

2.9 Water Quality and Stormwater Runoff

2.9.1 Regulatory Setting

2.9.1.1 Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States from any point source¹ unlawful unless the discharge is in compliance with a NPDES permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the United States. RWQCBs administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the USACE.

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with the U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 CFR Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a

¹ A point source is any discrete conveyance such as a pipe or a man-made ditch.

permit if a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge would have lesser effects on waters of the United States and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent² standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the United States. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in Section 2.16, Wetlands and Other Waters.

2.9.1.2 State Requirements

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, 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 United States, like groundwater and surface waters not considered waters of the United States. 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 Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) 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. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

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. RWCQB are responsible for

² The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including MS4s. An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below).
2. The Department must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges.
3. The Department stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009, and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14,

2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1.0 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 1.0 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1.0 acre is subject to this Construction General Permit 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 Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring and, before construction and after construction, aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than 1.0 acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.9.2 Affected Environment

This section is based on the Water Quality Technical Memorandum (WQTM) (November 2018), Location Hydraulic Study (LHS) (April 2018), and the Preliminary Drainage Report (October 2018) prepared for the proposed project.

2.9.2.1 Surface Waters

The proposed project is located within the Santa Ana River hydrologic unit, and within two subhydrologic areas: the Lower Santa Ana River and San Diego Creek, both which are part of the East Coastal Plain Hydrologic Sub-Area (801.11). In addition, the proposed project is located

within three watersheds: the Lower Santa River Watershed, Santiago Creek Watershed, and San Diego Creek Watershed. Specifically, from Chapman Avenue north to SR 91, the project limits are located within the Lower Santa Ana River Watershed. From Chapman Avenue south to I-5, the project limits are located within the San Diego Creek Watershed, which is part of the Newport Bay Watershed.

The project corridor also falls within the Orange County Flood Control Lower Santa Ana River Watershed and San Diego Creek Watershed, as defined by Orange County Watersheds, a division of Orange County Public Works. According to the Santa Ana RWQCB Basin Plan, the project crosses Santiago Creek Reach 1, which drains to the Santa Ana River Reach 2. Other than Santiago Creek, no natural drainage courses or streams are in the study area. Within the project area, Santiago Creek runs along a channelized course and ultimately drains into the Santa Ana River. While portions of Santiago Creek downstream of the project area have been concrete lined, the majority is earthen bottom, exhibiting many characteristics of the original natural channel including the presence of riparian vegetation.

The existing on-site local drainage system consists of inlets, ditches, and storm drain systems to capture and convey storm runoff away from the roadway. Roadway embankment runoff is typically collected by on-site ditches or channels. Other on-site facilities include median inlets. In a few cases, freeway runoff sheet flows to an adjacent street and is collected in the existing catch basin inlets in the street.

The major project widening improvements are located between south of SR 22 interchange and First Street. An existing pump station is located near First Street undercrossing. An existing drainage system is parallel to the east side of SR 55 near Fairhaven Avenue to approximately I-5. This drainage system consists of a 24-inch-diameter reinforced concrete pipe (RCP), 36-inch-diameter RCP, and 42-inch-diameter RCP at the upstream crossing of 17th Street via a 4-foot-high by 2.5-foot-high reinforced concrete box (RCB) turning into a concrete trapezoidal channel, 4-foot-high by 2.5-foot-high RCB, a small segment of air-blown motor (ABM) channel, 48-inch-diameter RCP, and 4-foot-high by 3-foot-high RCB and then draining into the discharge box of the pump station. After the pump station discharge box, this drainage system continues as a 60-inch-diameter RCP, double (Dbl) 4-foot-high by 3-foot-high RCB, Dbl 6-foot-high by 2-foot-high RCB, 8-foot-high by 4-foot-high RCB, and 10-foot-high by 4-foot-high RCB. This drainage system drains to Santa Ana/Santa Fe Channel (Orange County Facility F10) which crosses SR 55 between the Edinger Avenue and McFadden Avenue interchanges and eventually drains to San Diego Creek Reach 1. San Diego Creek drains into the Upper Newport Bay and ultimately to the Pacific Ocean.

Table 2.9-1 shows the beneficial uses designated in the Santa Ana RWQCB Basin Plan for Santiago Creek Reach 1, San Diego Creek Reach 1 and Upper Newport Bay. Based on the *Final 2014/2016 California Integrated Report* (Clean Water Act Section 303(d) List / 305(b) Report) approved by the SWRCB and U.S. EPA, Santiago Creek Reach 1 is not listed on the 303(d) list for TMDL requirements. San Diego Creek Reach 1 and Upper Newport Bay have TMDL requirements for Dichlorodiphenyltrichloroethane (DDT).

