# 3.3.1 Introduction

This section describes the affected environment for hydrology and water quality, the regulatory setting associated with hydrology and water quality, the impacts on hydrology and water quality that would result from the project, and the mitigation measures that would reduce these impacts.

The key sources of data and information used in the preparation of this section are listed and briefly described below.

The following impact determinations were made in the County of Los Angeles Initial Study Checklist for the proposed project.

## Hydrology

- The project site is not located in or subject to high mudflow conditions.
- The project would not contribute or be subject to high erosion and debris deposition from runoff.
- The project would not substantially alter the existing drainage pattern of the site or area.
- The project would not result in impacts associated with other hydrologic factors (e.g., dam failure).

## Water Quality

- The project site is not located in an area having known water quality problems and proposing the use of individual water wells.
- The project would not require the use of a private sewage disposal system.
- The project site is not located in an area having known septic tank limitations due to high groundwater or other geotechnical limitations, and the project is not proposing onsite systems that would be located close to a drainage course.
- The project's associated construction activities would not result in significant impacts on the quality of groundwater and/or stormwater runoff to the stormwater conveyance system and/or receiving water bodies.
- The project would not result in impacts associated with other water quality factors.

These issues are not discussed further in this section.

# 3.3.2 Regulatory Setting

## 3.3.2.1 Federal

### Federal Flood Insurance Program

Congress, responding to the increasing costs of disaster relief, passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large, public-funded flood control structures and disaster relief by restricting development on the floodplain.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations, which limit development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community.

### Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding projects within floodplains to:

- Avoid incompatible floodplain development.
- Be consistent with the standards and criteria of the NFIP.
- Restore and preserve the natural and beneficial floodplain values.

### Clean Water Act

The Clean Water Act (CWA) sets discharge limitations to receiving waters; requires states to establish and enforce water quality standards; initiates the National Pollutant Discharge Elimination System (NPDES) permit program for municipal and industrial point-source discharges; and requires NPDES permits for municipal and industrial discharges, and for stormwater discharges caused by general construction activity.

CWA Section 303(d) requires that the state identify a list of impaired water bodies and develop and implement total maximum daily loads (TMDLs) for these water bodies (33 United States Code (USC) Section 1313(d)(1)). A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet applicable water quality standards and protect beneficial uses.

CWA Section 402 regulates discharges to surface waters through the NPDES program, which is administered by the U. S. Environmental Protection Agency (EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by the EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs) (see related discussion under the Porter-Cologne Water Quality Control Act). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

## 3.3.2.2 State

### California Department of Water Resources

The California Department of Water Resources (DWR) established the Division of Flood Management in November 1977. The Division of Flood Management, among several other divisions, carries out the work of DWR programs creating sustainable, integrated flood management and emergency response systems throughout California.

### State Water Resources Control Board

The Porter-Cologne Water Quality Act established the SWRCB and divided the state into nine regional basins, each with its own RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies.

The Porter-Cologne Water Quality Act authorizes the SWRCB to draft state policies regarding water quality. It also authorizes the SWRCB to issue waste discharge requirements (WDRs) for discharges to state waters. The SWRCB, or one of the nine RWQCBs under the SWRCB, is required to adopt water quality control plans (basin plans) for the protection of water quality. A basin plan must:

- Identify the beneficial uses of the water to be protected.
- Establish water quality objectives for the reasonable protection of the beneficial uses.
- Establish a program of implementation for achieving the water quality objectives.

### Construction General Permit

The basin plans also provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every 3 years. NPDES permits issued to control pollution must implement requirements of the applicable regional basin plans.

Construction activities are regulated under the latest NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (Construction General Permit), or CAS000003, provided that the total amount of ground disturbance during construction is 1 acre or more. The Los Angeles RWQCB (LARWQCB) enforces the Construction General Permit for the Los Angeles region, and the Lahontan RWQCB (LRWQCB) enforces the Construction General Permit for the Lahontan region. Coverage under the Construction General Permit requires preparation of a stormwater pollution prevention plan (SWPPP) and notice of intent (NOI). The SWPPP includes pollution-prevention measures (measures to control erosion, sediment, and non-stormwater discharges and hazardous spills); demonstration of compliance with all applicable local and regional erosion and sediment control standards; identification of responsible parties; a detailed construction timeline; and a best management practices (BMPs) monitoring and maintenance schedule. The NOI includes site-specific information and certification of compliance with the terms of the Construction General Permit.

## Los Angeles and Lahontan Regional Water Quality Control Boards

The proposed plan is located within the jurisdiction of the LARWQCB and LRWQCB. Both agencies provide for the development and periodic review of basin plans that designate the beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are implemented primarily by using the NPDES permitting system and updated by completing a TMDL analysis to regulate waste discharges so that water quality objectives are met (see discussion of the NPDES system in the CWA section above). Basin plans are updated every 3 years and provide the technical basis for determining WDRs and taking enforcement actions.

One method the agencies use to implement basin plan criteria is through the issuance of WDRs, which are issued to any entity that discharges point-source effluent to a surface water body. The WDR permit also serves as a federally required NPDES permit (under the CWA) and incorporates the requirements of other applicable regulations.

