4.8 HYDROLOGY AND WATER QUALITY

This chapter discusses the regulatory framework, existing conditions, and impacts of the proposed Project related to hydrology and water quality.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local policies and regulations pertaining to hydrology and water quality that are applicable to the proposed Project.

Federal Regulations and Agencies

Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA, codified at 33 U.S.C. Sections 1251-1376) of 1972 is the primary federal law that governs and authorizes water quality control activities by the EPA and the states. Various elements of the CWA address water quality, and they are discussed below.

Permits to dredge or fill waters of the United States are administered by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA. “Waters of the United States” are defined as all waters subject to the ebb and flow of the tide (which includes harbors), interstate waters, water impoundments, streams, rivers, and wetlands. The regulatory branch of the USACE is responsible for implementing and enforcing Section 404 of the CWA and issuing permits. Any activity that discharges fill material and/or requires excavation in waters of the United States must obtain a Section 404 permit. Before issuing the permit, the USACE requires that an analysis be conducted to demonstrate that the proposed project is the least environmentally damaging practicable alternative. Also, the USACE is required to comply with the National Environmental Protection Act (NEPA) before it may issue an individual Section 404 permit.

Under Section 401 of the CWA, every applicant for a Section 404 permit that may result in a discharge to a water body must first obtain State Water Quality Certification that the proposed activity will comply with State water quality standards. Certifications are issued in conjunction with USACE Section 404 permits for dredge and fill discharges. In addition, a Water Quality Certification must be sought for any activity that would result in the placement of structures in waters of the United States that are not jurisdictional to the USACE, such as isolated wetlands, to ensure that the proposed activity complies with State water quality standards. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to its nine Regional Water Quality Control Boards (RWQCBs).

Under federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately
reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. In California, the EPA has designated the SWRCB and its RWQCBs with authority to identify beneficial uses and adopt applicable water quality objectives.

When water quality does not meet CWA standards and compromises designated beneficial uses of a receiving water body, Section 303(d) of the CWA requires that water body be identified and listed as “impaired.” Once a water body has been designated as impaired, a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards, with a factor of safety included. Once established, the TMDL allocates the loads among current and future pollutant sources to the water body. In the vicinity of the EIR Study Area, Lower San Francisco Bay is listed as a Section 303(d) impaired water body.1

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States, including discharges from municipal separate storm sewer systems (MS4s). Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities.

Under the NPDES Program, all facilities which discharge pollutants into waters of the US are required to obtain an NPDES permit. Requirements for stormwater discharges are also regulated under this program. In California, the NPDES permit program is administered by the SWRCB through the nine RWQCBs. The City of San Leandro lies within the jurisdiction of San Francisco RWQCB (Region 2) and is subject to the waste discharge requirements of the Municipal Regional Stormwater Permit (MRP; Order No. R2-2015-0049) and NPDES Permit No. CAS612008, which was issued on November 19, 2015 and went into effect on January 1, 2016. The Alameda County permittees include Alameda County, the Alameda County Flood Control and Water Conservation District, and 14 cities, including the City of San Leandro.

Under Provision C.3 of the MRP, the co-permittees use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

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Federal Emergency Management Agency

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 limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA’s minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year.

Additionally, FEMA has developed requirements and procedures for evaluating earthen levee systems and mapping the areas affected by those systems. Levee systems are evaluated for their ability to provide protection from 100-year flood events and the results of this evaluation are documented in the FEMA Levee Inventory System (FLIS). Levee systems must meet minimum freeboard standards and must be maintained according to an officially adopted maintenance plan. Other FEMA levee system evaluation criteria include structural design and interior drainage.

As required by the FEMA regulations, all development constructed within the Special Flood Hazard Zone (as delineated on the FIRM) must be elevated so that the lowest floor is at or above the base flood elevation level. The term “development” is defined by FEMA as any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. Per these regulations, if development in these areas occurs, a hydrologic and hydraulic analysis must be performed prior to the start of development, and must demonstrate that the development does not cause any rise in base flood elevation levels, as no rise is permitted within regulatory floodways. Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision, as soon as practicable, but not later than six months after such data becomes available.

FEMA is conducting a new coastal study called the California Coastal Analysis and Mapping Program (CCAMP) and has revised the 100-year and 500-year coastal flood events and the SFHAs within the coastal areas of Alameda County. The preliminary maps were issued on April 16, 2015. The maps have not yet been finalized but there is a newly mapped Zone AE (100-year floodplain) area which results from the overtopping of Estudillo Canal that could affect 1,000 parcels to the north. The City of San Leandro and Alameda County are in discussions with FEMA to determine how best to resolve the channel flooding issue, including the potential repair of levees and/or the elevation of banks, streets, and sea walls in some areas.
locations. The FIRM revisions have not yet been finalized, due to submittal of an appeal, which must be resolved before an updated schedule can be developed.\(^6\)

**Rivers and Harbors Act of 1899**

Under the Rivers and Harbors Act of 1899, the USACE requires permits for activities involving the obstruction of the navigable capacity of any waters of the United States or the construction of any structures in or over navigable waters of the United States, including ports, canals, navigable rivers, or other waters. Under Section 10 of the Rivers and Harbors Act, “navigable waters” are defined as “those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce.” Pursuant to Section 10 of the Rivers and Harbors Act, the USACE administers this regulatory program separate from the Section 404 program. A Section 10 permit may be required for structures or work outside the limits of navigable waters if the structure or work affects the course, location, condition, or capacity of the water body.

**Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA) provides the basic authority for the U.S. Fish and Wildlife Service (FWS) to evaluate impacts to fish and wildlife from proposed water resource development projects. This Act requires that all federal agencies consult with the FWS, the National Marine Fisheries Service, and State wildlife agencies (i.e., the California Department of Fish and Wildlife) for activities that affect, control, or modify waters of any stream or bodies of water. Under the Act, the FWS has responsibility for reviewing and commenting on all water resources projects. For example, the FWS would provide consultation to the USACE with regard to issuance of a Section 404 permit.

If a project may result in the “incidental take” of a listed species, an incidental take permit is required. An incidental take permit allows a developer to proceed with an activity that is legal in all other respects but that results in the “incidental taking” of a listed species. A Habitat Conservation Plan (HCP) must also accompany an application for an incidental take permit. The purpose of the HCP is to ensure that the effects of the permitted action or listed species are adequately minimized and mitigated.

**State Regulations**

**Porter-Cologne Water Quality Act**

The Porter-Cologne Water Quality Act (Water Code sections 13000 et seq.) is the basic water quality control law for California. The act established the SWRCB and divided the State into nine regional basins, each under the jurisdiction of a RWQCB. The SWRCB is the primary state agency responsible for the protection of California’s water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan or basin plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region’s ground and surface water, and local water quality

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conditions and problems. As described above, San Leandro is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

The Porter-Cologne Act also authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) for drinking water regulations, the California Department of Fish and Wildlife (CDFW) and the Office of Environmental Health and Hazard Assessment (OEHHA).

**State Water Resources Control Board General Construction Permit**

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA.

Construction activities that disturb one or more acres of land that could impact hydrologic resources must comply with the requirements of the SWRCB Construction General Permit (Order 2012-0006-DWQ). Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Storm Water Multiple Application and Report Tracking System (SMARTS) website.

Applicants must also demonstrate conformance with applicable best management practices (BMPs) and prepare a Storm Water Pollution Prevention Plan (SWPPP), containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection, and discharge points, general topography both before and after construction, and drainage patterns across the city. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Some sites also require implementation of a Rain Event Action Plan (REAP). The updated Construction General Permit (2012-0006-DWQ), which went into effect on July 17, 2012, also requires applicants to comply with post-construction runoff reduction requirements.7

**California Coastal Act of 1976**

The California Coastal Act of 1976 established three designated coastal management agencies to plan and regulate the use of land and water in the coastal zone: the California Coastal Commission, the San Francisco Bay Conservation and Development Commission, and the California Coastal Conservancy. Under California’s federally approved Coastal Management Program, the California Coastal Commission manages development along the California coast except for San Francisco Bay, where the San Francisco Bay

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Conservation and Development Commission oversees development. The mission of the California Coastal Conservancy is to purchase, protect, restore, and enhance coastal resources and provide shoreline access. Additional information on the San Francisco Bay Conservation and Development Commission, which has jurisdiction for projects in and around San Francisco Bay, is discussed in the Local Regulations section below.

