



**APPENDIX 3.12-A KNE HYDROLOGY AND WATER QUALITY
TECHNICAL REPORT**



HYDROLOGY AND WATER QUALITY TECHNICAL REPORT

K LINE NORTHERN EXTENSION



Metro

JULY 2024

K LINE NORTHERN EXTENSION TRANSIT CORRIDOR PROJECT

Hydrology and Water Quality Technical Report

Prepared for:



Los Angeles County
Metropolitan Transportation Authority

Prepared by:



515 S. Figueroa Street, Suite 1400
Los Angeles, California 90071

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ABBREVIATIONS / ACRONYMS

ACRONYM	DEFINITION
AA	Alternatives Analysis
Advanced AA	Advanced Alternatives Analysis
bgs	below ground surface
BMP	Best Management Practice
C/NR	Conservation and Natural Resources Element
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGP	Construction General NPDES Permit
CWA	Clean Water Act
Division 16	Division 16 Southwestern Maintenance Yard
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EWMP	Enhanced Watershed Management Program
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
IGP	Industrial General NPDES Permit
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LARWQCB	Los Angeles Regional Water Quality Control Board
LAX	Los Angeles International Airport
LID	Low-Impact Development
Los Angeles Basin Plan	Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura counties
LRT	light rail transit
LUST	leaking underground storage tank

ACRONYM	DEFINITION
Metro	Los Angeles County Metropolitan Transportation Authority
Metro Board	Metro Board of Directors
MRDC	Metro Rail Design Criteria
MS4	Municipal Separate Storm Sewer System
MSF	Maintenance and Storage Facility
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PM	Project Measure
Project	K Line Northern Extension Project
RSA	Resource Study Area
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SEA	Sensitive Ecological Area
SEM	Sequential Excavation Method
SFHA	Special Flood Hazard Area
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TBM	tunnel boring machine
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
WBMWD	West Basin Municipal Water District
WDR	Waste Discharge Requirement

ACRONYM	DEFINITION
WMP	Watershed Management Program
WRD	Water Replenishment District of Southern California

CHAPTER 1 INTRODUCTION

1.1 PROJECT OVERVIEW

The Los Angeles County Metropolitan Transportation Authority (Metro) is preparing a Draft Environmental Impact Report (EIR) for the K Line Northern Extension Transit Corridor Project (the Project) (Figure 2-1). The Project would provide a northern extension of the Metro light rail transit (LRT) K Line from the Metro E Line (Expo) to the Metro D Line (Purple) and B Line (Red) heavy rail transit lines. The Project would serve as a critical regional connection, linking the South Bay, the Los Angeles International Airport (LAX) area, South Los Angeles, Inglewood, and Crenshaw corridor to Mid-City, Central Los Angeles, West Hollywood, and Hollywood, allowing for further connections to points north in the San Fernando Valley via the Metro B Line. The Project would also connect major activity centers and areas of high population and employment density.

1.2 TECHNICAL REPORT SUMMARY

This technical report evaluates the Project's environmental impacts as they relate to hydrologic resources and water quality. It describes existing conditions, the current applicable regulatory setting, potential impacts from construction and operation of the alignment alternatives, stations, design option, and maintenance and storage facility (MSF), as well as mitigation measures where applicable. This technical report was conducted in compliance with the California Environmental Quality Act (CEQA) (Sections 21000 et seq.) and the CEQA Guidelines (Section 15000 et seq.), which require state and local agencies to identify the significant environmental impacts of their actions, including significant impacts associated with hydrologic resources and water quality, and to avoid or mitigate those impacts, when feasible.

The technical report is organized into eight chapters:

- Chapter 1 – Introduction, provides an overview of the Project and a summary of the technical report's contents.
- Chapter 2 – Project Description, provides a description of the Project's alignment alternatives, stations, design option, and MSF. This section also describes the construction approach for the Project.
- Chapter 3 – Regulatory Framework, discusses applicable federal, state, and local regulatory requirements, including plans and policies relevant to Project jurisdictions.
- Chapter 4 – Methodology and Significance Thresholds, describes the analysis methodologies applied for this Project and provides a summary of CEQA significance thresholds adopted by state and local jurisdictions.
- Chapter 5 – Existing Setting, describes the existing conditions as relevant to the Project's alignment alternatives, stations, design option, and MSF.
- Chapter 6 – Impacts and Mitigation Measures, discusses the impact analyses conducted for the Project's alignment alternatives, stations, design option, and MSF, and discusses

applicable mitigation measures. It also discusses any project measures that would be implemented as part of design and construction of the Project.

- Chapter 7 – Cumulative Impacts, discusses the cumulative impacts for the Project’s alignment alternatives, stations, design option, and MSF.
- Chapter 8 – References, lists the references used to prepare this technical report.

CHAPTER 2 PROJECT DESCRIPTION

This section provides information pertinent to the components of the Project as evaluated in the technical report. The Project components for evaluation in this technical report include three light rail alignment alternatives with stations, one design option, and one MSF.

2.1 ALIGNMENT ALTERNATIVES

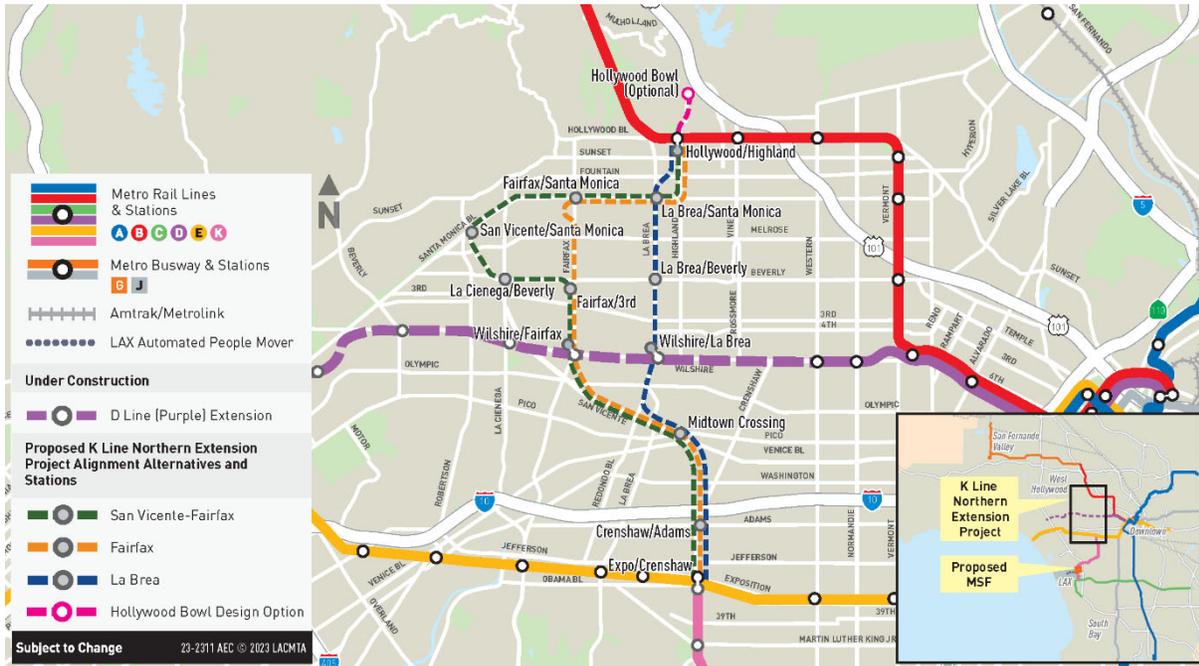
As shown in Figure 2-1, each of the three alignment alternatives would provide a northern extension of the Metro K Line from its current terminus at the Expo/Crenshaw Station to the Metro B Line Hollywood/Highland Station. All three alignment alternatives would operate entirely underground in parallel twin-bore tunnels with some station elements at the surface, including the station entrance and ventilation structures. Due to the Project's length and pending funding availability, the alignment alternatives would be constructed sequentially in sections.

The alignment alternatives are as follows:

- **Alignment Alternative 1: San Vicente–Fairfax.** This alignment alternative would travel north from the existing Metro K Line Expo/Crenshaw Station before heading northwest under San Vicente Boulevard, with a connection to the future Metro D Line Wilshire/Fairfax Station. It would continue north under Fairfax Avenue before turning west under Beverly Boulevard to rejoin San Vicente Boulevard. The alignment would then turn east under Santa Monica Boulevard, and then turn north just east of La Brea Avenue to follow Highland Avenue north to connect to the Metro B Line at the Hollywood/Highland Station.
- **Alignment Alternative 2: Fairfax.** This alignment alternative would travel north from the existing Metro K Line Expo/Crenshaw Station before heading northwest under San Vicente Boulevard and north under Fairfax Avenue, where it would connect with the future Metro D Line Wilshire/Fairfax Station. It would continue north under Fairfax Avenue and turn east under Santa Monica Boulevard. The alignment would then turn north just east of La Brea Avenue to follow Highland Avenue north to connect to the Metro B Line at the Hollywood/Highland Station.
- **Alignment Alternative 3: La Brea.** This alignment alternative would travel north from the existing Metro K Line Expo/Crenshaw Station before heading northwest under San Vicente Boulevard and north under La Brea Avenue, where it would connect with the future Metro D Line Wilshire/La Brea Station. From there, it would continue north under La Brea Avenue and turn northeast north of Fountain Avenue to follow Highland Avenue to connect with the Metro B Line at the Hollywood/Highland Station.

Table 2-1 provides a summary of the characteristics of each of the alignment alternatives and Table 2-2 identifies which stations would be constructed under each alignment alternative. In total, 12 station areas are identified, including the option to extend to the Hollywood Bowl.

FIGURE 2-1. K LINE NORTHERN EXTENSION ALIGNMENT ALTERNATIVES



Source: Connect Los Angeles Partners 2023

TABLE 2-1. CHARACTERISTICS OF THE ALIGNMENT ALTERNATIVES AND DESIGN OPTION

PROJECT COMPONENTS	ALIGNMENT ALTERNATIVES			DESIGN OPTION
	1. SAN VICENTE-FAIRFAX	2. FAIRFAX	3. LA BREA	HOLLYWOOD BOWL EXTENSION
Alignment Length	9.7 miles underground	7.9 miles underground	6.2 miles underground	+ 0.8-mile underground
Stations	9 underground	7 underground	6 underground	+1 underground
Travel time from Expo/Crenshaw to Hollywood/Highland Stations	19 minutes	15 minutes	12 minutes	+2 minutes (from Hollywood/Highland)

Source: Connect Los Angeles Partners 2023

TABLE 2-2. STATIONS BY ALIGNMENT ALTERNATIVE

STATION	SAN VICENTE–FAIRFAX	FAIRFAX	LA BREA
Crenshaw/Adams (City of Los Angeles)	●	●	●
Midtown Crossing (City of Los Angeles)	●	●	●
Wilshire/Fairfax (City of Los Angeles)	●	●	
Fairfax/3 rd (City of Los Angeles)	●	●	
La Cienega/Beverly (City of Los Angeles)	●		
San Vicente/Santa Monica (City of West Hollywood)	●		
Fairfax/Santa Monica (City of West Hollywood)	●	●	
La Brea/Santa Monica (City of West Hollywood)	●	●	●
Hollywood/Highland (City of Los Angeles)	●	●	●
Wilshire/La Brea (City of Los Angeles)			●
La Brea/Beverly (City of Los Angeles)			●
Hollywood Bowl (City of Los Angeles)	●	●	●

Source: Connect Los Angeles Partners 2023

2.2 HOLLYWOOD BOWL DESIGN OPTION

For every alignment alternative, there is one design option under consideration. The Hollywood Bowl Design Option includes an alternate terminus station at the Hollywood Bowl, north of the proposed Hollywood/Highland Station, as shown in Figure 2-2.

FIGURE 2-2. HOLLYWOOD BOWL DESIGN OPTION

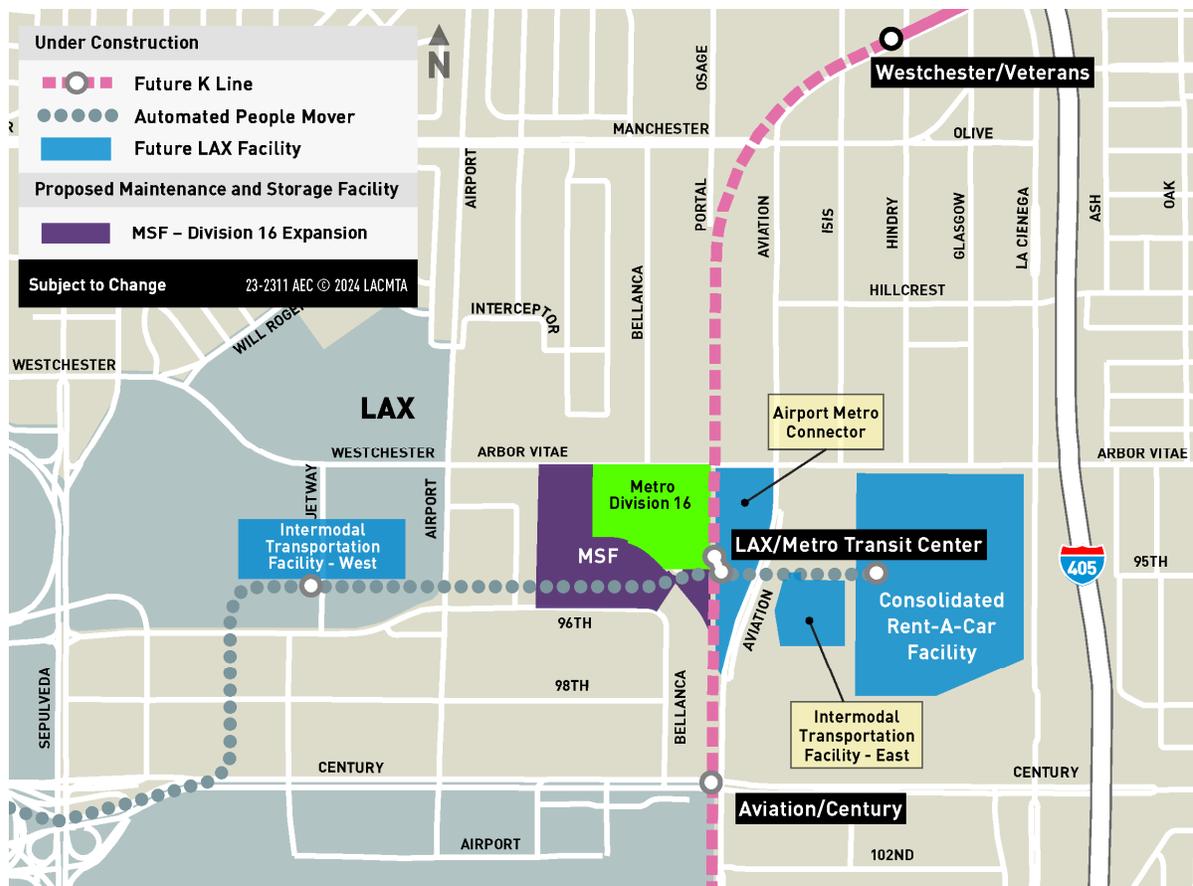


Source: Connect Los Angeles Partners 2023

2.3 MAINTENANCE AND STORAGE FACILITY

An MSF would be constructed that would expand the Division 16 Maintenance Yard (Division 16), the existing MSF for the Metro K Line near LAX, as shown in Figure 2-3. The MSF would provide equipment and facilities to accommodate daily servicing and cleaning, inspection and repairs, and storage of light rail vehicles that are not in service. The MSF would be the primary physical employment center for rail operation employees, including train operators, maintenance workers, supervisors, administrators, security personnel, and other roles. If the Project is opened in sections, operation of the extended K Line from the Expo/Crenshaw Station to the Metro D Line could be accommodated within the existing Division 16 site with four new storage tracks.

FIGURE 2-3. MAINTENANCE AND STORAGE FACILITY



Source: Connect Los Angeles Partners 2023

2.4 CONSTRUCTION APPROACH

The Project would be constructed in sections that would be built sequentially, depending on available funding. The development of the Project would employ conventional construction methods, techniques, and equipment similar to other Metro projects that require underground tunneling. Detailed information on construction techniques can be found in the KNE Construction Approach Report. Major construction activities for the Project include surveys and preconstruction, which consist of local business surveys, building and utility assessments, and site preparations; right-of-way acquisition; tunnel construction, including tunnel boring machine (TBM) excavation and segmental lining and installation; utility relocation and installation work; station, crossover, and connection box construction; MSF construction, including site grading, maintenance building construction, and storage and access track construction; street restorations, including paving and sidewalks; ventilation and emergency egress construction; systems installation and facilities, including trackbed, rail, overhead contact system, conduit, electrical substation, and communications and signaling construction; and construction of other ancillary facilities.

The tunnels would be bored with TBMs, and the stations and track crossover boxes would be constructed via cut-and-cover methods, which entail excavating down from the ground surface and stabilizing the ground with an excavation support, then placing temporary decking surfaces above the excavation and conducting all excavation inside the supported area. The tunnel and station associated with the Hollywood Bowl Design Option would be constructed by sequential excavation method (SEM), which entails conventional mining techniques and equipment for hard rock excavation, which would reduce surface impacts.

Construction staging areas have been identified at each of the station locations, which are described and illustrated in Appendix A of the KNE Construction Approach Report. In order to construct a station, a minimum of one to two acres of construction staging sites would be needed for the duration of the station construction period. A larger construction staging site of three to four acres would be required if the site is also used to launch the TBMs and support tunneling activities. The TBM launch sites have been identified at the Midtown Crossing, San Vicente/Santa Monica, and La Brea/Santa Monica Stations. Temporary street, lane, sidewalk, and bike lane closures as well as street reconfigurations will be part of construction activities. Construction and operational impacts on hydrologic resources and water quality are identified and discussed in this technical report.

CHAPTER 3 REGULATORY FRAMEWORK

This chapter describes federal, state, regional, and local regulations and requirements related to potential water quality, flooding, and hydrology impacts. Permits may be required during construction and operation of the Project to comply with applicable regulations. Where relevant, this chapter identifies whether a specific permit would be required during construction phases, operation, or both; however, exact permit requirements will not be known until specific plans for construction and operation are finalized. Permitting requirements could depend on the construction phasing of the Project alignment alternatives, stations, and design option. Furthermore, specific permit requirements may be determined by the contractor(s) responsible for construction.