### Beneficial Uses

Beneficial uses form the cornerstone of water quality protection under the basin plan. Once beneficial uses are designated for a waterway, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of the beneficial uses. The designated beneficial uses, together with water quality objectives, form the water quality standards. Such standards are mandated for all water bodies within the state under the California Water Code.

The LARWQCB has a total of twenty-four beneficial uses that were developed in coordination with the SWRCB. Beneficial uses for water bodies in the Los Angeles region are listed and defined below (LARWQCB 1995):

- **Municipal and Domestic Supply (MUN):** Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR):** Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- **Industrial Process Supply (PROC):** Uses of water for industrial activities that depend primarily on water quality.
- **Industrial Service Supply (IND):** Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Groundwater Recharge (GWR):** Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into the freshwater aquifers.

- **Freshwater Replenishment (FRSH):** Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).
- **Navigation (NAV):** Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
- **Hydropower Generation (POW):** Uses of water for hydropower generation.
- **Water Contact Recreation (REC-1):** Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC-2):** Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Commercial and Sport Fishing (COMM):** Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- **Aquaculture (AQUA):** Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.
- **Warm Freshwater Habitat (WARM):** Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Cold Freshwater Habitat (COLD):** Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Inland Saline Water Habitat (SAL):** Uses of water that support inland saline water ecosystems including, but not limited to, preservation or enhancement of aquatic saline habitats, vegetation, fish, or wildlife, including invertebrates.
- **Estuarine Habitat (EST):** Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).
- **Wetland Habitat (WET):** Uses of water that support wetland ecosystems, including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions that enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants.

- **Marine Habitat (MAR):** Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
- **Wildlife Habitat (WILD):** Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Preservation of Biological Habitats (BIOL):** Uses of water that support designated areas or habitats, such as **Areas of Special Biological Significance (ASBS),** established refuges, parks, sanctuaries, ecological reserves, or other areas where the preservation or enhancement of natural resources requires special protection.

In addition to the above beneficial uses, the following uses apply to certain areas in the LRWQCB (LRWQCB 2005):

- **Flood Peak Attenuation/Flood Water Storage (FLD):** Beneficial uses of riparian wetlands in flood plain areas and other wetlands that receive natural surface drainages and buffer is passage to receiving waters.
- **Spawning, Reproduction, and Development (SPWN):** Beneficial uses of waters that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.
- **Industrial Process Supply (PRO):** Beneficial uses of water used for industrial activities that depend primarily on water quality.
- **Rare, Threatened, or Endangered Species (RARE):** Beneficial uses of waters that support habitat necessary for the survival and successful maintenance of plant or animal species established under the state and/or federal laws as rare, threatened or endangered.
- **Water Quality Enhancement (WQE):** Beneficial uses of waters that support natural enhancement or improvement of water quality in or downstream of a water body including, but not limited to, erosion control, filtration and purification or naturally occurring water pollutants, streambank stabilization, maintenance of channel integrity, and siltation control.

### Water Quality Objectives—Los Angeles and Lahontan Regional Water Quality Control Boards

The CWA (Section 303) requires states to develop water quality standards for all waters and to submit to the EPA for approval all new or revised water quality standards that are established for inland surface and ocean waters. Water quality standards consist of a combination of beneficial uses and water quality objectives. Both narrative and numerical water quality objectives have been developed for many parameters that apply to all inland surface waters and enclosed bays and estuaries for both the LARWQCB and the LRWQCB. Because the list of parameters and objectives is large, water quality objectives were not included in this report. See the basin plans for the LARWQCB and LRWQCB for specific water quality objectives on the SWRCB website.

### 3.3.2.3 Local

#### Los Angeles Flood Control District

The Los Angeles County Flood Control Act was adopted by the state legislature in 1915, after a disastrous regional flood took a heavy economic toll on lives and property in the region. The act established the Los Angeles County Flood Control District (Flood Control District) and empowered it to provide flood protection, water conservation, recreation, and aesthetic enhancement within the Flood Control District's boundaries.

The Flood Control District encompasses more than 3,000 square miles, 85 cities, and approximately 2.1 million land parcels. It includes the vast majority of drainage infrastructure within incorporated and unincorporated areas in every watershed of the County, including 500 miles of open channel, 2,800 miles of underground storm drain, and an estimated 120,000 catch basins.

## 3.3.3 Environmental Setting

This section discusses the existing conditions related to hydrology and water quality in the study area.

### 3.3.3.1 Watersheds and Flooding

#### Los Angeles River Watershed

The Los Angeles River Watershed covers a land area of 834 square miles. The eastern portion extends from the Santa Monica Mountains to the Simi Hills, and the western portion extends from the Santa Susana Mountains to the San Gabriel Mountains (LACDPW 2011). The watershed encompasses and is shaped by the path of the Los Angeles River, which flows from its headwaters in the mountains eastward to the northern corner of Griffith Park. Here the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay near the City of Long Beach.

The Los Angeles River has evolved from an uncontrolled, meandering river providing a valuable source of water for early inhabitants to a major flood protection waterway (LACDPW 2011). Today, in addition to protecting the Los Angeles Basin from major flooding, it also offers significant opportunities for recreation, such as bicycling, for the Los Angeles metropolitan area. LACDPW and other entities have joined in an effort to develop and maintain these resources. In 1991, the Los Angeles County Board of Supervisors directed the Departments of Public Works, Parks and Recreation, and Regional Planning to develop the Los Angeles River Master Plan (LARMP). The LARMP, adopted by the Board of Supervisors in 1996, formulated a multi-objective program for the river while recognizing its primary purpose for flood protection (LACDPW 2011).