Table 2.9-1: Beneficial Uses of Local Surface Waters

Beneficial Uses	Santiago Creek Reach 1	San Diego Creek Reach 1	Upper Newport Bay
GWR	X		
WILD	X	X	X
MUN	X		
REC1	X	X	X
REC2	X	X	X
WARM	X	X	
COMM			X
BIOL			X
RARE			X
SPWN			X
MAR			X
SHEL			X
EST			X

Definitions of Beneficial Uses:

Groundwater Recharge (GWR): waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.

Wildlife Habitat (WILD): waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

Municipal and Domestic Supply (MUN): waters are used for community, military, municipal or individual water supply systems. These uses may include, but are not limited to, drinking water supply.

Water Contact Recreation (REC1: Primary Contact Recreation): waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs. Access prohibited in all or part per agency with jurisdiction.

Non-contact Water Recreation (REC2: Secondary Contact Recreation): waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing and aesthetic enjoyment in conjunction with the above activities.

Warm Freshwater Habitat (WARM): waters support warmwater ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish and wildlife, including invertebrates.

Commercial and Sportfishing (COMM): water used for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited, to uses involving organisms intended for human consumption.

Preservation of Biological Habitats of Special Significance (BIOL): waters support designated areas or habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance (ASBS), where the preservation and enhancement of natural resources requires special protection.

Rare, Threatened or Endangered Species (RARE): waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.

Spawning, Reproduction and Development (SPWN): waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.

Marine Habitat (MAR): waters support marine ecosystems that include, but are not limited to, preservation and Enhancement of marine habitats, vegetation, fish and shellfish and wildlife.

Shellfish harvesting (SHEL): waters support habitats necessary for shellfish collected for human consumption, commercial or sport purposes.

Estuarine Habitat (EST): water supports estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish, and shellfish, and wildlife such as waterfowl, shorebirds, and marine mammals.

2.9.2.2 Groundwater

The project site is within the Orange County Groundwater Basin, which is located in the area designated by the California Department of Water Resources as Basin 8-1, the “Coastal Plain of Orange County Groundwater Basin” in Bulletin 118 (November 2018). The surface area of the groundwater basin is 224,000 acres (350 miles). The basin recharges from percolation of the Santa Ana River flow, infiltration of precipitation, and injection into wells. Groundwater

impairments include sea water intrusion near the coast, colored water from natural organic materials in the lower aquifer system, nitrates and methyl tertiary-butyl ether (MTBE) (November 2018).

According to the Orange County Water District (OCWD), groundwater elevation contours for the principal aquifer, the high groundwater table along the alignment is generally 40 to 100 feet below the existing grade, except near the Santiago Creek drainage between SR 22 and Chapman Avenue. In this segment, the groundwater table is expected to range from 20 to 30 feet below the existing grade (November 2018).

2.9.3 Environmental Consequences

2.9.3.1 Temporary Impacts

Build Alternative

The total DSA for the project is estimated to be 15.65 acres and includes areas for construction, access, and staging. Potential temporary impacts to water quality that can be anticipated during construction for the Build Alternative include sediments caused by the temporary access of construction equipment, excavation and grading for the widening of the roadway, vegetation removal, concrete waste from the construction of new retaining walls, trash from workers and construction waste, petroleum products from construction equipment and/or vehicles, sanitary wastes from portable toilets, and any other chemicals used for construction such as coolants used for equipment and/or concrete curing compounds.

Since the project causes a DSA greater than 1.0 acre, the project would need to comply with the NPDES Construction General Permit. The Build Alternative would be required to prepare and implement a SWPPP. The SWPPP would identify temporary BMPs to address the potential temporary impacts to water quality. The temporary BMPs identified in the project SWPPP may include, but not be limited to, measures such as temporary slope reinforcement and stabilization measures (e.g., hydraulic mulch [bonded fiber mix], temporary cover), linear sediment barriers (e.g., fiber rolls, gravel bag berms, silt fencing), construction site waste management (e.g., street sweeping, concrete washout), as well as temporary construction entrance and drainage inlet protection.

