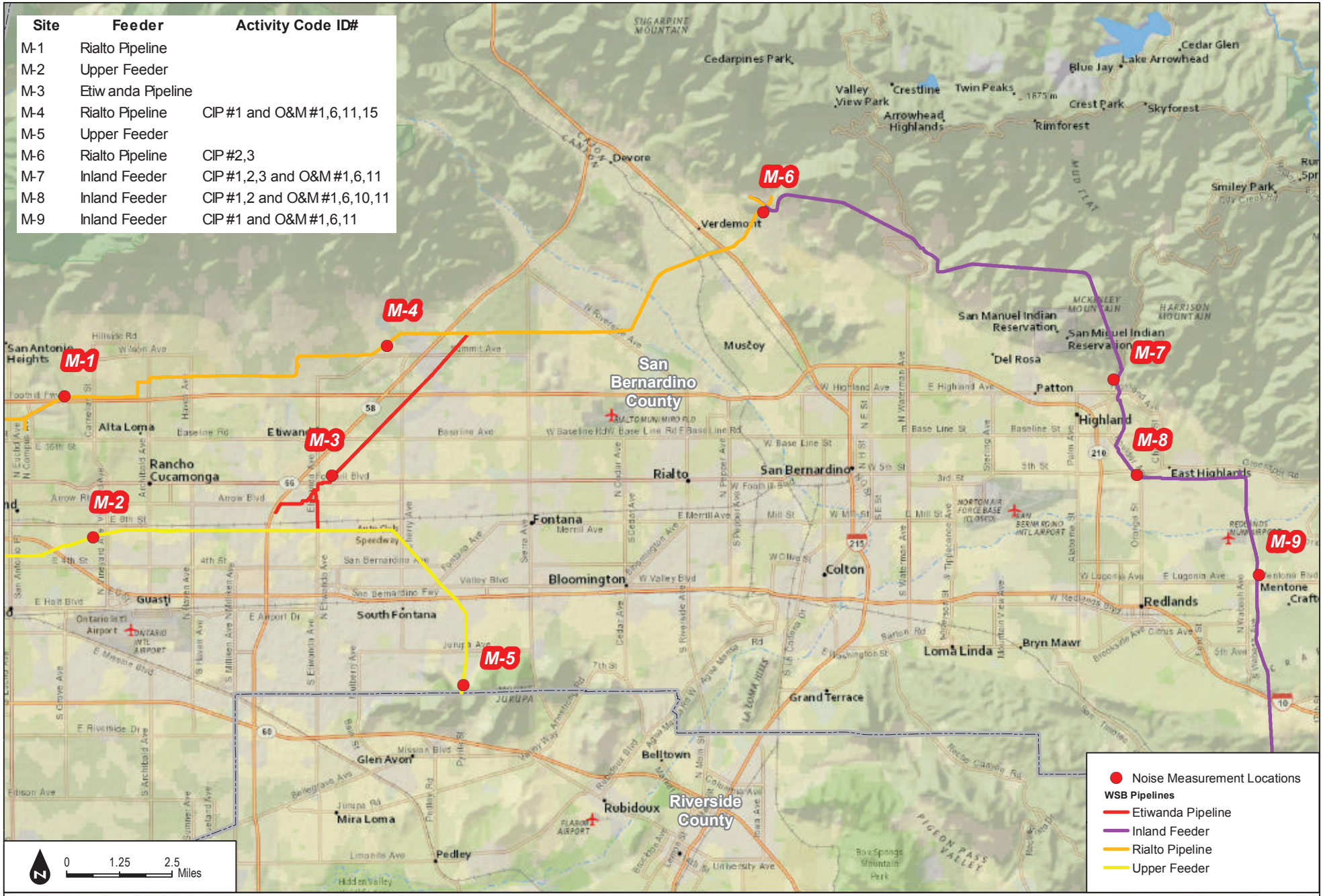

SOURCE: ArcGIS Online Basemap (Nat Geo), Distribution netwrok (MWD)

FIGURE 4.10-1

Noise Measurement Locations

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4.11 Public Services

This section describes the existing public services in the vicinity of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program). This section also identifies the associated regulatory framework, evaluates potential impacts to public services that would result from the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed program.

The following topic related to public services is examined in this section:

- Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), potential impacts from the proposed program on police protection, schools, parks, and other public facilities were determined to have no impact or impacts that are less than significant; therefore, these topics are not further analyzed in this PEIR.

4.11.1 Existing Conditions

The San Bernardino County Fire Department (San Bernardino County Fire) is a regional fire service agency that serves the cities of Adelanto, Fontana, Hesperia, Needles, and Victorville, in addition to various towns and communities within unincorporated San Bernardino County. San Bernardino County Fire regionally provides fire, emergency medical, and rescue services within a 16,535-square-mile service area. There are 56 fire stations that provide regional emergency response for all fires, medical aids, rescues, and hazardous materials incidents (San Bernardino County Fire 2015). Jurisdictions in San Bernardino County that are not served by San Bernardino County Fire operate under individual city fire departments.

Table 4.11-1 identifies each jurisdiction potentially affected by the proposed program, its functioning fire jurisdiction, and the address of its fire department's headquarters.

Table 4.11-1. Fire Jurisdiction Summary

Jurisdiction	Fire Jurisdictions	Address
City of Chino Hills	Chino Valley Fire District	14011 City Center Drive Chino Hills, California 91709
City of Fontana, City of San Bernardino, City of Upland, and unincorporated San Bernardino County	San Bernardino County Fire	157 West 5th Street, 2nd Floor San Bernardino, California 92415

Table 4.11-1. Fire Jurisdiction Summary

Jurisdiction	Fire Jurisdictions	Address
City of Highland	City of Highland Fire Department	27215 Base Line Highland, California 92346
City of Montclair	City of Montclair Fire Department	8901 Monte Vista Avenue Montclair, California 91763
City of Ontario	City of Ontario Fire Department	425 East B Street Ontario, California 91764
City of Rancho Cucamonga	Rancho Cucamonga Fire District	10500 Civic Center Drive Rancho Cucamonga, California 91730
City of Redlands	City of Redlands Fire Department	35 Cajon Street Redlands, California 92373
City of Rialto	City of Rialto Fire Department	131 South Willow Avenue Rialto, California 92376

4.11.2 Regulatory Framework

Federal

U.S. Forest Service

Portions of the Rialto Pipeline and Inland Feeder are located within the San Bernardino National Forest. The San Bernardino National Forest is part of Region 5, Pacific Southwest Region, of the U.S. Forest Service (USFS). The Pacific Southwest Region of the USFS manages 20 million acres of national forest land in California and assists the state and private forest landowners in California, Hawaii, and the U.S. Affiliated Pacific Islands. Eighteen national forests are located in this region. USFS Fire and Aviation Management is responsible for wildland fire suppression to protect communities and natural resources within the jurisdiction of the USFS.

State

California Department of Forestry and Fire Protection, Unit Strategic Fire Plan, San Bernardino Unit

Portions of the Rialto Pipeline and Inland Feeder are located within the jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE), specifically within the CAL FIRE San Bernardino Unit. The San Bernardino Unit includes San Bernardino, Los Angeles, Inyo, and Mono counties and is overseen by the CAL FIRE San Bernardino–Inyo–Mono Unit Fire Prevention Bureau. The total unit acreage is 1,408,000 of state responsibility area (SRA) plus 18,502 acres of wildland contracts.

The CAL FIRE San Bernardino–Inyo–Mono Unit Fire Prevention Bureau oversees the application of California Public Resources Code Section 4290 and Title 14 of the California Code of Regulations, Section 1270, on all private lands classified as SRA within the unit. These regulations are best known

as the "SRA Fire Safe Regulations," and constitute the basic wildland fire protection standards of the California Board of Forestry and Fire Protection. CAL FIRE has been given the role of wildland fire protection expert and is provided the opportunity to review and comment on all proposed construction within the SRA. In cooperation with Inyo County Planning, Mono County Planning, and San Bernardino County Planning when requested, CAL FIRE has oversight responsibility and reviews Land Division Applications for compliance with California Public Resources Code Section 4290. CAL FIRE forwards recommendations to the appropriate planning department, specifying the minimum requirements necessary to meet state law (CAL FIRE 2012).

Local

General Plan Goals, Policies, and Regulations

General plans serve to guide and direct local government decision making in public services and facilities-related matters. Generally, public services and facilities elements or chapters in local jurisdictions' general plans focus on publicly managed services and facilities that have a direct influence on the distribution and intensity of development that can be accommodated through assumptions to determine adequate service levels. This includes fire protection and fire response services. Jurisdictions typically have an established threshold that measures a fire department's ability to respond to a fire in a timely manner. The Metropolitan Water District of Southern California (Metropolitan) strives to be consistent with local jurisdiction's general plans, and understands the importance of compliance with the goals and policies identified therein; however, per California Government Code Section 53091, Metropolitan, as a public water utility, is exempt from local zoning and building ordinances. As part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program.

4.11.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program's impacts to public services are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to public services would occur if the proposed program would have any of the following effects:

Impact PUB-1: Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- **Impact PUB-1A: Fire Protection?**
- **Impact PUB-1B: Police Protection?**

- **Impact PUB-1C: Schools?**
- **Impact PUB-1D: Parks?**
- **Impact PUB-1E: Other Public Facilities?**

Based on the findings of the November 2014 Initial Study (see Appendix C), the proposed program was determined to have no impact on the following topics, and these topics are not further analyzed in this PEIR:

Impact PUB-1B: Police Protection

Impact PUB-1C: Schools

Impact PUB-1D: Parks

Impact PUB-1E: Other Public Facilities

4.11.4 Applicant Proposed Measures

Relevant best management practices (BMPs), included in this PEIR as applicant proposed measures (APMs), are presented in full in Chapter 3, Program Description. The following APM relating to hazards and hazardous materials would ensure compliance with recommended fire protection and prevention regulations; this APM's specific relevance to public services is detailed in Section 4.11.5 (see also Executive Summary, Table E-4):

APM-HAZ-4 Fire Protection and Fire Safety (see Section 4.7, Hazards and Hazardous Materials).

4.11.5 Impact Analysis

4.11.5.1 CIP Projects

The proposed Capital Investment Plan (CIP) projects generally consist of repair, upgrade, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of CIP projects: patrol road improvements and paving; engineered erosion control; and slope stabilization.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact PUB-1A: Fire Protection

Several proposed CIP projects that involve patrol road improvements and patrol road paving within the Western San Bernardino County Operating Region would occur in high to very high fire hazard severity zones. See Figure 4.7-1, Site Hazards, for the fire hazard severity zones within the proposed program area. The use of construction equipment around flammable vegetation would present an increased fire risk that could result in the need for fire suppression services. However, proposed

vegetation mowing and trimming along patrol roads and around aboveground structures would provide adequate setbacks and would reduce the risk of fire-related accidents. In addition, implementation of APM-HAZ-4 would ensure compliance with recommended fire protection and prevention regulations. BMPs included as part of APM-HAZ-4 would further reduce potential impacts due to fire hazards. Therefore, with incorporation of APM-HAZ-4 into the proposed program as part of Metropolitan's standard practice, impacts to fire protection services as a result of proposed patrol road improvements and paving (CIP Activity Code No. 1) would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact PUB-1A: Fire Protection

The impacts of proposed engineered erosion control projects with respect to fire protection services would be less than significant for the same reasons described previously for patrol road improvements and paving. Although the use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services, all projects would be required to have fire safety measures, such as fire suppression equipment, in place prior to the start of any construction. Compliance with recommended fire protection and prevention BMPs (detailed in APM-HAZ-4) would further reduce potential impacts due to fire hazards; therefore, impacts to fire protection services as a result of proposed engineered erosion control projects (CIP Activity Code No. 2) would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact PUB-1A: Fire Protection

The impacts of proposed slope stabilization projects with respect to fire protection services would be less than significant for the same reasons described previously for patrol road improvements and paving. Although the use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services, all CIP projects would be required to have fire safety measures, such as fire suppression equipment, in place prior to the start of any construction. Compliance with recommended fire protection and prevention BMPs

(detailed in APM-HAZ-4) would further reduce potential impacts due to fire hazards; therefore, impacts to fire protection services as a result of slope stabilization projects (CIP Activity Code No. 3) would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.11.5.2 O&M Activities

Proposed Operations and Maintenance (O&M) activities would be conducted on a regular basis and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. As part of the proposed program, an O&M Manual (see Appendix A to this PEIR) would provide a systematic and scheduled approach to these maintenance activities and would serve as a comprehensive guide for the maintenance of existing water conveyance and distribution infrastructure. O&M activities are divided into two categories: routine O&M activities and single-occurrence O&M activities. Table 3-2 (see Chapter 3 of this PEIR) shows the types of O&M activities that would be conducted.

Routine O&M Activities

Impact PUB-1A: Fire Protection

Proposed vegetation mowing and trimming along patrol roads and around aboveground structures would provide adequate setbacks and reduce the risk of fire-related accidents; however, use of maintenance equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. Proposed O&M activities would require less equipment than CIP projects; however, the potential to ignite a fire in areas with a high fire hazard severity still exists. Compliance with recommended fire protection and prevention BMPs (described in APM-HAZ-4) would further reduce potential impacts due to fire hazards. During patrol road maintenance grading, a water truck would follow the grader. The operator of the water truck would be the designated fire watch.

The proposed program is a maintenance program for existing facilities. The proposed program would not include construction of new or expanded facilities that would increase the number of facilities, or indirectly cause population growth and development, resulting in the need for additional fire protection services. In the event that fire suppression services are required, existing fire stations and crews would be able to adequately support the proposed activities, and no new or additional fire protection services would be required. Therefore, with incorporation of APM-HAZ-4 into the proposed program as part of Metropolitan's standard practice, impacts to fire protection services as a result of proposed routine O&M activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Impact PUB-1A: Fire Protection

Use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. The impacts of single-occurrence O&M activities with respect to fire protection services would be less than significant for the same reasons described previously for routine O&M activities. Metropolitan would ensure that all maintenance crews are properly equipped with fire suppression equipment and have procedures in place in the event that a fire is ignited. Compliance with recommended fire protection and prevention BMPs (detailed in APM-HAZ-4) would reduce potential impacts due to fire hazards; therefore, impacts to fire protection services as a result of proposed single-occurrence O&M activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.11.5.2 Impacts Summary

Table 4.11-2 summarizes the impacts for proposed CIP projects and O&M activities under each threshold analyzed in this PEIR.