## Sun Valley Watershed

The Sun Valley Watershed is an urban subwatershed tributary to the Los Angeles River. It is bordered by the Tujunga Wash on the west, the Burbank Airport on the east, Hansen Dam on the north, and Burbank Boulevard on the south. It is approximately 2,800 acres (or 4.4 square miles), is located approximately 14 miles northwest of downtown Los Angeles, and encompasses the communities of Sun Valley and portions of North Hollywood (LACDPW 2011).

The watershed is highly developed with industrial, commercial, and residential developments. Active gravel mines, landfills, numerous auto-dismantling operators, and various other industrial and commercial land uses make up more than 60% of the watershed. In the watershed are two neighborhood parks and one public library (LACDPW 2011).

## San Gabriel River Watershed

The San Gabriel River Watershed is located in eastern Los Angeles County, and covers 640 square miles including portions of 37 cities. The San Gabriel River flows 58 miles from its headwaters in the San Gabriel Mountains to its confluence with the Pacific Ocean. Major tributaries include Walnut Creek, San Jose Creek, Coyote Creek, and storm drains from the 19 cities through which the San Gabriel River flows (LACDPW 2011). The San Gabriel River has two distinct flow conditions. During wet-weather periods, flow is generated primarily by stormwater runoff. However, during dry-weather periods, flows are less variable and lower, and are mainly derived from water reclamation plant (WRP) discharges, urban runoff, and groundwater-derived base flow. Above Whittier Narrows, water from the San Gabriel River and its tributaries can be diverted to and from the Rio Hondo via the Zone 1 Ditch through Whittier Narrows. Channel flow below Whittier Narrows Dam can be impounded by a series of seven rubber dams in the main channel to allow for diversion into the San Gabriel Coastal Spreading Grounds and to maximize infiltration within the channel (LACDPW 2011). Downstream of the spreading grounds, the channel is lined with concrete for about 10 miles to its mouth, where it flows into the San Gabriel River Estuary.

## Ballona Creek Watershed

Ballona Creek is a 9-mile long flood protection channel that drains the Los Angeles Basin, from the Santa Monica Mountains on the north, the Harbor Freeway (I-110) on the east, and the Baldwin Hills on the south. The Ballona Creek Watershed totals about 130 square miles. Land uses within the watershed consist of 64% residential, 8% commercial, 4% industrial, and 17% open space (LACDPW 2011).

The major tributaries to the Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drains. Ballona Creek is designed to discharge to Santa Monica Bay approximately 71,400 cubic feet per second from a 50-year frequency storm event. The watershed is comprised of all or parts of the Cities of Beverly Hills, Culver City, Inglewood, Los Angeles, Santa Monica, West Hollywood, and unincorporated Los Angeles County (LACDPW 2011).

## Santa Monica Bay Watersheds

The Santa Monica Bay Watersheds include the North Santa Monica Bay, South Santa Monica Bay, and Marina del Rey Watersheds. The North Santa Monica Bay includes the Malibu Creek Watershed, Topanga Creek Watershed, and other rural Santa Monica Mountains watersheds. The South Santa Monica Bay Watershed extends from the Castlerock Watershed near Malibu to the Palos Verdes Peninsula Watersheds on the south. The Marina del Rey Watershed encompasses all areas that drain to the Marina. Portions of these watersheds are very rural and undeveloped, and other portions are very urbanized. These watersheds include all or parts of the Cities of Westlake Village, Agoura Hills, Calabasas, Hidden Hills, Malibu, Los Angeles, Santa Monica, Culver City, El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, Torrance, Palos Verdes Estates, Rolling Hills Estates, Rolling Hills, and unincorporated Los Angeles County. The Santa Monica Bay Watersheds are managed primarily to enhance water quality in the bay while still providing adequate flood protection (LACDPW 2011).

## Dominguez Channel Watershed

The Dominguez Channel Watershed covers 133 square miles in southwestern Los Angeles County and encompasses 19 cities or portions thereof, and a portion of unincorporated Los Angeles County (Dominguez Watershed Advisory Council 2004:1-3). Water bodies within the watershed include the Dominguez Channel, Wilmington Drain, Torrance/Carson Channel (Torrance Lateral), Machado Lake, Los Angeles and Long Beach Harbors, and Cabrillo Beach.

## Santa Clara River Watershed

The Santa Clara River Watershed encompasses approximately 1,634 square miles. The Upper Santa Clara River Watershed is approximately 786 square miles within County of Los Angeles limits with approximately 980 square miles within Ventura County. The Santa Clara River is one of the few natural river systems remaining in Southern California (LACDPW 2011).

The Santa Clara River originates in the Angeles National Forest near the community of Acton and flows from the headwaters westward for approximately 84 miles to the Pacific Ocean. Throughout its length, the river crosses cities, farmland, and undeveloped lands within both counties. The upper portion of the watershed is home to a population of approximately 250,000, of which 170,000 reside within the City of Santa Clarita (LACDPW 2011).