3.1 FEDERAL REGULATIONS

The following sections describe the federal regulations that are applicable to construction and/or operation of the Project.

3.1.1 CLEAN WATER ACT (UNITED STATES CODE [USC] TITLE 33, SECTION 1251 ET SEQ.)

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into waters of the U.S. and gives the United States Environmental Protection Agency (USEPA) the authority to implement pollution control programs, such as setting wastewater standards for industries. In most states, including California, USEPA has delegated this authority to state agencies.

3.1.1.1 CWA SECTION 301

Under CWA Section 301, it is unlawful to discharge any pollutant into waters of the U.S. without authorization under specific provisions of the CWA, including Sections 402 and 404, which are discussed below.

3.1.1.2 CWA SECTION 303

The USEPA has authority under the CWA to implement water pollution control programs. In California, this authority is delegated to the State Water Resources Control Board (SWRCB). Section 303(d) requires states to develop a list of water-quality-impaired water bodies and to implement total maximum daily loads (TMDLs) for certain pollutants in order to meet water quality standards. A TMDL establishes the maximum amount of a pollutant allowed in a water body and serves as the starting point or planning tool for restoring water quality. In general, once a water body has been added to a state's list of impaired waters it stays there until the state develops a TMDL and SWRCB approves it. SWRCB reporting guidance provides a way to keep track of a state's water bodies, from listing as impaired to meeting water quality standards. This tracking system contains a running account of all of the state's water bodies and categorizes each based on the attainment status. For example, once a TMDL is developed, a water body is no longer on the 303(d) list, but it is still tracked until the water is fully restored (USEPA 2023).

3.1.1.3 CWA SECTION 401

Under CWA Section 401, projects permitted under CWA Section 404 (described below) for any activity that may result in a discharge into waters of the U.S. obtain State Water Quality Certification that the proposed activity shall comply with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the United States Army Corps of Engineers (USACE). The 401 permit certifications are obtained from the Regional Water Quality Control Board (RWQCB), dependent on the project location, and are required before the USACE issues a 404 permit.

3.1.1.4 CWA SECTION 402 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM)

Through delegated jurisdiction under the CWA, the SWRCB regulates point-source discharges to waters of the U.S. under the National Pollutant Discharge Elimination System (NPDES). Regulated discharges also include diffuse sources of discharge caused by general construction activities covering an area greater than one acre, and stormwater discharges in municipal separate storm sewer systems (MS4s) in which runoff is carried through a developed conveyance system to specific discharge locations. The SWRCB issues both a Construction General NPDES Permit for protection of water quality from stormwater discharges during construction activities, and an Industrial General NPDES Permit for protection of water quality from stormwater discharges during industrial activities. Under construction and operation of the Project, Metro would be responsible for compliance with both of these NPDES permits.

3.1.1.5 CWA SECTION 404

The USACE has jurisdiction over all waters of the U.S., which include navigable waters and traditionally navigable water as defined in Title 33, Part 328.3(a) of the Code of Federal Regulations. Under CWA Section 404, the USACE regulates the discharge of dredged or fill materials (including from construction activities) into waters of the U.S.

3.1.2 SAFE DRINKING WATER ACT (42 USC SECTION 300[F] SEQ.)

The Safe Drinking Water Act regulates discharges of pollutants to underground aquifers and establishes standards for drinking water quality. The Safe Drinking Water Act is the principal federal law in the United States intended to ensure safe drinking water for the public. Pursuant to the act, the USEPA is required to set standards for drinking water quality and oversee all states, localities, and water suppliers that implement the standards.

3.1.3 RIVERS AND HARBORS ACT OF 1899 (33 USC 403 AND 408)

Section 10 of the Rivers and Harbors Act, as codified in 33 USC 403, requires a permit for creating obstructions (including excavation and fill activities) to navigable waters of the U.S. (Navigable waters of the U.S. are defined as those water bodies subject to the ebb and flow of the tide and/or that are utilized in their natural condition or by reasonable improvements as means to transport interstate or foreign commerce.)

Section 14 of the Rivers and Harbors Act, as codified in 33 USC 408, requires permission for the use, including modifications or alterations, of any flood-control facility work built by the United States to ensure that the usefulness of the federal facility is not impaired. The permission for occupation or use is to be granted by “appropriate real estate instrument in accordance with existing real estate regulations.”

Approval for any modifications, alterations, or occupation of USACE public works projects is granted through the USACE District’s Section 408 program. Public works projects include dams, basins, levees, channels, navigational channels, and any other local flood protection works constructed by USACE (for example, the Los Angeles River). A Section 408 permit is only required for alterations proposed within lands and real property within USACE jurisdiction. Based upon review of the proposed alignment alternatives, the design option, and the MSF, the Project is not expected to require Section 403 or 408 permitting.

3.1.4 EXECUTIVE ORDER 11988: FLOODPLAIN MANAGEMENT

Executive Order 11988 directs all federal agencies to avoid, to the extent possible, incompatible floodplain development, to be consistent with the standards and criteria of the National Flood Insurance Program (NFIP), and to restore and preserve natural and beneficial floodplain values. Incompatible development includes long-term and short-term adverse impacts associated with the occupancy and modification of floodplains. The Federal Emergency Management Agency (FEMA) administers the NFIP and provides floodplain information for many areas of the country through Flood Insurance Studies and their associated Flood Insurance Rate Maps (FIRMs).

3.1.5 NATIONAL FLOOD INSURANCE ACT (42 USC 4001 ET SEQ.)

The purpose of the National Flood Insurance Act is to identify flood-prone areas and provide insurance. The act requires purchase of insurance for developments in special flood hazard areas (SFHAs). The National Flood Insurance Act is applicable to any federally assisted acquisition or construction project in an area identified as having special flood hazards. Projects should avoid construction of such areas, or develop a design to be consistent with, FEMA-identified flood hazard areas.

FEMA issues flood zone maps on a countywide level. NFIP floodplain management building requirements provide policies for development in floodplains. Among other provisions, applicable aspects of the NFIP regulations state that if the area of construction is located within a regulatory floodway, as delineated on the FIRM, any development must not increase base flood elevation levels. The term “development” is defined as any manmade change to improved or unimproved real estate, including, but not limited to, buildings, other structures, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development and must demonstrate that the development would not cause any rise in base flood levels.

3.2 STATE REGULATIONS

The SWRCB has jurisdiction throughout California, and there are nine RWQCBs that exercise rulemaking and regulatory activities by basins. The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving basin plans, TMDLs, and NPDES permits. The RWQCBs are responsible for the development and implementation of water quality control plans, also known as basin plans, that address regional beneficial uses, water quality characteristics, and water quality problems. The RWQCB is responsible for implementing the Porter-Cologne Water Quality Control Act discussed in Section 3.2.1. The RWQCB is also responsible for issuing Water Quality Certifications pursuant to Section 401 of the CWA, as described in Section 3.1.1.5.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code. Through the mandates of this Section 13263, dischargers are required to comply with Waste Discharge Requirements (WDRs) as developed by the RWQCB.

3.2.1 PORTER-COLOGNE WATER QUALITY ACT

This act provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by WDRs and may be required even when the discharge is already permitted or exempt under the CWA. The SWRQCB and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan.

3.2.2 CALIFORNIA FISH AND GAME CODE SECTION 1602

Section 1602 of the California Fish and Game Code, administered by the California Department of Fish and Wildlife (CDFW), mandates that “it is unlawful for any person to substantively divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity.” Streambed alteration must be permitted by CDFW through a Lake or Streambed Alteration Agreement. CDFW defines streambeds as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life” and lakes as “natural lakes and manmade reservoirs.” CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and can extend to habitats adjacent to watercourses.

To meet the requirements of Section 1602, entities must notify CDFW of any proposed activity that may substantially modify a river, stream, or lake. The notification requirement applies to work

undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. There are no rivers, streams, or lakes (including intermittent ones) within the RSA for the alignments, design option, or MSF.

3.2.3 STATE ANTIDEGRADATION POLICY

This state policy was adopted by the SWRCB in accordance with the federal Antidegradation Policy to maintain high-quality waters in California. The state policy requires that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge into high-quality waters will be required to meet WDRs to control the discharge and ensure that a pollution or nuisance will not occur.

3.2.4 CONSTRUCTION GENERAL NPDES PERMIT

The Construction General NPDES Permit (CGP) Order No. 2022-0057-DWQ (adopted September 8, 2022, and effective September 1, 2023) regulates stormwater discharges from construction sites that result in a Disturbed Soil Area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity, as determined by the RWQCB. Operators of regulated construction sites are required to develop a Stormwater Pollution Prevention Plan (SWPPP); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The main objectives of the CGP are to:

- Reduce erosion from construction projects or activities
- Minimize or eliminate sediment in stormwater discharges from construction projects
- Prevent materials used at a construction site from contacting stormwater
- Implement a sampling and analysis program to monitor construction site runoff
- Eliminate unauthorized non-stormwater discharges from the construction sites
- Implement appropriate measures to reduce potential impacts to waterways both during and after construction projects
- Establish maintenance commitments on post-construction pollution control measures

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and based on potential for erosion and transport to receiving waters. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP that includes best management practices (BMPs) in the five following categories:

- Good site management “housekeeping”
- Non-stormwater management
- Erosion control

- Sediment controls
- Run-on and runoff controls

3.2.5 INDUSTRIAL GENERAL NPDES PERMIT

The Industrial General NPDES Permit (IGP) Order 2014-0057-DWQ as amended in 2015 and 2018 (effective July 1, 2020) is implemented by the SWRCB to minimize impacts to stormwater from industrial activities. The Project would be subject to the regulations of the IGP because it is a transportation facility with vehicle maintenance shops and equipment cleaning operations at the MSF. The IGP requires preparation of an industrial SWPPP and a monitoring plan for industrial facilities, including vehicle maintenance facilities associated with transportation operations.

3.2.6 ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The 1972 Alquist-Priolo Earthquake Fault Zoning Act was created to mitigate the hazards of fault rupture. It prohibits placement of structures for human occupancy across the trace of an active fault. This regulation is related to water resources because the RSA is susceptible to earthquake movement, which present hazards for tsunamis and seiches on nearby water bodies.

3.2.7 SEISMIC HAZARDS MAPPING ACT

The state's Seismic Hazards Mapping Act (1990) requires the State Geologist to compile maps that identify and describe the seismic hazard zones in California. The mapping area emphasizes urban areas in Los Angeles, Ventura, and Orange Counties in Southern California. This regulation is related to water resources because the RSA is susceptible to earthquake movement and related dam failure and inundation.

3.2.8 SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act, adopted in 2014, sets forth a statewide framework to help protect groundwater resources over the long-term. The act requires local agencies to form groundwater sustainability agencies for high- and medium-priority basins and for the agencies to develop and implement groundwater sustainability plans to avoid undesirable results and to mitigate overdraft within 20 years. The groundwater basins within the RSA are very low-priority basins and do not have sustainable groundwater management plans (California Department of Water Resources (DWR) 2004a, b, c).

3.3 REGIONAL REGULATIONS

3.3.1 LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

The Los Angeles Regional Water Quality Control Board (LARWQCB) has jurisdiction over stormwater and urban runoff discharges from 84 incorporated cities within the Los Angeles County Flood Control District (LACFCD), including the cities in the RSA. The regional regulations applicable to the Project are discussed below.

3.3.1.1 LOS ANGELES COUNTY MS4 PERMIT

LARWQCB Order No. R4-2012-0175, as amended by SWRCB Order No. WQ 2015-0075, LARWQCB Order No. R4-2012-0175-A01, NPDES Permit No. CAS004001, and Los Angeles County MS4 NPDES permit, regulates the LACFCD, the County of Los Angeles, and 84 incorporated cities within the LACFCD for discharges of stormwater and urban runoff from MS4s, also called storm drainage systems. The Los Angeles County MS4 NPDES permit requires new development and redevelopment projects to have post-construction controls to manage pollutants, pollutant loads, and runoff volume emanating from the project site. New development and redevelopment projects are also required to implement hydrologic control measures to minimize changes in post-development hydrologic stormwater runoff discharge rates, velocities, and durations. This shall be achieved by maintaining pre-project stormwater runoff flow rates and durations.

3.3.1.2 CONSTRUCTION DEWATERING

Removal of nuisance water from a construction site (known as dewatering) is regulated because of the high turbidity and pollutants potentially associated with this activity. The following NPDES permits regulate construction dewatering:

- LARWQCB Order No. R4-2018-0125 (NPDES No. CAG994004) Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (Construction Dewatering Permit) is required for discharges to surface water from dewatering activities.
- LARWQCB Order No. 93-010, Waste Discharge Requirements for Specified Discharges to Groundwater in the Santa Clara River and Los Angeles River Basins, covers construction dewatering and water used for dust control application. The WDR requires that wastewater be analyzed prior to being discharged in order to determine if it contains pollutants in excess of the applicable Basin Plan Water Quality Objectives. Additionally, any wastewater that might be encountered and subsequently discharged to groundwater will need to comply with applicable water quality standards.

3.3.1.3 DISCHARGE OF NON-HAZARDOUS CONTAMINATED SOILS AND OTHER WASTES

LARWQCB Order No. 91-93, Waste Discharge Requirements for Discharge of Non-Hazardous Contaminated Soils and Other Wastes in Los Angeles River and Santa Clara River Basins, protects waters of the state from contamination due to disposal of soils containing moderate concentrations of petroleum hydrocarbons, heavy metals, and other wastes. The permit allows the disposal of up to 100,000 cubic yards of non-hazardous contaminated soils and other wastes for a maximum period of 90 days. This WDR requires that waste used as soil backfill shall not contain any substance in concentrations toxic to human, animal, plant, or aquatic life. The CGP allows for temporary stockpiling of non-hazardous, contaminated soils until they can be appropriately disposed of or reused, per permit conditions.

3.3.1.4 LOS ANGELES BASIN PLAN

The Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (LARWQCB 2019a), referred to herein as the Los Angeles Basin Plan, sets forth the regulatory water quality standards for surface waters and groundwater within the region. The water quality standards address both the designated beneficial uses for each water body and the water quality objectives to meet them. Where multiple designated beneficial uses exist, water quality standards are written to protect the most sensitive use.

3.3.1.5 TOTAL MAXIMUM DAILY LOADS

In accordance with the federal CWA and the state Porter-Cologne Water Quality Control Act, TMDLs have been developed and incorporated into the Los Angeles Basin Plan for some pollutants identified on the 303(d) list as causing contamination. Project-specific TMDLs are discussed in Section 5.2.3.

3.3.1.6 WATERSHED MANAGEMENT AND ENHANCED WATERSHED MANAGEMENT PROGRAMS

The goal of Watershed Management Programs (WMPs) and Enhanced Watershed Management Programs (EWMPs) is to ensure that “discharges from the Los Angeles County MS4: (i) achieve applicable water quality-based effluent limitations that implement TMDLs; (ii) do not cause or contribute to exceedances of receiving water limitations; and (iii) for non-stormwater discharges from the MS4, are not sources of pollutants to receiving waters.” Plans relevant to the Project are the EWMPs for the Ballona Creek and Dominguez Channel Watersheds.

3.4 LOCAL

The following sections describe local policies and ordinances related to hydrology and water quality. Not all of the local jurisdictions have specific general plan policies or ordinances related to water resources; applicable policies and regulations are described below.

3.4.1 LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

3.4.1.1 WATER USE AND CONSERVATION POLICY

In addition to complying with local and regional water conservation regulations, Metro developed its own procedures dictating the use of potable water and conservation (Metro 2009). Applicable procedures relating to water use and conservation required by Metro include the following:

- Procedure 2.1: Using Potable Water for Pressure Washing Activities
 - ▶ 2.1.1 Prioritize facility locations that must be regularly cleaned using pressure washing equipment.
 - ▶ 2.1.2 If pressure washing is deemed essential, apply appropriate water conservation and efficiency measures.
 - ▶ 2.1.3 Conduct pressure washing activities using cost-effective water-efficient equipment.
 - ▶ 2.1.4 Capture and dispose any generated wastewater to an appropriate facility.

- Procedure 2.2: Using Potable Water for Construction
 - ▶ 2.2.1 Develop a plan for dust suppression purposes to comply with applicable environmental statutes, regulations, and guidelines.
 - ▶ 2.2.2 Use of potable water as a dust suppression agent should always be secondary and should only be used if all other dust suppression technologies are not feasible or cost effective.
- Procedure 2.3: New Construction Planning, Design, and Construction; Existing Buildings Operations
 - ▶ 2.3.1 Use water conservation and efficiency guidelines outlined in applicable Leadership in Energy and Environmental Design reference books for all planning, procurement, design, construction, operation, and maintenance of Metro’s linear and non-linear facilities.
 - ▶ 2.3.2 Prepare manuals of operation, as applicable, to ensure that water efficiency and conservation technologies are adopted and maintained.

3.4.1.2 METRO RAIL DESIGN CRITERIA

Metro has developed Metro Rail Design Criteria (MRDC) to be used in the design of Metro Rail Transit Projects and related work. Criteria and requirements included in the following MRDC sections can help protect water resources and quality:

- Section 3, Civil (Metro 2017): “includes criteria for the design of transit system alignments, trackway subgrade, drainage, determination of rights-of-way, control of access, service roads, and relocation of any utilities.”
- Section 8, Mechanical/Plumbing (Metro 2016a): “describes criteria for the design of plumbing and drainage systems serving the Los Angeles area heavy and LRT system passenger stations and tunnels.”
- Section 10, Operations (Metro 2010): “describes the basin system wide operating and maintenance philosophies and methodologies set forth for Metro Rail Projects.”
- Section 11, Yards and Maintenance, or MSFs (Metro 2014): “provides requirements for MSF design” for shop, waste disposal, and other MSF facilities.
- Fire and Life Safety Criteria (Metro 2016b): describes fire and life safety protection requirements for guideway transit systems and associated facilities, including the development of Site Emergency Plans that provide responses to various typical emergencies and incidents that may occur, such as serious flooding.