**State Updated Model Water Efficient Landscape Ordinance (Assembly Bill 1881)**

The updated Model Water Efficient Landscape Ordinance required cities and counties to adopt landscape water conservation ordinances by January 31, 2010 or to adopt a different ordinance that is at least as effective in conserving water as the updated Model Water Efficient Landscape Ordinance (WELO). The City of San Leandro adopted the Bay-Friendly Landscape Ordinance in accordance with Assembly Bill 1881. The ordinance incorporates landscape protocols developed by the Alameda County Waste Management Authority (StopWaste) and all parameters in the WELO. The ordinance became effective as of February 1, 2010.

Executive Order B-29-15 required the State to revise the Model WELO to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite stormwater capture, and by limiting the portion of landscapes that can be covered in turf. It also requires reporting on the implementation and enforcement of local ordinances, with required reports due by December 31, 2015.8

**Local Regulations and Agencies**

**San Francisco Bay Regional Water Quality Control Board**

Regional authority for planning, permitting, and enforcement is delegated to the nine Regional Water Quality Control Boards (RWQCBs). The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. San Leandro is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation of the Water Quality Control Plan for San Francisco Bay Basin (Basin Plan). The Basin Plan was updated most recently in March 2015. This Basin Plan designates beneficial uses of the State waters within Region 2, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan.9 The Water Quality Control Policy for the Enclosed Bays and Estuaries of California, as adopted by the SWRCB in 1995, also provides water quality principles and guidelines to prevent water quality degradation and protect the beneficial uses of waters of enclosed bays and estuaries.10

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Bay Protection and Toxic Cleanup Program

In 1989, the California legislature established the Bay Protection and Toxic Cleanup Program with the goal of protecting present and future beneficial uses of the Bay and estuarine waters of California. In addition, the program was tasked with identifying toxic hot spots (i.e., localized areas with elevated concentrations of pollutants) and developing prevention and control strategies to remediate the toxic hot spots. As part of this program, in 1993 the San Francisco Bay RWQCB initiated the Regional Monitoring Program (RMP) which includes water quality monitoring near the city of San Leandro. The purpose of the program is to assess regional water quality conditions, characterize patterns and trends of contaminant concentrations and distribution in the water column, as well as identify general sources of contamination in San Francisco Bay. The program has established a database of water quality and sediment quality in the Bay, particularly with respect to trace elements and organic contaminants.

San Francisco Bay Conservation and Development Commission (BCDC)

The California Coastal Act carries out its mandate locally through the San Francisco Bay Area Conservation and Development Commission (BCDC). BCDC’s jurisdiction for San Francisco Bay includes all sloughs, marshlands between mean high tide and five feet above mean sea levels, tidelands, submerged lands, and land within 100 feet of the Bay shoreline. The precise boundaries are determined by BCDC upon request.

Since the issuance of the Governor’s Executive Order S-13-08 in November 2008, BCDC has followed other Natural Resource Agencies in planning for two sea level rise scenarios: 16 inches by mid-century and 55 inches by the end of the century. In April 2009, BCDC published its report with maps indicating zones that could be flooded due to sea level rise based on existing elevations. In May 2011, BCDC published a revised draft of its proposed amendments to its master planning document, the Bay Plan. This received considerable public review and environmental review, and was adopted on October 6, 2011. These amendments include revised findings and policies to adapt to the effects of sea level rise.

As a permitting authority along the San Francisco Bay shoreline, BCDC is responsible for granting or denying permits for any proposed fill, extraction of materials, or change in the use of any water, land, or structure within BCDC’s jurisdiction. Their jurisdiction extends from all tidally influenced portions of the site up to the Mean High Tide and then continuing up to 100-feet inland. A permit from BCDC is required for any Bay filling or dredging, which includes piers, pilings, and floating structures moored in the Bay for extended periods. A permit from BCDC would be required before proceeding with any potential shoreline development. Permits may be granted or denied only after public hearings and after the process for review and comment by the City or County has been completed.

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11 San Francisco Bay Area Conservation and Development Commission, 2011, Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline.
12 San Francisco Bay Area Conservation and Development Commission, 2011, Staff Report, Revised Preliminary Recommendation and Environmental Assessment for Proposed Bay Plan Amendment No. 1-08 Concerning Climate Change. (For Commission consideration on September 1, 2011.)
13 San Francisco Bay Area Conservation and Development Commission, 2011, Resolution No. 11-08. Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies, www.bcdc.ca.gov/ proposed_bay_plan/10-01Resolution.pdf, accessed on February 23, 2016.
Projects in BCDC jurisdiction that involve Bay fill must be consistent with the Bay Plan policies on the safety of fills and shoreline protection. These policies state that adequate flood protection should consider future relative sea level rise and all proposed development should be above the highest estimated tide level for the expected life of the project or sufficiently protected by levees.

**Alameda County Flood Control & Water Conservation District**

The Alameda County Flood Control and Water Conservation District (ACFCD) is a division of the Alameda County Public Works Agency that develops and maintains flood control systems for the public safety, health, and welfare of Alameda County residents and businesses. Additionally, the ACFCD enforces pollution control regulations governing County waterways.

The ACFCD is in the process of issuing a Hydrology and Hydraulics Manual that will outline the District’s requirements for new development and modification of existing flood control systems in western Alameda County. The ACFCD requires that primary drainage systems (between 50 acres and 6,400 acres) be evaluated for two storm types. The system must convey the five-year storm when using the 100-year tide level of 7.6 feet above sea level (National Geodetic Vertical Datum [NGVD] 29) as an outlet constraint, and must convey the 100-year storm event when using the mean higher high water level of 4.4 feet above sea level (NGVD 29) as an outlet control constraint. In addition, all facilities that are part of the FEMA Flood Insurance Study must be designated to contain the FEMA 100-year storm using FEMA criteria.

**Alameda County Clean Water Program**

Together with 13 other incorporated cities in Alameda County, San Leandro has joined with the Alameda County Flood Control & Water Conservation District, the Zone 7 Water Agency, and Alameda County in the Clean Water Program (CWP) initiative. Members of the program are regulated waste dischargers under the 2015 NPDES Permit issued by the San Francisco Bay RWQCB, and are responsible for municipal storm drain systems and watercourses that they own or operate. As part of the permitting process, dischargers must submit a Stormwater Management Plan that describes a framework for management of stormwater discharges during the term of the permit.

The City of San Leandro, as a co-permittee under the NPDES permit, is also subject to the Provision C.3 requirements for new development and redevelopment projects, including post-construction stormwater management requirements. Provision C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction. All new development or redevelopment projects that create or replace 10,000 square feet of impervious surfaces or 5,000 square feet or more of impervious surface for special land use categories (i.e., uncovered parking lots, restaurants, auto service facilities, and gasoline stations) are considered to be “regulated projects” and are required to implement site design measures, source control measures, and stormwater treatment measures to reduce stormwater pollution during operation of the project. The permit specifies methods to calculate the required size of treatment devices. All projects that create

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and/or replace 2,500 square feet but less than 10,000 square feet of impervious surface are required to meet site design requirements in Provision C.3.i of the MRP.

Regulated projects subject to stormwater treatment measures would require the implementation of LID features, such as harvesting and reuse, bioretention areas, pervious paving, green roofs, flow-through planters, tree well filters, and media filters. Systems must be designed to treat stormwater runoff volume equal to the 85th percentile 24-hour storm event, 80 percent of the annual runoff from the site, a flow design of runoff from a rain event equal to 0.2 in/hr intensity, or an equivalent method. Only a small portion of the City east of I-580 is subject to hydromodification (HM) measures, as determined by the CWP’s Hydromodification Management Susceptibility Map. This would require projects within the hydromodification area that create and/or replace one acre or more of impervious surface to match post-development stormwater flow rates and volumes to pre-development conditions.

San Leandro Zoning Code

Article 19 of the San Leandro Zoning Code contains the City’s landscaping requirements. This is the City’s Water Efficiency Landscape Ordinance, adopted in coordination with StopWaste. Currently, the City’s requirements exceed the State’s 2010 Model WELO in terms of water savings. The City has adopted, by default, the updates to the State Model WELO adopted in 2015 as of December 1, 2015. The City is currently in the process of preparing updates to the ordinance to formally add to Zoning Code Article 19 any new regulations included in the 2015 WELO update and to incorporate any further guidelines from the Bay Friendly Landscape protocol by StopWaste.