Table 4.11-2. Public Services Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact PUB-1A: Would the program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-HAZ-4	Less than significant
Engineered Erosion Control	Less than significant	APM-HAZ-4	Less than significant

Table 4.11-2. Public Services Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Slope Stabilization	Less than significant	APM-HAZ-4	Less than significant
O&M Activities			
Routine	Less than significant	APM-HAZ-4	Less than significant
Single-Occurrence	Less than significant	APM-HAZ-4	Less than significant

4.11.6 Impacts Found Not to Be Significant

Impact PUB-1B: Police Protection

Proposed CIP projects and O&M activities would not modify facilities in such a way as to present an attractive nuisance to the public, requiring the need for additional police services. Activities under the proposed program would not require additional police protection nor would they require the expansion of any police facilities. No impact to police protection would occur.

Impact PUB-1C: Schools

The proposed CIP projects and O&M activities do 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 proposed program. The proposed program would not add capacity to existing Metropolitan pipelines, which could induce population growth. Rather, the proposed program would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area. As a result, the proposed program would not increase school enrollment or result in the need for new or expanded school facilities. Impacts related to schools would not occur.

Impact PUB-1D: Parks

Proposed CIP projects and O&M activities would occur in the immediate vicinity of several parks; however, this section describes the impacts on parks as a public service. The proposed program would protect and repair an existing water conveyance distribution system; proposed program activities would be limited to maintenance and minor construction activities along existing pipeline alignments; impacts would be short term and temporary. The proposed program does not include the expansion or construction of park facilities, and would not result in an increase in water conveyance capacity or otherwise affect the location, distribution, density, or growth rate of the population in the vicinity of the proposed program area. Because growth would not occur, the proposed program 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. Proposed CIP projects and O&M activities would

result in no impacts related to increased usage and physical deterioration of park facilities. Additionally, the proposed program would not result in environmental impacts related to the construction of parks. Therefore, impacts associated with parks as a public service would be less than significant.

Impact PUB-1E: Other Public Facilities

Proposed CIP projects and O&M activities may occur near other public facilities, such as libraries, government buildings, or medical centers; however, none of the proposed activities would result in adverse physical impacts to public facilities. Activities under the proposed program would not involve a housing component or other components that would result in population growth and increased demands on public facilities within the area. Proposed CIP projects and O&M activities would not expand the existing conveyance and distribution system infrastructure, resulting in population growth and increased demands on public facilities. No impact to other public facilities would occur.

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4.12 Traffic and Circulation

This section of this program environmental impact report (PEIR) describes the existing traffic and circulation setting of the program area, identifies the associated regulatory framework, evaluates potential impacts to traffic and circulation that would result from the proposed program, and identifies mitigation measures to reduce the level of impact associated with implementation of the proposed Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program). Potential impacts could result from any necessary short-term modifications to the transportation system and increases in traffic from construction or operation of the Western San Bernardino County DSIPP. The analysis in this section is based on the Trip Generation Analysis Memo (January 2020; provided as Appendix J to this PEIR).

4.12.1 Existing Conditions

A variety of interstate, state, and county routes, as well as local arteries, provide routes for vehicle travel through the proposed program area in San Bernardino County. Other transportation modes include public transit, bikeways, and rail.

Public Transit

Bus routes in San Bernardino County are under the jurisdiction of Omnitrans, which is the public transit agency serving the San Bernardino Valley, with a service area of 480 square miles covering 15 cities and portions of unincorporated county areas (Omnitrans 2016).

Bikeways

San Bernardino County has more than 468 miles of on-road and off-road bikeways within 25 jurisdictions, with another 1,282 miles planned throughout the county (SANBAG 2015).

Rail

The San Bernardino valley is served by Metrolink and Amtrak.

4.12.2 Regulatory Framework

State

The California Department of Transportation (Caltrans) is responsible for constructing, enhancing, and maintaining the state highway and interstate freeway systems. As a result, any change to the state roadway system or construction within the vicinity of a roadway under the Caltrans jurisdiction would require an encroachment agreement/permit from Caltrans District 8 (Riverside and San Bernardino counties). There are four interstate freeways and 32 state routes, totaling 7,200 miles,

within District 8 (Caltrans 2016). Interstate freeways within The Metropolitan Water District of Southern California's (Metropolitan's) Western San Bernardino Operating Region include Interstate (I) 10, I-15, and I-215. The State Routes under the jurisdiction of Caltrans within Metropolitan's Western San Bernardino County Operating Region include State Route (SR) 18, SR-38, SR-60, SR-66, SR-83, SR-206, SR-210, and SR-330. Metropolitan will coordinate with Caltrans, as applicable.

Senate Bill 743

In 2013, Governor Brown signed Senate Bill (SB) 743 which creates a process to change the way that transportation impacts are analyzed under the California Environmental Quality Act (CEQA). Specifically, SB 743 requires the Governor's Office of Planning and Research to amend the CEQA Guidelines (14 CCR 15000 et seq.) to provide an alternative to level of service (LOS) for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (California Public Resources Code Section 21099[b][1]). Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated" (California Public Resources Code Section 21099[b][1]). Once the CEQA Guidelines are amended to include those alternative criteria, auto delay will no longer be considered a significant impact under CEQA (California Public Resources Code Section 21099[b][2]) (OPR 2016). However, at the time of the writing of this PEIR, no thresholds have been adopted with regard to vehicle miles traveled (VMT) and what might constitute a significant number of VMT.

Local

Implementation of the proposed program would occur in 10 cities in San Bernardino County and unincorporated areas. Traffic-related policies included in city and county general plans (e.g., in the Transportation or Circulation elements of the General Plan) for local jurisdictions within the proposed program study area typically address long-term traffic conditions resulting from proposed program operations rather than project construction. Because this proposed program does not generate enough operational trips to warrant a formal traffic impact analysis and would generate only short-term construction traffic, local traffic-related policies do not apply to this type of program.

In San Bernardino County, the San Bernardino Associated Governments and local jurisdictions developed a Non-Motorized Transportation Plan that includes bicycle infrastructure within 25 jurisdictions (SANBAG 2015).

Congestion Management Program

The Congestion Management Program in San Bernardino County was created in June 1990 as a provision under Proposition 111. Under this proposition, urbanized areas with populations of

more than 50,000 would be required to undertake a Congestion Management Program adopted by a designated Congestion Management Agency. SANBAG is the designated Congestion Management Agency. The Congestion Management Program's LOS standard requires all Congestion Management Program segments to operate at LOS E or better, with some exceptions (County of San Bernardino 2007).

4.12.3 Thresholds of Significance

The significance criteria used to evaluate the proposed program impacts to traffic and circulation are based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to traffic and circulation would occur if the proposed program would have any of the following effects:

Impact TR-1: **Would the program 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?**

Impact TR-2: **Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

Impact TR-3: **Would the program substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

Impact TR-4: **Would the program result in inadequate emergency access?**

Impact TR-5: **Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

Impact TR-6: **Would the program result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

Because the proposed program-generated trips were not numerous enough to trigger the need for a traffic impact analysis,[1] Impacts TR-1 and TR-2 have been combined in the impacts analysis.

[1] In San Bernardino County, a traffic impact analysis is not required if the project generates less than 100 peak hour trips (Appendix J).

Based on the findings of the November 2014 Initial Study (Appendix C to this PEIR), the following impact was found to be less than significant for traffic and circulation, and it is not further analyzed in this document:

Impact TR-6: Change in Air Traffic Patterns

4.12.4 Applicant Proposed Measures

Best management practices (BMPs) are included in this PEIR as applicant proposed measures (APMs). APM-TR-1, which is standard practice for Metropolitan and will reduce impacts to traffic and circulation, is presented in full in this section (see also Chapter 3). The APM's specific relevance to impact topics is detailed in Section 4.12.5, Impact Analysis (see also Executive Summary, Table E-4).

APM-TR-1 Traffic Control Plan.

a. Where appropriate for work on public roadways and as required by the local jurisdiction, prior to the start of the construction phase, Metropolitan or Metropolitan's contractor shall submit a Traffic Control Plan to the appropriate local jurisdiction for review and approval. The plan shall be consistent with the California Department of Transportation (Caltrans) Traffic Manual, Chapter 5. Traffic control shall be in accordance with California Code of Regulations (CCR) Title 8.
b. Where appropriate for work on public roadways, Metropolitan shall submit a set of proposed construction plans to agencies with jurisdiction over the roadways to allow them to comment on the proposed plans.
c. During construction on public roadways, Metropolitan shall implement traffic management measures as deemed necessary and applicable by a properly licensed engineer. Measures could include the following, as appropriate:
    i. Temporary traffic lanes shall be marked and barricades and lights shall be provided at excavations and crossings per the Manual of Traffic Controls for Construction and Maintenance Work Zones.
    ii. Construction activities shall affect the least number of travel lanes possible, with both directions of traffic flow being maintained at all times to the extent feasible.
    iii. Construction shall avoid the morning and evening peak traffic periods to the extent feasible.
    iv. Construction across on- and off-street bikeways shall be done in a manner that allows for safe bicycle access, or bicycle traffic will be safely rerouted.
    v. Private driveways located within construction areas shall remain open to maintain access to the maximum extent feasible. Should construction be required that prevents access to a private driveway, Metropolitan shall

coordinate with the owners and shall implement measures such as installation of metal plates to provide access.

d. During construction of projects that would impact emergency or public access, Metropolitan shall notify all affected fire, police, and paramedic departments/services as well as any affected public transportation agencies of the schedule and duration of construction activities.

e. During construction of projects that would impact underlying or adjacent property owners, Metropolitan shall send notification to and coordinate with these owners about the construction activity and duration.

4.12.5 Impact Analysis

For the trip generation analysis, the number of daily morning peak-hour and evening peak-hour vehicle trips that would occur as a result of each representative Capital Investment Plan (CIP) project and Operations and Maintenance (O&M) activity were evaluated (see Appendix J). Representative projects were chosen because numerous small maintenance activities are included within the proposed program and it would not be feasible to conduct a site-specific traffic analysis for each of the sites throughout the proposed program area. A detailed description of each representative project is shown in Section 4.2, Air Quality, Tables 4.2-6 through 4.2-16.

Representative projects were chosen through consultation with Metropolitan based on what activities were most frequently going to occur and how long they would take to complete, on average. All the project activities were examined and none exceeded a maximum of 74 daily trips. Therefore, all trips for each scenario were below the threshold of 100 trips per peak hour as established in the San Bernardino County Transportation Impact Study Guidelines (County of San Bernardino 2019).

As part of the trip generation analysis, each vehicle type (worker trucks, vendor trucks, and haul trucks) was multiplied by the appropriate passenger car equivalent (PCE) factor to create daily vehicle trips in PCEs for each representative project. Each worker truck has been assumed to enter and exit the site 1.5 times per day with a PCE of 1.5. Each vendor truck has been assumed to enter and exit the site once per day with a PCE of 2.5. Each haul truck has been assumed to enter and exit the site once per day with a PCE of 3. In some cases, equipment will be left at the job sites overnight.

Once the daily vehicle trips in PCEs were calculated, the morning and evening peak-hour vehicle trips in PCEs were determined. Typically, construction-related activities start in the early morning, at 7:00 a.m., at the beginning of the morning peak commute period (7:00 a.m. to 9:00 a.m.), and workers have arrived at the job site before the AM peak hour. Construction activities generally end before 4:00 p.m. (or earlier for smaller construction activities), which is the start of the afternoon/evening peak commute period (4:00 p.m. to 6:00 p.m.). Based on those characteristics, the proposed program's traffic in the AM peak hour have been assumed to account for 35 percent of the daily vehicle trips; and, the PM peak hour has been assumed to account for 10 percent of the daily vehicle

trips. The inbound and outbound splits have been assumed to be 90 percent inbound and 10 percent outbound during the AM peak hour and 10 percent inbound and 90 percent outbound during the PM peak hour. Appendix J provides the detailed analysis worksheets of the trip generation and VMT analyses for the minimum and maximum trip generation scenarios for the proposed program.

Construction of each of the representative CIP project types and O&M activity types was assumed to be of a certain duration, with a certain number of vehicle trips multiplied by the appropriate PCE factors; this led to an estimated number of daily morning peak-hour and evening peak-hour traffic volumes. Table 4.12-1 shows the assumptions associated with construction of each representative project type.