3.4.2 LOS ANGELES COUNTY

3.4.2.1 LOS ANGELES COUNTY GENERAL PLAN

The Los Angeles County General Plan sets specific goals and policies in relation to water resources, water supply, water quality, and flooding in its Conservation and Natural Resources Element (Los Angeles County 2022). The following policies apply to the Project in unincorporated Los Angeles County areas. Incorporated areas are regulated by applicable city policies.

LOS ANGELES COUNTY GENERAL PLAN CONSERVATION AND NATURAL RESOURCES ELEMENT (C/NR)

- Policy C/NR 3.9: Consider the following in the design of a project that is located within a sensitive ecological area (SEA), to the greatest extent feasible: Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats and maintenance of watershed connectivity by capturing, treating, retaining and/or infiltrating stormwater flows onsite.
- Policy C/NR 5.1: Support the Low-Impact Development (LID) philosophy, which seeks to plan and design public and private development with hydrologic sensitivity, including limits to straightening and channelizing natural flow paths, removal of vegetative cover, compaction of soils and distribution of naturalistic BMPs at regional, neighborhood and parcel-level scales.
- Policy C/NR 5.2: Require compliance by all county departments with adopted MS4, General Construction and point source NPDES permits.
- Policy C/NR 5.3: Actively engage with stakeholders in the formulation and implementation of surface water preservation and restoration plans, including plans to improve impaired surface water bodies by retrofitting tributary watersheds with LID types of BMPs.
- Policy C/NR 5.4: Actively engage in implementing all approved WMPs, EWMPs, and Coordinated Integrated Monitoring Programs/Integrated Monitoring Programs or other County-involved TMDL implementation and monitoring plans.
- Policy C/NR 5.5: Manage the placement and use of septic systems in order to protect nearby surface water bodies.
- Policy C/NR 5.6: Minimize point and nonpoint source water pollution.
- Policy C/NR 5.7: Actively support the design of new and retrofit of existing infrastructure to accommodate watershed protection goals.
- Policy C/NR 6.1: Support the LID philosophy, which incorporates distributed, post-construction parcel-level stormwater infiltration as part of new development.
- Policy C/NR 6.2: Protect natural groundwater recharge areas and regional spreading grounds.
- Policy C/NR 6.3: Actively engage in stakeholder efforts to disperse rainwater and stormwater infiltration BMPs at regional, neighborhood, infrastructure, and parcel-level scales.
- Policy C/NR 6.5: Prevent stormwater infiltration where inappropriate and unsafe, such as in areas with high seasonal groundwater, on hazardous slopes, within 100 feet of drinking water wells and in contaminated soils.
- Policy C/NR 7.1: Support the LID philosophy, which mimics the natural hydrologic cycle using undeveloped conditions as a base, in public and private land use planning and development design.
- Policy C/NR 7.2: Support the preservation, restoration, and strategic acquisition of available land for open space to preserve watershed uplands, natural streams, drainage paths, wetlands, and rivers, which are necessary for the healthy function of watersheds.

- Policy C/NR 7.3: Actively engage with stakeholders to incorporate the LID philosophy in the preparation and implementation of watershed and river master plans, ecosystem restoration projects and other related natural resource conservation aims, and support the implementation of existing efforts, including WMPs and EWMPs.
- Policy C/NR 7.4: Promote the development of multi-use regional facilities for stormwater quality improvement, groundwater recharge, detention/attenuation, flood management, retaining non-stormwater runoff and other compatible uses.

LOS ANGELES COUNTY GENERAL PLAN SAFETY ELEMENT

- Policy S 3.1: Discourage development in the County's Flood Hazard Zones.
- Policy S.3.3: Promote the use of natural, or nature-based flood protection measures to prevent or minimize flood hazards, where feasible.
- Policy S 3.4: Ensure that developments located within the County's Flood Hazard Zones are sited and designed to avoid isolation from essential services and facilities in the event of flooding.
- Policy S 3.6: Infiltrate development runoff on-site, where feasible, to preserve or restore the natural hydrologic cycle and minimize increases in stormwater or dry weather flows.

3.4.2.2 LOS ANGELES COUNTY CODE

Los Angeles County's Stormwater and Runoff Pollution Control Ordinance regulates discharges to the storm drain system, regulates runoff management requirements including LID requirements, and specifies penalties for violations of the ordinance within any unincorporated area covered by the NPDES municipal stormwater permit (Chapter 12.80, Parts 3-5) (Los Angeles County 1998). The following sections pertain to floodplain development:

- Title 11, Chapter 11.60, Floodways, Water Surface Elevations, and Areas of Special Flood Hazard: Defines the floodways and areas of special flood hazard in Los Angeles County that are subject to floodway development regulations defined in the code. The code adopts FEMA's SFHAs shown in FEMA FIRMs covering Los Angeles County (Los Angeles County 2018).
- Title 22, Chapter 22.118 Flood Control: Defines permit requirements for any work that would create flood hazards. Includes regulations prohibiting the obstruction of stream or river flow during work along natural waterways (Los Angeles County 2019a).
- Title 26, Chapter 1, Section 110.1, Flood Hazard: Establishes construction standards for development and establishes that development must not increase flood hazards in adjacent areas by any of the following mechanisms: increasing flood water surface elevations, deflecting flows, or increasing erosion (Los Angeles County 2019b).

3.4.2.3 LOS ANGELES COUNTY LOW-IMPACT DEVELOPMENT ORDINANCE AND MANUAL

Los Angeles County’s LID Standards Ordinance provides LID standards for infrastructure projects to lessen adverse impacts of stormwater runoff, minimize pollutant loadings, minimize erosion and hydrologic impacts on natural drainage systems (Los Angeles County 2008). As of January 1, 2009, Los Angeles County instituted LID requirements for development occurring within unincorporated portions of the county. The LID Standards Manual (Los Angeles County 2014) provides guidance for the implementation of stormwater quality control measures in new development and redevelopment projects in unincorporated areas of the county with the intention of improving water quality and mitigating potential water quality impacts from stormwater and non-stormwater discharges.

3.4.2.4 LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

The Los Angeles County Department of Public Works (LACDPW) is responsible for planning and implementation of watershed management within Los Angeles County. The LACFCD is a division of LACDPW that provides flood protection, water conservation, recreation, and aesthetic enhancement within its boundaries. LACFCD partnered with numerous municipalities to develop EWMPs that outline a variety of projects with the goal of watershed enhancement. The Ballona Creek and Dominguez Channel EWMPs are applicable to the Project.

3.4.2.5 LOS ANGELES COUNTY COMPREHENSIVE FLOODPLAIN MANAGEMENT PLAN

The Los Angeles County Comprehensive Floodplain Management Plan is an important part of the county’s participation in the NFIP and Community Rating System. This plan was developed to comply with federal, state, and local requirements for floodplain management planning, coordinate existing programs and plans to prioritize initiatives, and create a linkage between the floodplain management plan and established plans of Los Angeles County (LACDPW 2021).

3.4.3 MUNICIPAL

Table 3-1 lists local codes and ordinances related to hydrology and water quality.

TABLE 3-1. LOCAL PLANS AND CODES

JURISDICTION	HYDROLOGY AND WATER RESOURCES	WATER QUALITY/STORMWATER MANAGEMENT	FLOODPLAIN PROTECTION
City of Los Angeles	<u>Municipal Code</u> <ul style="list-style-type: none"> Chapter VI, Article 4, Sewers, Water Courses and Drains 	<u>General Plan</u> <ul style="list-style-type: none"> Conservation Element, Section 8 Erosion Mobility Plan, Clean Environments and Healthy Communities Policy 5.5 <u>Municipal Code</u> <ul style="list-style-type: none"> Chapter VI, Article 4, Sewers, Water Courses and Drains 	<u>Ordinance 186952</u> <ul style="list-style-type: none"> Flood Hazard Management
City of West Hollywood	<u>Municipal Code</u> <ul style="list-style-type: none"> Title 19 Zoning Ordinance, Article 19-3 Site Planning and Development Standards, Chapter 19.20 General Property Development and Use Standards, Section 19.20.190 Storm Drainage and Stormwater Runoff 	<u>Municipal Code</u> <ul style="list-style-type: none"> Title 15, Article 3, Chapter 15.56 Stormwater Runoff and Urban Runoff Pollution Control 	<u>Municipal Code</u> <ul style="list-style-type: none"> Title 15, Article 3, Chapter 15.68 Floodplain Management Regulations

Sources: City of Los Angeles 2001, 2016, 2021, 2022; City of West Hollywood 2022a, 2022b.

CHAPTER 4 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

4.1 METHODOLOGY

The purpose of this assessment is to evaluate the Project against thresholds of significance as the basis for determining the level of impacts on hydrologic resources and water quality.

Evaluation of existing surface water drainage patterns is needed to understand the changes in peak flows and volumes to existing storm drain infrastructure, streams, and rivers caused by the Project. Adherence to federal, state, and local drainage, floodplain, and water quality regulations is the basis of the approach. The approach involves research into hydrology, surface water bodies, water quality, floodplains, and groundwater sources to understand the impacts caused by the alignment alternatives and stations, the design option, and the MSF. The current surface and groundwater conditions and beneficial uses serve as the baseline for determining potential impacts. The data sources listed below were collected, reviewed, and evaluated as part of preparation of this report.

Hydrology, surface water, and surface water quality technical data sources include:

- WDRs and NPDES Permit for MS4 Discharges within the Coastal Watersheds of Los Angeles and Ventura Counties Order No. R4-2021-0105 (NPDES Permit No. CAS00400)
- WDRs for Discharges of Nonprocess Wastewater to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (General NPDES Permit No. CAG994003)
- NPDES Statewide Stormwater Permit and WDRs for State of California Department of Transportation, Order 2022-0033-DWS (NPDES Permit CAS000003), effective January 1, 2023
- LARWQCB Water Quality Control Plan, also referred to as the Los Angeles Basin Plan (LARWQCB 2019a)
- Enhanced Watershed Management Programs for the Ballona Creek and Dominguez Channel Watersheds (Ballona Creek Watershed Management Group) 2016
- Coordinated Integrated Monitoring Programs for the Ballona Creek and Dominguez Channel Watersheds
- Metro Water Use and Conservation Policy (Metro 2009)
- Draft Preliminary K Line Northern Extension Drainage Study (Metro 2023)

Floodplain technical data sources include:

- FEMA Flood Insurance Study
- FEMA FIRM
- Municipal and Los Angeles County ordinances and codes pertinent to floodplain development

Groundwater technical data sources include:

- Department of Water Resources Groundwater Bulletins
- Sustainable Groundwater Management Act Portal

4.2 CEQA SIGNIFICANCE THRESHOLDS

In accordance with Appendix G of the 2022 CEQA Guidelines, the Project would have a significant impact related to hydrologic resources and water quality if it would:

- **Impact HWQ-1:** Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
- **Impact HWQ-2:** Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.
- **Impact HWQ-3:** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - i. result in substantial erosion or siltation on or off site;
 - ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
 - iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - iv. impede or redirect flood flows.
- **Impact HWQ-4:** In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation.
- **Impact HWQ-5:** Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

CHAPTER 5 EXISTING SETTING

5.1 REGIONAL SETTING

The Project is located within the coastal plain of Los Angeles County, which is generally flat with mild slopes draining south to southwest toward the Pacific Ocean. The coastal plain is an alluvial lowland area bounded to the north by the Santa Monica Mountains and the Elysian, Repetto, and Puente Hills and bounded on the east and southeast by the Santa Ana Mountains and the San Joaquin Hills.

The Project is located in an urban area and spans two surface watersheds, the Ballona Creek Watershed and the Dominguez Channel Watershed. The Project also spans two groundwater basins, the Central Coastal Plain of Los Angeles and the Hollywood Coastal Plain of Los Angeles. The climate in the Project vicinity is generally Mediterranean and characterized by generally hot and dry summers, while winters are generally temperate and semi-moist. Overall, the RSA's climate is relatively mild, with summertime high temperatures averaging about 90 degrees Fahrenheit and wintertime lows in the 40s. Annual precipitation in the vicinity of the Project averages from 13 to 15 inches. Almost all rainfall occurs between October and early May. Precipitation in neighboring mountain areas is substantially higher, reaching 22 inches per year and higher.

LARWQCB exercises regulatory water quality authority over the entire RSA. Additional authorities having jurisdiction include LACFCD, City of Los Angeles, City of Beverly Hills, City of Inglewood, City of West Hollywood, Metro and Caltrans District 7. Although portions of Ballona Creek downstream of the RSA are maintained by USACE, there are no USACE-regulated open channels within the RSA.

5.2 RESOURCE STUDY AREA

The RSA is delineated as 300 feet in each direction from all alignment alternatives and stations, the design option, and the MSF.

5.2.1 WATERSHEDS AND SURFACE WATER BODIES

All alignment alternatives and the design option are located in the Santa Monica Bay Watershed Management Area and in the Ballona Creek Watershed. The Ballona Creek Watershed is bounded by the Santa Monica Mountains on the north, the Harbor Freeway (Interstate 110) on the east, Baldwin Hills on the south, and Santa Monica Bay on the west (Figure 5-1). In total, the Ballona Creek Watershed is 128 square miles and includes the Cities of Beverly Hills and West Hollywood, and portions of the Cities of Los Angeles, Inglewood, Culver City, and Santa Monica as well as unincorporated areas of Los Angeles County.

Within the RSA, the urban watershed generally drains to Ballona Creek through a network of storm drains. The full length of Ballona Creek is divided into segments for monitoring and reporting purposes and these segments are called reaches. The northern limit of Reach 1 is the upstream end of Ballona Creek near Pickford Street, and the southern limit is bound by the Southern Pacific Railroad near

FIGURE 5-1. HYDROLOGY AND SURFACE WATER BODIES



Source: Connect Los Angeles Partners 2023

Jefferson Boulevard and National Boulevard. The most upstream point of Ballona Creek Reach 1 is located 0.8 mile southwest of the proposed Midtown Crossing Station. LACFCD owns and operates drainage infrastructure within incorporated and unincorporated areas in the watershed (2016 EWMP). Surface runoff is captured via drainage infrastructure, including catch basins, inlets, and MS4s (herein referred to collectively as storm drains). The existing storm drains beneath the proposed Crenshaw/Adams Station drain to an unnamed concrete-channel tributary of Ballona Creek (LACFCD Project No. 53 Jefferson Blvd SD System, Adams Blvd Drain per LACFCD As-Built Drawing No. 634-D8.10). All other storm drain systems of the RSA also drain to Ballona Creek.

The entirety of the proposed MSF is located in the Dominguez Channel and Los Angeles/Long Beach Harbors Watershed Management Area in the Dominguez Channel Watershed. The Dominguez Channel Watershed is bounded by Manchester Boulevard to the north and the Los Angeles and Long Beach Harbors to the south. The western areas include portions of the Cities of El Segundo, Manhattan Beach, Redondo Beach, Torrance, and the Palos Verdes Hills. Portions of the unincorporated communities of Willowbrook, West Rancho Dominguez, and Carson are located in the eastern portion of the watershed. Surface runoff from the entirety of the proposed MSF is routed to Dominguez Channel by existing storm drains. The most upstream point of the Dominguez Channel is 1.4 miles south and 2.4 miles east of the proposed MSF.

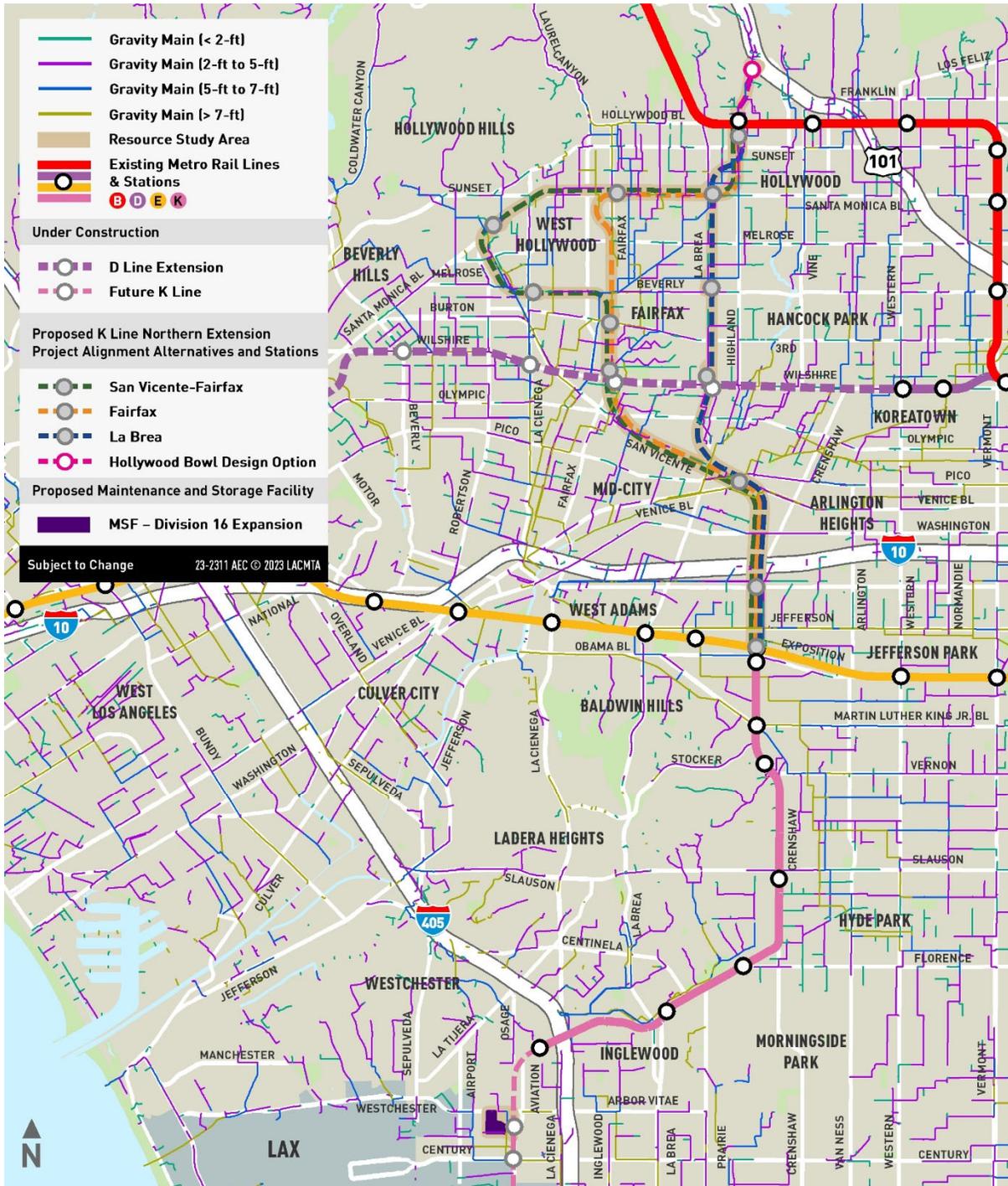
5.2.2 DRAINAGE

The highly developed urban RSA drains via a series of storm drains of varying size. Storm drains are used to convey runoff in locations where streets or other drainage facilities exceed their designated capacity or are otherwise unable to drain. The KNE Preliminary Drainage Report (Metro 2023) details all existing storm drain systems, the drainage subareas draining to inlets along each storm drain, the 50-year design flow entering the storm drain at a respective inlet, and the 50-year total storm drain flow. Existing storm drain elevations are obtained from county-provided as-built drawings. The Preliminary Drainage Report investigates potential physical impacts to existing storm drains.