## Antelope Valley Watershed

The Antelope Valley Watershed is geographically unique since it does not outlet to the Pacific Ocean. The watershed straddles the Los Angeles-Kern County line and encompasses approximately 1,200 square miles within Los Angeles County. Numerous streams originating in the mountains and foothills flow across the valley floor and eventually pond in the dry lakes (Edwards Air Force Base) adjacent to the northern Los Angeles County line. The valley lacks defined natural and improved channels outside of the foothills and is subject to unpredictable sheet flow patterns (LACDPW 2011).

### 3.3.3.2 Impaired Receiving Waters

As described under the CWA Section, a 303(d) list is developed by the RWQCB and approved by the EPA to identify impairments and potential sources of pollutants. Once a water body is placed on the 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted, and the water quality standards are attained, or there are sufficient data to demonstrate that water quality standards have been met and delisting should take place. A TMDL is an allowable discharge target to reduce pollutant loading into receiving waters. A TMDL is supposed to be developed for each impairment listed on the 303(d) list in order for each receiving water to improve water quality; receiving waters may be removed from the 303(d) list once a TMDL has been developed. Note that the small portion of the program area located in the LRWQCB jurisdiction does not have any 303(d) listed impairments.

Table 3.3-1 shows impairments in the LARWQCB area.

**Table 3.3-1. Clean Water Act 2006 303(d) List of Impaired Water Bodies and Program Elements in the Los Angeles Regional Water Quality Control Board Area**

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Potential Sources | TMDL Compliance Requirement Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| 40531000 | San Jose Creek Reach 2 | Coliform Bacteria | Nonpoint/Point Source | 2019 | POWRP |
| 40531000 | San Jose Creek Reach 1 | Ammonia | Nonpoint/Point Source | N/A | POWRP SJCWRP |
| | | Coliform Bacteria | Nonpoint/Point Source | 2019 | |
| | | Selenium (listing made by EPA for 2006) | Source Unknown | 2007 | |
| | | Toxicity (listing made by EPA for 2006) | Source Unknown | 2007 | |
| 40515010 | San Gabriel River Reach 2 | Coliform Bacteria | Nonpoint/Point Source | 2019 | POWRP SJCWRP WNWRP |
| 40515010 | San Gabriel River Reach 1 | Coliform Bacteria | Nonpoint/Point Source | 2019 | POWRP SJCWRP LCWRP LBWRP |
| | | pH | Source Unknown | 2019 | |
| | | Lead | Nonpoint/Point Source | 2019 | |
| 40515010 | Coyote Creek (13 miles) | Ammonia | Point Source | N/A | LBWRP* |
| | | Coliform Bacteria | Nonpoint/Point Source | 2019 | |

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Potential Sources | TMDL Compliance Requirement Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| | | Copper, Dissolved | Nonpoint Source | 2006 | |
| | | Diazinon | Source Unknown | 2019 | |
| | | Lead (listing made by the EPA in 2006) | Source Unknown | 2007 | |
| | | pH | Source Unknown | 2019 | |
| | | Toxicity (listing made by EPA in 2002) | Point Source | 2008 | |
| | | Zinc (listing made by the EPA in 2006) | Source Unknown | 2007 | |
| 40516000 | San Gabriel River Estuary | Copper (listing made by EPA for 2006) | Source Unknown | 2007 | SJCWRP LCWRP LBWRP |
| 40515010 | Rio Hondo Reach 2 | Ammonia (for 2006, this listing added by the EPA because of a completed EPA TMDL) | Source Unknown | 2004 | WNWRP** |
| | | Coliform Bacteria | Nonpoint/Point Source | 2009 | |
| 40515010 | Rio Hondo Reach 1 | Coliform Bacteria | Nonpoint/Point Source | 2009 | WNWRP** |
| | | Copper | Nonpoint/Point Source | 2005 | |
| | | Lead | Nonpoint/Point Source | 2005 | |
| | | pH | Nonpoint/Point Source | 2004 | |
| | | Trash | Nonpoint/Point Source | 2007 | |
| | | Zinc | Nonpoint/Point Source | 2005 | |
| 40515010 | Los Angeles River (Carson Street to Figueroa Street; 11 miles) | Ammonia | Nonpoint/Point Source | 2004 | WNWRP**[a] |

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Potential Sources | TMDL Compliance Requirement Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| 40512000 | Los Angeles River (Estuary to Carson Street; 3.4 miles) | Ammonia | Nonpoint/Point Source | 2004 | WNWRP**[a] |
| | | Cadmium (for 2006, this listing was added by the EPA because of a completed EPA-approved TMDL) | Source Unknown | 2005 | |
| | | Coliform Bacteria | Nonpoint/Point Source | 2009 | |
| | | Copper, Dissolved | Nonpoint/Point Source | 2005 | |
| | | Cyanide | Source Unknown | 2019 | |
| | | Diazinon | Source Unknown | 2019 | |
| | | Lead | Nonpoint/Point Source | 2005 | |
| | | Nutrients (algae) | Nonpoint/Point Source | 2004 | |
| | | pH | Nonpoint/Point Source | 2003 | |
| | | Trash | Nonpoint/Point Source | 2007 | |
| | | Zinc, Dissolved | Nonpoint/Point Source | 2005 | |
| | | Coliform Bacteria | Nonpoint/Point Source | 2009 | |
| | | Copper | Source Unknown | 2005 | |
| | | Lead | Nonpoint/Point Source | 2005 | |
| | | Nutrients (algae) | Nonpoint/Point Source | 2004 | |
| | | Trash | Source Unknown | 2007 | |