Table 4.12-1. Representative CIP Project and O&M Activity Assumptions and Trip Generation

Activity	Average VMT[a]	Duration (in days)	Case	Daily Trip Generation [b]	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
CIP Project A (CIP Activity Code No. 1) Patrol Road Improvements and Paving	2,507	10	Minimum[c]	9	3	0	3	0	1	1
			Maximum[d]	59	19	2	21	1	5	6
CIP Project B (CIP Activity Code No. 2) Engineered Erosion Control	4,934	16	Minimum[c]	29	9	1	10	0	3	3
			Maximum[d]	48	15	2	17	0	4	4
CIP Project C (CIP Activity Code No. 3) Slope Stabilization	16,126	36	Minimum[c]	39	12	1	13	0	4	4
			Maximum[d]	74	23	3	26	1	7	8
O&M Activity A-1 (O&M Activity Code No. 1) Patrol Road Grading	392	1	Typical[c,d]	51	16	2	18	1	5	6
O&M Activity A-2 (O&M Activity Code No. 1) Patrol Road Grading	360	1	Typical[c,d]	46	14	2	16	0	4	4
O&M Activity A-4.5 (O&M Activity Code No. 1) Patrol Road Grading	152	1	Typical[c,d]	19	6	1	7	0	2	2
O&M Activity B (O&M Activity Code No. 6) Erosion Control[e]	2,590	10	Minimum[c]	26	8	1	9	0	2	2
			Maximum[d]	46	14	2	16	0	4	4
O&M Activity C (O&M Activity Code No. 11) Structure Maintenance, Repair, and Replacement[f]	577	3	Minimum[c]	9	3	0	3	0	1	1
			Maximum[d]	31	10	1	11	0	3	3

Table 4.12-1. Representative CIP Project and O&M Activity Assumptions and Trip Generation

Activity	Average VMT[a]	Duration (in days)	Case	Daily Trip Generation [b]	AM Peak Hour			PM Peak Hour		
					In	*Out*	*Total*	*In*	*Out*	*Total*
O&M Activity D (O&M Activity Code No. 15) Patrol Road Structural Improvements (Culverts, Bridges and Arizona Crossings)	4,199	24	Minimum[c]	9	3	0	3	0	1	1
			Maximum[d]	32	10	1	11	0	3	3

Source: Appendix J.
Notes:
[a] Vehicle miles traveled. The trips for the proposed project have been divided into worker, vendor, and haul trucks. Each worker truck has been assumed to travel 14.7 miles for each trip, each vendor truck 16 miles for each trip, and each haul truck 20 miles for each trip.
[b] Range of average daily vehicle trips; minimum to maximum.
[c] See Table A (Appendix J) – Minimum Trip Generation Scenario.
[d] See Table B (Appendix J) – Maximum Trip Generation Scenario.
[e] O&M Activity Code 6 is a routine maintenance activity primarily dealing with erosion control along patrol roads, mostly after large storm events where the road washes out and could become impassable.
[f] O&M Activity Code 11 is a routine maintenance activity primarily dealing with pipeline appurtenance maintenance, repair and replacement (e.g., blowoff structure, pump wells, manholes, vacuum valves, service connections, pressure control structures, pump stations, and valves).

In San Bernardino County, a traffic impact analysis is not required if the project generates fewer than 100 peak hour trips (see Appendix J).

4.12.5.1 CIP Projects

The proposed CIP projects generally consist of repair, upgrade, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of CIP projects: patrol road improvements and paving, engineered erosion control, and slope stabilization

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact TR-1: Conflict with Circulation System Plan, Ordinance, or Policy

Impact TR-2: Conflict with Congestion Management Program

As shown in Table 4.12-1, for analysis purposes, the representative project for patrol road improvements and paving (CIP Activity Code No. 1) is assumed to have a construction duration of 10 days. During construction, this type of project is projected to generate a minimum of approximately 9 daily vehicle trips, with a maximum of 59 daily vehicle trips. Under the maximum trip scenario, 21 trips would occur in the morning peak hour, 6 trips would occur in the evening peak hour, and the

remaining 32 trips would occur throughout the day. Based on the trip generation data for the representative project, the patrol road improvements and paving activities would generate fewer trips than the amount required for a traffic impact analysis (fewer than 100 peak hour vehicle trips for San Bernardino County). This represents a negligible increase in traffic related to the proposed program; therefore, further traffic impact analysis is not warranted and there would be no conflict with applicable plans, policies, or ordinances. The patrol road improvements and paving projects would not generate a substantial number of vehicle trips, nor would they conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system or conflict with an applicable congestion management program. Impacts resulting from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-3: Increased Hazards Due to Design Features

Implementation of proposed patrol road improvements and paving projects (CIP Activity Code No. 1) would not change the current access to or use of the roads; therefore, implementation of these types of projects would not create incompatible uses. In addition, these CIP projects would not involve any new design features that would substantially increase hazards on the roads; there would be no major redesign or reconfiguration of features associated with the proposed program. Roads would be repaired and/or improved to provide for better access and safety, so patrol road improvement and paving projects would likely reduce hazards due to erosion or other factors. During construction, there could be some temporary obstructions associated with construction activities on patrol roads; however, these would occur within Metropolitan's private patrol roads, not in public roads. These private road closures would be short term and temporary and would not represent a substantial hazard or incompatible use. There would be no substantial impacts associated with hazards from design features or incompatible uses with implementation of patrol road improvements and paving activities under the proposed program; impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-4: Inadequate Emergency Access

Implementation of proposed patrol road improvements and paving projects (CIP Activity Code No. 1) under the proposed program would not result in inadequate emergency access. These types of

projects would not involve any new design features that would result in inadequate emergency access; there would be no major redesign or reconfiguration of features associated with the proposed program. In fact, under the proposed program, roads would be repaired and/or improved to reestablish and/or improve access and safety, so implementation of the proposed program would likely provide better and more reliable long-term access for emergency vehicles. During construction, there could be short-term and temporary impacts associated with construction activities. Metropolitan's patrol roads are typically not publicly traveled roads; however, emergency vehicles (e.g., fire department vehicles) and other agencies could use some of these roads for emergency access. For those public roads impacted by the proposed program, temporary road or lane closures could be required during construction; however, as necessary, Metropolitan would coordinate with the local jurisdictions and/or affected agencies/entities regarding any temporary road or lane closures and temporary access routes necessary to accommodate construction.

Based on the individual CIP project location, the nature and impacts of the proposed activities, and requirements of the jurisdiction in which the work is occurring, Metropolitan would prepare a Traffic Control Plan as specified in APM-TR-1 (see Section 4.12.4, Applicant Proposed Measures) prior to the start of construction to minimize impacts. Likewise, prior notification and coordination with emergency services providers and other road users (e.g., agencies), as specified in APM-TR-1, would minimize temporary impacts during construction. All construction activities would be temporary, and when the CIP project has been constructed, all closed areas would be reopened. With implementation of APM-TR-1 as part of Metropolitan's standard practice, patrol road improvements and paving projects implemented under the proposed program would not result in inadequate emergency access, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-5: Conflict with Alternative Transportation Plans/Facilities

Implementation of proposed patrol road improvements and paving projects (CIP Activity Code No. 1) could affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis during construction. As necessary, Metropolitan would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian route closures associated with the proposed program. If required by the local jurisdiction in which the work is occurring, Metropolitan would implement measures as described in APM-TR-1. All construction activities would be temporary, and when the CIP project has been constructed, all routes would be reopened. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of APM-TR-1 as part of Metropolitan's standard practice, patrol road improvements and paving projects implemented under the proposed program would not result

in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact TR-1: Conflict with Circulation System Plan, Ordinance, or Policy

Impact TR-2: Conflict with Congestion Management Program

As shown in Table 4.12-1, for analysis purposes, the representative project for engineered erosion control (CIP Activity Code No. 2) is assumed to have a construction duration of 16 days. This type of project is projected to generate approximately 29 daily vehicle trips, with a maximum of 48 daily vehicle trips. Under the maximum trip scenario, 17 trips would occur in the morning peak hour, 4 trips would occur in the evening peak hour, and the remaining 27 trips would occur throughout the day. Based on the trip generation data for the representative project, engineered erosion control activities would generate fewer trips than the amount required for a traffic impact analysis (fewer than 100 peak hour vehicle trips for San Bernardino County). This represents a negligible increase in traffic related to the proposed program; therefore, further traffic impact analysis is not warranted, and there would be no conflict with applicable plans, policies, or ordinances. Construction of engineered erosion control projects would not generate a substantial number of vehicle trips; conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; or conflict with an applicable congestion management program. Impacts resulting from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-3: Increased Hazards Due to Design Features

Impacts under Impact TR-3 would be substantially the same as the impacts for patrol road improvements and paving (CIP Activity Code No. 1); the proposed program would result in less than significant impacts.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-4: Inadequate Emergency Access

Implementation of engineered erosion control projects under the proposed program would not result in inadequate emergency access. The proposed projects are maintenance projects that will repair, restore, and/or protect existing facilities; there would be no new facilities or changes in use that would result in inadequate emergency access. In fact, under the proposed program, the CIP project areas would be repaired and/or restored to improve access and safety, so implementation of the proposed program would be likely to provide better and more reliable long-term access for emergency vehicles and other users. The engineered erosion control projects could actually provide for better safety and access upon completion of construction. During construction there could be some short-term and temporary obstructions to access associated with construction activities. Metropolitan's patrol roads are typically not publicly traveled roads; however, emergency vehicles (e.g., fire department vehicles) and other agencies and could use some of these roads for emergency access. For those public roads impacted by the proposed program, temporary road or lane closures could be required during construction.

As necessary, Metropolitan would coordinate with the local jurisdictions and/or affected agencies/entities regarding any temporary road or lane closures and temporary access routes necessary to accommodate construction. If required by the jurisdiction in which the work is occurring, Metropolitan would prepare a Traffic Control Plan, as indicated in APM-TR-1 prior to the start of construction to minimize impacts. Likewise, prior notification and coordination with emergency services providers and other road users (e.g., agencies), as specified in APM-TR-1, would also minimize temporary impacts during construction. All construction activities would be temporary, and when the CIP project has been constructed, closed public roadways and lanes would be reopened. With implementation of APM-TR-1 as part of Metropolitan's standard practice, engineered erosion control projects implemented under the proposed program would not result in inadequate emergency access, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-5: Conflict with Alternative Transportation Plans/Facilities

Implementation of engineered erosion control projects could affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis during construction. As necessary, Metropolitan

would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian route closures associated with the proposed program. If required by the local jurisdiction in which the work is occurring, Metropolitan would implement measures as described in APM-TR-1. All construction activities would be temporary, and when the project has been constructed, all routes would be reopened. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of APM-TR-1 as part of Metropolitan's standard practice, engineered erosion control projects implemented under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact TR-1: Conflict with Circulation System Plan, Ordinance, or Policy

Impact TR-2: Conflict with Congestion Management Program

As shown in Table 4.12-1, for analysis purposes, the representative project for slope stabilization (CIP Activity Code No. 3) is assumed to have a construction duration of 36 days. This type of project is estimated to generate approximately 39 daily vehicle trips, with a maximum of 74 daily vehicle trips. Under the maximum trip scenario, 26 trips would occur in the morning peak hour, 8 trips would occur in the evening peak hour, and the remaining 40 trips would occur throughout the day. Based on the trip generation data for the representative project, the slope stabilization projects would generate fewer trips than the amount that would require a traffic impact analysis (fewer than 100 peak hour vehicle trips for San Bernardino County). This represents a negligible increase in traffic related to the proposed program; therefore, further traffic impact analysis is not warranted, and there would be no conflict with applicable plans, policies, or ordinances. Construction of slope stabilization projects would not generate a substantial number of vehicle trips; conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; or conflict with an applicable congestion management program. Impacts resulting from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-3: Increase Hazards Due to Design Features

Impacts under Impact TR-3 would be substantially the same as the impacts for patrol road improvements and paving; impacts from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-4: Inadequate Emergency Access

Implementation of slope stabilization projects (CIP Activity Code No 3) under the proposed program would not result in inadequate emergency access. The proposed projects are maintenance projects that will repair, restore, and/or protect existing facilities; there would be no new facilities or changes in use that would result in inadequate emergency access. The slope stabilization projects could actually provide for better safety and access upon completion of construction. During construction, there could be some short-term and temporary obstructions to access associated with construction activities. Metropolitan's patrol roads are typically not publicly traveled roads; however, emergency vehicles (e.g., fire department vehicles) and other agencies and/or residents could use some of these roads for emergency access. For those public roads impacted by the proposed program, temporary road or lane closures could be required during construction.

As necessary, Metropolitan would coordinate with the local jurisdictions and/or affected agencies/entities regarding any temporary road or lane closures and temporary access routes necessary to accommodate construction. If required by the jurisdiction in which the work is occurring, Metropolitan would prepare a Traffic Control Plan, as indicated in APM-TR-1 prior to the start of construction to minimize impacts. Likewise, prior notification and coordination with emergency services providers and other road users (e.g., residents, agencies), as specified in APM-TR-1, would also minimize temporary impacts during construction. All construction activities would be temporary, and when the project has been constructed, closed roadways and lanes would be reopened. With implementation of APM-TR-1 as part of Metropolitan's standard practice, slope stabilization projects implemented under the proposed program would not result in inadequate emergency access, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-5: Conflict with Alternative Transportation Plans/Facilities

Implementation of slope stabilization projects (CIP Activity Code No. 3) could affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis during construction. As necessary, Metropolitan would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian route closures associated with the proposed program. If required by the local jurisdiction in which the work is occurring, Metropolitan would implement measures as described in APM-TR-1. All construction activities would be temporary and when the project has been constructed, all routes would be reopened. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of APM-TR-1 as part of Metropolitan's standard practice, slope stabilization projects implemented under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.12.5.2 O&M Activities

Proposed O&M activities would be conducted on a regular and ongoing basis, and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. O&M activities are divided into two categories: routine O&M activities and single-occurrence O&M activities.