5.2.3 SURFACE WATER QUALITY

The existing storm drains in the RSA ultimately discharge to Reach 1 of Ballona Creek (Figure 5-2). Heavy metals and toxic chemicals from motor vehicles, pesticides and nutrients from lawns and gardens, viruses, bacteria, and nutrients from pet waste, and roadside trash are a few of the pollutants that often enter existing storm drain systems in urban areas. Based on the 2020-2022 303(d) list, copper, indicator bacteria, lead, toxicity, trash, viruses (enteric), and zinc pollutants are being addressed with USEPA-approved TMDLs. A TMDL is still required for cyanide pollution in Ballona Creek.

FIGURE 5-2. REGIONAL STORM DRAIN NETWORK



Source: Connect Los Angeles Partners 2023

Surface runoff from the MSF site discharges to storm drains that outlet to the Dominguez Channel. Dominguez Channel drains a highly industrialized area with numerous sources of pollution resulting from polycyclic aromatic hydrocarbons (PAHs) and contains remnants of persistent legacy pesticides as well as polychlorinated biphenyls (PCBs), all of which contribute to poor sediment quality both within the channel and in adjacent Inner Harbor areas (LARWQCB 2019a). Based on the 2020-2022 (d) list, copper, lead, toxicity, and zinc pollutants are being addressed with USEPA-approved TMDLs. A TMDL is still required for indicator bacteria.

The Los Angeles Basin Plan outlines the beneficial uses of the watershed that are to be preserved (Table 5-1).

TABLE 5-1. EXISTING AND POTENTIAL BENEFICIAL USES OF INLAND SURFACE WATER

SURFACE WATER BODY	BENEFICIAL USES
Ballona Creek Reach 1 (above National Blvd)	Municipal and Domestic Supply (potential), Warm Freshwater Habitat (potential), Wildlife Habitat (existing)
Dominguez Channel (above 135 th St)	Water Contact Recreation (potential, but access prohibited by LACDPW), Non-contact Water Recreation (existing)

Source: LARWQCB Basin Plan Table 2-1 (LARWQCB 2019a)

Note: LACDPW = Los Angeles County Department of Public Works; LARWQCB = Los Angeles Regional Water Quality Control Board

High Receiving Water Risk Watersheds are sediment-sensitive or have beneficial uses of Spawning, Reproduction, and/or Early Development, Migration of Aquatic Organisms, and Cold Freshwater Habitat, none of which are applicable to the Ballona Creek nor Dominguez Channel Watershed. Therefore, none of the watersheds in the RSA are at a high receiving water risk.

5.2.4 FLOODPLAINS

FEMA issues FIRMs to delineate SFHAs, Base Flood Elevations, and insurance risk premium zones. SFHAs are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone X (unshaded). Moderate flood hazard areas, labeled Zone X (shaded), are also shown on the FIRM and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.

The RSAs of the alignment alternatives that fall within higher flood hazard risk areas include the Midtown Crossing Station and the southern portion of the track alignment between Exposition Boulevard and Jefferson Boulevard (Figure 5-3). The SFHA at Midtown Crossing Station is SFHA Zone AO, which spans 0.8 mile west to 1.9 miles east of the Midtown Crossing Station and is roughly 900 feet in width. SFHA Zone AO signifies this is a river or stream flood hazard area with a 1-percent or greater chance of shallow flooding each year, usually in the form of sheet flow. The average flood depth in this area immediately upstream of Ballona Creek Reach 1 is two to three feet. The SFHA between Exposition Boulevard and Jefferson Boulevard is SFHA Zone AE, with a base flood elevation of 112 feet where the alignments cross the flood zone. All communities in the RSA are part of the

National Flood Insurance Study, but only communities within SFHA Zone AE are required to enroll in the NFIP. The Hollywood Bowl Design Option and the proposed MSF are located fully in Zone X (unshaded), signifying minimal flood hazard risk. Moderate flood hazard areas, Zone X (shaded) locations are summarized in Table 5-2.

FIGURE 5-3. FEMA FLOOD ZONES



Source: Connect Los Angeles Partners 2023

TABLE 5-2. SFHA ZONE X (MODERATE FLOOD HAZARD) LOCATIONS ALONG ALIGNMENT ALTERNATIVES

LOCATION	SAN VICENTE-FAIRFAX	FAIRFAX	LA BREA
North/South between W Adams Boulevard and W Jefferson Boulevard	X	X	X
North/South between W Washington Boulevard and I-10	X	X	X
La Brea Avenue	X	X	X
3 rd Street	X	X	
East/West between La Cienega Boulevard and W San Vicente Boulevard	X		

Source: FEMA National Flood Hazard Layer Viewer, accessed 2023

Notes: FEMA = Federal Emergency Management Agency; SFHA = Special Flood Hazard Areas

Dams, debris basins, and spreading grounds are considered integral flood-control infrastructure. Debris basins are used to capture the sediment, gravel, boulders, and vegetative debris that are washed out of the canyons during storms. Spreading grounds are areas located adjacent to river channels or within soft-bottom channels to permit water to percolate into groundwater basins for later pumping. There are no dams, debris basins, or spreading grounds within the RSA.

5.2.5 GROUNDWATER BASINS

The Project is completely located in the Los Angeles Coastal Plain Groundwater Basin and spans three subbasins: Central Subbasin, Hollywood Subbasin, and West Coast Subbasin. These three subbasins are shown in Figure 5-4.

The Central Subbasin spans all segments of the alignment alternatives south of Beverly Boulevard. The Central Subbasin is 277 square miles in size and occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is bounded on the north by a surface divide called the La Brea High and on the northeast and east by rock formations of the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary roughly follows Coyote Creek. The southwest boundary is formed by the Newport-Inglewood fault (DWR 2004a).

The Hollywood Subbasin spans the Hollywood Bowl Design Option, the segments of the San Vicente-Fairfax and Fairfax Alignment Alternatives north of 3rd Street, and the segments of the La Brea Alignment north of Beverly Boulevard. The Hollywood Subbasin is 16.4 square miles in size and is bounded on the north by the Santa Monica Mountains and the Hollywood fault, on the east by the Elysian Hills, on the west by the Inglewood fault zone, and on the south by La Brea High (DWR 2004b).

The MSF is located in the West Coast Subbasin. The West Coast Subbasin is 160 square miles in size and is located the southwestern part of the Los Angeles Coastal Plain in Los Angeles County. It is bounded on the north by the Ballona Escarpment, an abandoned erosional channel from the Los Angeles River. On the east it is bounded by the Newport-Inglewood fault zone, and on the south and west by the Pacific Ocean and rock formations of the Palos Verdes Hills (DWR 2004c).

The existing beneficial uses of the Central Subbasin, Hollywood Subbasin, and West Coast Subbasin are summarized in Table 5-3.

FIGURE 5-4. GROUNDWATER BASINS



Source: Connect Los Angeles Partners 2023

TABLE 5-3. EXISTING BENEFICIAL USES OF GROUNDWATER

GROUNDWATER BODY	BENEFICIAL USES
Central Subbasin (DWR Basin 4-11.04)	Municipal and Domestic Supply, Industrial Service Supply, Industrial Process Supply, Agricultural Supply
Hollywood Subbasin (DWR Basin 4-11.02)	Municipal and Domestic Supply, Industrial Service Supply, Industrial Process Supply, Agricultural Supply
West Coast Subbasin (DWR Basin 4-11.03)	Municipal and Domestic Supply, Industrial Service Supply, Industrial Process Supply, Agricultural Supply

Source: DWR 2004a, 2004b, 2004c

Note: DWR = California Department of Water Resources

The general hydrogeologic setting of the Central Subbasin can be characterized by grouping into two main aquifer systems: the semi-perched aquifer systems of the Alluvium and the Lakewood Formations and the saturated San Pedro and Fernando Formations. The alluvium deposits on the topsoil layer are a semi-perched layer, meaning permeable layers of sands and gravels are separated from the underlying unconfined aquifer by relatively impermeable sandy clay and clay layers. Saturated conditions occur when all of the voids, spaces, and cracks in the soil matrix are filled with water. Unsaturated conditions occur when the voids, spaces, and cracks between soil, sand, gravel, or rock are filled with a combination of air and water. When groundwater gets trapped between a non-homogenous permeable and impermeable layer, defining the groundwater levels in this layer is difficult. The semi-perched layer is largely unsaturated, so groundwater measurements taken by drilling in this layer may not necessarily represent the actual groundwater conditions in nearby areas. The Lakewood Formation has a wide range of thicknesses along the alignment alternatives. Groundwater contours from the Navigate LA Portal accessed in 2023 suggest groundwater table depths vary between 10 feet and 90 feet below ground surface (bgs) along all alignment alternatives, 80 feet to 100 feet bgs for the Hollywood Bowl Design Option, and 40 feet bgs for the MSF.

Historically, groundwater flow in the Central Subbasin has been from recharge areas in the northeast part of the subbasin, toward the Pacific Ocean on the southwest. However, pumping has lowered the water level in the Central Basin. Groundwater enters the Central Subbasin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water, which replenishes the aquifers dominantly in the Los Angeles and Montebello forebay areas where permeable sediments are exposed at ground surface. The Los Angeles forebay is located in the northern part of the Central Basin where the Los Angeles River enters the Central Basin through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Montebello forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin and is the most important area of recharge in the subbasin (DWR 2004a).

Between the Expo/Crenshaw Station and the Midtown Crossing Station, the Lakewood Formation is relatively shallow. It has similar composition as the overlaying alluvial deposits and exhibits similar semi-perched conditions with unsaturated zones. Tar-impacted soils found in the middle of the alignment alternatives near Wilshire Boulevard also act as a relatively impermeable layer, trapping groundwater in the overlaying Lakewood Formation.

The general hydrogeologic setting of the Hollywood Subbasin can be characterized by a thicker Lakewood Formation in the northern part of the RSA and south of the Hollywood Fault. Along Santa Monica Boulevard, groundwater appears to be deeper than in the southern portion of the RSA as many of the boreholes drilled along Santa Monica Boulevard did not encounter groundwater. Unconfined groundwater conditions exist in the shallow aquifers in the northern and eastern portions of the subbasin. In the deeper aquifers and in the remainder of the subbasin, groundwater is confined, and clay members separate the aquifers over much of this subbasin.

The general hydrogeologic setting of the West Coast Subbasin is characterized by water-bearing deposits, which include the unconsolidated and semi-consolidated marine and alluvial sediments of the Holocene, Pleistocene, and Pliocene ages. Discharge of groundwater from the subbasin occurs primarily by pumping extractions (DWR 2004c).

The DWR prioritizes groundwater basins based on factors such as population, irrigated acreage, and the number of wells that draw from the basin (see Water Code Section 10933). This is known as basin prioritization. A very low priority signifies no major changes in factors outlined in Water Code Section 10933 and no need for a groundwater sustainability plan. Both the Central Subbasin and Hollywood Subbasin have very low basin prioritization and do not have associated groundwater sustainability plans (sustainable groundwater management plans). The West Coast Subbasin is adjudicated, which means the court appointed DWR to serve as Watermaster to account for all water rights and groundwater extraction amounts per year within that subbasin (West Basin Municipal Water District [WBMWD] 2023). The adjudication limits the allowable annual extraction of groundwater per water rights holder within the West Coast Subbasin in order to prevent seawater intrusion and an unhealthy groundwater level. Since the adjudicated groundwater production is substantially higher than the natural recharge of the subbasin, the California State Legislature in 1959 created the Water Replenishment District of Southern California (WRD) to manage, regulate and replenish the subbasin. Each year WRD determines the amount of supplemental recharge that is needed for the subbasin based upon annual groundwater extractions and groundwater levels. As part of the recharge and protective duties, WRD procures imported water and recycled water for the West Coast Basin Barrier Project and Dominguez Gap Barrier Project to prevent seawater intrusion (WBMWD 2023).

5.2.6 GROUNDWATER QUALITY

Groundwater quality in the RSA may be affected by areas where improper storage of petroleum fuels, solvents, and other constituents of concern are known to be leaking. These areas have been identified and are being tracked by the SWRCB. A typical leaking underground storage tank (LUST) scenario involves the release of a fuel product from an underground storage tank that can contaminate surrounding soil, groundwater, or surface waters, or affect indoor air spaces.

SWRCB Geotracker lists the status of LUST Cleanup Sites and Cleanup Program Sites by Subbasin. A list of open cleanup sites by alignment alternative RSA is provided in Table 5-4, Table 5-5, and Table 5-6 and is shown in Figure 5-5. The San Vicente–Fairfax Alignment Alternative has 13 open cleanup sites within the RSA; the Fairfax Alignment Alternative has nine open cleanup sites; and the La Brea Alignment Alternative

has 19 open cleanup sites. The potential contaminants of concern vary across cleanup sites and must be considered when disturbing land cover and during subsurface project activities (SWRCB 2020).

FIGURE 5-5. SWRCB GEOTRACKER OPEN CLEANUP SITES



Source: Connect Los Angeles Partners 2023

TABLE 5-4. SAN VICENTE–FAIRFAX ALIGNMENT ALTERNATIVE RSA OPEN CLEANUP SITES

SITE NUMBER	SITE NAME	GLOBAL ID	SITE TYPE	POTENTIAL CONTAMINANTS OF CONCERN	STATUS	ADDRESS	CITY
1	System Cleaners	SLT4L5341833	Cleanup Program Site	Volatile Organic Compounds	Open – Inactive	3631 Crenshaw Boulevard	Los Angeles
2	3000 S Crenshaw (La) Oz Owner, LLC	T10000018535	LUST Cleanup Site	Waste Oil/Motor/Hydraulic/Lubricating	Open – Eligible for Closure	3000 Crenshaw Boulevard S	Los Angeles
3	Splendid Cleaners	SLT43674672	Cleanup Program Site	Dichloroethene (DCE), Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl Chloride	Open – Assessment & Interim Remedial Action	1226 S. Cochran Ave	Los Angeles
4	Danny's Dry Cleaning (Former)	T10000016982	Cleanup Program Site	None specified	Open – Site Assessment	5511-5519 San Vicente Boulevard	Los Angeles
5	Mas Auto Service	T0603700891	LUST Cleanup Site	Gasoline	Open – Remediation	371 South Fairfax Ave	Los Angeles
6	LACMTA Southern Ca RTD	T0603701222	LUST Cleanup Site	Diesel	Open – Remediation	8800 Santa Monica Boulevard	West Hollywood
7	Canyon Cleaner Facility (Former)	SL204AH1747	Cleanup Program Site	Other Solvent or Non-Petroleum Hydrocarbon, Tetrachloroethylene (PCE)	Open – Verification Monitoring	8725 Santa Monica Boulevard	West Hollywood
8	City Of West Hollywood - Bel Air Carwash	SL0603757926	Cleanup Program Site	None Specified	Open – Inactive	1041 La Brea Avenue	West Hollywood
9	City Of West Hollywood - Los Tacos #3	SL0603794709	Cleanup Program Site	None Specified	Open – Inactive	1043 La Brea Avenue	West Hollywood
10	City Of West Hollywood - 21 Century Auto Body	SL0603777477	Cleanup Program Site	None Specified	Open – Inactive	1045 La Brea Avenue	West Hollywood

SITE NUMBER	SITE NAME	GLOBAL ID	SITE TYPE	POTENTIAL CONTAMINANTS OF CONCERN	STATUS	ADDRESS	CITY
11	Crescent Shopping Center	SL2048F1700	Cleanup Program Site	Dichloroethene (DCE), Other Chlorinated Hydrocarbons, Tetrachloroethylene (PCE), Trichloroethylene (TCE)	Open – Remediation	8100-8136 Santa Monica Boulevard	West Hollywood
12	City Of West Hollywood - Ba Studio	SLT43697695	Cleanup Program Site	None Specified	Open – Inactive	7144 Santa Monica Boulevard	West Hollywood
13	Four Seasons Dry Cleaners & Laundry	SL0603709744	Cleanup Program Site	Dichloroethene (DCE), Other Chlorinated Hydrocarbons, Tetrachloroethylene (PCE), Trichloroethylene (TCE)	Open – Assessment & Interim Remedial Action	8042 Santa Monica Boulevard.	West Hollywood