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Potential Sources | TMDL Compliance Requirement Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| 40512000 | Los Angeles River Estuary (207 acres) | Chlordane (sediment) | Nonpoint Source (historical use of pesticides and lubricants) | 2019 | WNWRP**[a] |
| | | DDT (sediment) | Nonpoint Source (historical use of pesticides and lubricants) | 2019 | |
| | | Lead (sediment) | Nonpoint Source (historical use of pesticides and lubricants) | 2019 | |
| | | PCBs (polychlorinated biphenyls) (sediment) | Nonpoint Source (historical use of pesticides and lubricants) | 2019 | |
| | | Sediment Toxicity | Source Unknown | 2019 | |
| | | Trash | Source Unknown | 2007 | |
| | | Zinc (sediment) | Nonpoint Source (historical use of pesticides and lubricants) | 2019 | |
| 40518000 | Los Angeles/Long Beach Inner Harbor (3003 acres) | Beach Closures | Nonpoint/Point Source | 2004 | WNWRP**[a] |
| | | Benthic Community Effects | Nonpoint Source | 2019 | |
| | | Copper (listing made by EPA for 2006) | Source Unknown | 2008 | |
| | | DDT | Nonpoint/Point Source | 2019 | |
| | | PCBs (polychorinated biphenyls) | Nonpoint/Point Source | 2019 | |
| | | Sediment Toxicity | Nonpoint/Point Source | 2019 | |
| | | Zinc (listing made by EPA for 2006) | Source Unknown | 2008 | |

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Potential Sources | TMDL Compliance Requirement Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|

WRP = water reclamation plant

POWRP = Pomona WRP; SJCWRP = San Jose Creek WRP; WNWRP = Whittier Narrows WRP; LCWRP = Los Coyotes WRP; LBWRP = Long Beach WRP

[a] WNWRP effluent discharge is normally fully infiltrated at the Rio Hondo Spreading Grounds. Effluent only enters the Los Angeles River during flood events, at which times it represents an immeasurably small fraction of total stream flow.

* The LBWRP is located at the mouth of Coyote Creek.

** During peak flow events, a portion of San Gabriel River flows can be diverted to the Rio Hondo via the Zone 1 Ditch. At these times, a portion of the diverted flows may contain effluent discharged from the POWRP or the SJCWRP and thus that effluent may enter the Los Angeles River basin via Rio Hondo. However, such effluent represents an immeasurably small portion of the total flood flows.

Source: SWRCB 2006.

## Groundwater Resources

### San Gabriel Valley Groundwater Basin

This basin is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley and a portion of the upper Santa Ana Valley that lies in Los Angeles County. Annual precipitation in the San Gabriel Valley Groundwater Basin ranges from 15 to 31 inches, and averages 19 inches. The Raymond Fault and contact between Quaternary sediments and consolidated basement rocks of the San Gabriel Mountains form the northern boundary, the Chino Fault and San Jose Fault form the eastern boundary, and the exposed consolidated rocks of the Repetto, Merced, and Puente Hills bound the basin on the south and west. The headwaters of both the Rio Hondo and San Gabriel River are located in the San Gabriel Mountains. Surface water flows southwest across the San Gabriel Valley and exits through Whittier Narrows, a gap between the Merced and Puente Hills (DWR 2004).

The water-bearing sediments in this basin are dominated by unconsolidated to semi-consolidated alluvium that was deposited by streams flowing out of the San Gabriel Mountains (DWR 2004). Recharge occurs primarily through direct percolation of precipitation and percolation of stream flow. Stream flow includes local mountain runoff, imported water conveyed in the San Gabriel River channel to spreading grounds in the Central Basin, and treated sewage effluent. Subsurface flows enter from the Raymond Basin, Chino Basin, and fracture systems along the San Gabriel Mountain front (DWR 2004).

The groundwater surface generally follows the topographic slope, with groundwater flowing from the edges of the basin toward the center of the basin, then southwestward to exit through the Whittier Narrows, which is a structural and topographical low point.

### Coastal Plain of the Los Angeles Groundwater Basin

The Coastal Plain of the Los Angeles Groundwater Basin includes multiple subbasins. Subbasins are described in detail below.

### Central Basin (Central Subbasin)

The Central Basin (also known as the Central Subbasin) encompasses a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. The Los Angeles and San Gabriel Rivers flow over the Central Basin on their way to the Pacific Ocean. There are three agencies that oversee the management of the Central Basin:

- The Water Replenishment District of Southern California (Water Replenishment District) is responsible for obtaining sources to recharge.
- The LACDPW operates the spreading grounds.
- The Central Basin Municipal Water District manages groundwater extractions from production wells by purveyors.

The Central Basin is bound to the north by the La Brea high surface divide; on the northeast and east by the less permeable tertiary rocks of the Elysian, Repetto, Merced and Puente Hills; and to the southwest by the Newport Inglewood Fault system. To the southeast, Coyote Creek roughly follows the regional drainage province boundary between the Central Basin and the Coastal Plain of Orange County Groundwater Basin (DWR 2004).