San Leandro Municipal Code

Four chapters of the City of San Leandro Municipal Code contain directives pertaining to hydrology and water quality issues, as explained in the following paragraphs:

- **Stormwater Management and Discharge Control – Chapter 3-15.** This chapter provides the stormwater requirements for projects conducted within the City of San Leandro and is consistent with the requirements of the San Francisco RWQCB and the MRP permit. Included in Chapter 3-15 is the San Leandro Watercourse Protection Ordinance, which requires each property owner to keep and maintain parts of a watercourse that flows through their property free of trash, debris, excessive vegetation, and other obstacles. Also, no development within 30 feet of the centerline of any creek or 20 feet from the top of the bank is allowed without written authorization from the City.

- **Bay-Friendly Landscaping Requirements for City Projects – Chapter 3-22.** This chapter regulates the design, construction, and maintenance of City-owned landscapes and landscapes the City funds through public-private partnerships. Key components of Bay-friendly landscaping include reducing waste and using recycled materials; nurturing healthy soils while reducing fertilizer use; conserving water, energy and topsoil; using Integrated Pest Management (IPM) to minimize chemical use; reducing stormwater runoff; and creating wildlife habitat.

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HYDROLOGY AND WATER QUALITY

- **Floodplain Management – Chapter 7-9.** The ordinance is designed to protect human life and health, minimize expenditures for costly flood control projects, minimize the need for rescue and relief efforts, business interruptions, and damage to public facilities and utilities. The ordinance also ensures that property owners construct new and substantially improved buildings in the 100-year floodplain in accordance with the National Flood Insurance Program’s goals to protect life and property. Section 530 of Chapter 7-9 addresses coastal high hazard areas vulnerable to future sea level rise.

- **Grading, Excavations, and Fill – Chapter 7-12.** This requires projects to submit erosion control and sedimentation control plans and drainage plans to the City Engineer for approval prior to the start of project construction. The plans will ensure that stormwater from the site meets the quality standards dictated by Chapter 3-15, *Stormwater Management and Discharge Control*. The erosion and sediment control plans must be prepared in accordance with the most current “Association of Bay Area Governments (ABAG) Manual of Standards for Erosion and Sediment Control Measures” and the “Handbook for Erosion and Sediment Control.”

### 4.8.1.2 EXISTING CONDITIONS

#### Regional and Local Hydrology

San Leandro is located in the San Francisco Bay Hydrologic Region, which covers approximately 4,500 square miles and encompasses 10 counties, including Alameda County. It corresponds with the boundaries of the San Francisco Regional Water Quality Control Board (RWQCB) Region 2 and the San Francisco Bay Area Integrated Regional Water Management (IRWM) Plan. The San Francisco Bay Hydrologic Region is a complex network of watersheds, marshes, rivers, creeks, reservoirs, and bays mostly draining into the San Francisco Bay and the Pacific Ocean.

There are five watersheds within the City of San Leandro, including San Leandro Creek Watershed, Oyster Point Watershed, San Leandro Marina Watershed, Estudillo Canal Watershed, and San Lorenzo Creek Watershed. A summary of each watershed and its surface water features are provided in the following paragraphs. The creeks, drainage channels, and watersheds in the vicinity of the EIR Study Area are shown on Figure 4.8-1.

**San Leandro Creek Watershed**

The San Leandro Creek Watershed covers 49.4 square miles, extending east into the hills above Oakland and San Leandro and north to include the town of Moraga in Contra Costa County. It is unusual among East Bay watersheds in that 78.3 miles of its creeks remain open and primarily in their natural state. Two

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Figure 4.8-1

Creeks, Drainage Ways, and Watersheds


San Leandro Creek Watershed
Oyster Bay Watershed
Estudillo Canal Watershed
Shoreline Watershed
San Lorenzo Creek Watershed

San Francisco Bay


Watershed divide
Creek in natural channel
Engineered channel
Buried storm drain or culvert greater than 24"
Direction of flow
San Leandro City Boundary

Creeks, Drainage Ways, and Watersheds
large dams at Upper San Leandro Reservoir and Lake Chabot provide drinking water storage and regulate the flow of water in San Leandro Creek.

The main creek/water body within San Leandro is San Leandro Creek. The 22-mile long creek, which originates on the eastern slopes of the Oakland Hills near Huckleberry Botanic Regional Preserve is remarkably natural and uncovered for most of its length. It is considered to be one of the City's most important natural resources. The creek travels through the Oakland and San Leandro hills to Upper San Leandro Reservoir and then to Lake Chabot. Below Lake Chabot Dam, the creek forms the border between San Leandro and Oakland for about one-half mile. It then flows through residential neighborhoods in San Leandro, forms the northern end of the Downtown area, and enters the Cherrywood subdivision. Below Preda Street, San Leandro Creek once again forms the boundary between Oakland and San Leandro. The last mile of San Leandro Creek is entirely within Oakland, where it flows north and drains into San Leandro Bay at Arrowhead Marsh, just west of the Oakland Coliseum.

San Leandro Creek is a natural channel with steep banks between Lake Chabot and the BART tracks. From the BART tracks to the Nimitz Freeway, the creek is culverted with slanted concrete walls and a concrete bottom. Below the Nimitz Freeway, the creek enters an engineered flood control channel with vertical sides and a concrete bottom.

Creek conservation and restoration have been actively pursued for more than three decades by the Friends of San Leandro Creek (FSLC), a non-profit group comprised of local residents and other stakeholders. FSLCS advocates for watershed management, public education, pollution prevention, and creek restoration. San Leandro volunteers have monitored water quality, bird population, habitat changes, and water temperature in the creek for over 10 years and conduct cleanup days five times a year. The group is exploring the feasibility of restoring steelhead trout to the creek. The ACFCD has prepared a comprehensive vegetation management plan to ensure a sustainable and healthy creek environment consistent with flood control objectives and operations.  

20 Constructed in 1996, Root Park at the corner of Hays and E. 14th Street in downtown San Leandro provides direct access to San Leandro Creek via a viewing platform and walkway.

**Oyster Point Watershed**

The 1.2-square mile Oyster Point Watershed drains the area east of Oakland International Airport and a former landfill that is now the Oyster Bay Regional Shoreline. Drainage is carried via underground culverts to an engineered channel that flows to Oyster Bay named for the oyster farms that once existed just offshore. The oyster farms thrived in the tidal flats until their demise due to water pollution and the filling of tidal flats and tidal marshes, including the large fills for Oakland International Airport, Oyster Point Landfill, and San Leandro Shoreline.

The East Bay Regional Park District converted the former Oyster Point Landfill, a large bulbous landform that was closed in the 1980s, into parkland, now known as the Oyster Bay Regional Shoreline. This is an ongoing process but the site has been planted with trees, shrubs, and turf for playing fields. In addition to

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the Bay Trail along the shoreline, there are multi-use trails and picnic areas. The park is accessible from Neptune Drive off Marina Boulevard in San Leandro.

San Leandro Shoreline Watershed

The San Leandro Shoreline Watershed encompasses 1.2 square miles and is located south of Oyster Point and includes the Shoreline, a public golf course, and Marina Park. The watershed is drained by two underground culverts that flow to a larger engineered channel near the marina.

The San Leandro Shoreline is built on artificial fill with berms that encircle it to protect docked boats from wave activity and provide a small boating lagoon. Marinas limit flushing from tidal surge and strong currents that would otherwise disperse pollutants and bring in cleaner water. Also, the limited tidal flushing and currents lead to sediment accumulation that requires regular dredging. As a result of these recurring issues, current plans are to remove the boat slips and docks as part of the approved San Leandro Shoreline Development Project, with the future water basin accessible for non-motorized watercraft, such as canoes, kayaks, and stand-up paddleboards.

Estudillo Canal Watershed

The 9.4-square mile Estudillo Canal Watershed begins on the ridge between Lake Chabot and Fairmont Hospital in San Leandro and drains west through a network of canals and underground culverts in residential and commercial areas of the City on its way to Estudillo Canal. The canal flows toward San Francisco Bay and connects via a tide gate to Heron Bay tidal marsh. It continues past Tony Lema Golf Course and enters San Francisco Bay just south of San Leandro Marina.