Source: SWRCB GeoTracker Website, accessed February 2023

TABLE 5-5. FAIRFAX ALIGNMENT ALTERNATIVE RSA OPEN CLEANUP SITES

SITE NUMBER	SITE NAME	GLOBAL ID	SITE TYPE	POTENTIAL CONTAMINANT OF CONCERN	STATUS	ADDRESS	CITY
1	System Cleaners	SLT4L5341833	Cleanup Program Site	Volatile Organic Compounds	Open – Inactive	3631 Crenshaw Boulevard	Los Angeles
2	3000 S Crenshaw (La) Oz Owner, LLC	T10000018535	LUST Cleanup Site	Waste Oil/Motor/Hydraulic/Lubricating	Open – Eligible for Closure	3000 Crenshaw Boulevard S	Los Angeles
3	Splendid Cleaners	SLT43674672	Cleanup Program Site	Dichloroethene (DCE), Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl Chloride	Open – Assessment & Interim Remedial Action	1226 S. Cochran Ave	Los Angeles
4	Danny's Dry Cleaning (Former)	T10000016982	Cleanup Program Site	None specified	Open – Site Assessment	5511-5519 San Vicente Boulevard	Los Angeles
5	Mas Auto Service	T0603700891	LUST Cleanup Site	Gasoline	Open – Remediation	371 South Fairfax Ave	Los Angeles
8	City Of West Hollywood - Bel Air Carwash	SL0603757926	Cleanup Program Site	None specified	Open – Inactive	1041 La Brea Avenue	West Hollywood
9	City Of West Hollywood - Los Tacos #3	SL0603794709	Cleanup Program Site	None specified	Open – Inactive	1043 La Brea Avenue	West Hollywood
10	City Of West Hollywood - 21 Century Auto Body	SL0603777477	Cleanup Program Site	None specified	Open – Inactive	1045 La Brea Avenue	West Hollywood
12	City Of West Hollywood - Ba Studio	SLT43697695	Cleanup Program Site	None specified	Open – Inactive	7144 Santa Monica Boulevard	West Hollywood

Source: SWRCB GeoTracker Website, accessed February 2023

TABLE 5-6. LA BREA ALIGNMENT ALTERNATIVE RSA OPEN CLEANUP SITES

SITE NUMBER	SITE NAME	GLOBAL ID	SITE TYPE	POTENTIAL CONTAMINANT OF CONCERN	STATUS	ADDRESS	CITY
1	System Cleaners	SLT4L5341833	Cleanup Program Site	Volatile Organic Compounds	Open – Inactive	3631 Crenshaw Boulevard	Los Angeles
2	3000 S Crenshaw (La) Oz Owner, LLC	T10000018535	LUST Cleanup Site	Waste Oil/Motor/Hydraulic/Lubricating	Open – Eligible for Closure	3000 Crenshaw Boulevard S	Los Angeles
8	City Of West Hollywood - Bel Air Carwash	SL0603757926	Cleanup Program Site	None specified	Open – Inactive	1041 La Brea Avenue	West Hollywood
9	City Of West Hollywood - Los Tacos #3	SL0603794709	Cleanup Program Site	None specified	Open – Inactive	1043 La Brea Avenue	West Hollywood
10	City Of West Hollywood - 21 Century Auto Body	SL0603777477	Cleanup Program Site	None specified	Open – Inactive	1045 La Brea Avenue	West Hollywood
12	City Of West Hollywood - Ba Studio	SLT43697695	Cleanup Program Site	None specified	Open – Inactive	7144 Santa Monica Boulevard	West Hollywood
14	Texaco Station (Former)	T10000019795	LUST Cleanup Site	None Specified	Open – Inactive	300 La Brea N	Los Angeles
15	Former Continental Graphics Facility	T10000003046	Cleanup Program Site	Benzene, Gasoline, Methane, Other Chlorinated Hydrocarbons, Tetrachloroethylene (PCE), Total Petroleum Hydrocarbons (TPH), Trichloroethylene (TCE)	Open – Remediation	181 South La Brea Avenue	Los Angeles
16	Former Continental Graphics Facility - Lot H, Building A And B	T10000003894	Cleanup Program Site	Benzene, Crude Oil, Gasoline, Lead, Methane, Naphthalene, Other Petroleum, Polynuclear Aromatic Hydrocarbons (PAHS), Toluene, Total Petroleum Hydrocarbons (TPH), Waste Oil/Motor/Hydraulic/ Lubricating, Xylene	Open – Eligible for Closure	101 N, 101 S, 111s La Brea Avenue	Los Angeles
17	Chevron #9-0726	T0603700886	LUST Cleanup Site	Gasoline	Open – Remediation	7020 Beverly Boulevard	Los Angeles

SITE NUMBER	SITE NAME	GLOBAL ID	SITE TYPE	POTENTIAL CONTAMINANT OF CONCERN	STATUS	ADDRESS	CITY
18	Liberty Car & Truck Rental Former	T10000006479	LUST Cleanup Site	None Specified	Open – Site Assessment	800 La Brea Avenue N	Los Angeles
19	Former Funk Bros	T10000019964	Cleanup Program Site	None Specified	Open – Eligible for Closure	843 North La Brea Avenue	Los Angeles
20	Mole Richardson Company	SL204EA2403	Cleanup Program Site	Benzene, Gasoline, Other Chlorinated Hydrocarbons, Tetrachloroethylene (PCE), Trichloroethylene (TCE), Vinyl Chloride	Open – Assessment & Interim Remedial Action	937 N. Sycamore Ave	Hollywood
21	City Of West Hollywood - South Cal Gas	SL0603737787	Cleanup Program Site	None Specified	Open – Inactive	7171 Romaine Street	West Hollywood
22	City Of West Hollywood - Stonecast Design	SL603792731	Cleanup Program Site	None Specified	Open – Inactive	1005 La Brea Ave.	West Hollywood
23	City Of West Hollywood - Valley Sound	SL0603731985	Cleanup Program Site	None Specified	Open – Inactive	1023 La Brea Avenue	West Hollywood
24	City Of West Hollywood - Foundation House	SL0603774157	Cleanup Program Site	None Specified	Open – Inactive	1033 La Brea	West Hollywood
25	City Of West Hollywood - Bellino Property	SL0603771008	Cleanup Program Site	None Specified	Open – Inactive	1037 La Brea Avenue	West Hollywood
26	Shell #204-3490-0401	T0603700762	LUST Cleanup Site	Gasoline	Open – Eligible for Closure	1309 La Brea Ave N	Hollywood

Source: SWRCB GeoTracker Website, accessed February 2023

CHAPTER 6 IMPACTS AND MITIGATION MEASURES

6.1 IMPACT ANALYSIS

This section presents the evaluation of impacts related to hydrologic resources and water quality, as well as the corresponding mitigation measures, where applicable. Both construction and operational impacts are evaluated.

Table 6-1 in Section 6.1.9 provides a summary of the impact conclusions.

Project measures are design features, BMPs, or other commitments that Metro implements as part of all alignment alternatives and stations, the design option, and the MSF to reduce or avoid environmental effects associated with the Project. Project measures are not the same as mitigation measures that are used to reduce an environmental impact's significance level. Where applicable, project measures are identified here as part of the evaluation of environmental impacts in this chapter.

6.1.1 PM HWQ-1: CONSTRUCTION BMPs

Construction BMPs for the Project include, but shall not be limited to, the following:

- Establishment of an erosion and sediment control plan prior to the initiation of construction activities. The plan will outline temporary soil stabilization and sediment control BMPs to counter erosion and movement of sediment via wind, vehicles, and dust produced during construction activities. The erosion and sediment control plan may be included as an attachment to the construction SWPPP. Rainfall erosivity risks outlined in the SWPPP can be reduced by limiting the number of rainy seasons associated with the Project's construction timeline.
- Development of a SWPPP to comply with all requirements of the Construction General NPDES Permit.
- Dewatering and groundwater disposal in compliance with applicable dewatering permits, including LARWQCB Order No. R4-2023-0429.
- Implementation of drainage and grading plans and treatment control BMPs designed to protect water quality, such as oil/water separators, catch basin inserts, storm drain inserts, media filtration, and catch basin screens.

6.1.2 PM HWQ-2: OPERATIONAL BMPS

Operational BMPs for the Project include, but shall not be limited to, the following:

- Implementation of MS4 permit post-construction water quality requirements, LID standards, and local policies protecting water quality, including design features to reduce impervious surfaces and treatment of stormwater runoff using LID infiltration BMPs such as bioretention facilities or pervious pavement.
- Treatment of pumped groundwater via media filtration BMPs or via a water treatment facility.

6.1.3 PM HWQ-3: FLOOD EVENTS (ALIGNMENT ALTERNATIVES ONLY)

If a flood event occurs in a FEMA flood zone during construction of the Project, construction activities shall cease and equipment and materials shall be moved to a safe location outside the floodwaters.

6.1.4 IMPACT HWQ-1: WATER QUALITY

Impact HWQ-1: Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

6.1.4.1 ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. Along the San Vicente–Fairfax Alignment Alternative, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicles tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns, including oil, grease, and heavy metals, if not properly maintained and stored. As required by PM HWQ-1, a construction SWPPP would be prepared to reduce any potential impacts related to stormwater runoff in compliance with SWRCB’s Construction General NPDES Permit.

The groundwater table along the San Vicente–Fairfax Alignment Alternative can be as high as 10 feet bgs. The Advanced Conceptual Engineering Plan and Profiles of the alignment alternative is referenced from the K Line Northern Extension Drainage Report to understand proposed depths to bottom of tunnel and station structures. Groundwater contours from Navigate LA are referenced to understand groundwater depths where the construction of tunnels and station structures would occur. Groundwater is likely to be encountered during construction at the Wilshire/Fairfax, Fairfax/3rd, La Cienega/Beverly, San Vicente/Santa Monica, and La Brea/Santa Monica Stations, which would necessitate dewatering activities and disposal of the collected groundwater. However, PM HWQ-1 requires dewatering and groundwater disposal activities to comply with LARWQCB Order No. R4-2018-0125; this construction NPDES permit, summarized in Section 3.3.1.2, includes limitations on discharge of waste and potentially contaminated groundwater from dewatering activities into surface waters, which could otherwise infiltrate into groundwater. Compliance with this permit minimizes impacts on both surface water quality and groundwater quality.

Based on the analysis described above, with implementation of PM HWQ-1, construction impacts related to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the San Vicente–Fairfax Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. The tunnel alignment for the San Vicente–Fairfax Alignment Alternative has eight locations where a sump pump is being considered in preliminary planning to manage groundwater seepage and/or emergency flooding during operation. This tunnel groundwater or floodwater could pick up metals, petroleum products, or byproducts associated with train operations. PM HWQ-2 includes BMPs that would comply with LARWQCB Order No. R4-2018-0125 (NPDES No. CAG994004) (see Section 3.3.1.2), which requires these pumped flows to be treated before connecting and comingling with storm drain flows or would require direct routing to a sewer system. With implementation of the post-construction BMPs in PM HWQ-2, operational impacts related to water quality standards, waste discharge requirements, and groundwater quality would be avoided or minimized. Therefore, the San Vicente–Fairfax Alignment Alternative would have a less than significant impact during operation.

6.1.4.2 ALIGNMENT ALTERNATIVE 2: FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. Along the Fairfax Alignment Alternative, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns such as oil, grease, and heavy metals if not properly maintained and stored. As required by PM HWQ-1, a construction SWPPP would be prepared to reduce any potential impacts related to stormwater runoff in compliance with SWRCB’s Construction General NPDES Permit.

As described in Section 5.2.2 and 5.2.5, the groundwater table along the Fairfax Alignment Alternative can be as high as 10 feet bgs. Therefore, groundwater is likely to be encountered during construction at the Wilshire/Fairfax, Fairfax/3rd, and La Brea/Santa Monica Stations, which would necessitate dewatering activities and disposal of the collected groundwater. However, PM HWQ-1 requires dewatering and groundwater disposal activities to comply with LARWQCB Order No. R4-2018-0125; this construction NPDES permit, summarized in Section 3.3.1.2, includes limitations on discharge of waste and potentially contaminated groundwater from dewatering activities into surface waters, which could otherwise infiltrate into groundwater. Compliance with this permit minimizes impacts on both surface water quality and groundwater.

Based on the analysis described above, with implementation of PM HWQ-1, construction impacts to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the Fairfax Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. The tunnel alignment for the Fairfax Alignment Alternative has five locations for which a sump pump is being considered in preliminary planning for groundwater seepage and/or emergency flooding during operation. This tunnel groundwater or floodwater could pick up metals, petroleum products, or byproducts associated with train operations. PM HWQ-2 includes BMPs that would comply with LARWQCB Order No. R4-2018-0125 (NPDES No. CAG994004) (see Section 3.3.1.2), which requires these pumped flows to be treated before connecting and comingling with storm drain flows or would require direct routing to a sewer system. With implementation of the post-construction BMPs in PM HWQ-2, operational impacts related to water quality standards, waste discharge requirements, and groundwater quality would be avoided or minimized. Therefore, the Fairfax Alignment Alternative would have a less than significant impact during operation.

6.1.4.3 ALIGNMENT ALTERNATIVE 3: LA BREA

CONSTRUCTION IMPACTS

Less Than Significant Impact. Along the La Brea Alignment Alternative, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns such as oil, grease, and heavy metals if not properly maintained and stored. As required by PM HWQ-1, a construction SWPPP would be prepared to reduce any potential impacts related to stormwater runoff in compliance with SWRCB's Construction General NPDES Permit.

As described in Section 5.2.2 and 5.2.5, the groundwater table along the La Brea Alignment Alternative can be as high as 10 feet bgs. Therefore, groundwater is likely to be encountered during construction of the Wilshire/La Brea, La Brea/Beverly, and La Brea/Santa Monica Stations, which would necessitate dewatering activities and disposal of the collected groundwater. However, PM HWQ-1 requires dewatering and groundwater disposal activities to comply with LARWQCB Order No. R4-2018-0125; this construction NPDES permit, summarized in Section 3.3.1.2, includes limitations on discharge of waste and potentially contaminated groundwater from dewatering activities into surface waters, which could otherwise infiltrate into groundwater. Compliance with this permit minimizes impacts on both surface water quality and groundwater.

Based on the analysis described above, with the implementation of PM HWQ-1, construction impacts to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the La Brea Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. The tunnel alignment for the La Brea Alignment Alternative has four locations for which a sump pump is being considered in preliminary planning for groundwater seepage and/or emergency flooding during operation. This tunnel groundwater or floodwater could pick up metals, petroleum products, or byproducts associated with train operations. PM HWQ-2 includes

BMPs that would comply with LARWQCB Order No. R4-2018-0125 (NPDES No. CAG994004) (see Section 3.3.1.2), which requires these pumped flows to be treated before connecting and comingling with storm drain flows or would require direct routing to a sewer system. With implementation of the post-construction BMPs in PM HWQ-2, operational impacts related to water quality standards, waste discharge requirements, and groundwater quality would be avoided or minimized. Therefore, the La Brea Alignment Alternative would have a less than significant impact during operation.

6.1.4.4 HOLLYWOOD BOWL DESIGN OPTION

CONSTRUCTION IMPACTS

Less Than Significant Impact. Along the Hollywood Bowl Design Option underground alignment and station, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns such as oil, grease, and heavy metals if not properly maintained and stored. As required by PM HWQ-1, a construction SWPPP would be prepared to reduce any potential impacts related to stormwater runoff in compliance with SWRCB's Construction General NPDES Permit.

The Advanced Conceptual Engineering Plan and Profiles of the design option is referenced from the K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) to understand proposed depths to bottom of tunnel and station structures. Groundwater contours from Navigate LA are referenced to understand groundwater depths where the construction of tunnels and station structures would occur.

The groundwater table along the Hollywood Bowl Design Option is 90 feet bgs, and top of tunnel ranges from 50 to 70 feet bgs, so groundwater is not likely to be encountered during construction of the Hollywood Bowl Design Option.

Based on the analyses above, with implementation of PM HWQ-1, construction impacts to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the Hollywood Bowl Design Option.

OPERATIONAL IMPACTS

No Impact. The Hollywood Bowl Design Option tunnel alignments would not have sumps and, therefore, would have no operational impacts to water quality standards, waste discharge requirements, and groundwater quality.

6.1.4.5 MAINTENANCE AND STORAGE FACILITY

CONSTRUCTION IMPACTS

Less Than Significant Impact. For the MSF, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can

contribute pollutants of concerns such as oil, grease, and heavy metals if not properly maintained and stored. As required by PM HWQ-1, a construction SWPPP would be prepared to reduce any potential impacts related to stormwater runoff in compliance with SWRCB's Construction General NPDES Permit. Based on the analyses above, with implementation of PM HWQ-1, construction impacts to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the MSF.

OPERATIONAL IMPACTS

Less Than Significant Impact. Industrial activities at the MSF site would include, but would not be limited to, dismantling, storing, lubricating, maintaining, painting, and/or washing of automotive vehicles and equipment. Stormwater discharge and authorized non-stormwater discharges associated with these industrial activities could affect water quality and, therefore, are regulated by the IGP (see Section 3.2.5). Operation of the MSF would comply with applicable permits and post-construction BMPs required by these permits and as set forth in PM HWQ-2. Therefore, with implementation of PM HWQ-2, operational impacts to water quality standards, waste discharge requirements, and groundwater quality would be less than significant for the MSF.

6.1.5 IMPACT HWQ-2: GROUNDWATER SUPPLIES AND RECHARGE

Impact HWQ-2: Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

6.1.5.1 ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The groundwater table in the San Vicente–Fairfax Alignment Alternative RSA can be as high as 10 feet bgs, so groundwater is likely to be encountered during excavation activities associated with tunnel and station construction. Construction of tunnels and stations below the water table may require temporary dewatering, which could cause temporary impacts on groundwater supplies and recharge. The volume of temporary dewatering during construction would be limited to the tunnel and dewatering shaft, which is insignificant given the scale of the groundwater basin and its associated storage volume. As part of PM HWQ-1, dewatering and disposal of groundwater would be tested and properly disposed under LARWQCB Order No. R4-2018-0125 (see Section 2.6 and Section 3.3.1.2). Groundwater recharge to the groundwater basins would not be impeded by tunnel and station construction of the San Vicente–Fairfax Alignment Alternative. Based on the analysis above, construction activities associated with the San Vicente–Fairfax Alignment Alternative would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basins; therefore, it would have a less than significant impact during construction.

OPERATIONAL IMPACTS

Less Than Significant Impact. The San Vicente–Fairfax Alignment Alternative would not include operational phase groundwater extraction so it would not decrease groundwater supplies. The San Vicente–Fairfax Alignment Alternative RSA is not located within identified groundwater recharge areas or basins and is primarily covered with impervious surfaces, which prevents surface water from percolating to groundwater. The tunnel alignment for the San Vicente–Fairfax Alignment Alternative would not change existing surface cover or groundwater recharge capabilities, and there would be minimal to no increase in impervious surfaces associated with station entrances. Therefore, operation of the San Vicente–Fairfax Alignment Alternative would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and the impact would be less than significant.