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water replenishing the aquifers in areas where permeable sediments are exposed at ground surface. Natural replenishment of the groundwater supply is from surface inflow through Whittier Narrows, with some underflow from the San Gabriel Valley. Groundwater occurs throughout the basin in Holocene and Pleistocene Age sediments at relatively shallow depths. The Central Basin pressure area contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay that extend to approximately 2,200 feet below ground surface. Throughout much of the basin, the aquifers are confined by barriers called aquicludes, but areas with semipermeable aquicludes allow some interaction between the aquifers. In much of the basin, local semi-perched groundwater conditions are created by the near surface Bellflower aquiclude that restricts vertical percolation into the Gaspur and other underlying aquifers (DWR 2004).

The Central Basin is traditionally divided between pressure areas and forebays, where forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide a direct connection to surface water recharge areas of the basin. There are two forebays in the Central Basin. These are the Los Angeles Forebay and the Montebello Forebay (DWR 2004). The Montebello Forebay extends southward from Whittier Narrows where the San Gabriel River encounters the Central Basin, and is the most important area of recharge in the subbasin.

#### West Coast Basin (West Coast Subbasin)

The West Coast Basin (also known as the West Coast Subbasin) is a subbasin of the Coastal Plain of Los Angeles Groundwater Basin. The West Coast Basin was adjudicated in 1961. Groundwater levels in the basin have since risen approximately 30 feet (DWR 2004).

The subbasin is bound by the Ballona Escarpment to the north; the Newport-Inglewood Fault zone to the east; and the Pacific Ocean and consolidated rocks of the Palos Verdes Hills to the south and west. Average annual precipitation in the basin is 12 to 14 inches. The surface is crossed in the south by the Los Angeles River through the Dominguez Gap, and the San Gabriel River through the Alamitos Gap, both of which flow into San Pedro Bay. The general groundwater flow pattern is southward and westward from the Central Coastal Plain toward the ocean (DWR 2004).

Seawater intrusion occurs in some aquifers that are exposed to ocean waters. To limit seawater intrusion, gap barriers have been installed where fresh water is pumped into the ground to limit the incursion of seawater into the basin. The Dominguez Gap Barrier Project, located near the community of Wilmington, uses a series of injection wells that create a barrier to protect the Gaspur zone from seawater intrusion (DWR 2004).

# 3.3.4 Project Impacts and Mitigation Measures

This section describes the impact analysis relating to hydrology and water quality for the Bicycle Master Plan at the program level. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, if necessary. Detailed analysis at the project level will determine the significance of impacts for individual Bicycle Master Plan projects and, if necessary, the applicability of mitigation measures.

## 3.3.4.1 Methods

The following analysis was qualitative in nature and was based on information prepared for the proposed project along with information from the LARWQCB and the LRWQCB. In addition, professional judgment was used along with the CEQA thresholds of significance (below) in determining if the plan will have an impact on hydrology, flooding, and water quality.

## 3.3.4.2 Thresholds of Significance

For this analysis, an impact pertaining to hydrology and water quality was considered significant if it would result in a "yes" answer to any of the following questions from the County of Los Angeles Initial Study Checklist.

### Hydrology

- Is a major drainage course, as identified on U.S. Geological Survey (USGS) quadrangle sheets by a dashed line, located on the project site?

- Is the project site located within or does it contain a floodway, floodplain, or designated flood hazard zone?

### Water Quality

- Could the project's pre-development and post-development activities potentially degrade the quality of stormwater runoff and/or could post-development non-storm water discharges contribute potential pollutants to the storm water conveyance system and/or receiving bodies?

## 3.3.4.3 Impacts and Mitigation Measures

### Impact 3.3-1: Be located within a major drainage course on the project site.

### Construction

Construction of bikeways, including staging areas, could occur within major drainage courses. Bikeways may be constructed within drainage channels, and there would be a potential need for bridge construction, which could include in-water construction. Construction may include such methods as sheet-pile coffer dams. In addition, bridge construction may require a river or creek diversion during construction. Under these circumstances, there could be significant impacts to drainage.

Otherwise, it is assumed that a NPDES Construction General Permit and possibly a NPDES Low Threat Discharge and Dewatering Permit would be obtained from the RWQCB, and the contractor would adhere to the requirements of the permit. This would make any impacts on hydrology and water quality less than significant provided the permit is adhered to. (Note: other permits necessary for individual projects—such as CWA Section 404 permits or authorizations, CWA Section 401 Water Quality Certification, and California Streambed/Lake Alteration Agreements—will be determined during project-level evaluations, based on detailed project designs.) It is assumed that compliance with the required permitting would be included in the projects that are part of the Bicycle Master Plan, and that these permits would require measures to ensure impacts would be at less-than-significant levels.

### Operation

It may not be possible for all bridges that would be necessary for projects in the Bicycle Master Plan to span drainage courses (i.e., some may require structures within the drainage course). Impacts of new structures within drainage courses may be significant and would require additional analysis during the design stage for individual projects. Otherwise, it is assumed that projects would comply with the requirements of the RWQCB, and operational impacts on major drainage courses would be less than significant.