Modification of the six drainages would require permits from the Santa Ana RWQCB for a 401 Water Quality Certification, USACE for a Section 404 Permit, and California Department of Fish and Wildlife (CDFW) for a 1602 Streambed Alteration Agreement. Should the project need to divert stream flows around the construction area, the project will comply with the Santa Ana RWQCB De Minimus Permit for construction site dewatering and/or stream diversions (Order No. R8-2015-0004, NPDES No. CAG998001).

The groundwater table along the alignment is generally 40 to 100 feet below the existing grade except near the Santiago Creek drainage between SR 22 and Chapman Avenue. In this segment, the groundwater table is expected to range from 20 to 30 feet below the existing grade. Due to the historically high groundwater table, groundwater is not expected to adversely affect construction of the proposed project, and dewatering activities are not anticipated. However, fluctuations of the groundwater level, localized zones of perched water, and an increase in soil moisture should be anticipated during and following the rainy seasons in the area (October 1 through May 1) or periods of locally intense rainfall or stormwater runoff.

The following Project Features have been identified to minimize impacts to water resources and water quality during construction.

PF-WQ-1 The project would comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAS000002), as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ.

PF-WQ-2 The project would comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP will identify the sources of pollutants that may affect the quality of stormwater and include Best Management Practices (BMPs) to control the pollutants, such as sediment control, storm drain inlet protection, construction materials management and non-stormwater BMPs. All work must conform to the Construction Site Best Management Practice Requirements specified in the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual (Caltrans 2017d) to control and minimize impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-stormwater BMPs.

With implementation of required permits and Project Features PF-WQ-1 and PF-WQ-2, the Build Alternative would not result in adverse direct or indirect impacts related to water quality and stormwater runoff during construction.

No Build Alternative

The No Build Alternative would not include the construction any of the proposed project improvements and, therefore, would not directly or indirectly result in adverse temporary impacts to water quality and stormwater runoff in the study area.

2.9.3.2 Permanent Impacts

Build Alternative

Under the Build Alternative, the proposed project would increase the impervious surface by 2.90 acres to accommodate project improvements, including proposed roadway surfaces, sidewalks, and pedestrian ramps. The additional impervious surface areas have the potential to increase typical pollutants generated during the operation of a transportation facility (sediment/turbidity, nutrients, trash, and debris, bacteria and viruses, oxygen-demanding substances, organic compounds, oil and grease, pesticides, and metals).

Within the project area, Santiago Creek contains a natural bottom and wetlands as well as non-wetlands. Santiago Creek is fed by ephemeral drainages that convey water during rain events. No work would be located within or adjacent to Santiago Creek. The nearest project improvements to Santiago Creek are approximately 1.0 mile south near the eastbound SR 22 to northbound

SR 55 connector and approximately 3.0 miles north at Katella Avenue SR 55 southbound on-ramp.

Under the Build Alternative, the project would include roadway widening, additional paved areas, new sidewalks, realignment of freeway ramps, and construction of retaining walls. These project improvements would relocate five jurisdictional, concrete-lined drainages to continue to maintain flows. Table 2.9-2 shows impact type and proposed design for concrete ditch/channels.

Table 2.9-2: Impact Type and Proposed Design for Concrete Ditch/Channels

Impacted Project Drainage Features	Size and Type of Facility	Impact Type	Estimated USACE and RWQCB Impact (acres/linear feet)	Proposed Design
SB 55 Lincoln Ave off-ramp	concrete trapezoidal channel	Remove and relocate channel or pipe	0.03/549	To be replaced with 48-inch AP due to ROW constrains
SB 55 Katella Ave off-ramp	concrete V-Ditch	Remove and relocate channel or pipe	0.01/462	Southern portion to be relocated east due to widening and northern portion to be replaced with 24-inch AP
SB 55 17th St on-ramp	Concrete trapezoidal channel	Remove and relocate channel or pipe	0.01/282	To be relocated further west due to the new SB SR 55 off-ramp to Lincoln Ave
SB 55	ABM channel	Remove and relocate channel or pipe	0.01/246	To be replaced with 30-inch AP due to widening
SB 55 4th St off-ramp	ABM channel	Remove and relocate channel or pipe	0.02/410	To be replaced with 33-inch AP due to widening

Source: *State Route 55 Widening Project: Preliminary Drainage Report PA/ED (HDR 2018)*