The main creeks and water bodies are Estudillo Canal, its contributing engineered channels and culverts, and Heron Bay Marsh. 21 Estudillo Canal is a 4.8-mile engineered channel that begins just west of Interstate-580 (I-580) near Halcyon Drive, where it receives drainage from the ridge above the Fairmont Hospital and surrounding area. There is a short 0.15-mile section of open, natural creek that runs through a tree-lined valley just below the ridge. The creek then flows under a bend in Fairmont Boulevard and resurfaces for another 0.15-mile before being diverted underground and eventually draining to Estudillo Canal. The canal flows south past East 14th Street and the Bayfair Center. There, it turns west and flows into San Francisco Bay, capturing stormwater runoff from multiple underground culverts and engineered channels along the way.

Heron Bay Marsh, also known as San Leandro Shoreline Marsh, is a tidal marsh located between Tony Lema Golf Course and the Heron Bay housing development along Santa Ynez Road and San Lorenzo Creek. With construction of the housing development in 2001, the marsh, which was cut off from San Francisco Bay by an outboard levee, was restored. A tide gate connects Estudillo Canal to the inland portion of the marsh, and a culvert now connects the marsh to the Bay. The Estudillo Canal was designed in 1956 by the ACFCD and is designated as Line A within Zone 2. The flood control facility was designed in 1956 for a 15-year storm, resulting in flooding issues for nearby residences and businesses. There are current plans to

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expand flood protection to accommodate the 100-year storm by constructing channel improvements, new culverts, crossing capacity enhancements, and a flood bypass system.\textsuperscript{22}

Runoff within the watershed is collected through a system of underground culverts, storm drains, and engineered channels that discharge into San Francisco Bay. The Estudillo Canal Watershed is located just south of the EIR Study Area and runoff from this watershed drains into the Estudillo Canal, which ultimately discharges into San Francisco Bay.

San Lorenzo Creek Watershed

At 48 square miles, the San Lorenzo Creek Watershed is one of the largest watersheds draining from the east to San Francisco Bay. The watershed begins in the East Bay hills at Dublin Grade and includes Castro Valley, Hayward, Ashland, San Lorenzo, and San Leandro. The lower and middle watershed areas are highly urbanized and the natural drainage has been altered. The upper watershed, which includes the subwatersheds of Cull Creek, Crow Creek, and Palomares Creek, is less urbanized and includes most of the 105 miles of open creek.

The watershed includes two lakes that were created in the early 1960s with the construction of Cull Canyon Reservoir and Don Castro Reservoir for flood control purposes. The reservoirs have siltation issues which have been slowing filling since their creation. Steelhead trout historically inhabited much of the San Lorenzo Watershed until channelization and other effects of urbanization led to degraded trout habitat and decreased populations. The ACFCD is implementing the San Lorenzo Creek Watershed Sediment Reduction and Habitat Enhancement Project as a way to address both water quality and wildlife habitat concerns in the upper watershed.\textsuperscript{21}

The lower portion of San Lorenzo Creek starts at Mission Boulevard and runs in a concrete channel 4.6 miles to the creek mouth. Between Interstate 880 (I-880) and Railroad Avenue, San Lorenzo Creek forms the boundary between San Leandro and San Lorenzo. West of Railroad Avenue, both sides of San Lorenzo Creek are contained within San Leandro. San Lorenzo Creek enters San Francisco Bay about 0.5 miles west of the Heron Bay subdivision.

San Francisco Bay

San Francisco Bay is the most important water resource in the region. It provides habitat for marine and terrestrial life; scenic, recreational, and commercial opportunities; and beneficial climate and air quality impacts. Approximately two square miles of San Francisco Bay are contained within San Leandro’s city limits.


During the last 150 years, San Francisco Bay has been radically altered by urbanization, agriculture, dredging, and salt extraction. Since 1850, more than 40 percent of the Bay’s surface (i.e., 120,000 acres) has been eliminated by landfill. Only 75 of the original 300 square miles of Bay marshland remain intact.

The Bay waters off the San Leandro coast are relatively shallow, generally averaging less than five feet in depth. These waters are subject to siltation and sedimentation as a result of incoming stream and river water and tidal influences. Each year, approximately 6 million tons of sediment are deposited in the Bay, mostly from eroding land in the Central Valley. Periodic dredging of the shipping and boating channels is required to remediate siltation impacts.

San Francisco Bay is rich in marine life and provides habitat for fish, mollusks, crustaceans, and water birds. Oyster harvesting was once an important part of San Leandro’s economy with several businesses in operation along the shoreline in the late 19th and early 20th centuries. The City no longer has any commercial fishing or shellfish harvesting operations. Today, the primary activity in Bay waters off of San Leandro is recreational boating. The Bay continues to support aquatic life, including steelhead trout, striped bass, American shad, halibut, and king salmon.

About 90 percent of the San Leandro shoreline is publicly owned with a trail along the water’s edge and recreational facilities. The 175-foot wide, two-mile-long “Jack D. Maltester” deepwater channel connects the shoreline to the deeper waters of San Francisco Bay. The shoreline and channel were originally constructed in the early 1960s using local funds. Since 1971, Congress has authorized federal funds for dredging, allowing the City to work jointly with the US Army Corps of Engineers to maintain the channel and marina basin. Dredging is performed about once every eight years in the boat basin and about once every four years in the channel.

Since federal funding to offset the costs of necessary dredging has recently been eliminated for recreational harbors, future plans for the shoreline and channel involve maintaining the shoreline as a marina for as long as feasible with the eventual removal of the boat slips and docks and use of the basin for non-motorized watercraft. If additional revenue is found for dredging and dredge materials disposal, it is possible that boating activities will likely be retained. Additional details on planned development for the marina and surrounding area can be found in the San Leandro Shoreline Development Project EIR.24

**Local Drainage**

The City of San Leandro Department of Public Works owns and maintains 175 miles of storm drain conduits throughout the City. The City’s storm drain system feeds into a larger system owned and operated by the ACFCD. This system includes the lower reaches of San Leandro and San Lorenzo Creeks, as well as a number of channels extending into San Leandro neighborhoods west of Interstate 880. The ACFCD’s drainage facilities include levees, pump stations, erosion control devices, and culverts. The ACFCD maintains these facilities, including fence repair, vegetation removal, preventive maintenance of pump stations, spill prevention and cleanup, and investigation of inquiries and clean water concerns.

The City of San Leandro storm drains are maintained by the Department of Public Works. Catch basins and conduits are cleaned annually. Debris is removed from the tops of the storm drain inlets and the inside of

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the basins are cleaned. Prior to winter rains, City crews inspect problem flood areas and clear debris to minimize storm drain blockages. Major development proposals are reviewed to assess drainage impacts and determine appropriate mitigation measures. As appropriate, the City requires stormwater detention ponds or improvements to the City’s storm drain system to ensure that runoff from new development do not degrade local creeks. These measures are related to the C.3 provisions of the Alameda County Clean Water Program. A map of some of the major storm drains within the City of San Leandro is shown on Figure 4.8-1.

Alameda County is divided into nine flood control zones by the Alameda County Flood Control and Water Conservation District (ACFCD). San Leandro is located within Zones 2, 9, and 13. A map of the flood control zones and storm drains is shown on Figure 4.8-2.

Flood Control Zone 2 covers 40,390 acres, 55 miles of natural creeks, 4 miles of earth channels, 11 miles of concrete channels, and 49 miles of underground storm drain pipes. Completed flood control projects in San Leandro include improvements of a 1,000-foot section of the Line C earthen channel near the Bayfair Center and Coelho Drive. Eroded channel banks were restored to their original design and native trees and vegetation were planted. New and ongoing projects in Zone 2 include the following:

- San Lorenzo Creek Restoration and Wetlands – plan to restore wetlands at the mouth of San Lorenzo Creek as it flows into the Bay partially funded by a federal Coastal Impact Assistance Program grant administered through the US Department of the Interior.
- FEMA Tidal Studies – plan to study the effects of sea level rise on Bay area shorelines, creeks, and levees and determine what changes may be needed to provide 100-year level of flood protection. The ACFCD is participating with FEMA in these studies.
- Floodplain Mapping in the San Lorenzo Creek Watershed – A US Geological Survey (USGS) hydrology study, published in 2003, indicated an increase in stormwater flowing through flood control channels within the watershed with a potential to flood in several large areas. The ACFCD is studying the most cost-effective solutions to provide greater flood protection to properties. The options include making modifications to Don Castro Reservoir to manage more stormwater, constructing floodwalls in several locations along the creek, and/or removing bottlenecks like undersized culverts that restrict water flow.
- Improving levees to meet FEMA certification
- Estudillo Canal tidegate structure rehabilitation
- San Leandro Creek hazardous trees removal between Huff Avenue and MacArthur Boulevard.