6.1.5.2 ALIGNMENT ALTERNATIVE 2: FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The groundwater table along the Fairfax Alignment Alternative can be as high as 10 feet bgs, so groundwater is likely to be encountered during excavation activities associated with tunnel and station construction. Construction of the tunnel alignment and stations below the water table may require temporary dewatering and could cause temporary impacts on groundwater supplies and recharge. The volume of temporary dewatering during construction is limited to the tunnel and dewatering shaft, which is insignificant given the scale of the groundwater basin and associated storage volume. As part of PM HWQ-1, dewatering and disposal of groundwater would be tested and properly disposed under LARWQCB Order No. R4-2018-0125 (see Sections 2.6 and 3.3.1.2). Groundwater recharge to the groundwater basins would not be impeded by tunnel and station construction of the Fairfax Alignment Alternative. Based on the analysis above, construction activities associated with the Fairfax Alignment Alternative would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basins; therefore, it would have a less than significant impact during construction.

OPERATIONAL IMPACTS

Less Than Significant Impact. The Fairfax Alignment Alternative would not include operational phase groundwater extraction so this would not decrease groundwater supplies. The tunnel alignment for the Fairfax Alignment Alternative would not change existing surface cover or groundwater recharge capabilities. The Fairfax Alignment Alternative RSA is not located within identified groundwater recharge areas or basins and is primarily covered with impervious surfaces, which prevents surface water from percolating to groundwater. There would be minimal to no increase in impervious surfaces associated with station entrance construction. Therefore, operation of the Fairfax Alignment Alternative would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. The impact would be less than significant for the Fairfax Alignment Alternative.

6.1.5.3 ALIGNMENT ALTERNATIVE 3: LA BREA

CONSTRUCTION IMPACTS

Less Than Significant Impact. The groundwater table along this alignment can be as high as 10 feet bgs, so groundwater is likely to be encountered during excavation activities associated with tunnel and station construction. Construction of the tunnel alignment and stations below the water table may require temporary dewatering and could cause temporary impacts on groundwater supplies and recharge. The volume of temporary dewatering during construction is limited to the tunnel and dewatering shaft, which is insignificant given the scale of the groundwater basin and associated storage volume. As part of PM HWQ-1, dewatering and disposal of groundwater would be tested and properly disposed under LARWQCB Order No. R4-2018-0125 (see Sections 2.6 and 3.3.1.2). Groundwater recharge to the groundwater basins would not be impeded by tunnel and station construction of the La Brea Alignment Alternative. Based on the analysis above, construction activities associated with the La Brea Alignment Alternative would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basins; therefore, it would have a less than significant impact during construction.

OPERATIONAL IMPACTS

Less Than Significant Impact. The La Brea Alignment Alternative would not include operational phase groundwater extraction so it would not decrease groundwater supplies. The tunnel alignment for the La Brea Alignment Alternative would not change existing surface cover or groundwater recharge capabilities. The La Brea Alignment Alternative RSA is not located within identified groundwater recharge areas or basins and is primarily covered with impervious surfaces, which prevents surface water from percolating to groundwater. There would be minimal to no increase in impervious surfaces associated with station entrance construction. Therefore, operation of the La Brea Alignment Alternative would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basins. The impact would be less than significant for the La Brea Alignment Alternative.

6.1.5.4 HOLLYWOOD BOWL DESIGN OPTION

CONSTRUCTION IMPACTS

Less Than Significant Impact. The groundwater table in the RSA for the Hollywood Bowl Design Option can be as high as 90 feet bgs. The maximum depth to the bottom of the proposed tunnel is roughly 100 feet bgs for the Hollywood Bowl Design Option; therefore, groundwater is likely to be encountered during excavation activities associated with tunnel and station construction for the design option. Construction of the tunnel alignment and connecting stations below the water table may require temporary dewatering, which could cause temporary impacts on groundwater supplies and recharge. The volume of temporary dewatering during construction would be limited to the tunnel and dewatering shaft, which is insignificant given the scale of the groundwater basin and its associated storage volume. As part of PM HWQ-1, groundwater would be tested and properly

disposed under LARWQCB Order No. R4-2018-0125 (see Sections 2.6 and Section 3.3.1.2). Testing frequencies would be outlined in the contract specifications. Groundwater recharge to the groundwater basins would not be impeded by tunnel and station construction of the Hollywood Bowl Design Option. Based on the analysis above, construction activities associated with the Hollywood Bowl Design Option would not substantially decrease groundwater supplies or interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basins; therefore, it would have a less than significant impact during construction.

OPERATIONAL IMPACTS

Less Than Significant Impact. The design option would not include operational phase groundwater extraction so they would not decrease groundwater supplies. Operation of the tunnel alignment and station for the Hollywood Bowl Design Option would not change existing surface cover or groundwater recharge capabilities. The RSA for the Hollywood Bowl Design Option is not located within identified groundwater recharge areas or basins and are primarily covered with impervious surfaces, which prevents surface water from percolating to groundwater. There would be minimal to no increase in impervious surfaces associated with station entrance construction. Therefore, operation of the Hollywood Bowl Design Option would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. The impact would be less than significant for the Hollywood Bowl Design Option.

6.1.5.5 MAINTENANCE AND STORAGE FACILITY

CONSTRUCTION IMPACTS

Less Than Significant Impact. The MSF is located within the West Coast Subbasin and has highly impervious existing surface cover. Construction of the MSF requires demolition of existing paved surfaces; final grading and paving would be shown on the final design plan. The finished grades are anticipated to be near existing grade (Metro,2023). Per Section 5.2.5, the groundwater table in this area is estimated to be 40 feet bgs, so substantial groundwater dewatering is not anticipated. Therefore, construction of the MSF would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Construction impacts would be less than significant for the MSF.

OPERATIONAL IMPACTS

Less Than Significant Impact. The MSF is located within the West Coast Subbasin and has highly impervious existing surface cover. Operational activities would not change the amount of impervious surface cover or include groundwater withdrawal from the adjudicated West Coast Subbasin. Therefore, operation of the MSF would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. The operational impacts would be less than significant for the MSF.

6.1.6 IMPACT HWQ-3: DRAINAGE PATTERNS

Impact HWQ-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- i. result in substantial erosion or siltation on or off site;
- ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
- iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- iv. impede or redirect flood flows.

6.1.6.1 ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX

CONSTRUCTION IMPACTS

The sections below describe potential drainage pattern construction impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Soil-disturbing construction activities associated with the San Vicente–Fairfax Alignment Alternative could cause erosion and siltation. The cut-and-cover construction methods recommended for some locations could lead to erosion on- or off-site. For instance, demolition of ground surfaces would expose underlying soils which must be stabilized during construction and during rain events. Smaller-scale construction activities, such as trenching for relocation of utilities and storm drains and demolishing sidewalks, curbs, and gutters for relocation, would also result in potential erosion and siltation. However, PM HWQ-1 requires development of a SWPPP, which would include construction BMPs to minimize or avoid erosion and siltation. Common construction practices include use of erosion control blankets or application of mulch to stabilize disturbed surfaces and the use of silt fences to prevent silt from leaving the project limits. In addition, construction of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the San Vicente–Fairfax Alignment Alternative would have a less than significant impact during construction related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Most construction activities associated with the San Vicente–Fairfax Alignment Alternative would occur below the ground surface, and the surface construction associated with stations would be limited to a small area, so there would be a minimal increase in impervious surface area during construction. The K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) discusses early-level planning efforts to use detention- or retention-based stormwater quality control measures in the Alignment Alternative RSA where feasible to comply with LID

requirements. This would address the minimal increases in impervious surface area that would be associated with staging and equipment/truck access. Catch basins or other collection devices might be modified within the station RSAs, but they would be sized and placed appropriately to avoid substantially changing existing drainage patterns. In addition, construction of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based upon this analysis, construction of the San Vicente–Fairfax Alignment Alternative would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the San Vicente–Fairfax Alignment Alternative would have a less than significant impact during construction.

STORMWATER DRAINAGE

Less Than Significant Impact. The San Vicente–Fairfax Alignment Alternative tunnel alignment would physically affect four storm drains at the Midtown Crossing Station, two storm drains at the La Cienega/Beverly Station, four storm drains at the San Vicente/Santa Monica Station, and one storm drain at the Fairfax/Santa Monica Station. The City of Los Angeles owns three of these storm drains, and Los Angeles County owns the remaining eight, which would necessitate coordination with city and county staff. These conflicts with the tunnel alignment may require rerouting and relocation of the storm drains and are discussed further in the K Line Northern Extension Utilities and Service Systems Technical Report. However, the storm drains would ultimately connect back into existing systems, so the changes would not have an impact to flow or to the capacity of the stormwater drainage infrastructure. Furthermore, PM HWQ-1 would require the contractor to implement the construction BMPs outlined in the SWPPP, which would prevent pollution of stormwater runoff. In addition, construction of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the San Vicente–Fairfax Alignment Alternative would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, impacts during construction would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. As shown in Figure 5-3, the San Vicente–Fairfax Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations. However, the Crenshaw/Adams Station, the Midtown Crossing Station, the Fairfax/3rd Station, the La Cienega/Beverly Station, and the San Vicente/Santa Monica Station would be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction associated with flooding. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters. In addition,

construction of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the San Vicente–Fairfax Alignment Alternative would not impede or redirect flood flows; therefore, impacts during construction would be less than significant.

DRAINAGE PATTERN CONSTRUCTION IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, construction of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern of the site or area, and, overall, the San Vicente–Fairfax Alignment Alternative would have a less than significant construction impact related to drainage patterns.

OPERATIONAL IMPACTS

The sections below describe potential drainage pattern operational impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Erosion and siltation during operation of the San Vicente–Fairfax Alignment Alternative would stem from exposed or unstabilized earthen surfaces around the station entrances; no erosion or siltation would occur at the tunnels as they are fully underground. Post-construction BMPs to minimize erosion and siltation around the station entrances are set forth in PM HWQ-2. In addition, operation of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the San Vicente–Fairfax Alignment Alternative would have a less than significant impact during operation related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Surface runoff during operation of the San Vicente–Fairfax Alignment Alternative would occur in the areas surrounding the station entrances at the surface; all other operations are underground. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the San Vicente–Fairfax Alignment Alternative would have a less than significant impact during operation related to surface runoff.

STORMWATER DRAINAGE

Less Than Significant Impact. Operation of the San Vicente–Fairfax Alignment Alternative would comply with post-construction measures in applicable NPDES permits, LID standards, and local policies protecting water quality. Post-construction BMPs are set forth in PM HWQ-2. Operation of the San Vicente–Fairfax Alignment Alternative would not exceed the capacity of existing or planned stormwater drainage systems, nor provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. Operation of the San Vicente–Fairfax Alignment Alternative would impede or redirect flows if existing drainage patterns were significantly changed or if additional flows within the station footprints or tunneled alignment are substantial. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Requirements for pumping flows collected at sump locations in the tunnel are set forth in PM HWQ-2 to ensure no flooding occurs in the tunnel. Based on this analysis, operation of the San Vicente–Fairfax Alignment Alternative would not impede or redirect flood flows; therefore, impacts during operation would be less than significant.

DRAINAGE PATTERN OPERATIONAL IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, operation of the San Vicente–Fairfax Alignment Alternative would not substantially alter the existing drainage pattern of the site or area, and, overall, the San Vicente–Fairfax Alignment Alternative would have a less than significant operational impact related to drainage patterns.

6.1.6.2 ALIGNMENT ALTERNATIVE 2: FAIRFAX

CONSTRUCTION IMPACTS

The sections below describe potential drainage pattern construction impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Soil-disturbing construction activities associated with the Fairfax Alignment Alternative could cause erosion and siltation. The cut-and-cover construction methods recommended for some locations could lead to erosion on- or off-site. For instance, demolition of ground surfaces would expose underlying soils which must be stabilized during construction and during rain events. Smaller-scale construction activities, such as trenching for relocation of utilities and storm drains and demolishing sidewalks, curbs, and gutters for relocation, would also result in potential erosion and siltation. However, PM HWQ-1 requires development of a SWPPP, which would include construction BMPs to minimize or avoid erosion and siltation. . Common construction practices include use of erosion control blankets or application of mulch to stabilize disturbed surfaces and the use of silt fences to prevent silt from leaving the project limits. In addition, construction of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the Fairfax Alignment Alternative would have a less than significant impact during construction related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Most construction activities associated with the Fairfax Alignment Alternative would occur below the ground surface, and the surface construction associated with stations would be limited to a small area, so there would be a minimal increase in impervious surface area during construction. The K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) discusses early-level planning efforts to use detention or retention-based stormwater quality control measures in the Alignment Alternative RSA where feasible to comply with LID requirements. This would address the minimal increases in impervious surface area that would be associated with staging and equipment/truck access. Catch basins or other collection devices might be modified within the station RSAs but they would be sized and placed appropriately to avoid substantially changing existing drainage patterns. In addition, construction of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based upon this analysis, construction of the Fairfax Alignment Alternative would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the Fairfax Alignment Alternative would have a less than significant impact during construction.

STORMWATER DRAINAGE

Less Than Significant Impact. The Fairfax Alignment Alternative tunnel alignment would physically affect four storm drains at the Midtown Crossing Station and one storm drain at the Fairfax/Santa Monica Station. The City of Los Angeles owns two of these storm drains, and Los Angeles County owns the remaining three, which would necessitate coordination with city and county staff. These conflicts with the tunnel alignment may require rerouting and relocation of the storm drains and are discussed further in the Utilities and Service Systems Technical Report. However, the storm drains would ultimately connect back into existing systems, so the changes would not have an impact to flow or to the capacity of the stormwater drainage infrastructure. Furthermore, PM HWQ-1 would require the contractor to implement the construction BMPs outlined in the SWPPP, which would prevent pollution of stormwater runoff. In addition, construction of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the Fairfax Alignment Alternative would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, impacts during construction would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. As shown in Figure 5-3, the Fairfax Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations.

However, the Crenshaw/Adams Station, the Midtown Crossing Station, and the Fairfax/3rd Station would be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction associated with flooding. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters. In addition, construction of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the Fairfax Alignment Alternative would not impede or redirect flood flows; therefore, impacts during construction would be less than significant.

DRAINAGE PATTERN CONSTRUCTION IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, construction of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern of the site or area, and, overall, the Fairfax Alignment Alternative would have a less than significant construction impact related to drainage patterns.

OPERATIONAL IMPACTS

The sections below describe potential drainage pattern operational impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Erosion and siltation during operation of the Fairfax Alignment Alternative would stem from exposed or unstabilized earthen surfaces around the station entrances; no erosion or siltation would occur at the tunnels as they are fully underground. Post-construction BMPs to minimize erosion and siltation around the station entrances are set forth in PM HWQ-2. In addition, operation of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the Fairfax Alignment Alternative would have a less than significant impact during operation related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Surface runoff during operation of the Fairfax Alignment Alternative would occur in the areas surrounding the station entrances at the surface; all other operations are underground. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the Fairfax Alignment Alternative would have a less than significant impact during operation related to surface runoff.

STORMWATER DRAINAGE

Less Than Significant Impact. Operation of the Fairfax Alignment Alternative would comply with post-construction measures in applicable NPDES permits, LID standards, and local policies protecting water quality. Post-construction BMPs are set forth in PM HWQ-2. Operation of the Fairfax Alignment Alternative would not exceed the capacity of existing or planned stormwater drainage systems nor provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. Operation of the Fairfax Alignment Alternative would impede or redirect flows if existing drainage patterns were significantly changed or if additional flows within the station footprints or tunneled alignment are substantial. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Requirements for pumping flows collected at sump locations in the tunnel are set forth in PM HWQ-2 to ensure no flooding occurs in the tunnel. Based on this analysis, operation of the Fairfax Alignment Alternative would not impede or redirect flood flows; therefore, impacts during operation would be less than significant.

DRAINAGE PATTERN OPERATIONAL IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, operation of the Fairfax Alignment Alternative would not substantially alter the existing drainage pattern of the site or area; therefore, the Fairfax Alignment Alternative would have a less than significant operational impact related to drainage patterns.

6.1.6.3 ALIGNMENT ALTERNATIVE 3: LA BREA

CONSTRUCTION IMPACTS

The sections below describe potential drainage pattern construction impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Soil-disturbing construction activities associated with the La Brea Alignment Alternative could cause erosion and siltation. The cut-and-cover construction methods recommended for some locations could lead to erosion on- or off-site. For instance, demolition of ground surfaces would expose underlying soils which must be stabilized during construction and during rain events. Smaller-scale construction activities, such as trenching for relocation utilities and for storm drains and demolishing sidewalks, curbs, and gutters for relocation, would also result in potential erosion and siltation. However, PM HWQ-1 requires development of a SWPPP, which would include construction BMPs to minimize or avoid erosion and siltation. Common construction practices include use of erosion control blankets or application of mulch to stabilize disturbed surfaces and the use of silt fences to prevent silt from leaving the project limits. In addition, construction of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there

are no rivers or streams in the RSA. Therefore, the La Brea Alignment Alternative would have a less than significant impact during construction related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Most construction activities associated with the La Brea Alignment Alternative would occur below the ground surface, and the surface construction associated with stations would be limited to a small area, so there would be a minimal increase in impervious surface area during construction. The K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) discusses early-level planning efforts to use detention or retention-based stormwater quality control measures in the Alignment Alternative RSA where feasible to comply with LID requirements. This would address the minimal increases in impervious surface area that would be associated with staging and equipment/truck access. Catch basins or other collection devices might be modified within the station RSAs, but they would be sized and placed appropriately to avoid substantially changing existing drainage patterns. In addition, construction of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based upon this analysis, construction of the La Brea Alignment Alternative would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the La Brea Alignment Alternative would have a less than significant impact during construction.