ABM: air-blown motor; AP: alternative pipe, which may include the use of reinforced concrete pipe (RCP), corrugated steel pipe (CSP), or some other pipe material that meets the design criteria; Ave: Avenue; NB: Northbound; ROW: right-of-way; RWQCB: Regional Water Quality Control Board; SB: Southbound; SR: State Route; St: Street; USACE: U.S. Army Corps of Engineers

In general, existing drainage patterns will be maintained on the ramps and on the freeway. No major culvert and bridge widening improvements are expected or would be required for this project. The roadway widening may affect the number of required inlets. Detailed calculation to determine the spacing and number of inlets will be conducted during the PS&E phase. The roadway widening will also require relocation of existing inlets to the new edge of pavement. If feasible, storm drain laterals shall be protected in place to prevent unnecessary pavement cuts. Capping the existing inlets can be an alternative to complete removal and/or reconstruction. Visual inspection of these storm drain systems shall be conducted to assess their effectiveness. During the PS&E phase, detailed pavement hydrology and hydraulic analysis shall be completed to calculate flows and size the on-site drainage facilities in conformance with Caltrans design criteria.

The project would implement post-construction source control BMPs (Design Pollution Prevention BMPs), such as preservation of existing vegetation and slope/surface protection systems (permanent soil stabilization), as well as concentrated flow conveyance systems such as concrete roadside ditches, oversize drains, inlets, flared end sections at storm drain outlets, and outlet protection. These Design Pollution Prevention BMPs would help control runoff and prevent soil erosion and sedimentation caused by concentrated flows of runoff.

The project would also include treatment BMPs for stormwater runoff within Caltrans right-of-way, which may include biostrips, biofiltration swales, and infiltration basins. The treatment BMPs would include maintenance accessibility through the implementation of maintenance vehicle pullouts at each location. Two biofiltration strips are proposed within the SR 55/SR 22 connectors between southbound SR 55 mainline and SR 55 on-ramp and off-ramp.

Roadway widening within the project limits would increase flow contributing to the existing pump station located near First Street. To minimize the need to modify the pump station, two unlined infiltration basins are proposed to attenuate the flow going to the pump station. The project proposes two unlined infiltration basins south of 17th Street between the southbound SR 55 mainline and the SR 55 on-ramp, and south of 17th Street between the northbound SR 55 mainline and the SR 55 off-ramp. If the infiltration basin is determined to be infeasible after the geotechnical investigation in the PS&E phase, a detention basin with a liner could be considered as an alternative.

The post-construction treatment area for the project is estimated to be 12.98 acres. The post-construction treatment areas will be designed per the Water Quality Flow (WQF) or Water Quality Volume (WQV), based on the BMP selected, to accommodate the more frequent design storms (two-year event). At that time, the treatment BMPs will be evaluated to determine if they meet the requirements for post-construction stormwater treatment controls under the Caltrans Statewide NPDES Storm Water Permit (Order No. 2012-0011-DWQ).

The following Project Features have been identified to minimize impacts to water resources and water quality during post-construction.

PF-WQ-3 Design Pollution Prevention Best Management Practices (BMPs) would be implemented such as preservation of existing vegetation and slope/surface protection systems (permanent soil stabilization), as well as concentrated flow conveyance systems such as roadside concrete ditches, oversized drains, inlets, flared end sections at storm drain outlets, and outlet protection.

PF-WQ-4 Caltrans-approved treatment Best Management Practices (BMPs) would be implemented consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements for the State of California, Department of Transportation (Caltrans) (Order No. 2012-0011-DWQ, NPDES No. CAS00003, adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015). Treatment BMPs may include biostrips, biofiltration swales, and infiltration basins.

With implementation of the required permits and Project Features PF-WQ-3 and PF-WQ-4, the Build Alternative would not result in adverse direct impacts related to water quality and stormwater runoff during post-construction. Indirect or secondary impacts are not anticipated to occur under the Build Alternative.

No Build Alternative

The No Build Alternative would not include the operation of any of the proposed project improvements and, therefore, would not directly result in adverse permanent impacts to water quality and stormwater runoff in the study area. No indirect or secondary impacts on water quality and stormwater runoff would result from implementation of the No Build Alternative.

2.9.4 Avoidance, Minimization, and/or Mitigation Measures

The project will incorporate the Project Features PF-WQ-1 through PF-WQ-4, outlined above in Section 2.9.3, Environmental Consequences, to help avoid and/or minimize potential impacts. No additional avoidance, minimization, and/or mitigation measures other than the Standard Project Features are required.

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