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There are nine zones (2, 2A, 3A, 4, 5, 6, 9, 12, and 13) within western Alameda County that comprise the area served by the Alameda Flood Control District. Zone 7 in eastern Alameda County is managed by the Zone 7 Water Agency (www.zone7water.com).

By the numbers, the District manages approximately:

- 170,323 acres
- 200 miles of natural creeks
- 91 miles of earthen channels
- 36 miles of concrete channels
- 240 miles of underground pipe
- 13 miles of improved channels
- 20 pump stations
- 5 reservoirs
- 3 dams

Source: Alameda County Flood Control & Water Conservation District, Report to the Community, Fiscal Year 2012-2013.
Flood Control Zone 9 encompasses 2,482 acres with 14 miles of underground pipes, 2 miles of concrete channels, 1 mile of earth channels, and less than 1 mile of natural and improved creeks. Ongoing projects in Zone 9 that impact San Leandro include participation in the FEMA tidal studies to determine the effects of sea level rise on shorelines, creeks, and levees and an evaluation of all levees to determine their condition and what repairs would be necessary to achieve FEMA certification.

Flood Control Zone 13 consists of 3,200 acres, with 3 miles of natural creeks, less than 1 mile of earth channels, 1 mile of concrete channels, and 14 miles of underground pipes. The ACFCD recently completed a new Davis Street pump station west of I-880 to alleviate frequent flooding caused by a combination of higher sea levels and stormwater from heavy rains. The ACFCD is continuing to work with FSLC involving construction of a proposed environmental education center and stabilization and restoration of the San Leandro Creek banks near Alvarado Street. New and ongoing projects include improving levees to meet FEMA certification.

Although Flood Control Zone 12 is north of San Leandro and covers Emeryville and Oakland, there are a couple of ongoing projects that impact San Leandro. In addition to the FEMA tidal studies and levee evaluation, a new floodwall was constructed in 2009 along San Leandro Creek between 98th Street and I-880 at the Oakland/San Leandro border to improve the carrying capacity of the channel. This is part of a larger project along San Leandro Creek to improve the flow-carrying capacity of the channel.

The construction, monitoring, and maintenance of the stormwater infrastructure are a joint effort between ACFCD and the San Leandro Public Works Department. The ACFCD is currently working with FEMA to identify and map coastal hazards and provided input for the updated FIRM panels, which delineate Special Flood Hazard Areas (SFHAs) and Base Flood Elevations (BFEs). The preliminary FIRMS were issued in April 2015; however, the Letter of Final Determination (LFD) that finalizes the FIRM maps has not yet been issued. The LFD sets the effective date for when the revised FIRM panels become effective, which will be exactly six months after the LFD issuance date. The FIRM revisions are currently on hold due to the submittal of an appeal, which must be resolved before the LFDs are issued and the FIRM maps are finalized.

### Water Quality

Surface water quality is affected by point source and non-point source pollutants. Point source pollutants are those emitted at a specific point, such as a pipe, while non-point source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, and landscaped areas. Non-point source pollutants are more difficult to monitor and control, although they are important contributors to surface water quality in urban areas.

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Stormwater runoff pollutants vary with land use, topography, and the amount of impervious surface, as well as the amount and frequency of rainfall and irrigation practices. Runoff in developed areas typically contain oil, grease, litter, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations usually occur at the beginning of the wet season during the “first flush.”

The San Francisco Bay RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater. The beneficial uses for surface water bodies and groundwater within the city boundaries are listed in Table 4.8-1.

**Table 4.8-1  DESIGNATED BENEFICIAL USES OF WATER BODIES IN SAN LEANDRO**

<table>
<thead>
<tr>
<th>Water Body</th>
<th>Designated Beneficial Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surface Water</strong></td>
<td></td>
</tr>
<tr>
<td>Estudillo Canal</td>
<td>WARM, WILD, REC-1, REC-2</td>
</tr>
<tr>
<td>Lower San Leandro Creek</td>
<td>FRSH, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2</td>
</tr>
<tr>
<td>San Lorenzo Creek</td>
<td>MUN, FRSH, GWR, MIGR, SPWN, WARM, WILD, REC-1, REC-2</td>
</tr>
<tr>
<td>Upper San Leandro Creek</td>
<td>FRSH, COLD, MIGR (P), SPWN (P), WARM, WILD, REC-1, REC-2</td>
</tr>
<tr>
<td><strong>Groundwater</strong></td>
<td></td>
</tr>
<tr>
<td>Santa Clara Valley (East Bay Plain)</td>
<td>MUN, PROC, IND, AGR</td>
</tr>
</tbody>
</table>

Notes: Municipal and Domestic Water Supply (MUN), Industrial Process Water Supply (PROC), Industrial Service Water Supply (IND), Agricultural Supply (AGR), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Cold Freshwater Habitat (COLD), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Water Contact Recreation (REC-1), Noncontact Water Recreation (REC-2). P = Potential Use; all other uses are existing.


All stormwater runoff generated within the City of San Leandro would eventually discharge into San Francisco Bay. Storm drains within the City limits connect to San Leandro Creek, Estudillo Canal, and San Lorenzo Creek, which drain to San Francisco Bay.

In addition to the establishment of beneficial uses and water quality objectives, another approach to improve water quality is a watershed-based methodology that focuses on all potential pollution sources and not just those associated with point sources. If a body of water does not meet established water quality standards under traditional point source controls, then it is listed as an impaired water body under Section 303(d) of the Clean Water Act. For 303(d) listed water bodies, a limit is established, which defines the maximum amount of pollutants (or Total Maximum Daily Load – TMDL) that can be received by that water body. South San Francisco Bay is listed as an impaired water body near the EIR Study Area and stormwater runoff from the project would discharge into this water body. The list of 303(d) pollutants in San Francisco Bay and the status of TMDL implementation are provided in Table 4.8-2.

Water quality in San Leandro creeks and streams and San Francisco Bay is monitored by the San Francisco Estuary Institute (SFEI), in collaboration with the San Francisco Bay RWQCB. The Regional Monitoring Program (RMP) assesses water quality conditions in the Bay and some of its tributaries and has
### Table 4.8-2  Section 303(d) List of Impaired Water Bodies within San Leandro

<table>
<thead>
<tr>
<th>Water Body</th>
<th>Pollutant</th>
<th>Potential Source</th>
<th>Status of TMDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower San Leandro Creek</td>
<td>Diazinon</td>
<td>Urban runoff/storm sewers</td>
<td>Approved (2007)</td>
</tr>
<tr>
<td></td>
<td>Trash</td>
<td>Illegal dumping, urban runoff/storm sewers</td>
<td>Planned (2021)</td>
</tr>
<tr>
<td>San Lorenzo Creek</td>
<td>Diazinon</td>
<td>Urban runoff/storm sewers</td>
<td>Approved (2007)</td>
</tr>
<tr>
<td></td>
<td>Chlordane</td>
<td>Nonpoint source</td>
<td>Planned (2013)</td>
</tr>
<tr>
<td></td>
<td>DDT</td>
<td>Nonpoint source</td>
<td>Planned (2013)</td>
</tr>
<tr>
<td></td>
<td>Dieldrin</td>
<td>Nonpoint source</td>
<td>Planned (2013)</td>
</tr>
<tr>
<td></td>
<td>Dioxin compounds</td>
<td>Atmospheric deposition</td>
<td>Planned (2019)</td>
</tr>
<tr>
<td></td>
<td>Furan compounds</td>
<td>Atmospheric deposition</td>
<td>Planned (2019)</td>
</tr>
<tr>
<td></td>
<td>Invasive species</td>
<td>Ballast water</td>
<td>Planned (2019)</td>
</tr>
<tr>
<td></td>
<td>Mercury</td>
<td>Industrial and municipal point sources; resource extraction; atmospheric deposition; natural sources; nonpoint sources</td>
<td>Approved (2008)</td>
</tr>
<tr>
<td></td>
<td>PCBs</td>
<td>Unknown nonpoint sources; interim health advisory for fish in place</td>
<td>Planned (2008)</td>
</tr>
<tr>
<td></td>
<td>PCBs (dioxin-like)</td>
<td>Unknown nonpoint source</td>
<td>Planned (2008)</td>
</tr>
<tr>
<td></td>
<td>Trash</td>
<td>Illegal dumping; urban runoff/storm sewers</td>
<td>Planned (2021)</td>
</tr>
</tbody>
</table>