STORMWATER DRAINAGE

Less Than Significant Impact. The La Brea Alignment Alternative tunnel alignment would physically affect four storm drains at the Midtown Crossing Station, three storm drains at the Wilshire/La Brea Station, and one storm drain at the La Brea/Beverly Station. The City of Los Angeles owns five of these storm drains and Los Angeles County owns the remaining three, which would necessitate coordination with city and county staff. These conflicts with the tunnel alignment may require rerouting and relocation of the storm drains and are discussed further in the Utilities and Service Systems Technical Report. However, the storm drains would ultimately connect back into existing systems, so the changes would not have an impact to the flow or capacity of the stormwater drainage infrastructure. Furthermore, PM HWQ-1 would require the contractor to implement the construction BMPs outlined in the SWPPP, which would prevent pollution of stormwater runoff. In addition, construction of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the La Brea Alignment Alternative would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, impacts during construction would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. As shown in Figure 5-3, the La Brea Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that

construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations. However, the Crenshaw/Adams Station and the Midtown Crossing Station would be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction associated with flooding. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters. In addition, construction of the La Brea Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the La Brea Alignment Alternative would not impede or redirect flood flows; therefore, impacts during construction would be less than significant.

DRAINAGE PATTERN CONSTRUCTION IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, construction of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern of the site or area, and, overall, the La Brea Alignment Alternative would have a less than significant construction impact related to drainage patterns.

OPERATIONAL IMPACTS

The sections below describe potential drainage pattern operational impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Erosion and siltation during operation of the La Brea Alignment Alternative would stem from exposed or unstabilized earthen surfaces around the station entrances; no erosion or siltation would occur at the tunnels as they are fully underground. Post-construction BMPs to minimize erosion and siltation around the station entrances are set forth in PM HWQ-2. In addition, operation of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the La Brea Alignment Alternative would have a less than significant impact during operation related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Surface runoff during operation of the La Brea Alignment Alternative would occur in the areas surrounding the station entrances at the surface; all other operations would be underground. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the La Brea Alignment Alternative would have a less than significant impact during operation related to surface runoff.

STORMWATER DRAINAGE

Less Than Significant Impact. Operation of the La Brea Alignment Alternative would comply with post-construction measures in applicable NPDES permits, LID standards, and local policies protecting water quality. Post-construction BMPs are set forth in PM HWQ-2. Operation of the La Brea Alignment Alternative would not exceed the capacity of existing or planned stormwater drainage systems nor provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. Operation of the La Brea Alignment Alternative would impede or redirect flows if existing drainage patterns were significantly changed or if additional flows within the station footprints or tunneled alignment are substantial. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Requirements for pumping flows collected at sump locations in the tunnel are set forth in PM HWQ-2 to ensure no flooding occurs in the tunnel. Based on this analysis, operation of the La Brea Alignment Alternative would not impede or redirect flood flows; therefore, impacts during operation would be less than significant.

DRAINAGE PATTERN OPERATIONAL IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, operation of the La Brea Alignment Alternative would not substantially alter the existing drainage pattern of the site or area, and, overall, the La Brea Alignment Alternative would have a less than significant operational impact related to drainage patterns.

6.1.6.4 HOLLYWOOD BOWL DESIGN OPTION

CONSTRUCTION IMPACTS

The sections below describe potential drainage pattern construction impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Soil-disturbing construction activities associated with the Hollywood Bowl Design Option could cause erosion and siltation. The cut-and-cover construction methods recommended for some locations could lead to erosion on- or off-site. For instance, demolition of ground surfaces would expose underlying soils which must be stabilized during construction and during rain events. Smaller-scale construction activities, such as trenching for relocation utilities and for storm drains and demolishing sidewalks, curbs, and gutters for relocation, would also result in potential erosion and siltation. However, PM HWQ-1 requires development of a SWPPP, which would include construction BMPs to minimize or avoid erosion and siltation. Common construction practices include use of erosion control blankets or application of mulch to stabilize disturbed surfaces and the use of silt fences to prevent silt from leaving the project limits. In addition, construction of the Hollywood Bowl Design Option would not substantially alter the existing drainage pattern in the RSA,

and there are no rivers or streams in the RSA. Therefore, the Hollywood Bowl Design Option would have a less than significant impact during construction related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Most construction activities associated with the Hollywood Bowl Design Option would occur below the ground surface, and the surface construction associated with stations would be limited to a small area, so there would be a minimal increase in impervious surface area during construction. The K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) discusses early-level planning efforts to use detention or retention-based stormwater quality control measures in the Alignment Alternative RSA where feasible to comply with LID requirements. This would address the minimal increases in impervious surface area that would be associated with staging and equipment/truck access. Catch basins or other collection devices might be modified within the station RSAs but they would be sized and placed appropriately to avoid substantially changing existing drainage patterns. In addition, construction of the Hollywood Bowl Design Option would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based upon this analysis, construction of the Hollywood Bowl Design Option would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the Hollywood Bowl Design Option would have a less than significant impact during construction.

STORMWATER DRAINAGE

Less Than Significant Impact. No physical impacts between existing storm drains and the design option tunnel alignment are anticipated. The contractor is required to use the construction BMPs outlined in the SWPPP to prevent pollution of stormwater runoff, as discussed in PM HWQ-1. Thus, construction of the Hollywood Bowl Design Option would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

No Impact. As shown in Figure 5-3, the Hollywood Bowl Design Option is completely outside both the 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. In addition, construction of the design option would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the design option would not impede or redirect flood flows; therefore, there would be no impacts during construction.

DRAINAGE PATTERN CONSTRUCTION IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, construction of the Hollywood Bowl Design Option would not substantially alter the existing drainage pattern of the site or area, and, overall, the Hollywood Bowl Design Option would have a less than significant construction impact related to drainage patterns.

OPERATIONAL IMPACTS

The sections below describe potential drainage pattern operational impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Erosion and siltation during operation of the design option would stem from exposed or unstabilized earthen surfaces around the station entrances; no erosion or siltation would occur at the tunnels as they are fully underground. Post-construction BMPs to minimize erosion and siltation around the station entrances are set forth in PM HWQ-2. In addition, operation of the design option would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the design option would have a less than significant impact during operation related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Surface runoff during operation of the design option would occur in the areas surrounding the station entrances at the surface; all other operations would be underground. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the design option would have a less than significant impact during operation related to surface runoff.

STORMWATER DRAINAGE

Less Than Significant Impact. Operation of the design option would comply with post-construction measures in applicable NPDES permits, LID standards, and local policies protecting water quality. Post-construction BMPs are set forth in PM HWQ-2. Operation of the design option would not exceed the capacity of existing or planned stormwater drainage systems nor provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

Less Than Significant Impact. Operation of the design option would impede or redirect flows if existing drainage patterns were significantly changed or if additional flows within the station footprints or tunneled alignment are substantial. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Requirements for pumping flows collected at sump locations in

the tunnel are set forth in PM HWQ-2 to ensure no flooding occurs in the tunnel. Based on this analysis, operation of the design option would not impede or redirect flood flows; therefore, impacts during operation would be less than significant.

DRAINAGE PATTERN OPERATIONAL IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, operation of the Hollywood Bowl Design Option would not substantially alter the existing drainage pattern of the site or area, and, overall, the Hollywood Bowl Design Option would have a less than significant operational impact related to drainage patterns.

6.1.6.5 MAINTENANCE AND STORAGE FACILITY

CONSTRUCTION IMPACTS

The sections below describe potential drainage pattern construction impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

Less Than Significant Impact. Soil-disturbing construction activities associated with the MSF could cause erosion and siltation. The surface grading of the MSF could lead to erosion on- or off-site. For instance, demolition of ground surfaces would expose underlying soils which must be stabilized during construction and during rain events. Smaller-scale construction activities, such as trenching for relocation of utilities and storm drains and demolishing sidewalks, curbs, and gutters for relocation, would also result in potential erosion and siltation. However, PM HWQ-1 requires development of a SWPPP, which would include construction BMPs to minimize or avoid erosion and siltation. Common construction practices include use of erosion control blankets or application of mulch to stabilize disturbed surfaces and the use of silt fences to prevent silt from leaving the project limits. In addition, construction of the MSF would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the MSF would have a less than significant impact during construction related to erosion and siltation.

SURFACE RUNOFF

Less Than Significant Impact. Most construction activities associated with the MSF would occur above the ground surface, and the surface construction associated with MSF includes grading and a return to the existing condition impervious land cover. Overall, there would be an increase in impervious surface area during construction. The K Line Northern Extension Draft Preliminary Drainage Report (Metro 2023) discusses early-level planning efforts to use detention or retention-based stormwater quality control measures for the MSF where feasible to comply with LID requirements. This would address the increases in impervious surface area that would be associated with staging and equipment/truck access or final land cover. Catch basins or other collection devices might be modified within the MSF RSA but they would be sized and placed appropriately to avoid substantially changing existing drainage patterns. In addition, construction of the MSF would not substantially alter the

existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based upon this analysis, construction of the MSF would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the MSF would have a less than significant impact during construction.

STORMWATER DRAINAGE

Less Than Significant Impact. Site development of the proposed MSF would be in close proximity to storm drains managed by the City of Los Angeles and County of Los Angeles. However, the storm drains would ultimately connect back into existing systems, so the changes would not impact the flow or capacity of the stormwater drainage infrastructure. Furthermore, PM HWQ-1 would require the contractor to implement the construction BMPs outlined in the SWPPP, which would prevent pollution of stormwater runoff. In addition, construction of the MSF would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Based on this analysis, construction of the MSF would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, impacts during construction would be less than significant.

FLOOD FLOWS

No Impact. Areas of minimal flood risk (not within a 100-year or 500-year flood zone) are shown in Figure 5-3. The proposed MSF would be located outside the 100-year and 500-year floodplains. Construction in this area would not impede or redirect flow, and no impact would occur.

DRAINAGE PATTERN CONSTRUCTION IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, construction of the MSF would not substantially alter the existing drainage pattern of the site or area; therefore, the MSF would have a less than significant construction impact related to drainage patterns.

OPERATIONAL IMPACTS

The sections below describe potential drainage pattern operational impacts related to erosion and siltation, surface runoff, stormwater drainage, and flood flows.

EROSION AND SILTATION

No Impact. Erosion and siltation impacts during operation of the MSF that would stem from exposed or unstabilized earthen surfaces around structures, tracks, and associated infrastructure are not applicable in rock-lined nor paved areas. In addition, operation of the MSF would not substantially alter the existing drainage pattern in the RSA, and there are no rivers or streams in the RSA. Therefore, the MSF would have no impact related to erosion and siltation during operation.

SURFACE RUNOFF

Less Than Significant Impact. Surface runoff during operation of the MSF would occur along all impervious surfaces. Post-development BMPs set forth in PM HWQ-2 to capture surface runoff ensure no substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Therefore, the MSF would have a less than significant impact during operation related to surface runoff.

STORMWATER DRAINAGE

Less Than Significant Impact. Operation of the MSF would comply with post-construction measures in applicable NPDES permits, LID standards, and local policies protecting water quality. Post-construction BMPs are set forth in PM HWQ-2. Operation of the MSF would not exceed the capacity of existing or planned stormwater drainage systems, nor provide substantial additional sources of polluted runoff; impacts would be less than significant.

FLOOD FLOWS

No Impact. Areas of minimal flood risk (not within a 100-year or 500-year flood zone) are shown in Figure 5-3. The MSF would be located outside the 100-year and 500-year floodplains. Operation in these areas would not impede or redirect flow, and no impact would occur.

DRAINAGE PATTERN OPERATIONAL IMPACT CONCLUSION

Less Than Significant Impact. Based on the impacts described in the above sections, operation of the MSF would not substantially alter the existing drainage pattern of the site or area, and, overall, the MSF would have a less than significant operational impact related to drainage patterns.

6.1.7 IMPACT HWQ-4: INUNDATION

Impact HWQ-4: Would the Project in flood hazard, tsunami, or seiche zones risk release of pollutants due to project inundation?

6.1.7.1 ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The RSA of the San Vicente–Fairfax Alignment Alternative is not within any identified tsunami or seiche zones (CGS 2021). As shown in Figure 5-3, the San Vicente–Fairfax Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations. However, the Crenshaw/Adams Station, the Midtown Crossing Station, the Fairfax/3rd Station, the La Cienega/Beverly Station, and the San Vicente/Santa Monica Station would

be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters to prevent the release of pollutants due to inundation. Therefore, construction of the San Vicente–Fairfax Alignment Alternative would have a less than significant impact.

OPERATIONAL IMPACTS

Less Than Significant Impact. The RSA of the San Vicente–Fairfax Alignment Alternative is not within any identified tsunami or seiche zones, and the track alignment would be underground. Stations located within a flood zone will be designed per the guidelines outlined in the 2021 Los Angeles County Floodplain Management Plan, as well as the Los Angeles County codes and ordinances outlined in Section 3.4.2.2 to avoid inundation. Thus, the potential for release of pollutants during inundation is minimal during operation of the San Vicente–Fairfax Alignment Alternative and impacts would be less than significant.

6.1.7.2 ALIGNMENT ALTERNATIVE 2: FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The RSA of the Fairfax Alignment Alternative is not within any identified tsunami or seiche zones (CGS 2021). As shown in Figure 5-3, Fairfax Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations. However, the Crenshaw/Adams Station, the Midtown Crossing Station, and the Fairfax/3rd Station would be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction associated with flooding. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters to prevent the release of pollutants due to inundation. Therefore, construction of the Fairfax Alignment Alternative would have a less than significant impact.

OPERATIONAL IMPACTS

Less Than Significant Impact. The RSA of the Fairfax Alignment Alternative is not within any identified tsunami or seiche zones, and the track alignment would be underground. Stations located within a flood zone will be designed per the guidelines outlined in the 2021 Los Angeles County Floodplain Management Plan, as well as the Los Angeles County codes and ordinances outlined in Section 3.4.2.2 to avoid inundation. Thus, the potential for release of pollutants during inundation is minimal during operation of the Fairfax Alignment Alternative and impacts would be less than significant.

6.1.7.3 ALIGNMENT ALTERNATIVE 3: LA BREA

CONSTRUCTION IMPACTS

Less Than Significant Impact. The RSA of the La Brea Alignment Alternative is not within any identified tsunami or seiche zones (CGS 2021). As shown in Figure 5-3, the La Brea Alignment Alternative RSA includes portions within FEMA 100-year and 500-year flood zones. In areas outside of both flood zone categories, there is minimal flood risk during construction, and there is therefore little risk that construction in these areas would impede or redirect flow. Also, due to the underground profile of much of the alignment, construction through areas designated on Figure 5-3 as 100-year and 500-year flood zones would only be a concern where cut-and-cover construction would occur at stations. However, the Crenshaw/Adams Station and the Midtown Crossing Station would be constructed during dry weather as feasible and have BMPs in place during wet weather construction to minimize the potential for temporary impacts during construction associated with flooding. As required by PM HWQ-3, if a flood event occurs in a FEMA flood zone, construction activities shall cease, and equipment and materials shall be moved to a safe location outside the floodwaters to prevent the release of pollutants due to inundation. Therefore, construction of the La Brea Alignment Alternative would have a less than significant impact.

OPERATIONAL IMPACTS

Less Than Significant Impact. The RSA of the La Brea Alignment Alternative is not within any identified tsunami or seiche zones, and the track alignment would be underground. Stations located within a flood zone will be designed per the guidelines outlined in the 2021 Los Angeles County Floodplain Management Plan, as well as the Los Angeles County codes and ordinances outlined in Section 3.4.2.2 to avoid inundation. Thus, the potential for release of pollutants during inundation is minimal during operation of the La Brea Alignment Alternative and impacts would be less than significant.

6.1.7.4 HOLLYWOOD BOWL DESIGN OPTION

CONSTRUCTION IMPACTS

No Impact. The RSA of the Hollywood Bowl Design Option is not within any identified tsunami, seiche zones, or flood zones. Therefore, construction of the Hollywood Bowl Design Option would have no inundation impacts.

OPERATIONAL IMPACTS

No Impact. The RSA of the Hollywood Bowl Design Option is not within any identified tsunami, seiche zones, or flood zones. Therefore, operation of the Hollywood Bowl Design Option would have no inundation impacts.

6.1.7.5 MAINTENANCE AND STORAGE FACILITY

CONSTRUCTION IMPACTS

No Impact. The RSA of the proposed MSF is not within any identified tsunami, seiche zones, or flood zones. Therefore, construction of the MSF would have no inundation impacts.

OPERATIONAL IMPACTS

No Impact. The RSA of the proposed MSF is not within any identified tsunami, seiche zones, or flood zones. Therefore, operation of the MSF would have no inundation impacts.

6.1.8 IMPACT HWQ-5: WATER MANAGEMENT

Impact HWQ-5: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

6.1.8.1 ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The Los Angeles Basin Plan identifies existing beneficial uses for inland surface waters and groundwater basins in the San Vicente–Fairfax Alignment Alternative RSA. Therefore, if construction of the San Vicente–Fairfax Alignment Alternative were to degrade beneficial uses of Ballona Creek or the Central and Hollywood groundwater subbasins, or result in an exceedance of an established TMDL, it would conflict with the Los Angeles Basin Plan. In addition, Ballona Creek Reach 1 is an inland surface water (see Section 5.2.3); during construction of the San Vicente–Fairfax Alignment Alternative, polluted stormwater entering the storm drains that exits at the downstream inland surface water could affect current and potential beneficial uses of Ballona Creek Reach 1. Furthermore, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns, including oil, grease, and heavy metals, if they are not properly maintained and stored. However, PM HWQ-1 would require a construction SWPPP to be prepared, which would reduce any potential impacts related to stormwater runoff, complying with SWRCB’s Construction General NPDES Permit.

During construction of the San Vicente–Fairfax Alignment Alternative, activities such as groundwater dewatering and excavation below the groundwater table, which is as high as 10 feet bgs, as well as accidental hazardous material spills, could affect current and potential beneficial uses of groundwater within the Central and Hollywood Subbasins. However, PM HWQ-1 requires dewatering and groundwater disposal in compliance with applicable dewatering permits to protect the beneficial uses of groundwater basins. Construction of the San Vicente–Fairfax Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the San Vicente–Fairfax Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-1, construction of the San Vicente–Fairfax Alignment Alternative would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during construction of the San Vicente–Fairfax Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. Operation of the San Vicente–Fairfax Alignment Alternative would conflict with the Los Angeles Basin Plan if it were to degrade beneficial uses of Ballona Creek or the Central and Hollywood Subbasins or result in an exceedance of an established TMDL. However, PM HWQ-2 would require compliance with post-construction measures in NPDES permits, LID standards, and local policies protecting water quality. Compliance with these permits, plans, and policies would minimize runoff volume, prevent contribution to degradation of water quality within Ballona Creek and each groundwater subbasin, and would meet TMDL requirements. Therefore, operation of the San Vicente–Fairfax Alignment Alternative would not contribute to degradation of beneficial uses or exceed TMDL requirements in affected surface watershed and groundwater subbasins. Based on the above, operation of the San Vicente–Fairfax Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the San Vicente–Fairfax Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-2, operation of the San Vicente–Fairfax Alignment Alternative would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during operation of the San Vicente–Fairfax Alignment Alternative.