Routine O&M Activities (O&M Activity Code Nos. 1–13)

Impact TR-1: Conflict with Circulation System Plan, Ordinance, or Policy

Impact TR-2: Conflict with Congestion Management Program

Routine O&M activities include such activities as grading of patrol roads, vegetation maintenance along patrol roads, culvert maintenance, and graffiti removal. For the purposes of the traffic analysis, grading of patrol roads, erosion control and structural maintenance, repair and replacement (O&M Activity Code Nos. 1, 6, and 11, respectively) were chosen as representative projects. The construction duration of patrol road grading representative projects was assumed to range from 1 day to 11 days. Grading of patrol roads is projected to generate approximately 19 to 51 daily vehicle trips depending on the length and condition of the patrol road. Under the maximum trip scenario, 18 trips would occur during the morning peak hour, 6 trips would occur during the evening peak hour, and the remaining 27 trips would occur throughout the day. Erosion control is projected to generate approximately 26 to 46 daily vehicle trips. Under the maximum trip scenario, 16 trips would occur during the morning peak hour and 4 trips would occur during the evening peak hour. Structure

maintenance, repair, and replacement is projected to generate approximately 9 to 31 daily vehicle trips. Under the maximum trip scenario, 11 trips would occur during the morning peak hour, and 3 trips would occur during the evening peak hour. Based on the trip generation data for the representative projects, these activities would generate fewer trips than the amount required for a traffic impact analysis (fewer than 100 peak hour vehicle trips for San Bernardino County), so a traffic impact analysis is not warranted. Furthermore, routine O&M activities are ongoing and would not represent an increase in traffic over existing conditions. The grading of patrol roads, erosion control, and structural maintenance, repair, and replacement would not generate a substantial number of vehicles trips; conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; or conflict with an applicable congestion management program. Impacts resulting from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-3: Increased Hazards Due to Design Features

Proposed routine O&M activities associated with the proposed program would not substantially increase hazards due to a design feature or incompatible uses. O&M activities are intended to maintain existing facilities; there would be no new uses or design features that would increase hazards. In fact, proposed routine O&M activities could actually provide for better safety and access. There could be some temporary obstructions to access associated with construction activities; however, these would be short term and temporary and would not represent a substantial hazard or incompatible use. There would be no substantial impacts associated with hazards from design features or incompatible uses with implementation of routine O&M activities under the proposed program, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-4: Inadequate Emergency Access

Proposed routine O&M activities are intended to maintain existing facilities; there would be no new facilities or changes in use that are expected to result in inadequate emergency access. In fact, routine O&M activities would provide for continued access and could even improve the access and safety. There could be some minor obstructions to the access associated with construction activities; however, these would be short term and temporary. As necessary, Metropolitan would implement

APM-TR-1, including notification and coordination with local jurisdictions, emergency services providers, or affected entities regarding any maintenance work that might have an impact on emergency access to ensure adequate access. All activities would be temporary, and when the O&M activity has been implemented, access would be reestablished. With incorporation of APM-TR-1 into the proposed program, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-5: Conflict with Alternative Transportation Plans/Facilities

Proposed routine O&M activities could affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis during construction. As necessary, Metropolitan would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian route closures associated with the proposed program. If required by the jurisdiction in which the work is occurring, Metropolitan would prepare a Traffic Control Plan and implement other measures as indicated in APM-TR-1. All activities would be temporary, and when the O&M activity has been completed, all routes would be reopened. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of APM-TR-1 as part of Metropolitan's standard practice, routine O&M activities conducted under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities (O&M Activity Code No. 15)

Impact TR-1: Conflict with Circulation System Plan, Ordinance, or Policy

Impact TR-2: Conflict with Congestion Management Program

As shown in Table 4.12-1, for analysis purposes, single-occurrence O&M activities include such activities as construction of culverts and low water crossings. These patrol road structural improvements are assumed to have a duration of 24 days per occurrence. This type of activity is estimated to generate a maximum of 32 daily vehicle trips. Under the maximum trip scenario, 11 trips would occur during the morning peak hour, 3 trips would occur during the evening peak hour,

and the remaining 18 trips would occur throughout the day. Based on the trip generation data for the representative projects, construction of culverts and low water crossings would generate fewer trips than the amount required for a traffic impact analysis (fewer than 100 peak hour vehicle trips for San Bernardino County), so a traffic impact analysis is not warranted. Single-occurrence O&M activities would not generate a substantial number of vehicle trips; conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; or conflict with an applicable congestion management program. Impacts resulting from the proposed program would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-3: Increased Hazards Due to Design Features

Impacts under Impact TR-3 would be substantially the same as the impacts for routine O&M activities. There would be no substantial impacts associated with hazards from design features or incompatible uses with implementation of single-occurrence O&M activities under the proposed program, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-4: Inadequate Emergency Access

Proposed single-occurrence O&M activities would not result in inadequate emergency access. The proposed activities are maintenance activities that will repair, restore, and/or protect existing facilities; there would be no new facilities or changes in use that would result in inadequate emergency access. Proposed O&M activity areas would be repaired and/or improved to provide for better access, stability, and safety, so these activities may actually improve emergency access. There could be some temporary obstructions to access associated with construction activities; however, these would be short term and temporary. As necessary, Metropolitan would implement APM-TR-1, including notification and coordination with local jurisdictions, emergency services providers, or affected entities and residents regarding any maintenance work that might have an impact on emergency access. All activities would be temporary, and all access routes would be reopened upon completion of construction. With implementation of APM-TR-1 as part of Metropolitan's standard practice, proposed single-occurrence O&M activities would not result in inadequate emergency access, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact TR-5: Conflict with Alternative Transportation Plans/Facilities

Proposed single-occurrence O&M activities could affect public transit, bicycle, or pedestrian facilities on a short-term, temporary basis during construction. As necessary, Metropolitan would coordinate with local jurisdictions regarding any temporary public transit, bicycle, or pedestrian route closures associated with the proposed program. If required by the jurisdiction in which the work is occurring, Metropolitan would prepare a Traffic Control Plan and implement other measures as indicated in APM-TR-1. All activities would be temporary, and when the O&M activity has been constructed, all routes would be reopened. There would be no permanent impact to public transit, bicycle, or pedestrian facilities or a decrease in the performance or safety of such features. With implementation of APM-TR-1 as part of Metropolitan's standard practice, single-occurrence O&M activities conducted under the proposed program would not result in conflicts with public transit, bicycle, or pedestrian routes or programs, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.12.5.3 Impacts Summary

Table 4.12-2 summarizes the impacts for proposed CIP projects and O&M activities under each impact threshold analyzed in this PEIR.

Table 4.12-2. Traffic and Circulation Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact TR-1: Would the program 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?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant

Table 4.12-2. Traffic and Circulation Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant
Impact TR-2: Would the program conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant
Impact TR-3: Would the program substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant
Impact TR-4: Would the program result in inadequate emergency access?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-TR-1	Less than significant
Engineered Erosion Control	Less than significant	APM-TR-1	Less than significant
Slope Stabilization	Less than significant	APM-TR-1	Less than significant
O&M Activities			
Routine	Less than significant	APM-TR-1	Less than significant
Single-Occurrence	Less than significant	APM-TR-1	Less than significant

Table 4.12-2. Traffic and Circulation Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact TR-5: Would the program conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-TR-1	Less than significant
Engineered Erosion Control	Less than significant	APM-TR-1	Less than significant
Slope Stabilization	Less than significant	APM-TR-1	Less than significant
O&M Activities			
Routine	Less than significant	APM-TR-1	Less than significant
Single-Occurrence	Less than significant	APM-TR-1	Less than significant

4.12.6 Impacts Found Not to Be Significant

Impact TR-6: Change in Air Traffic Patterns

Proposed CIP projects and O&M activities would occur within 2 miles of Redlands Municipal Airport, San Bernardino International Airport, Ontario International Airport, and Cable Airport. The proposed program, however, would not result in construction of facilities or structures that could visually or physically obstruct flight paths leading to and from these airports. Proposed CIP projects and O&M activities would not result in a change in air traffic levels or patterns, or change the level of risk; therefore, the proposed CIP projects and O&M activities would not result in air traffic impacts.

4.13 Utilities and Service Systems

This section describes the existing utilities and service systems in the vicinity of the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program). This section also identifies the associated regulatory framework, evaluates potential impacts to utilities and service systems that would result from the proposed program, and identifies mitigation measures to reduce the significance of impacts related to implementation of the proposed program. The following utilities and service systems are examined in this section:

- Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Would the program be served by a landfill with sufficient permitted capacity to accommodate the program's solid waste disposal needs?

As stated in the November 2014 Initial Study (Appendix C to this program environmental impact report [PEIR]), the proposed program would result in no impacts or less than significant impacts associated with Regional Water Quality Control Board (RWQCB) wastewater treatment requirements; water and wastewater treatment facilities; water supply; and federal, state, and local solid waste statutes and regulations. Therefore, these topics are not further analyzed in this PEIR.

4.13.1 Existing Conditions

4.13.1.1 Stormwater Management

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet, and includes the receiving waters. Watersheds are usually bordered and separated from other watersheds by mountain ridges or other naturally elevated areas. The Metropolitan Water District of Southern California (Metropolitan) Western San Bernardino County Operating Region intersects six main watersheds (from west to east): Lower San Gabriel River, Chino Creek, Middle Santa Ana River, Lytle Creek, Upper Santa Ana River, and San Timoteo Wash (see Figure 4.8-1, Watersheds and Watercourses). Aside from certain open space areas such as the foothills of the San Bernardino, San Gabriel, and Jurupa mountains, these watersheds are dominated by urban development and drained through a network of underground storm drains and engineered flood control channels.

A more detailed discussion of watersheds and hydrologic features encompassed within the proposed program area is included in Section 4.8, Hydrology and Water Quality.

San Bernardino County Flood Control District

The San Bernardino County Flood Control District has an extensive system of facilities, including dams, conservation basins, channels, and storm drains. These facilities intercept and convey flood flows through and away from the major developed areas of the county. The San Bernardino County Flood Control District's principal functions include flood protection on major streams, water conservation, and storm drain construction (County of San Bernardino 2016a).

4.13.1.2 Solid Waste Management and Recycling

The County of San Bernardino Solid Waste Management Division is responsible for the operation and management of the solid waste disposal system, which consists of five regional landfills (see Table 4.13-1) and nine transfer stations. The County Solid Waste Management Division also administers the County of San Bernardino's solid waste handling franchise program and the refuse collection permit program, which authorizes and regulates trash collection by private haulers in the unincorporated area (County of San Bernardino 2016b). Table 4.13-1 provides information regarding each solid waste facility's capacity, maximum daily loads, and expected closure date.

Table 4.13-1. Solid Waste Facilities in San Bernardino County

Solid Waste Facility	Maximum Capacity (Cubic Yards)	Remaining Capacity (Cubic Yards)	Maximum Daily Load (Tons)	Remaining Capacity Date[a]	Closure Year
Landers Landfill 59200 Winters Road, Landers	13,983,500	11,148,100	1,200	7/5/2016	2072
San Timoteo Landfill 31 Refuse Road, Redlands	22,685,785	12,360,396	2,000	4/30/2019	2039
Victorville Landfill 18600 Stoddard Wells Road, Victorville	83,200,000	81,510,000	3,000	5/5/2009	2047
Barstow Landfill 32553 Barstow Road, Barstow	80,354,500	71,481,660	1,500	12/31/2014	2071
Mid-Valley Landfill 2390 North Adler Avenue, Rialto	101,300,000	61,219,377	7,500	6/30/2019	2033

Sources: CalRecycle 2019a, 2019b, 2019c, 2019d, 2019e.
Note:
[a] The remaining capacity assessment date provides the date that the remaining capacity was last assessed for each landfill.

4.13.2 Regulatory Framework

This section describes the applicable regulatory plans, policies, and ordinances for the proposed program. Agencies with jurisdiction over the location of proposed program facilities may include flood control districts, waste management divisions, and local governments.

4.13.2.1 Stormwater Management

Federal and State

The program area is located within the jurisdiction of the Santa Ana RWQCB. For a more detailed discussion related to the State Water Resources Control Board, the Clean Water Act, the Porter-Cologne Water Quality Control Act, and other applicable water quality regulations, refer to Section 4.8.

National Pollutant Discharge Elimination System Program (Clean Water Act, Section 402)

The Clean Water Act was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In November 1990, the U.S. Environmental Protection Agency published final regulations that also establish stormwater permit application requirements for discharges of stormwater to waters of the United States from construction projects that encompass 5 acres or more of soil disturbance. Regulations that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres. The regulations also require that stormwater discharges from small municipal separate storm sewer systems be regulated by an NPDES permit.

4.13.2.2 Solid Waste Management and Recycling

Local

General Plan Goals, Policies, and Regulations

Local jurisdictions have independent planning documents that guide the planning and provision of utilities and service systems that are necessary for orderly growth and development within their jurisdictional boundaries. San Bernardino County and each of the 10 cities in which locations of proposed program activities would occur has its own general plan, which is the primary document that establishes local utilities and service system goals and policies. The intent of the general plans prepared by these communities is to preserve and improve the quality of life for its citizens, and to consider growth in a manner that appropriately reflects the community's values. An adequate, reliable water supply and distribution infrastructure is a chief public service needed to accomplish these goals.

Generally, utilities and service system elements or chapters in a general plan focus on publicly managed services and facilities. Utilities and service system elements include water supply, wastewater infrastructure, stormwater and drainage infrastructure, and solid waste disposal systems.

4.13.3 Thresholds of Significance

The significance criteria used to evaluate the impacts to utilities and service systems from the proposed program are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.). According to Appendix G, a significant impact related to utilities and service systems would occur if the proposed program would have any of the following effects:

Impact UTL-1: **Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

Impact UTL-2: **Would the program be served by a landfill with sufficient permitted capacity to accommodate the program's solid waste disposal needs?**

Impact UTL-3: **Would the program exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

Impact UTL-4: **Would the program require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

Impact UTL-5: **Would the program have sufficient water supplies available to serve the program from existing entitlements and resources, or are new or expanded entitlements needed?**

Impact UTL-6: **Would the program result in a determination by the wastewater treatment provider which serves or may serve the program that it has adequate capacity to serve the program's projected demand in addition to the provider's existing commitments?**

Impact UTL-7: **Would the program comply with federal, state, and local statutes and regulations related to solid waste?**

Based on the findings of the November 2014 Initial Study, it was determined that the potential impacts would be less than significant for several utilities and service systems topics. The following topics were determined to have less than significant impacts or no impacts for utilities and service systems, and are not further analyzed in this PEIR:

Impact UTL-3: **Exceeding Wastewater Treatment Requirements**

Impact UTL-4: **Construction/Expansion of Water/Wastewater Treatment Facilities**

Impact UTL-5: **Requirement for Additional Water Supplies**

Impact UTL-6: **Adequate Wastewater Treatment Capacity**

Impact UTL-7: **Compliance with Solid Waste Statutes and Regulations**

4.13.4 Applicant Proposed Measures

Applicable best management practices (BMPs), included in this PEIR as an applicant proposed measure (APM), are presented in full in this section (see also Chapter 3). This APM, which is standard practice for Metropolitan, will reduce impacts to utilities and service systems. Its specific relevance to impact topics is detailed in Section 4.13.5, Impact Analysis (see also Executive Summary, Table E-4).