established a database of water quality sampling results. Monitoring of contaminant loads from representative watersheds, including San Leandro Creek, was completed in April 2014 and will be compiled into a synthesis report to support decisions associated with the next regional stormwater permit. 11 The nearest San Francisco Bay monitoring station (SB031W) is located off the southern tip of the Oakland International Airport, approximately 1.2 miles west of the San Leandro coast. The most recent comprehensive water quality sampling was conducted in 2007, which carried out analysis for conventional water quality parameters (i.e., conductivity, dissolved oxygen, hardness, nitrates, pH, salinity, and suspended solids, among others), trace elements (including mercury and methylmercury), trace organics (including polyaromatic hydrocarbons [PAHs], polychlorinated biphenyls [PCBs], phthalates, polybrominated diphenyl ethers, and pesticides), and toxicity. The results indicated that water quality conditions at these locations were well within the water quality objectives established by the RWQCB for the monitored parameters.

Groundwater

San Leandro is located within the East Bay Plain sub-basin of the Santa Clara Valley Groundwater Basin. A map of the groundwater basin is shown as Figure 4.8-3. The East Bay Plain sub-basin is 25 miles in length, 2 to 7 miles in width, and includes all or portions of Richmond, San Pablo, El Cerrito, Albany, Berkeley, Emeryville, Piedmont, Alameda, Oakland, San Lorenzo, Hayward, and San Leandro. The sub-basin is bounded on the north by San Pablo Bay, on the east by Franciscan Basement rock, and on the south by the Niles Cone Groundwater Basin. It extends beneath San Francisco Bay to the west. Numerous creeks including San Leandro Creek and San Lorenzo Creek flow from the western slope of the Diablo Range westward across the plain into San Francisco Bay. Groundwater in the area generally flows in a southwesterly direction from the hills toward San Francisco Bay. However, localized flow directions may vary.

There are two primary aquifers in the San Leandro area. The shallow aquifer ranges from approximately 5 feet to 50 feet below ground surface (bgs). There is an aquitard (i.e. a relatively thick layer of low permeability clay and silt) known as the Yerba Buena Mud that separates the shallow aquifer from the deep aquifer. The deep aquifer is typically more than 150 feet bgs.

There are approximately 900 registered groundwater wells in San Leandro. Many of these wells are inactive. Well permit applications for Alameda County indicate that nearly all, or 91 percent, of the active wells in Alameda County are used for “backyard” or commercial irrigation with the remaining 8.6 percent of wells used for industrial process water, and 0.4 percent of wells used for municipal drinking water supply. Groundwater use is limited by several factors: 1) readily available high quality imported surface water, 2) high salt concentrations in shallow bay groundwater, 3) the potential for saltwater intrusion, and 4) contamination in shallow aquifers. The ACFCFD has jurisdiction for the installation, construction, and monitoring of groundwater wells and maintains records at their offices.

Shallow zone groundwater is characterized as a calcium-bicarbonate type of water, with total dissolved solids (TDS) concentrations ranging from 364 milligram per liter (mg/l) to 1,020 mg/l. Deep zone groundwater is generally characterized as sodium-bicarbonate type water with TDS concentrations ranging from 313 to 1,420 mg/l. The California Secondary Maximum Contaminant Level (MCL) for TDS is 500 mg/l. High TDS water results in a salty taste, incrustations or films on fixtures, discoloration, and hardness.

Domestic use of groundwater wells in San Leandro is currently not permitted due to contamination by volatile organic compounds (VOCs), gasoline, and heavy metals. There are four major groundwater plumes in San Leandro that are now undergoing site characterization and/or remediation. The largest groundwater plume is the Davis-Washington-Alvarado (DWA) plume in central San Leandro, which is

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Figure 4.8-3

Santa Clara Valley Groundwater Basin

Source: Department of Water Resources, CWP 2013.
approximately 2 miles long and over 1-mile wide, and consists of trichloroethylene (TCE) and tetrachloroethylene (PCE) contaminants. Many San Leandro residents use private wells in the vicinity of the plume for landscape and garden irrigation. The Department of Toxic Substances Control (DTSC) conducted a risk assessment and determined that shallow groundwater in the plume can be safely used for irrigation and other outside uses, but should not be used in the home for domestic purposes such as drinking, cooking, showering, or bathing. Additional information on the plumes can be found in Chapter 4.7, Hazards and Hazardous Materials, of this Draft EIR.

Flooding

FEMA determines floodplain zones in an effort to assist cities in mitigating flooding hazards through land use planning. FEMA also outlines specific regulations for any construction within a 100-year floodplain. The 100-year floodplain is defined as an area that has a one percent chance of being inundated during a 12-month period. FEMA also prepares maps for 500-year floods, which mean that in any given year, the risk of flooding in the designated area is 0.2 percent.

In some locations, FEMA also provides measurements of base flood elevations for the 100-year flood, which is the minimum height of the flood waters during a 100-year event. Base flood elevation (BFE) is reported in feet above sea level. Depth of flooding is determined by subtracting the land’s height above sea level from the base flood elevation. Areas within the 100-year flood hazard area that are financed by federally-backed mortgages are subject to mandatory federal insurance requirements and building standards to reduce flood damage.

According to the FEMA FIRM maps, portions of San Leandro are within the 100-year floodplain, as shown on Figure 4.8-4 and Figure 4.8-5 (designated as Zones A, AE, AO, and VE). The 100-year flood zone is also known as a Special Flood Hazard Area (SFHA); homeowners with mortgages within the SFHA are required to be protected by flood insurance. Zone A is characterized as areas subject to inundation by the 100-year flood event, but detailed hydraulic analyses have not been performed and no Base Flood Elevations (BFEs) or flood depths are shown. Zone AE is defined as areas subject to inundation by the 100-year flood event where BFEs have been calculated. Zone AH is defined as areas subject to inundation by the 100-year flood with shallow flooding (usually areas of ponding) with average depths between one and three feet and with BFEs derived from hydraulic analyses. Zone AO includes areas subject to inundation by the 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet derived from detailed hydraulic analyses. Zone VE is defined as a coastal high hazard area, which extends offshore to the inland limit that is subject to high-velocity wave action. The boundary of Zone VE is generally based on wave heights of 3 feet or greater, or wave run-up depths of 3 feet or greater. The areas of San Leandro that are within the 500-year floodplain are also shown on Figure 4.8-4 and Figure 4.8-5. These are considered to be moderate to low risk areas, where flood insurance is not required.

The following areas are located within the 100-year flood zones:
- Areas adjacent to San Leandro Creek, Estudillo Canal, and San Lorenzo Creek.
- Area mostly north of Elgin Street in the vicinity of Bayfair Center.
- Area north and south of I-880 in the vicinity of the Estudillo Canal and its connecting channels.

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Figure 4.8-5

FEMA Floodplains (Preliminary Updated Data)

Source: FEMA, 2015.
Floodway area in and around Bonaire Park connecting Line D to the Estudillo Canal.

Coastal areas surrounding Oyster Bay Regional Shoreline, San Leandro Marina, Small Boat Lagoon, and Heron Bay.

In the City of San Leandro, flood protection is provided by the ACFCD and the City is within three flood protection zones, as described in further detail in the Local Drainage section of this chapter. Flood protection facilities include flood control channels, storm drains, and dikes. San Leandro also prohibits the construction of structures, fill, grading, or otherwise obstructing the designated floodway for watercourses that flow through the city, as codified in Chapter 3-15-220, Watercourse Protection, and Chapter 7-9, Floodplain Management, of the Municipal Code.