### Mitigation Measures

Detailed analysis of impacts related to drainages will be required prior to implementation of individual Bicycle Master Plan projects that would include any construction within drainage courses.

**MM 3.3-1: Design projects to avoid impacts to drainage courses.**

If impacts to drainage courses are identified in site-specific drainage studies, the projects will be designed to incorporate appropriate measures to ensure that impacts are less than significant. These measures will be incorporated into the applicable permits and will be approved by the RWQCB.

### Level of Significance after Mitigation

With implementation of MM 3.3-1, impacts would be less than significant.

## Impact 3.3-2: Be located within a floodway, floodplain, or designated flood hazard zone.

### Construction

Construction of the bicycle network would likely involve construction within a 100-year floodplain zone as defined by FEMA. However, it is assumed that construction would occur during the dry season, or that construction equipment would not impede or redirect flows within the floodplain. Therefore, this impact is considered less than significant during construction.

### Operation

Operation of the bicycle network would slightly increase the amount of impervious surface resulting in minimal amounts of additional runoff. However, this increase would not substantially increase the size of the floodplain. In addition, any additional facilities such as restrooms would also slightly increase the amount of runoff. If any of these facilities were located in areas that would impede or redirect flood flows, a significant impact could occur. This impact is considered significant.

### Mitigation Measures

Detailed analysis of impacts related to floodways, floodplains, or designated flood hazard zones will be required prior to implementation of individual Bicycle Master Plan projects that include any construction within such areas. This analysis will include drainage studies that will calculate the additional flows per County hydrology manual standards.

**MM 3.3-2: Design projects to ensure project will not increase the size of the floodplain.**

For projects in the Bicycle Master Plan that are located within floodways, floodplains, or designated flood hazard zones or would involve construction within these areas, and for which site-specific drainage studies have determined that significant impacts would occur, appropriate redesign will be required to ensure that impacts will be avoided or reduced to a less-than-significant level.

### Level of Significance after Mitigation

With implementation of MM 3.3-2, impacts would be less than significant.

## Impact 3.3-3: Degradation of the quality of stormwater runoff from pre-development and post-development activities, and contribution of potential pollutants to the stormwater conveyance system or receiving bodies from post-development non-stormwater discharges.

### Construction

Construction activities often expose disturbed and loosened soils to erosion from rainfall, runoff, and wind. Most natural erosion occurs at slow rates; however, the rate increases when the land is cleared or altered and left disturbed. Construction activities remove the protective cover of vegetation and reduce natural soil resistance to rainfall impact erosion. Sheet erosion occurs when slope length and runoff velocity increase on disturbed areas. As runoff accumulates, it concentrates into rivulets that cut grooves (rills) into the soil surface. If the flow is sufficient, these rills may develop into gullies. Excessive stream and channel erosion may occur if runoff volumes and rates increase as a result of construction activities. The proposed project would be constructed on relatively flat terrain, but may vary as topography allows. Any dewatering from excavation for construction will need to be pumped to onsite portable settling basins in order to avoid sediment runoff from having an impact on local rivers or creeks, and may require an NPDES Permit from RWQCB (see Impact 3.3-1).

*Sedimentation* is the settling out of soil particles transported by water. Sedimentation occurs when the velocity of water in which soil particles are suspended is slowed sufficiently to allow particles to settle out. Larger particles, such as gravel and sand, settle out more rapidly than fine particles, such as silt and clay. The RWQCB considers sediment a pollutant; sediment transports other adsorbed pollutants, such as nutrients, hydrocarbons, metals, and typical hydrophobic contaminants such as organo-chlorine pesticides.

Excessive sediment can cause increased turbidity and reduced light penetration, reducing prey capture for sight-feeding predators, reducing the light available for photosynthesis, clogging the gills and filter mechanisms of fish and aquatic invertebrates, reducing spawning and juvenile fish survival, smothering bottom-dwelling organisms, changing substrate composition, and reducing aesthetic values. Concentrations of nutrients and other pollutants (such as metals and certain pesticides) associated with sediment particles could also increase. Although these effects are usually short term and greatly diminish after revegetation of exposed areas, sediment and sediment-borne pollutants may be remobilized under suitable hydrologic and hydraulic conditions.

Although sediment from erosion is the pollutant most frequently associated with construction activity, other pollutants of concern include toxic chemicals from heavy equipment or construction-related materials. A typical construction site uses many chemicals or compounds that are hazardous to aquatic life if they were to enter a water body; these may include gasoline, oils, grease, solvents, lubricants, and other petroleum products. Many petroleum products contain a variety of toxic compounds and impurities and tend to form oily films on the water surface, altering oxygen diffusion rates. Concrete, soap, trash, and sanitary wastes are other common sources of potentially harmful materials on construction sites.

The closer construction activities are to watercourses, the more potential there is for spilled toxic substances to enter the water. Wash water from equipment and tools and other waste dumped or spilled on the construction site can easily lead to seepage of pollutants into watercourses. Also, construction chemicals may be accidentally spilled into the watercourse. The impact of toxic construction-related materials on water quality varies depending on the duration and time of activities. Because of low precipitation, construction occurring in the dry season is less likely to cause soil and channel erosion and runoff of toxic chemicals into a stream or river.