APM-UTL-1 **Waste Reduction and Recycling.** Metropolitan has established a goal to reuse or recycle a minimum of 50 percent of the construction and demolition debris generated by construction activities, including proposed program activities. At a minimum, the waste generated by the proposed program shall meet local waste management regulations specifying minimum percentages of reuse or recycling of construction and demolition waste and debris. Waste shall be recycled whenever possible. Materials that cannot be reused or recycled shall be either incinerated or disposed of at a properly permitted landfill.

4.13.5 Impact Analysis

This section evaluates potential impacts associated with utilities and service systems that would result from the proposed program.

4.13.5.1 CIP Projects

The proposed Capital Investment Plan (CIP) projects generally consist of repair, upgrade, and/or installation of permanent structures to address access or infrastructure problems that threaten system reliability. The following analysis addresses three types of proposed CIP projects: patrol road improvements and paving; engineered erosion control; and slope stabilization.

Patrol Road Improvements and Paving (CIP Activity Code No. 1)

Impact UTL-1: Construction/Expansion of Stormwater Drainage Facilities

Patrol road improvements and paving projects would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. However, there is the potential for these CIP projects to generate runoff that may enter a storm drainage system. Patrol road improvements and paving projects would typically occur in open space areas that are not directly served by urban storm drains. Stormwater runoff flowing through Metropolitan's right-of-way would typically enter the nearest wash or drainage channel rather than urban underground storm drains. Thus, this criterion is generally not applicable to patrol road improvements and paving projects. In the event that proposed CIP projects are in locations that eventually run off into an urban storm drain, the increase in runoff due to road paving would be minimal because paving would occur on existing patrol roads that are unpaved, but have already been graded and compacted for vehicle access.

Therefore, the areas to be paved are already disturbed and highly compacted, and have little to no capacity to slow or decrease runoff through infiltration or evapotranspiration. Patrol road paving would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, and impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact UTL-2: Sufficient Landfill Capacity

Patrol road improvements and paving projects would include grading the road to a maximum of 16 feet in width; removal of old, damaged paving (repaving only); removal of vegetation; placement and compacting of base material; and placement of the asphalt or concrete paving materials. Therefore, this activity would result in the generation of solid waste through the removal of existing pavement and vegetation, and would result in an increased demand for solid waste disposal capacity.

Considering that the majority of solid waste (e.g., asphalt, concrete, green waste) generated by patrol road improvements and paving projects would be recyclable and the solid waste generated would be minimal, impacts would be less than significant. In addition, APM-UTL-1 (see Section 4.13.4, Applicant Proposed Measures) would be incorporated into the proposed program to further ensure that waste generated by this type of project would be diverted from a local landfill to the extent feasible. Patrol road improvements and paving projects are expected to meet the diversion requirements, and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, with implementation of APM-UTL-1 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Engineered Erosion Control (CIP Activity Code No. 2)

Impact UTL-1: Construction/Expansion of Stormwater Drainage Facilities

Engineered erosion control projects would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. Engineered erosion control projects would typically occur in open space areas that are not directly served by urban storm drains. Stormwater runoff flowing through Metropolitan's right-of-way would typically enter the nearest wash or drainage channel rather

than urban underground storm drains. This consists of the installation of new permanent structures or repair of existing structures to safely direct stormwater flows or creek flows across or along patrol roads or around pipeline appurtenances. While engineered erosion conrol projects may introduce new impervious surfaces, the amount of impervious surfaces would be minimal and would not impact existing stormwater facilities. Therefore, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact UTL-2: Sufficient Landfill Capacity

Engineered erosion control projects would consist of installation of new permanent structures or repair of existing structures such as culverts, corrugated metal pipes, flared inlets, upstream wing walls/head walls, and/or concrete riprap pads. In addition, slopes adjacent to Metropolitan structures or Metropolitan structures adjacent to water features that are subject to erosion and could result in failure may be stabilized with retaining walls, secant walls, or concrete structure protection. Therefore, this type of CIP project would result in the generation of solid waste through the removal of existing pavement and vegetation, and would result in an increased demand for solid waste disposal capacity. The impacts of engineered erosion control projects with respect to landfill capacity would be less than significant for the same reasons described previously for patrol road improvements and paving. Engineered erosion control projects are not anticipated to generate significant amounts of waste, except for vegetation and soil. Of this waste, the vegetation can be served by a landfill with sufficient permitted capacity. Existing erosion control features may need to be removed and replaced. Existing engineering control features that require replacement would be removed from the site, and materials that are no longer salvageable would be disposed of; however, wood, metal, and plastic materials that are part of these existing features would be recycled. Therefore, engineered erosion control projects would result in the generation of solid waste and would result in an increased demand for solid waste disposal capacity.

Considering that the majority of solid waste (e.g., asphalt, concrete, green waste) generated by engineered erosion control projects would be recyclable and the solid waste generated would be minimal, impacts would be less than significant. In addition, APM-UTL-1 would be incorporated into the proposed program to further ensure that waste generated by this type of CIP project would be diverted from a local landfill to the extent feasible. Engineered erosion control projects are expected to meet the diversion requirements and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, with implementation of APM-UTL-1 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Slope Stabilization (CIP Activity Code No. 3)

Impact UTL-1: Construction/Expansion of Stormwater Drainage Facilities

Slope stabilization projects would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. Slope stabilization projects would typically occur in open space areas that are not directly served by urban storm drains. Stormwater runoff flowing through Metropolitan's right-of-way would typically enter the nearest wash or drainage channel rather than urban underground storm drains. Slope stabilization projects are proposed where instability presents an appreciable risk to the safety and continuity of the Metropolitan pipeline system. While this type of CIP project may introduce new impervious surfaces, the amount of impervious surfaces would be minimal and would not impact existing stormwater facilities. Therefore, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact UTL-2: Sufficient Landfill Capacity

Slope stabilization projects may include regrading and compacting of slopes, rock slope protection, soil cement, anchors, tie-backs, stepped retaining walls, or a combination of methods. Slope stabilization projects are not anticipated to generate significant amounts of waste, except for vegetation and soil. Of these two types of waste, the vegetation can be served by a landfill with sufficient permitted capacity.

Considering that the majority of solid waste (e.g., green waste) generated by slope stabilization projects would be recyclable and the solid waste generated would be minimal, impacts would be less than significant. In addition, APM-UTL-1 would be incorporated into the proposed program to further ensure that waste generated by this activity would be diverted from a local landfill to the extent feasible. Slope stabilization projects are expected to meet the diversion requirements and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, with implementation of APM-UTL-1 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.13.5.2 O&M Activities

Proposed Operations and Maintenance (O&M) activities would be conducted on a regular and ongoing basis, and are intended to maintain existing structures, patrol roads, and other appurtenant pipeline structures. As part of the proposed program, an O&M Manual (see Appendix A of this PEIR) is included to provide a systematic and scheduled approach to these maintenance activities and to serve as a comprehensive guide for the maintenance of existing water conveyance and distribution infrastructure. O&M activities are divided into two categories: routine O&M activities (O&M Activity Code Nos. 1 through 13) and single-occurrence O&M activities (O&M Activity Code No. 15).

Routine O&M Activities

Impact UTL-1: Construction/Expansion of Stormwater Drainage Facilities

Routine O&M activities would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. Proposed routine O&M activities, with the exception of pipeline shutdown and dewatering, would result in no appreciable change in the amount of runoff draining from Metropolitan's facilities and patrol roads, because routine O&M activities would not involve the addition of impervious surfaces or construction of new drainage facilities.

Pipeline shutdowns and dewatering activities (O&M Activity Code No. 13) are routinely needed to perform inspections and maintenance activities on a pipeline. The pipeline must be emptied of water (dewatered) before inspections and/or maintenance on the pipeline can be performed. Water is released to drainages, storm drains, or other open areas either through a direct release or through temporary piping. This activity can impact stormwater drainage systems, since the water from the pipelines may be discharged into the nearest storm drain inlet; however, it does not create the need to construct new stormwater drainage facilities or expand existing stormwater drainage facilities. Prior to releasing water into storm drains or flood control facilities, Metropolitan would coordinate with the city or agency with jurisdiction over those affected drains or facilities. Pipeline shutdowns and dewatering activities are performed in compliance with the specific conditions of the RWQCB waste discharge requirements (e.g., treatment prior to discharge, restrictions on rate of discharge, and armoring/protecting discharge location) and Metropolitan would notify the RWQCB in writing of its discharges. Dewatering would occur such that flows would be within the capacity of natural drainages and storm drains. In addition, this is an ongoing activity, which does not create a need for new or expanded stormwater facilities. Considering that coordination would occur with local jurisdictions and the RWQCB, and the fact that these discharges are short term and intended to stay within the existing capacity of existing stormwater drainage systems, the impact of pipeline shutdowns and dewatering activities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact UTL-2: Sufficient Landfill Capacity

The majority of routine O&M activities involve clearing, mowing, and trimming vegetation and grading soil along and surrounding patrol roads. Green waste is expected to be the main source of waste generated by these activities. Grading patrol roads is not anticipated to generate significant amounts of waste, except for vegetation and soil. The vegetation can be disposed of in a landfill, as identified in Table 4.13-1. Soil can be recycled by using it for areas on the activity sites that need additional cover or by sending it to landfills that need dirt for cover. Existing erosion control features may need to be removed and replaced. Patrolling and inspecting patrol roads are not anticipated to generate any waste, because these activities would involve vehicle travel by Metropolitan operations staff along existing patrol roads for each pipeline and pipeline appurtenance location.

Routine structure maintenance, repair, and replacement could generate solid waste associated with cleaning materials and paints used for removing graffiti, coating structures, and cleaning equipment and structures. Cleaning materials and paint containers would be recycled when possible. Leftover paints and solvents would be used for future maintenance. Vegetation trimming, mowing, and clearing, and weed abatement for aboveground structures would occur in a similar manner as that described for activities along patrol roads. Vegetation removed from the site would be disposed of in a landfill with sufficient capacity, as identified in Table 4.13-1. Structure repair or replacement for pipeline appurtenances located aboveground or in belowground structures accessed through manholes would be required on occasion for defective, outdated, or older equipment. When possible, equipment that is removed from the site (e.g., valve cabinets, air vents, vent piping, electrical equipment) would be recycled. Pipeline shutdowns and dewatering activities would involve the release of water to drainages, storm drains, or other open areas either through a direct release or through temporary piping. Temporary piping materials would be reused for future dewatering activities. Therefore, this activity is not anticipated to generate solid waste.

Because the majority of solid waste generated by routine O&M activities is minimal, the landfill disposal would require little capacity. Therefore, impacts would be less than significant. In addition, APM-UTL-1 would be incorporated into the proposed program to further ensure that waste generated by this activity would be diverted from a local landfill to the extent feasible. Routine O&M activities are expected to meet the diversion requirements and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, with implementation of APM-UTL-1 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Single-Occurrence O&M Activities

Impact UTL-1: Construction/Expansion of Stormwater Drainage Facilities

Proposed single-occurrence O&M activities would result in no appreciable change in the amount of runoff draining from Metropolitan's facilities and patrol roads. Single-occurrence O&M activities would involve patrol road structural repairs (O&M Activity Code No. 15). These activities would not substantially increase impervious surfaces or sufficiently alter drainage patterns to measurably increase the volume of water entering storm drain systems, nor would it require the construction of new stormwater drainage facilities or expansion of existing facilities. Therefore, impacts related to the construction of new stormwater drainage facilities or expansion of existing facilities would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

Impact UTL-2: Sufficient Landfill Capacity

Single-occurrence O&M activities are typically conducted on a one-time basis and include projects involving patrol road structural repairs (O&M Activity Code No. 15) to support the continued operation of Metropolitan's pipelines. Single-occurrence O&M activities are not anticipated to generate significant amounts of waste, except for vegetation and soil. The vegetation can be disposed of in a landfill with sufficient capacity and the soil can be reused on site or disposed of off site, depending on the suitability of the material.

Considering that the majority of solid waste (e.g., asphalt, concrete, green waste) generated by single-occurrence O&M activities would be recyclable and the solid waste generated would be minimal, impacts would be less than significant. In addition, APM-UTL-1 would be incorporated into the proposed program to further ensure that waste generated by this activity would be diverted from a local landfill to the extent feasible. Single-occurrence O&M activities are expected to meet the diversion requirements and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, with implementation of APM-UTL-1 as part of Metropolitan's standard practice, impacts would be less than significant.

Mitigation Measures

None are required.

Level of Significance: Less than significant.

4.13.5.3 Impacts Summary

Table 4.13-2 summarizes the impacts for proposed CIP projects and O&M activities under each impact threshold analyzed in this PEIR.

Table 4.13-2. Utilities and Service Systems Impacts Summary

Program Element	Level of Significance Prior to Mitigation	Mitigation Measures/ Applicant Proposed Measures	Level of Significance
Impact UTL-1: Would the program require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	—	Less than significant
Engineered Erosion Control	Less than significant	—	Less than significant
Slope Stabilization	Less than significant	—	Less than significant
O&M Activities			
Routine	Less than significant	—	Less than significant
Single-Occurrence	Less than significant	—	Less than significant
Impact UTL-2: Would the program be served by a landfill with sufficient permitted capacity to accommodate the program's solid waste disposal needs?			
CIP Projects			
Patrol Road Improvements and Paving	Less than significant	APM-UTL-1	Less than significant
Engineered Erosion Control	Less than significant	APM-UTL-1	Less than significant
Slope Stabilization	Less than significant	APM-UTL-1	Less than significant
O&M Activities			
Routine	Less than significant	APM-UTL-1	Less than significant
Single-Occurrence	Less than significant	APM-UTL-1	Less than significant

4.13.6 Impacts Found Not to Be Significant

Impact UTL-3: Exceeding Wastewater Treatment Requirements

Proposed CIP projects and O&M activities would not generate additional wastewater treatment demands or exceed the wastewater treatment requirements of the applicable RWQCB. The proposed program would have no impacts related to wastewater treatment requirements.