6.1.8.2 ALIGNMENT ALTERNATIVE 2: FAIRFAX

CONSTRUCTION IMPACTS

Less Than Significant Impact. The Los Angeles Basin Plan identifies existing beneficial uses for inland surface waters and groundwater basins in the Fairfax Alignment Alternative RSA. Therefore, if construction of the Fairfax Alignment Alternative were to degrade beneficial uses of Ballona Creek or the Central and Hollywood groundwater subbasins, or result in an exceedance of an established TMDL, it would conflict with the Los Angeles Basin Plan. In addition, Ballona Creek Reach 1 is an inland surface water (see Section 5.2.3); during construction of the Fairfax Alignment Alternative, polluted stormwater entering the storm drains that exits at the downstream inland surface water could affect

current and potential beneficial uses of Ballona Creek Reach 1. Furthermore, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns, including oil, grease, and heavy metals, if they are not properly maintained and stored. However, PM HWQ-1 would require a construction SWPPP to be prepared, which would reduce any potential impacts related to stormwater runoff, complying with SWRCB's Construction General NPDES Permit.

During construction of the Fairfax Alignment Alternative, activities such as groundwater dewatering and excavation below the groundwater table, which is as high as 10 feet bgs, as well as accidental hazardous material spills, could affect current and potential beneficial uses of groundwater within the Central and Hollywood Subbasins. However, PM HWQ-1 requires dewatering and groundwater disposal in compliance with applicable dewatering permits to protect the beneficial uses of groundwater basins. Construction of the Fairfax Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the Fairfax Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-1, construction of the Fairfax Alignment Alternative would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during construction of the Fairfax Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. Operation of the Fairfax Alignment Alternative would conflict with the Los Angeles Basin Plan if it were to degrade beneficial uses of Ballona Creek or the Central and Hollywood Subbasins or result in an exceedance of an established TMDL. However, PM HWQ-2 would require compliance with post-construction measures in NPDES permits, LID standards, and local policies protecting water quality. Compliance with these permits, plans, and policies would minimize runoff volume, prevent contribution to degradation of water quality within Ballona Creek and each groundwater subbasin, and would meet TMDL requirements. Therefore, operation of the Fairfax Alignment Alternative would not contribute to degradation of beneficial uses or exceed TMDL requirements in affected surface watershed and groundwater subbasins. Based on the above, operation of the Fairfax Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the Fairfax Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-2, operation of the Fairfax Alignment Alternative would not conflict with or obstruct implementation of a water quality

control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during operation of the Fairfax Alignment Alternative.

6.1.8.3 ALIGNMENT ALTERNATIVE 3: LA BREA

CONSTRUCTION IMPACTS

Less Than Significant Impact. The Los Angeles Basin Plan identifies existing beneficial uses for inland surface waters and groundwater basins in the La Brea Alignment Alternative RSA. Therefore, if construction of the La Brea Alignment Alternative were to degrade beneficial uses of Ballona Creek or the Central and Hollywood groundwater subbasins, or result in an exceedance of an established TMDL, it would conflict with the Los Angeles Basin Plan. In addition, Ballona Creek Reach 1 is an inland surface water (see Section 5.2.3); during construction of the La Brea Alignment Alternative, polluted stormwater entering the storm drains that exits at the downstream inland surface water could affect current and potential beneficial uses of Ballona Creek Reach 1. Furthermore, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concern, including oil, grease, and heavy metals, if they are not properly maintained and stored. However, PM HWQ-1 would require a construction SWPPP to be prepared, which would reduce any potential impacts related to stormwater runoff, complying with SWRCB's Construction General NPDES Permit.

During construction of the La Brea Alignment Alternative, activities such as groundwater dewatering and excavation below the groundwater table, which is as high as 10 feet bgs, as well as accidental hazardous material spills, could affect current and potential beneficial uses of groundwater within the Central and Hollywood Subbasins. However, PM HWQ-1 requires dewatering and groundwater disposal in compliance with applicable dewatering permits to protect the beneficial uses of groundwater basins. Construction of the La Brea Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the La Brea Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-1, construction of the La Brea Alignment Alternative would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during construction of the La Brea Alignment Alternative.

OPERATIONAL IMPACTS

Less Than Significant Impact. Operation of the La Brea Alignment Alternative would conflict with the Los Angeles Basin Plan if it were to degrade beneficial uses of Ballona Creek or the Central and Hollywood Subbasins or result in an exceedance of an established TMDL. However, PM HWQ-2 would require compliance with post-construction measures in NPDES permits, LID standards, and local

policies protecting water quality. Compliance with these permits, plans, and policies would minimize runoff volume, prevent contribution to degradation of water quality within Ballona Creek and each groundwater subbasin, and would meet TMDL requirements. Therefore, operation of the La Brea Alignment Alternative would not contribute to degradation of beneficial uses or exceed TMDL requirements in affected surface watershed and groundwater subbasins. Based on the above, operation of the La Brea Alignment Alternative would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the La Brea Alignment Alternative RSA do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-2, operation of the La Brea Alignment Alternative would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during operation of the La Brea Alignment Alternative.

6.1.8.4 HOLLYWOOD BOWL DESIGN OPTION

CONSTRUCTION IMPACTS

Less Than Significant Impact. The Los Angeles Basin Plan identifies existing beneficial uses for inland surface waters and groundwater basins in the Hollywood Bowl Design Option RSA. Therefore, if construction of the design option were to degrade beneficial uses of Ballona Creek or the Hollywood groundwater subbasin, or result in an exceedance of an established TMDL, it would conflict with the Los Angeles Basin Plan. In addition, Ballona Creek Reach 1 is an inland surface water (see Section 5.2.3); during construction of the design option, polluted stormwater entering the storm drains that exits at the downstream inland surface water could affect current and potential beneficial uses of Ballona Creek Reach 1. Furthermore, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concern, including oil, grease, and heavy metals, if they are not properly maintained and stored. However, PM HWQ-1 would require a construction SWPPP to be prepared, which would reduce any potential impacts related to stormwater runoff, complying with SWRCB's Construction General NPDES Permit.

During construction of the design option, activities such as groundwater dewatering and excavation below the groundwater table, which is as high as 90 feet bgs for the Hollywood Bowl Design Option, as well as accidental hazardous material spills, could affect current and potential beneficial uses of groundwater within the Central and Hollywood Subbasins. The depth to the top of tunnel for the Hollywood Bowl Design Option in conceptual engineering design is 50 to 70 feet bgs, so groundwater is not likely to be encountered during construction. PM HWQ-1 requires dewatering and groundwater disposal in compliance with applicable dewatering permits to protect the beneficial uses of groundwater basins. Construction of the design option would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the design option do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-1, construction of the Hollywood Bowl Design Option would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during construction of the design option.

OPERATIONAL IMPACTS

Less Than Significant Impact. Operation of the Hollywood Bowl Design Option would conflict with the Los Angeles Basin Plan if it were to degrade beneficial uses of Ballona Creek or the Hollywood Subbasin or result in an exceedance of an established TMDL. However, PM HWQ-2 would require compliance with post-construction measures in NPDES permits, LID standards, and local policies protecting water quality. Compliance with these permits, plans, and policies would minimize runoff volume, prevent contribution to degradation of water quality within Ballona Creek and each groundwater subbasin, and would meet TMDL requirements. Therefore, operation of the design option would not contribute to degradation of beneficial uses or exceed TMDL requirements in affected surface watershed and groundwater subbasins. Based on the above, operation of the design option would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasins underlying the design option do not have a sustainable groundwater management plan and, thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-2, operation of the design option would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during operation of the design option.

6.1.8.5 MAINTENANCE AND STORAGE FACILITIES

CONSTRUCTION IMPACTS

Less Than Significant Impact. Construction of the MSF would conflict with the Los Angeles Basin Plan if it were to degrade beneficial uses of Ballona Creek, Dominguez Channel, or the West Coast Subbasin, or result in an exceedance of an established TMDL. Polluted stormwater entering the storm drains that exits to Ballona Creek or the Dominguez Channel could affect current and potential beneficial uses of the channels. Furthermore, erosion and sediment-laden runoff from soil-disturbing construction activities, such as construction vehicle tracking over bare soils, excavation, and grading operations, can affect water quality downstream of disturbed areas. Construction vehicles can contribute pollutants of concerns, including oil, grease, and heavy metals, if they are not properly maintained and stored. However, PM HWQ-1 would require a construction SWPPP to be prepared, which would comply with SWRCB's Construction General NPDES Permit.

During construction of the MSF, activities such as grading are not likely to impact the groundwater table, which is as high as 40 feet bgs for the MSF. However, accidental hazardous material spills, could affect current and potential beneficial uses of groundwater within the West Coast Subbasin. PM HWQ-1 requires dewatering and groundwater disposal in compliance with applicable dewatering permits to protect the beneficial uses of groundwater basins. Construction of the MSF would not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater subbasin underlying the MSF does not have a sustainable groundwater management plan; thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-1, construction of the MSF would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management during construction of the MSF.

OPERATIONAL IMPACTS

Less Than Significant Impact. Operation of the MSF would have the potential for adverse effects on surface water and groundwater resources and water quality. However, operation of the proposed MSF, including cleaning of vehicles and other activities that have the potential to affect water quality, would conform with MRDC 11.5 (Metro 2014). MRDC 11.5 specifies the inclusion of water filtration systems, storage tanks, and wastewater treatment equipment at Metro locations for the carwash and exterior cleaning equipment to ensure treatment prior to discharge. Operation of the MSF would comply with applicable permits, such as SWRCB's IGP and post-construction measures in NPDES permits. In addition, implementation of PM HWQ-2 would require implementation of post-construction BMPs. Thus, operation of the MSF would not substantially degrade surface or groundwater quality and would therefore not conflict with or obstruct implementation of the Los Angeles Basin Plan.

As described in Sections 3.2.8 and 5.2.5, the groundwater basin underlying the MSF does not have a sustainable groundwater management plan; thus, no conflict with a sustainable groundwater management plan would occur.

As shown in the analysis presented above, with implementation of PM HWQ-2, operation of the MSF would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there would be a less than significant impact to water management resulting from operation of the MSF.

6.1.9 SUMMARY OF IMPACT CONCLUSIONS

Table 6-1 provides a summary of the impact conclusions discussed in this section.

TABLE 6-1. IMPACT CONCLUSION SUMMARY TABLE

IMPACT SIGNIFICANCE THRESHOLD	IMPACT CONCLUSION				
	ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX	ALIGNMENT ALTERNATIVE 2: FAIRFAX	ALIGNMENT ALTERNATIVE 3: LA BREA	HOLLYWOOD BOWL DESIGN OPTION	MAINTENANCE AND STORAGE FACILITY
Impact HWQ-1: Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant				
Impact HWQ-2: Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	<u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant				

IMPACT SIGNIFICANCE THRESHOLD	IMPACT CONCLUSION				
	ALIGNMENT ALTERNATIVE 1: SAN VICENTE-FAIRFAX	ALIGNMENT ALTERNATIVE 2: FAIRFAX	ALIGNMENT ALTERNATIVE 3: LA BREA	HOLLYWOOD BOWL DESIGN OPTION	MAINTENANCE AND STORAGE FACILITY
<p>Impact HWQ-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:</p> <ul style="list-style-type: none"> i) result in substantial erosion or siltation on- or off-site?; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?; iii) 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? <p>Or; impede or redirect flood flows?</p>	<p><u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant</p>				
<p>Impact HWQ-4: Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?</p>	<p><u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant</p>	<p><u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant</p>	<p><u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant</p>	<p><u>Construction:</u> No Impact <u>Operation:</u> No Impact</p>	<p><u>Construction:</u> No Impact <u>Operation:</u> No Impact</p>

IMPACT SIGNIFICANCE THRESHOLD	IMPACT CONCLUSION				
	ALIGNMENT ALTERNATIVE 1: SAN VICENTE–FAIRFAX	ALIGNMENT ALTERNATIVE 2: FAIRFAX	ALIGNMENT ALTERNATIVE 3: LA BREA	HOLLYWOOD BOWL DESIGN OPTION	MAINTENANCE AND STORAGE FACILITY
Impact HWQ-5: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<u>Construction:</u> Less than Significant <u>Operation:</u> Less than Significant				

Source: Connect Los Angeles Partners 2023

6.2 MITIGATION MEASURES

As the impact analysis in Section 6.1 demonstrates, construction and operation of any of the alignment alternatives and stations, design option, and MSF would result in either no impact or a less than significant impact related to hydrologic resources and water quality. Therefore, no mitigation is required under CEQA.

CHAPTER 7 CUMULATIVE IMPACTS

7.1 INTRODUCTION

Under the state CEQA Guidelines, cumulative impacts are defined as two or more individual impacts that, when considered together, are considerable or would compound and increase other environmental impacts (Section 15355). These cumulative impacts must be discussed in an EIR when the project’s incremental effect is “cumulatively considerable” (Section 15130). “Cumulatively considerable” is defined as when the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (Section 15065(a)(3)).

CEQA Guidelines Section 15130(b)(1) includes two methodology approaches for assessing cumulative impacts. One approach is a “list of past, present, and probable future projects producing related or cumulative impacts” (CEQA Guidelines Section 15130(b)(1)(A)). The other approach is a “summary of projections contained in an adopted local, regional, or statewide plan, or related document, that describes or evaluates conditions contributing to the cumulative effect” (CEQA Guidelines Section 15030(b)(1)(B)). For the purposes of this analysis, the latter approach is used due to the long Project implementation time. The forecasted Project completion timeframe is in the mid- to late-2040s based on Metro Measure M funding. Due to the long-term nature of the Project’s implementation, a list of land use and transportation projects is insufficient for the cumulative analysis since the currently known projects would be completed and operational by the Project’s forecasted completion. In addition, it is highly likely many additional projects will be proposed and constructed between now and project implementation in 20 years; therefore, any project list developed now would be incomplete and incorrect.

The SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Plan is the adopted long-range forecast for population, households, and employment within the six-county Southern California region, which includes all Project elements. The Project is also included in the SCAG 2020 RTP/SCS Plan, as well as Metro’s 2020 Long Range Transportation Plan. The RTP/SCS was adopted in 2020 and proposes land use and transportation strategies to improve mobility options and achieve a more sustainable growth pattern (SCAG 2020). SCAG worked in close coordination with decision-makers and the public across multiple jurisdictions throughout the SCAG region to create the plan. The population, household, and employment growth projections from this plan are used to assess regional growth and its cumulative impact within the vicinity of the Project.

For the cumulative analysis, the RSA is defined as a half-mile radius from the stations, the design option, and the MSF. The half-mile radius is used for all resources to ensure consistency in evaluating cumulative effects. Table 7-1 shows the projected net growth in population, households, and employment between 2019 and 2045 for a half-mile radius from all Project stations, the design option, and the MSF. The data in the table were calculated by merging the SCAG 2020 RTP/SCS growth projections with the SCAG Tier 2 Transportation Analysis Zone boundaries for Los Angeles County, then assessed for a half-mile radius around the stations, the design option, and the MSF. The data show the projected growth from transportation and development projects, as well as associated infrastructure, that when combined with the Project’s construction and operation, could result in cumulative effects.

TABLE 7-1. SCAG PROJECTED PERCENT GROWTH FOR HALF-MILE BUFFER AREAS, 2019-2045

HALF-MILE BUFFER AREA	POPULATION % GROWTH	HOUSEHOLD % GROWTH	EMPLOYMENT % GROWTH
STATIONS			
Expo/Crenshaw	46.0	65.9	26.4
Crenshaw/Adams	35.6	56.3	19.6
Midtown Crossing	20.2	33.1	21.1
Wilshire/Fairfax	19.8	21.2	6.2
Fairfax/3 rd	21.9	23.1	6.5
La Cienega/Beverly	30.7	31.3	6.1
San Vicente/Santa Monica	11.5	11.4	46.2
Fairfax/Santa Monica	7.2	7.7	49.5
La Brea/Santa Monica	16.0	17.2	42.6
Hollywood/Highland	16.2	15.0	3.0
Wilshire/La Brea	22.8	24.3	9.4
La Brea/Beverly	17.9	24.5	14.5
DESIGN OPTION			
Hollywood Bowl Design Option	30.4	29.0	17.4
MAINTENANCE AND STORAGE FACILITY			
MSF	14.0	15.9	9.9

Source: SCAG 2020 RTP/SCS Growth Forecast

Note: MSF = maintenance and storage facility

7.2 CUMULATIVE IMPACTS

Potential impacts to hydrology and water quality are assessed for all alignment alternatives, the design option, and the MSF in Chapter 6.1. The analysis includes consideration of PM HWQ-1, PM HWQ-2, and PM HW-3 to avoid or minimize potential impacts. Future projects identified in the SCAG 2020-2045 RTP/SCS would require similar steps of impact assessment and adherence to the codes and regulations specific to the regulatory framework of each project. The SCAG 2020-2045 RTP/SCS emphasizes consideration of “urban greening,” a multi-benefit land use strategy that improves the relationship between the built and natural environment, on future projects and has benefits of improved water quality, groundwater recharge, and watershed health. This strategy leads to, at minimum, continued efforts to prioritize LID when feasible and use of project measures to address potential impacts. Therefore, the Project would not be cumulatively considerable and the cumulative impact to water quality, groundwater supplies and recharge, drainage patterns, inundation, or water management would be less than significant.

7.3 CUMULATIVE MITIGATION MEASURES

The Project's effects on hydrologic resources and water quality for the alignment alternatives and stations, design option, and MSF would not be cumulatively considerable. Therefore, no mitigation is required under CEQA.

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