Under the proposed project, construction of the bicycle network and possibly bridges would disturb relatively small areas of soil. However, some of the paths would follow river/creek corridors and water quality impacts could occur. Construction activities in water channels or close to water channels are more likely to affect erosion, sedimentation, and water quality as described above. Also, dewatering of construction areas near the bridge supports or of shallow-water areas may be required if excavations fill with soil seepage or surface drainage.

It is assumed that the individual projects in the Bicycle Master Plan would include standard BMPs and erosion controls used for all County-approved construction. Appropriate water pollution prevention and erosion control measures to prevent water quality impacts would be implemented during construction. In the final construction plans, the agency or its contractor would identify specifications and BMPs for erosion control that are necessary to prevent water quality impacts (as required by the NPDES Construction General Permit). Standard erosion control measures—such as management, and structural and vegetative controls—would be implemented for all construction activities that expose soil. Examples of erosion control measures may include the following:

- Grading so that direct routes for conveying runoff to drainage channels are eliminated.
- Constructing erosion-control barriers, such as silt fences and mulching.
- Reseeding disturbed areas with grass or other plants.

These standard erosion control measures are expected to reduce the potential for soil erosion and sedimentation of drainage channels.

In accordance with standard County-approved construction requirements, the general contractors and subcontractors conducting the work would be responsible for constructing or implementing, regularly inspecting, and maintaining the erosion control measures in good working order. The construction contractors and subcontractors would also be required to implement appropriate hazardous material management practices to reduce the potential for chemical spills or releases of contaminants, including any non-stormwater discharge to drainage channels. Standard hazardous material management and spill control and response measures would be implemented to minimize the potential for surface and groundwater contamination.

Assuming the implementation of BMPs and standard erosion-control measures, and the compliance with required permits from the RWQCB, impacts would be less than significant.

## Operation

The proposed bicycle network is expected to result in additional impervious surface over Los Angeles County. This increase in impervious material would generate a small increase in concentrated runoff that would be dispersed along the network alignment. Increases in the total runoff volume would accelerate soil erosion and increase the transport of pollutants to waterways. However, the use of a bicycle network is not expected to generate substantial amounts of pollutants. The small amount of lubricants, sloughing of tire and brake material, and other contaminants associated with bicycles are not expected to have a significant effect on water quality. In addition, this increase in impervious surface is relatively small and spread out over a large distance. In sensitive areas, however, impacts could be significant.

The proposed network would not significantly alter the existing drainage patterns. Because the increase in impervious surface is small, the loss of groundwater recharge is considered to be very low, and groundwater levels are not expected to be affected by the proposed project.

In addition to construction-related effects, operational use can also cause trash deposition along such a network, which could result in significant impacts on water quality.

## Mitigation Measures

Detailed analysis of impacts related to surface water quality will be required prior to implementation of individual Bicycle Master Plan projects that would include any construction near existing surface waters.

**MM 3.3-3. Design appropriate drainage features to prevent erosion.**

Where bikeways are located adjacent to surface water features, such as creeks, rivers, and channels, measures will be designed into the project to capture, divert, and/or absorb direct runoff. Such methods may include small swales running parallel to each side of the path, permeable pavement, French drains, or similar measures. Drainage facilities will be constructed as part of the individual projects so that runoff will not disturb sediment and cause rills, and in such a way that they will not create hazards for bicyclists.

**MM 3.3-4. Design appropriate drainage features to prevent flow into rivers or creeks.**

Where bikeways are located adjacent to surface water features, such as creeks, rivers, and channels, the individual bicycle projects will be designed so that the drainage does not flow into any river or creek, but rather into vegetated swales or similar catchment areas. These bikeways will be designed such that they would provide safe areas for collecting runoff, sediments, and trash, while not creating a hazard for bicyclists and other bikeway uses.

**MM 3.3-5. Provide appropriate trash management methods.**

To control trash along the bikeways, appropriate methods will be included in the individual project designs. For projects that are located adjacent or within existing street rights-of-way, existing trash control methods will be adequate (trash cans, street sweeping, etc.). In areas where there are no existing controls, such as for new Class I bike paths, other measures will be necessary to control trash. These measures may include:

- "No Littering" signs, curb-painting, etc., directing users to appropriate trash disposal.
- Joint use of trash containers in adjacent public-use areas, such as parks and recreational facilities.
- New trash containers, placed at locations accessible for trash removal.
- Special trash collection materials, such as recyclables receptacles, dog waste bags, etc.
- Adopt-a-path programs for providing regular cleanups.
- Other methods that would result in similar prevention of impacts from trash accumulation.

### Level of Significance after Mitigation

With implementation of MM 3.3-3 through MM 3.3-5, impacts would be less than significant.

## 3.3.5 Cumulative

Combined cumulative construction and operation impacts on hydrology and water quality from the proposed bicycle network depend on individual contractor's ability to adhere to the required permitting and BMPs on a case-by-case basis during a tiered project construction and operational approach. However, point sourcing potential construction and operational impacts from this project compared to other regional projects would prove to be difficult. On a regional scale, provided the proposed bicycle network is sufficiently used, the net decrease in vehicle use compared to the net increase in bicycle use would result in a beneficial water quality impact over time as bicycles do not release as much oil and brake dust as vehicles.