Impact UTL-4: Construction/Expansion of Water/Wastewater Treatment Facilities

The purpose of the proposed program is to upgrade, rehabilitate, and maintain existing water infrastructure. Proposed CIP projects and O&M activities would not require or result in the construction of new or the expansion of existing water or wastewater facilities. The proposed program would have no impact on water or wastewater facilities.

Impact UTL-5: Requirement for Additional Water Supplies

Proposed CIP projects and O&M activities would not require additional water supplies. Proposed CIP projects and O&M activities would increase the reliability and longevity of existing infrastructure; there would be no expansion of existing infrastructure. Proposed program activities may require water for construction-related activities, including dust suppression and washing down streets or paved areas, but these amounts would be minimal, and existing entitlements and resources would be adequate to support potential needs. Proposed program activities would have sufficient water supplies, and no new or expanded entitlements would be needed. There would be no impact from the proposed program on water supplies.

Impact UTL-6: Adequate Wastewater Treatment Capacity

Proposed CIP projects and O&M activities would not involve construction of facilities that would increase the generation of wastewater. There would be no construction that would result in impacts to wastewater treatment providers, because the proposed program does not involve new housing, commercial construction, or other wastewater generators. Proposed program activities would have no impact on wastewater systems.

Impact UTL-7: Compliance with Solid Waste Statutes and Regulations

Proposed CIP projects and O&M activities would generate small amounts of solid waste, construction and demolition debris, and green waste during construction-related activities. All waste produced due to proposed program activities would be removed immediately following the activity and disposed of properly in accordance with federal, state, and local statutes and regulations. Proposed program activities related to compliance with applicable statutes and regulations would have less than significant impacts.

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5 Cumulative Impacts

This chapter presents the cumulative impact analysis required by the California Environmental Quality Act (CEQA). Specifically, it analyzes the potential for the proposed program to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope or a growth projection for the program area. Where reasonably foreseeable future projects are known to be planned, they will be listed; otherwise, the analysis relies on an average annual growth factor of 1 percent as specified by the Department of Finance (Department of Finance 2020). Cumulative impacts are organized by resource topic.

5.1 Aesthetics

The geographic scope of the analysis extends from the immediate foreground viewing distance to what would be considered a reasonable viewing distance from the project or activity within the proposed program area landscapes, up to 1 mile. Proposed program activities would primarily occur within developed, urban landscapes but are also proposed within washes and creeks, near mountain foothills, and in canyons that have been or are near existing development including residential, commercial, industrial uses and roads. In addition, pipelines in urban and non-urban landscapes within the Western San Bernardino County Operating Region have been subject to previous disturbance associated with The Metropolitan Water District of Southern California (Metropolitan) and other utility providers' infrastructure and patrol roads. Views to Capital Investment Plan (CIP) projects occurring within the Western San Bernardino County Operating Region would typically be provided to passing motorists and would generally be confined to the immediate foreground-to-foreground viewing distance (i.e., less than 0.5 miles). As a result, views of CIP projects and Operations and Maintenance (O&M) activities proposed by Metropolitan would generally be limited to passing motorists where existing roadways are located. Washes within the Western San Bernardino County Operating Region vary in width; however, local topography, vegetation, and existing development in the surrounding area generally confine views in wash landscapes to 0.5 miles or less. Although views to proposed program activities at mountain foothills could be available beyond a 0.5-mile distance from roadways in the general area, proposed activities at mountain foothills within the proposed program area are relatively limited.

As previously stated, the majority of pipelines and CIP projects would occur in developed, urban landscapes of the Valley Region, and the remaining CIP projects would generally occur in areas that have been visibly altered by access roads, pipelines, and other water- and non-water related development such as flood channels; residential, commercial, and industrial uses; and roads. Patrol road improvements and paving would occur in relatively small discrete areas that have been previously disturbed by existing development including Metropolitan infrastructure (e.g., manholes, patrol roads). Overall, they will not impact visual quality/character. Where appropriate, Metropolitan

would also implement certain road paving and slope protection measures and solutions (Applicant Proposed Measure [APM] AES-1 and APM-AES-2) designed to ensure compatibility with the existing landscape and minimize visual contrast to the greatest extent feasible. Similarly, it is anticipated that sites and/or landscapes that could be affected by related regional projects would also be required to mitigate for their impacts to existing visual quality and character, if applicable. Given the developed nature of areas in which CIP projects would occur and with Metropolitan's implementation of APM-AES-1 and APM-AES-2 as part of their standard practice, the proposed program would not substantially affect the existing visual quality and character of sensitive landscapes in the region. Therefore, impacts would not be cumulatively considerable.

5.2 Air Quality

Cumulative impacts are addressed in Section 4.2, Air Quality, under Impact AQ-3 in Section 4.2.5, and have been determined to be less than significant.

5.3 Biological Resources

For the purposes of analyzing cumulative impacts to biological resources resulting from the proposed program, a total of 9,187 acres were evaluated. This acreage comprises all proposed program activities within Metropolitan's existing right-of-way, impact footprints, plus a 500-foot buffer (proposed program area). Implementation of the proposed program could result in cumulative impacts to biological resources. Potential impacts would include loss of wildlife and vegetation, disturbance to special-status species, and impacts to jurisdictional waters and/or wetlands. In general, many of the proposed program modifications would involve activities along city streets and within residential, industrial, and commercial areas. More specifically, CIP projects and single-occurrence O&M activities would result in permanent impacts to only 2.5 acres of land, 1.4 acres (55 percent) of which is the disturbed or barren mapping unit. The remaining impacts (9.1 acres) are temporary and 6.2 acres (68 percent) of these temporary impacts are the disturbed or barren mapping unit. Routine O&M activities are currently conducted on a regular basis within the proposed program area, are temporary, and occur within the existing disturbance footprint. Therefore, impacts to special-status biological resources are expected to be minimal.

Impacts to special-status biological resources are regulated by the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and other agencies. Any potential impacts to special-status biological resources resulting from proposed program development would require consultation with responsible agencies and implementation of mitigation measures. Implementation of the APMs specified in Section 4.3.5 will reduce potential impacts. In addition, implementation of the mitigation measures summarized in Section 4.3.6 will be required as a condition of proposed program approval; therefore, significant cumulative impacts to biological resources are not expected.

Cumulative impacts would be reduced to less than significant or avoided through the APMs specified in Section 4.3.5 and the mitigation measures identified in Section 4.3.6. Therefore, with implementation of Mitigation Measure (MM) BIO-1 through MM-BIO-5, impacts would not be cumulatively considerable.

5.4 Cultural Resources

The cumulative impacts analysis for cultural resources evaluates whether impacts of the proposed program and cumulative projects in the area, when taken as a whole, substantially diminish the number of historical, archaeological, or paleontological resources within the same or similar context or property type. As discussed in Section 4.4, Cultural Resources, the proposed program could have potentially significant impacts to unknown cultural resources, and mitigation would be required to reduce adverse impacts to less than significant levels. It is anticipated that cultural resources that are potentially affected by cumulative projects would also be subject to the same requirements of CEQA as the proposed program and mitigate for their impacts, if applicable. The determinations of significance would be made on a case-by-case basis, and the effects of cumulative development on cultural resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed program would not contribute to a cumulatively considerable impact associated with cultural resources due to the fact that all impacts to cultural resources can be mitigated to a less-than-significant level; Metropolitan has also included APM-CR-1, which would reduce impacts further. With implementation of MM-CR-1 through MM-CR-7, impacts to cultural resources would not be cumulatively considerable.

5.5 Geology and Soils

The proposed program would have no contribution to cumulative impacts related to geology and soils because the proposed program's impacts are widely scattered throughout the study area, minor in magnitude, and highly localized. Generally, geology and soils impacts would be very localized and would not have cumulative impacts, even if combined with other projects, because the impacts would be confined to the proposed program site. In addition, as part of its standard practice, Metropolitan would implement APM-GEO-1 and APM-HYD-1, which would minimize any impacts relating to geology and soils. Impacts would not be cumulatively considerable.

5.6 Greenhouse Gas Emissions

Global climate change is a cumulative impact. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases (GHGs). There are currently no established thresholds for assessing whether the GHG emissions of a project would be considered a cumulatively considerable contribution to global climate change. All reasonable efforts should be made to minimize a project's contribution to global climate change.

Per CEQA, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a), and an environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b). To evaluate whether the proposed program would generate GHG emissions that are cumulatively considerable, total proposed program-generated GHG emissions associated with construction of CIP projects and O&M activities were estimated over a 30-year implementation period and then amortized (i.e., annualized over 30 years) to determine the average annual GHG emissions level.

As discussed in Section 4.6.3, Thresholds of Significance, the threshold applied in the GHG emissions analysis was the recommended South Coast Air Quality Management District operational threshold of 3,000 metric tons carbon dioxide equivalent (MT CO_2e) per year for all residential and commercial projects (SCAQMD 2010), although the proposed program does not fall into the specified land use categories. Construction of the proposed program from 2020 through 2050 (30 years) was estimated to result in a combined total of 4,537 MT CO_2e. Proposed program-generated construction emissions amortized over 30 years would be approximately 151 MT CO_2e per year, which would not exceed the 3,000 MT CO_2e per year threshold used in this analysis to determine the potential significance of proposed program-generated GHG emissions under CEQA. Because the estimated average annual construction emissions would not exceed the recommended South Coast Air Quality Management District threshold of 3,000 MT CO_2e, the proposed program (all CIP projects and O&M activities) would not result in cumulatively considerable emissions.

5.7 Hazards and Hazardous Materials

The geographic scope of cumulative impacts with respect to hazards and hazardous materials is site specific and localized, and generally limited to Metropolitan's right-of-way. Other projects would have to comply with a similar set of federal, state, and local laws and regulations concerning the transport, use, and storage of hazardous materials, the identification and management of hazardous materials unexpectedly encountered, fire protection, and emergency services (see Section 4.7.2, Regulatory Framework). With implementation of APM-HAZ-1 through APM-HAZ-4, APM-AQ-2, and APM-TR-1, proposed program impacts with respect to hazards and hazardous materials would be negligible, localized, and short term, occurring only at the time of proposed program implementation. Therefore, the proposed program's contribution to significant cumulative impacts related to hazards and hazardous materials would not be cumulatively considerable.

5.8 Hydrology and Water Quality

The watersheds affected by the proposed program define the geographic scope of cumulative impacts on hydrology and water quality; the temporal scope is limited to the construction phase of proposed CIP projects and implementation of proposed O&M activities. In the absence of regulatory

controls, the primary effect of the proposed program in the cumulative scenario would be less than significant alterations to the natural hydrology of the region through a minor increase in the area covered by impervious surfaces (single-occurrence O&M activities and patrol road improvements and paving). The typical effect of substantial increases in impervious surfaces within a watershed (i.e., urbanization) is that peak flows within the watershed's drainages are greater in magnitude, shorter in duration, and more responsive to storm events, since a greater portion of precipitation is carried by surface runoff rather than percolated into the soil. Patrol roads can often block or redirect stormwater flows if improperly designed. These effects are undesirable with respect to flood hazards, water quality, and habitat quality.

The impacts of the proposed program are dispersed across a wide area, are minor in magnitude, would not occur concurrently, and are addressed through implementation of Metropolitan's standard conditions and APM-HYD-1 through APM-HYD-11. The contribution of the proposed program components to cumulatively significant conditions in the applicable watersheds would be negligible because the only elements that include impervious surfaces are patrol road paving and minor structures that are disconnected from one another. APM-HYD-2, implemented as standard practice for Metropolitan, would ensure that the proposed program's contribution to such cumulative impacts would be less than significant. In the long term, the proposed program would improve drainage conditions by better conveying stormwater flows and implementing engineered erosion control projects, thereby resulting in beneficial long-term effects in this regard.

Therefore, with implementation of APM-HYD-1 through APM-HYD-11 as part of Metropolitan's standard practice, impacts would not be cumulatively considerable.

5.9 Land Use and Planning

Cumulative land use impacts could occur if a project, in combination with other planned or proposed projects, would conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the projects (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance). Cumulative impacts could also result from a project that, in combination with other planned or proposed projects, would physically divide an established community (i.e., a railroad, airport, freeway, or stadium). For the proposed program, the geographic scope of analysis for land use impacts is the jurisdictions in which the proposed program area is located.

As discussed previously, this is a maintenance-related program to ensure continued water supply reliability, which would not be inconsistent with any existing plans. All other planned projects in the vicinity of the proposed program would also be required to comply with applicable plans that have jurisdiction over their location. The proposed program does not involve the construction of new or expanded infrastructure that would be incompatible with existing or planned land uses, nor would the proposed program be invasive or large enough to physically divide an established community. Therefore, the proposed program, in combination with other proposed projects, would not result in a cumulatively considerable impact.

5.10 Noise

Construction and maintenance activities associated with the proposed CIP projects and O&M activities would not result in a substantial temporary increase in ambient noise levels where these activities would occur. Noise impacts from proposed program activities would be short term, temporary, infrequent, and localized. In most cases, only one activity would be occurring in any particular location, which would not constitute a significant cumulative impact when considered in combination with other activities in the region. In addition, cumulative impacts would be further reduced with implementation of noise minimization measures APM-NOI-1 through APM-NOI-8 as part of Metropolitan's standard practice to reduce or avoid noise levels in the vicinity of sensitive receptors. Following construction of CIP projects and implementation of O&M activities, the proposed program would not contribute to cumulatively considerable noise impacts associated with other projects in the region; therefore, cumulative impacts would be less than significant.