The locations of levees within the City of San Leandro are also shown on Figure 4.8-4 and Figure 4.8-5. Although some locations within the city are protected from flooding by levees, FEMA’s policy is to disregard any flood protection benefit provided by a levee if that levee is not certified as meeting National Flood Insurance Program (NFIP) standards for freeboard and geotechnical stability. Most of the levees within the City of San Leandro are not currently certified. However, the City, in conjunction with ACFCD and FEMA, is in the process of evaluating and improving some of the levees to meet certification standards, which would remove some of the adjacent areas from the 100-year floodplain.

FEMA has performed detailed coastal engineering analyses and mapping of the San Francisco Bay shoreline within nine adjoining counties, including Alameda County. The analyses and mapping has resulted in updated preliminary FIRM panels, revised SFHAs, and Base Flood Elevations (BFEs) for some areas within San Leandro. The preliminary FIRMs can be accessed at FEMA’s San Francisco Bay Area Coastal Study website and is shown on Figure 4.8-5.

The Alameda County Public Works Agency and the City of San Leandro are working together on actions that will remove approximately 1,000 properties in the City from the 100-year floodplain designation. Actions taken by San Leandro would include increasing the elevation at the end of Davis Street to prevent flooding and meeting with the owners of Mission Bay mobile home park regarding strengthening and completing the wall on the west side of the property line adjacent to the rail line in order to remove the their properties from the floodplain.

Actions taken by Alameda County would include repairing the gates and addressing the elevation of banks at Estudillo Canal from Monarch Bay Drive Bridge to Wicks Boulevard. The gate repair and elevation work would be designed to protect the Marina Faire neighborhood from flooding. This infrastructure

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40 City of San Leandro, 2014, Letter dated November 6, 2014 re: Plan of Action in Response to 2013 FEMA Flood Maps from Mr. Jerome Smith Jr., Chief Building Official/Flood Plain Administrator, San Leandro to Mr. Daniel Woldensenbet, Public Works Director, Alameda County Public Works Department.
improvement is scheduled for 2016. Also, there are plans to acquire the right-of-way along the western property line of the low lying properties on Neptune Drive just north of Marina Boulevard and elevate the embankment of the low lying properties using material from the Estudillo Canal project to prevent flooding in the Mulford Gardens neighborhood.\footnote{City of San Leandro, 2014, Letter dated November 6, 2014 re: Plan of Action in Response to 2013 FEMA Flood Maps from Mr. Jerome Smith Jr., Chief Building Official/Flood Plain Administrator, San Leandro to Mr. Daniel Woldensenbet, Public Works Director, Alameda County Public Works Department.}

**Mudflow**

Mud and debris flows are mass movements of dirt and debris that occur after intense rainfall, earthquakes, and severe wildfires. The speed of a slide depends on the amount of precipitation, steepness of the slope, and alternate freezing and thawing of the ground. Most debris flows occur during intense rainfall in areas with steep slopes. The Association of Bay Area Governments (ABAG) has interactive maps of areas susceptible to debris flows within the Bay Area.\footnote{Association of Bay Area Government, 2015, *Interactive Debris Flow Source Area Map*, http://gis.abag.ca.gov/website/Hazards/?hlyr=debrisFlowSource, accessed on February 25, 2016.} Most of San Leandro is relatively flat and is not in areas subject to debris flows. However, the ABAG map does show isolated pockets in the area of San Leandro east of I-580 that may be susceptible to debris flows. Future development in this area would be subject to the goals, policies, and programs in the General Plan which seek to minimize risks to San Leandro residents from hillside development and potential landslides and debris flows.

### 4.8.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in a significant impact if it would:

1. Violate any water quality standards or discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
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 substantially increase the amount of surface runoff in a manner which would result in substantial erosion or siltation on- or off-site.
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
5. 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.
6. Otherwise substantially degrade water quality.
7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
HYDROLOGY AND WATER QUALITY

8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows

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

10. Expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow.

4.8.3 IMPACT DISCUSSION

This section analyzes potential project-specific and cumulative impacts to hydrology and water quality.

**HYD-1** The proposed project would not violate any water quality standards or discharge requirements.

Proposed General Plan Update

Construction Impacts

Future construction activities associated with new development or redevelopment within the EIR Study Area could negatively affect the water quality of surface waters. Grading and other earthmoving activities during construction would expose soils, which could be eroded and deposited into downstream receiving waters. This in turn would increase the amount of turbidity and sediment in these water bodies, which could impact aquatic life. Additionally, chemicals or fuels could accidentally spill and be washed into receiving waters.

Future development within the EIR Study Area would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction. This includes compliance with the requirements of the SWRCB’s Construction General Permit, which requires preparation and implementation of a SWPPP for projects that disturb one acre or more of land. The SWPPP must include erosion and sediment control Best Management Practices (BMPs) that would meet or exceed measures required by the Construction General Permit, as well as BMPs that control hydrocarbons, trash, debris, and other potential construction-related pollutants. Construction BMPs would include inlet protection, silt fencing, fiber rolls, stabilized construction entrances, stockpile management, solid waste management, and concrete waste management. Post-construction stormwater performance standards are also required to specifically address water quality and channel protection events. Implementation of these BMPs would prevent or minimize environmental impacts and ensure that discharges during the construction phase of new projects within the EIR Study Area would not cause or contribute to the degradation of water quality in receiving waters. In addition, Chapter 7-12 of the San Leandro Municipal Code requires project applicants to prepare erosion control and sedimentation control plans for submittal to the City Engineer prior to the start of project construction and Chapter 3-15 of the Municipal Code requires BMPs to be implemented to minimize stormwater discharges from the site during construction.\(^{43,44}\) Compliance with local and State regulatory requirements and implementation of construction BMPs would minimize discharges during the construction phase of future development.

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\(^{43}\) City of San Leandro, Municipal Code Chapter 7-12, Grading, Excavations and Fills.

\(^{44}\) City of San Leandro, Municipal Code Chapter 3-15, Stormwater Management and Discharge Control.
projects allowed by the proposed Plan and would not result in the degradation of water quality in receiving waters. Therefore, construction-related water quality impacts are less than significant.

Operational Impacts

Post-construction impacts from development theoretically could affect drainage patterns and increase the overall amount of impervious surfaces, thus creating changes to stormwater flows and water quality. Increasing the total area of impervious surfaces can result in a greater potential to introduce pollutants to receiving waters. Urban runoff can carry a variety of pollutants, including oil and grease, metals, sediment, and pesticide residues from roadways, parking lots, rooftops, and landscaped areas depositing them into adjacent waterways via the storm drain system. However, San Leandro is primarily built out and future development within the EIR Study Area will primarily consist of infill sites, redevelopment of existing sites, and intensification of existing land uses. Therefore, most of these areas have already been developed with a high percentage of impervious surfaces and redevelopment typically results in a reduced amount of impervious surfaces, due to State and local regulatory requirements.

Water quality in stormwater runoff is regulated locally by the Alameda County Clean Water Program, which includes the C.3 provisions set by the San Francisco Bay RWQCB. Provision C.3 of the MRP addresses post-construction stormwater requirements for new development and redevelopment projects that add and/or replace 10,000 square feet or more of impervious area or special land use categories that create and/or replace 5,000 square feet of impervious surfaces, such as auto service facilities, retail gas stations, restaurants, and uncovered parking lots. These “regulated” projects are required to meet certain criteria: 1) incorporate site design, source control, and stormwater treatment measures into the project design; 2) minimize the discharge of pollutants in stormwater runoff and non-stormwater discharge; and 3) minimize increases in runoff flows as compared to pre-development conditions. Additionally, projects within the city which drain to a natural water body must also construct and maintain hydromodification measures to ensure that estimated post-project runoff peaks and durations do not exceed estimated pre-project peaks and duration. Low Impact Development (LID) methods are the primary mechanisms for implementing such controls.

Effective December 1, 2011, regulated projects must treat 80 percent or more of the volume of annual runoff for volume-based treatment measures or 0.2-inch per hour for flow-based treatment measures. LID treatment measures include harvesting and reuse, infiltration, evapotranspiration, or biotreatment/bioretention. Examples of LID treatment measures include bioswales, flow-through planters, tree well filters, infiltration trenches, green roofs, rainwater harvesting, media filtration devices, pervious surface treatments, and bioretention/detention areas. Effective December 2, 2012, projects that create or replace 2,500 square feet or more, but less than 10,000 square feet, of impervious surface must implement site design measures to reduce stormwater runoff. Regulated project applicants must also prepare an Operation and Maintenance (O&M) Plan to maintain the stormwater treatment measures and execute agreements that these treatment measures will be maintained in perpetuity.