5.11 Public Services

Cumulative impacts on public services, including fire protection, parks, police protection, schools, and other public services, such as libraries, would result when projects combine to increase demand on services such that additional services must be constructed or provided. This would usually result from incremental addition of people occupying an area or incremental construction of new or larger buildings requiring the provision of public services. Construction and maintenance activities associated with the proposed program would not increase population, leading to an increased demand for public services or facilities; therefore, the proposed program would not contribute to a cumulatively considerable impact associated with the need for new or expanded public services or facilities.

5.12 Traffic and Circulation

Construction activities associated with the proposed program would contribute to a negligible increase in traffic volumes on the existing and planned roadway network. Proposed program activities would not generate a substantial number of vehicle trips or generate enough trips to warrant a traffic impact analysis (fewer than 100 peak hour vehicle trips). The proposed program could result in an impact to emergency access or alternative transportation facilities on a localized and temporary basis only during construction activities.

The proposed program would not involve any new design features that would result in inadequate emergency access; there would be no major redesign or reconfiguration of features associated with the proposed program. In fact, under the proposed program, roads would be repaired and/or improved to reestablish and/or improve access and safety, so implementation of the proposed program would likely provide better and more reliable long-term access for emergency vehicles. During construction, there could be short-term and temporary impacts associated with construction

activities. Metropolitan's patrol roads are typically not publicly traveled roads; however, emergency vehicles (e.g., fire department vehicles) and other agencies could use some of these roads for emergency access. For those public roads impacted by the proposed program, temporary road or lane closures could be required during construction; however, as necessary, Metropolitan would coordinate with the local jurisdictions and/or affected agencies/entities regarding any temporary road or lane closures and temporary access routes necessary to accommodate construction. Potential cumulative impacts to emergency or alternative transportation access during construction would be reduced to a less than significant level or avoided by implementation of APM-TR-1 as part of Metropolitan's standard practice. Following construction, the proposed program would not contribute to cumulative regional traffic and transportation impacts associated with other projects in the region. Maintenance activities associated with the proposed program would not generate a substantial number of vehicle trips or cause an increase in vehicle trips over what is occurring with current, ongoing maintenance activities; therefore, traffic and circulation impacts would not be cumulatively considerable.

5.13 Utilities and Service Systems

Generally, proposed CIP projects and O&M activities would occur in open space areas that are not directly served by urban storm drains. Stormwater runoff flowing through the Metropolitan right-of-way would typically enter the nearest wash or drainage channel rather than urban underground storm drains. Either way, the proposed program would not contribute or create significant new flows such that new storm drain systems are necessary. The proposed program would not have a significant contribution to cumulatively considerable impacts regarding the construction of new stormwater drainage facilities or expansion of existing facilities.

The proposed program would generate small amounts of solid waste, construction and demolition debris, and green waste. Solid waste generated by the proposed program would be disposed of in one of the many landfills serving the San Bernardino County Solid Waste Management District. Considering that the majority of solid waste (e.g., asphalt, concrete, green waste) generated by proposed CIP projects and O&M activities would be recyclable and the solid waste generated would be minimal, impacts would not be cumulatively considerable. In addition, implementation of APM-UTL-1 as part of Metropolitan's standard practice would further ensure that waste generated by proposed CIP projects and O&M activities would be diverted from a local landfill to the extent feasible. Proposed CIP projects and O&M activities are expected to meet the diversion requirements, and would be served by a landfill with sufficient permitted capacity to accommodate the proposed program's solid waste disposal needs; therefore, impacts would not be cumulatively considerable.

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6 Alternatives

6.1 Introduction

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6[a]). The EIR "must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (14 CCR 15126.6[a]). This alternatives discussion is required even if these alternatives "would impede to some degree the attainment of the project objectives, or would be more costly" (14 CCR 15126.6[b]).

The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision maker for a given project, who must make the necessary findings addressing the potential feasibility of an alternative, including whether it meets most of the basic project objectives or reduces the severity of significant environmental effects per CEQA (California Public Resources Code, Section 21081; see also 14 CCR 15091). This chapter identifies potential alternatives to the proposed Western San Bernardino County Operating Region Distribution System Infrastructure Protection Program (DSIPP, or proposed program) and evaluates them, as required by CEQA.

6.2 Proposed Program Objectives and Impacts

6.2.1 Proposed Program Objectives

The following objectives have been established for the proposed program:

- Maintain access to pipelines and appurtenant structures to conduct necessary maintenance to ensure reliability of the water supply conveyance and distribution system.
- Address associated infrastructure issues that threaten the reliability and/or security of the conveyance and distribution system and water supply to The Metropolitan Water District of Southern California's (Metropolitan's) service area by implementing proposed infrastructure protection projects.
- Provide a systematic and scheduled approach to ongoing routine maintenance activities.
- Obtain regional permits that provide long-term permitting approval and streamline environmental clearance processes for maintenance projects/activities in regulated waters.
- Streamline environmental clearances and enable Metropolitan to implement proposed Capital Investment Plan (CIP) projects and critical Operations and Maintenance (O&M) activities in a timely manner, especially for those projects/activities in environmentally sensitive or regulated areas.

6.2.2 Proposed Program Impacts

Based on the analysis presented in Chapter 4, Environmental Analysis, the proposed program would have potentially significant impacts with regard to the following resources: biological resources and cultural resources. Environmental impacts to these resources would be mitigated to less than significant levels.

6.3 Alternatives Considered but Rejected

As described in this section, alternatives considered but rejected include location and a design alternative. All of the potential alternatives that were considered for the proposed program have been rejected. Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a) of the CEQA Guidelines, an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6[f]). The focus is on informed decision making and public participation rather than providing a set of alternatives simply to satisfy format. Based on the nature of the proposed program (operation and maintenance of an existing water conveyance and distribution system), additional alternatives were not identified, other than the two described in this section. Maintenance projects and activities proposed under the program are small projects at specific locations with limited options for methods of construction. For this reason, identification of feasible alternatives for the proposed program was limited. The following discussion presents the alternatives that were considered but rejected, and why they were rejected. These alternatives are not discussed in further detail and have been eliminated from further consideration.

6.3.1 Alternative Locations

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen the significant effects of the project need be considered for inclusion in the EIR (14 CCR 15126.6[f][2]). Because the proposed program involves the maintenance, repair, and upkeep of an existing water supply conveyance and distribution system, as well as maintenance projects to address access, an alternative site analysis is not appropriate. The proposed program location, the Western San Bernardino County Operating Region, comprises Metropolitan's conveyance and distribution system pipelines and appurtenant structures, right-of-way, and patrol roads within the

western portion of San Bernardino County. Maintenance needs have been identified at specific locations associated with the existing water supply conveyance and distribution system; therefore, it would not be feasible to move the maintenance activities to another location. Relocating activities to other sites would not meet the proposed program objectives. As a result, alternative locations were rejected and are not analyzed in detail in this program environmental impact report (PEIR).

6.3.2 Project Design Alternative

A second alternative that was considered was the Project Design Alternative, which consists of incorporation of bioengineering techniques (e.g., hydroseeding and geotextiles, planted walls, vegetated gabions) into project design in order to minimize significant impacts resulting from the proposed program, where feasible. This alternative was considered because it had the potential to feasibly attain the basic objective of the proposed program, while avoiding or substantially lessening the significant effects of the proposed program; however, after review, it was determined that this approach did not meet the criteria to be considered as a separate alternative. As part of the proposed program, bioengineering techniques are already being incorporated into the design at proposed program sites where feasible and appropriate. In order to obtain regional permits that are being sought as part of the proposed program, the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife) have stated that they expect Metropolitan to consider and incorporate, where feasible, bioengineering techniques into construction methods. Rather than an alternative to be considered, bioengineering is a feature of the existing proposed program. In addition, in order to minimize impacts from the proposed program and resulting mitigation, Metropolitan is taking environmental resources under consideration as part of the design process, and design plans are being prepared in a manner that limits/minimizes impacts to sensitive habitats and species and jurisdictional waters. As such, the Project Design Alternative is already being incorporated as part of the proposed program.

Furthermore, the impacts in the two categories where significant impacts have been identified would not necessarily be avoided or substantially lessened by implementation of the Project Design Alternative. Bioengineering techniques would not likely reduce or minimize impacts to cultural resources, as the potential excavation (i.e., ground disturbance) and repair activities would still occur. Bioengineering would be implemented following the construction and/or maintenance activity. For biological resources, likewise, the impact to the sensitive resource, be it a sensitive habitat or a sensitive animal species, would still occur with the disturbance (i.e., excavation, vegetation removal/disturbance) during implementation of CIP projects and O&M activities. Even with incorporation of bioengineering techniques, the proposed CIP projects and O&M activities would still be implemented, and the resulting construction-related disturbance would occur. The bioengineering techniques would serve to restore the impact area, but not necessarily reduce the impact from construction-related disturbance. Thus, this Project Design Alternative does not meet the criteria for an alternative to avoid or substantially lessen any of the significant effects of the proposed program.

6.4 No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of the "No Project" Alternative, which reflects the "circumstances under which the Project does not proceed." The No Project Alternative, in this case, assumes that the existing water supply conveyance and distribution system in the Western San Bernardino County Operating Region would continue to operate without implementation of the proposed CIP projects and O&M activities.

An EIR must identify an "environmentally superior" alternative, and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify an alternative from among the others evaluated as environmentally superior. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior; however, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed project. None of the environmental impacts identified in the PEIR were found to be significant and unavoidable. Section 6.5 identifies the Environmentally Superior Alternative.

6.4.1 Comparison of Impacts of the No Project Alternative to the Proposed Program

6.4.1.1 Aesthetics

Under the No Project Alternative, proposed patrol road improvements and paving to repair eroded roadways would not occur as part of the proposed program. Routine maintenance would still occur, but could be delayed since it would not occur as part of an O&M plan. Permits would have to be obtained on a case-by-case basis rather than as part of a comprehensive plan, which could further delay maintenance, and CIP projects would occur as funding was available. As such, the quality of patrol roads would further degrade, and access to canyons, hillsides, and other natural landscape types in the proposed program area would be reduced. Furthermore, under the No Project Alternative, slopes adjacent to Metropolitan structures and discharge points where stormwater is directed from constructed features into a water body would not be stabilized. As a result, there would be greater potential for erosion of slopes and stream banks and general slope failure that, if these processes were to occur, would reduce overall visual quality and degrade the visual character of natural-appearing landscapes. In addition, increased erosion of slopes, patrol roads, and other areas where Metropolitan infrastructure is located would result in enhanced visibility of infrastructure (and noticeable visual contrast with natural elements in the landscape) and increased sedimentation and turbidity in downstream waters. In addition, lack of maintenance could lead to the inability to access a structure and then create a potential failure of the system, which could lead to an emergency situation. Repairs associated with a potential emergency could impact a larger area than under a routine O&M activity, thus leading to a large disturbance area and increased visual degradation of

the aesthetic environment. Therefore, due to greater impacts to visual quality and character and stronger visual contrast, the No Project Alternative would be environmentally inferior to the proposed program in terms of aesthetics.

6.4.1.2 Air Quality

Under the No Project Alternative, the proposed repair, upgrade, and/or relocation of existing structures and the proposed implementation of maintenance activities to address access or infrastructure issues would not occur as part of the proposed program. Routine maintenance would still occur, but could be delayed since it would not occur as part of an O&M plan. Because CIP projects and O&M activities would not occur in the proposed program area in a planned fashion, heavy equipment would not be in operation as much and would not generate air pollutant emissions. Furthermore, worker trips associated with CIP projects and O&M activities would not be required to the same degree and as such would not generate criteria air pollutant emissions. Therefore, under the No Project Alternative, reduced CIP project and O&M activity-related air quality impacts are anticipated. Because the No Project Alternative would generate fewer criteria air pollutant emissions, the No Project Alternative would be environmentally superior to the proposed program in terms of air quality.

6.4.1.3 Biological Resources

Under the No Project Alternative, habitat at upstream and downstream slopes of low water crossings and waterways would not be enhanced or improved through the application of engineered erosion control and slope stabilization as part of the proposed program. Instead, roadways, swales, and slopes could continue to erode, and downstream aquatic environments would continue to degrade due to increased sedimentation and turbidity. The buildup of loose soils in swales would reduce the ability of these systems to convey and transport runoff flow appropriately. Scour of swales and streambanks would continue to occur, and runoff flow velocities would increase or be maintained. In addition, the No Project Alternative would drastically increase the potential for washout during heavy rain events and, due to a buildup of loose soils, would increase the potential for existing vegetation to become uprooted and deposited downstream during such events. Lastly, the No Project Alternative would not address the stated expectations of the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife) for incorporation of bioengineering techniques into the construction and maintenance of water infrastructure. Therefore, the No Project Alternative would be considered environmentally inferior to the proposed program with regard to biological resources.

6.4.1.4 Cultural Resources

Because neither the proposed repair, upgrade, and/or relocation of existing structures nor the proposed implementation of maintenance activities to address access or infrastructure problems as part of the proposed program would occur under this alternative, fewer ground-disturbing activities

are assumed for the No Project Alternative. However, lack of timely maintenance could create a potential failure of the system, which could lead to an emergency situation. Repairs associated with a potential emergency could impact a larger area than under a routine O&M activity, thus leading to a large disturbance area and increased impacts to cultural resources. Therefore, the No Project Alternative would be considered environmentally inferior to the proposed program with regard to cultural resources impacts.

6.4.1.5 Geology and Soils

Under the No Project Alternative, occurrences of soil erosion and slope failure would increase as eroded roadways, swales, slopes, and streambanks would not be repaired and routine O&M activities would not occur as part of the proposed program. Furthermore, by not repairing or upgrading existing structures or implementing maintenance activities to address infrastructure problems in a timely manner, adoption of the No Project Alternative could expose people and structures to substantial landslide risks if the existing water supply conveyance and distribution system were to rupture/fail and saturate surrounding soils. Such unremediated events could also create unstable soils that would potentially result in subsidence or collapse of geologic units and soils. Therefore, when compared to the proposed program, adoption of the No Project Alternative would result in greater impacts to geology and soils and the alternative would be considered environmentally inferior to the proposed program.

6.4.1.6 Greenhouse Gas Emissions

Under the No Project Alternative, CIP projects and O&M activities would not occur in the proposed program area as part of the proposed program, and a reduced amount of heavy equipment would likely be in operation. Air pollutant and greenhouse gas emissions associated with off-road construction equipment and on-road construction vehicles (e.g., haul trucks and vendor/delivery trucks) and worker vehicles would not be generated to the same extent as the proposed project. Therefore, because the No Project Alternative would generate reduced greenhouse gas emissions associated with off-road construction equipment and on-road construction vehicles, the No Project Alternative would be environmentally superior to the proposed program in terms of greenhouse gas emissions.

6.4.1.7 Hazards and Hazardous Materials

Under the No Project Alternative, CIP projects and O&M activities would not occur as part of the proposed program, and less heavy equipment would be in operation. Therefore, typical hazardous materials used during implementation of CIP projects and O&M activities, including oils, lubricants, and vehicle fuels, would not be used and transported in the proposed program area as routinely by Metropolitan personnel. As discussed in the analysis under the proposed program, however, the potential for impacts from use and transport of these quantities of hazardous materials is low. In addition, under the No Project Alternative, routine maintenance would still occur, but could be delayed since it would not occur as part of an O&M plan and would pose a substantial risk associated

with wildfire due to lack of vegetation maintenance in canyons, hillsides, and other natural environments. Increase in fuel load in these areas could result in more severe wildfire events in the region if they were to occur near unmaintained vegetation. Therefore, the No Project Alternative would be environmentally inferior to the proposed program in terms of hazards and hazardous materials.

6.4.1.8 Hydrology and Water Quality

Under the No Project Alternative, roadways, swales, and slopes could continue to erode, and the quality of downstream waters would continue to degrade as a result of increased sedimentation and turbidity. Also, the buildup of loose soils in swales would drastically impair the ability of these systems to convey and transport runoff. The potential for washout events during heavy rains would increase in the absence of adequately repaired and maintained drainage systems, and the increased occurrence of loose soils would increase the potential for vegetation to become uprooted, which would further destabilize soils and degrade the quality of downstream waters. Therefore, due to anticipated increased occurrence of erosion and sedimentation, the No Project Alternative would be considered environmentally inferior to the proposed program with regard to hydrology and water quality.

6.4.1.9 Land Use and Planning

Under the No Project Alternative, maintenance of infrastructure would not occur in the proposed program area in a timely manner, and no potential conflicts with any land use plans or habitat conservation plans would occur. As discussed in the analysis under the proposed program, however, the potential for land use policy impacts is low and there are less than significant impacts associated with land use policy consistency because as part of standard practice, Metropolitan would coordinate with local jurisdictions to the extent feasible during proposed program implementation to avoid and/or minimize potential impacts from the proposed program. As such, the No Project Alternative would be environmentally neutral compared to the proposed program in terms of land use and planning.

6.4.1.10 Noise

Under the No Project Alternative, scheduled maintenance of infrastructure would not occur in the proposed program area, and heavy equipment would likely not be in operation as frequently. Temporary noise typically associated with implementation of CIP projects would not be generated; therefore, fewer noise impacts would occur. As such, the No Project Alternative would be environmentally superior to the proposed program in terms of noise.

6.4.1.11 Public Services (Fire Protection)

Under the No Project Alternative, implementation of CIP projects and O&M activities near flammable vegetation would not occur, and there would be no impacts to fire services, fire service facilities, or response times. Temporary limited access on trails or at other recreational facilities would not occur as trails and facilities would not be closed or restricted to accommodate CIP projects or O&M

activities; however, as discussed previously for hazards and hazardous materials, no O&M plan would be implemented under the No Project Alternative, and vegetation along patrol roads and near Metropolitan infrastructure would not be maintained as regularly as would occur under the proposed program. Lack of vegetation maintenance would increase the fuel load in the proposed program area, which includes canyons, hillsides, and other primarily undeveloped landscapes. If wildfires were to occur in these areas, increased fuel loads could result in more severe wildfire events in the region, which could result in greater impacts to fire services. Therefore, because the No Project Alternative could result in greater overall impacts to fire and park services, the No Project Alternative would be environmentally inferior to the proposed program in terms of public services.

6.4.1.12 Traffic and Circulation

Under the No Project Alternative, the rehabilitation, replacement, and repair of existing structures and the maintenance of patrol roads would not occur as part of the proposed program. Truck trips would not be generated, and potential use conflicts typical during construction would not occur. Under the No Project Alternative, no traffic and circulation impacts associated with new trip generation are anticipated; however, because maintenance of patrol roads would not occur as regularly, existing access to pipelines and appurtenant structures would continue to deteriorate. If infrastructure were to fail due to lack of necessary rehabilitation or repair, then reduced and/or diminished access to Metropolitan infrastructure could threaten the reliability of the conveyance and distribution system and water supply to Metropolitan's service area by extending repair times and delaying continuance of service. Because the traffic generation under the proposed program would be minimal and the traffic generation under a No Project Alternative is difficult to predict, the No Project Alternative would be considered environmentally neutral compared to the proposed program in terms of traffic and circulation.

6.4.1.13 Utilities and Service Systems

Metropolitan facilities require continual monitoring and maintenance to ensure a reliable water supply and to minimize the potential for emergency situations. Rehabilitation, replacement, and repair of existing structures, as well as maintenance of patrol roads, are necessary to maintain reliable infrastructure. As discussed in the analysis of utilities and service systems, the proposed program would have less than significant impacts to stormwater infrastructure and solid waste disposal infrastructure. Under the No Project Alternative, neither the repair, upgrade, and/or relocation of existing structures nor the installation of permanent structures to address access or infrastructure problems would occur on a regular basis as part of a program, and impacts to stormwater infrastructure and solid waste disposal infrastructure would be less than significant or would not occur. Therefore, the No Project Alternative would be considered environmentally neutral when compared to the proposed program in terms of utilities and service systems impacts.

6.4.2 Conclusion

Because no CIP projects or O&M activities would occur as part of a proposed program, the No Project Alternative would be considered environmentally superior with regard to three resource areas: air quality, greenhouse gas emissions, and noise. The No Project Alternative would, however, be considered inferior with regard to seven resource areas: aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and public services. It would be considered environmentally neutral in three resource areas: land use and planning, traffic and circulation, and utilities and service systems. The adoption of the No Project Alternative would not meet the program objectives identified by Metropolitan for regular maintenance of access, system reliability and security, ongoing routine maintenance activities, and long-term permitting and environmental clearances. Because the No Project Alternative would result in increased impacts to aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and public services, and would not meet any of the program objectives identified by Metropolitan, it would be environmentally inferior to the proposed program.

6.5 Environmentally Superior Alternative

If an alternative is considered clearly superior to the proposed project relative to identified impacts, Section 15126.6 of the CEQA Guidelines requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives. Two alternatives to the proposed program, other than the No Project Alternative, were considered; however, these alternatives were not further considered and analyzed for the reasons stated in Section 6.3, Alternatives Considered but Rejected.

Based on the analysis provided in Section 6.4, the No Project Alternative would be considered environmentally superior with regard to three resource areas: air quality, greenhouse gas emissions, and noise; however, this alternative would result in increased impacts to seven resource areas: aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and public services, and is therefore considered environmentally inferior to the proposed program. In addition, the No Project Alternative would not meet any of the program objectives identified by Metropolitan.

The proposed program would allow for maintenance of the existing water conveyance and distribution system and associated infrastructure in a streamlined manner, thus ensuring the continued reliability and security of the water supply system. The proposed program, therefore, is considered to be the environmentally superior alternative.

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7 Other CEQA Considerations

This chapter includes the other California Environmental Quality Act (CEQA) considerations that are required in an environmental impact report (EIR). The following topics are examined in this chapter for the Western San Bernardino County Distribution System Infrastructure Protection Program (DSIPP, or proposed program):

- Significant and Unavoidable Environmental Impacts (Section 7.1)
- Significant and Irreversible Environmental Impacts (Section 7.2)
- Growth Inducement (Section 7.3)
- Impacts Found Not to Be Significant (provided at end of each resource section in Chapter 4)

7.1 Significant and Unavoidable Environmental Impacts

Implementation of the mitigation measures identified in the Chapter 4 analysis would reduce all significant impacts to below a level of significance. Therefore, there are no significant and unavoidable environmental impacts associated with implementation of the proposed program, and a Statement of Overriding Considerations will not be required.

7.2 Significant and Irreversible Environmental Impacts

Pursuant to Section 15126.2(d) of the CEQA Guidelines, an EIR must consider any significant irreversible environmental changes that would be caused by the proposed program should it be implemented. Specifically, Section 15126.2(d) of the CEQA Guidelines describes significant irreversible environmental changes as follows:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified (14 CCR 15126.2[c]).

Determining whether the proposed program may result in significant and irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

Large Commitment of Nonrenewable Resources

The proposed program involves maintenance, repair, and protection of existing aboveground infrastructure associated with The Metropolitan Water District of Southern California's (Metropolitan's) existing pipeline system in the Western San Bernardino County Operating Region. The maintenance activities specified under this proposed program are ongoing activities and are necessary for Metropolitan to maintain its infrastructure and ensure a reliable water supply. Implementation of the proposed program would require the use and consumption of nonrenewable resources such as fossil fuels and construction materials during construction and maintenance activities. Fossil fuels in the form of diesel oil, gasoline, and electricity would be used for construction equipment and vehicles. Use of these energy resources would be irretrievable and irreversible; however, because the pipeline system is already in place, because the repair and maintenance activities are minor projects with minimal impacts, and because they are currently ongoing, the proposed program would not be considered a large commitment of nonrenewable resources.

Irreversible Damage

There are no irreversible impacts anticipated through implementation of the proposed program. Although unlikely, maintenance activities could result in the release of contaminated materials and hazardous substances, such as gasoline, diesel fuel, or oil from construction equipment or vehicles. Given federal, state, and local regulations governing the use of such substances and the minimal use of such materials under the proposed program, the proposed program is not expected to damage the environment or pose a risk to public health, and impacts would not create significant or irreversible effects.

Construction activities that result in loss or permanent degradation of an aspect of the physical environment that is nonrenewable have the most potential to result in irreversible changes such as damage or destruction to unknown, unique paleontological or archaeological resources; however, Metropolitan has conducted archaeological and paleontological investigations and determined where the areas of sensitivity are likely to be, and either the proposed work areas avoid these areas or mitigation measures would be employed to avoid impacts to cultural resources.

Nonrenewable Energy Consumption

Construction of the proposed program would result in the use of nonrenewable resources and energy sources, including fossil fuels, natural gas, and electricity. Use of these energy sources would be considered a permanent commitment of resources. In addition, a variety of resource materials would be used during the construction process, including steel, concrete, and fabricated materials. Due to the nature and scale of the proposed program, however, impacts from the proposed program would be minimal. The use of construction materials and nonrenewable resources would not be unusual or extraordinary, and it is not expected to negatively impact the availability of these resources. As a result, there would be no significant and irreversible environmental effects related to resource consumption during construction.

Appendix F of the CEQA Guidelines requires that EIRs include a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (14 CCR 15000 et seq.). The CEQA Guidelines provide no specific thresholds for impacts associated with energy consumption; however, Appendix F provides guidance for evaluating whether a project may result in significant impacts with regard to energy. Based on Appendix F, a project could have a significant impact on energy consumption if the project would do any of the following:

- Result in wasteful, inefficient, or unnecessary consumption of energy
- Conflict with existing energy standards and regulations
- Place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity

Wasteful, Inefficient, or Unnecessary Consumption of Energy

Implementation of the proposed program will result in the use of electricity, natural gas, and petroleum during proposed Capital Investment Plan (CIP) projects and proposed Operations and Maintenance (O&M) activities; however, since the construction activities related to the CIP projects are temporary and short term, and the maintenance activities are currently ongoing, the increase would be negligible. Electricity, natural gas, and petroleum would be used to power construction equipment used for CIP projects and O&M activities. Petroleum would be used for off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. On a permanent, long-term basis, the proposed program would use very little energy, as it comprises small maintenance projects and activities for existing water infrastructure that is already in place and used to convey water throughout the region. Therefore, the proposed program would not result in the excessive use of fuel or energy, or the use of excessive amounts of power.

Conflict with Existing Energy Standards and Regulations

There are no statewide mandatory energy requirements that would apply to the proposed program. Although the proposed program would involve construction of small structures such as low water crossings, none of these structures would require the use of electricity, natural gas, or petroleum to operate. Therefore, the proposed program would not be subject to the 2013 California Building Energy Efficiency Standards (24 CCR Part 6).

Significant Demand on Energy Supplies/Requirement of Substantial Additional Capacity

The proposed program would increase the demand for electricity, natural gas, and petroleum during construction of proposed CIP projects; however, the proposed program involves the maintenance of existing water infrastructure that is already in place and used to convey water throughout the region, and the increase would be considered minimal. The proposed program would not involve the

introduction of a land use or development associated with intensive energy consumption. Therefore, the proposed program would not create a significant demand on local or regional energy supplies, nor would it require a substantial amount of additional capacity.

7.3 Growth Inducement

CEQA requires a discussion of ways the proposed program could be growth inducing. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth, or results in the construction of additional housing, either directly or indirectly, in the surrounding environment (14 CCR 15126.2[e]). New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce growth by reducing or removing barriers to growth, or by creating a condition that attracts additional population or new economic activity; however, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors.

The proposed program would focus on the repair and maintenance of existing water conveyance and distribution infrastructure, and no expansion of facilities is proposed. Proposed program construction activities would likely be performed by workers hired from the local region or existing Metropolitan staff, so the proposed program is not anticipated to result in new population growth from outside the area. Maintenance activities under the proposed program are already occurring and will continue to be implemented by existing Metropolitan staff and local contractors. Therefore, the proposed program would not induce growth.

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