All regulated projects within the EIR Study Area must prepare a Stormwater Management Plan (SWMP) that includes the post-construction BMPs that control pollutant levels. All SWMPs would be reviewed and approved by the City of San Leandro prior to the issuance of grading or building permits. In areas within the city that have soils with low permeability and/or area with high water tables, BMPs that do not rely on infiltration are most appropriate. Also, regulated projects within the hydromodification mapped areas of
San Leandro that create and/or replace one acre or more of impervious surface must ensure that stormwater runoff from the project does not exceed the erosion potential of the receiving stream as compared to pre-project existing conditions.

Each regulated project applicant must also prepare an Operations and Maintenance (O&M) Plan for post-construction water quality and quality control measures, as per the Alameda County C.3 provisions. The project applicant would identify responsible parties and provide adequate funding to maintain and operate the stormwater improvements through a Homeowners Association (HOA), Community Services District (CSD), Community Facilities District (CFD), or similar entity.

The following goals, policies, and actions contained in the proposed Plan would ensure that new development projects under the proposed Plan would minimize impacts to water quality:

- **Goal EH-4: Water Quality.** Maintain and improve water quality in San Leandro’s creeks, wetlands, and offshore waters.

- **Policy EH-4.1: Urban Runoff Control.** Continue to implement water pollution control measures aimed at reducing pollution from urban runoff. These measures should emphasize best management practices by residents, businesses, contractors, and public agencies to ensure that surface water quality is maintained at levels that meet state and federal standards.

- **Action EH-4.1.A: Trash Capture Devices.** Develop a funding plan for the installation and maintenance of trash capture devices on City storm drains, in order to comply with the unfunded State mandate for 100 percent trash capture in local storm drain systems.

- **Action EH-4.1.B: Municipal Regional Permit Implementation.** As required by Section C3 of the Stormwater Municipal Regional Permit (also known as "C3" requirements), ensure that the City's development review procedures continue to include water quality protection measures. These include measures related to water supply, flood control, habitat protection, groundwater recharge, Bay-friendly landscaping, and sustainable development. In addition, the City will continue to require Stormwater Pollution Prevention Plans for qualifying projects and will ensure that such projects include appropriate measures to minimize the potential for water pollution.

- **Policy EH-4.2: Clean Water Education.** Promote the public information and participation provisions of the Alameda Countywide Clean Water Program.

- **Action EH-4.2.A: Clean Water Program Educational Components.** Continue to implement programs in coordination with the Alameda County Clean Water Program to better educate the public on urban runoff hazards. Examples of these programs include storm drain stenciling, exhibits at farmers markets and local street fairs, website information, and television and newspaper advertising. Use these programs to increase awareness of clean water laws and the penalties associated with illicit discharges.

- **Policy EH-4.3: Interagency Coordination.** Coordinate water quality planning, regulation, and monitoring with other public agencies that are involved in water resource management. Establish partnerships and task forces with these agencies and with nearby cities as needed to develop programs addressing issues that cross jurisdictional lines.
- **Action EH-4.3.A: Municipal Regional Permit Revisions.** Remain an active participant in discussions of possible revisions to state and federal clean water legislation, including revisions to the Municipal Regional Permit for stormwater.

- **Policy EH-4.4: Water Quality Monitoring.** Continue to support water quality monitoring in San Leandro waterways to evaluate the progress of local clean water programs and identify the necessary steps for improvement.

- **Policy EH-4.5: Public Works Maintenance.** Continue, and if feasible expand, City Public Works maintenance activities, including scheduled street sweeping and cleaning of storm drains and culverts, to minimize pollution from surface runoff.

- **Action EH-4.5.A: Community Clean-Ups.** Coordinate with community groups to develop clean-up programs for the shoreline, creeks, and flood control channels to remove debris and litter and minimize the potential for surface water pollution.

- **Action EH-4.5.B: Street Sweeping Improvements.** Improve the effectiveness of the City’s street sweeping program through measures such as:
  a) ticketing or towing of illegally parked cars;
  b) increased public education about the program and the water quality benefits it provides; and
  c) notification to property owners via information-sharing websites and social media.

- **Policy EH-4.6: Illicit Discharges.** Control illicit discharges into the City’s stormwater system through inspections, compliance evaluations, enforcement programs, and tracking activities.

- **Policy EH-4.8: Hazardous Spill Response.** Maintain and update hazardous spill response and clean-up programs that minimize potential impacts on water quality.

- **Goal OSC-5: San Leandro Creek.** Protect San Leandro Creek as a renewed open space and natural resource, a green connection between the San Leandro Hills and San Francisco Bay, and a core part of San Leandro’s identity.

- **Policy OSC-5.1: Creek Stewardship.** Support the efforts of community groups such as the Friends of San Leandro Creek to increase public education and recreation, promote habitat restoration, conduct creek clean-up, maintenance, and monitoring programs, and achieve water quality improvements.

- **Action OSC-5.1.B: Community Program Support.** Continue to support community-based ecological survey, water quality monitoring, and clean-up programs.

- **Policy OSC-5.2: Creekside Development.** Require new development adjacent to San Leandro Creek to maintain setbacks from the top of the creek bank, dedicate public access easements for creekside amenities, and where appropriate, undertake improvements such as erosion control, habitat restoration, vegetation management, bank stabilization, and trail dedication.

- **Policy OSC-5.9: Watershed Approach.** Ensure that plans for San Leandro Creek consider the context of the entire watershed, including upstream pollution sources and effective solutions that extend beyond the City limits.

With implementation of these policies and actions in conjunction with State and local regulatory requirements, the proposed Plan would result in *less-than-significant* impacts with regard to water quality for both construction and operational phases.
Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. Development projects allowed by proposed Zoning Code amendments would have the potential to degrade water quality during construction through activities such as grading, and during operation through increasing stormwater runoff. As described above, compliance with local and State regulatory requirements, implementation of construction BMPs, and compliance with policies and actions in the proposed Plan would minimize impacts with regard to water quality for both construction and operational phases. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

Significance before Mitigation: Less than significant.

**HYD-2**

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

Proposed General Plan Update

The proposed Plan would result in a significant environmental impact if it would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. New development on vacant or underdeveloped sites under the proposed Plan could result in an increase in impervious surfaces. However, San Leandro is essentially built out and future development would occur primarily through infill, redevelopment of existing sites, and intensification of existing land uses. The implementation of Low Impact Development (LID) measures and on-site infiltration in future development and redevelopment, as required under the C.3 provisions of the Alameda County Clean Water Program, could reduce the amount of impervious surfaces as compared to existing conditions and increase the potential for groundwater recharge. Also, the use of site design features as per the C.3 provisions and implementation of water use efficiency measures mandated by the Water Conservation Act of 2009 will ensure that there is no depletion of groundwater recharge.

The proposed Plan would not use or deplete groundwater resources. Water supplied to the City of San Leandro from the East Bay Municipal Water District (EBMUD) is currently 100 percent from surface water supplies. The groundwater aquifer beneath San Leandro is not currently used for water storage or drinking water supply. Groundwater use in the East Bay Plain of the Santa Clara Valley Groundwater Basin is limited
by 1) readily available high quality imported surface water, 2) existing high salt content in shallow bay margin groundwater, 3) the potential for saltwater intrusion, and 4) contamination in shallow aquifers. 45

A small number of groundwater wells in San Leandro are used for private and municipal use but not for drinking water supply. A recent study of beneficial uses of groundwater in the East Bay Area by RWQCB-San Francisco Region indicates a total of 76 groundwater wells in the city are used for “domestic use” (e.g., private backyard irrigation wells) or “municipal use” (including irrigation for parks, etc.). 46 Only three wells potentially serve private homes as a drinking water source but they are all outside of known plume areas. Therefore, implementation of the Plan would not result in a depletion of groundwater supplies because new municipal groundwater supply wells are not proposed as part of the Plan, and none of the anticipated development or redevelopment would be served by existing groundwater wells.

There may be the potential for diversion of groundwater to surface water if short-term construction dewatering is required in areas near the Bay shoreline with a shallow groundwater table. Dewatering of excavation pits or trenches may be required during construction. However, this temporary diversion is not anticipated to adversely impact groundwater resources because required excavations would intersect only the shallow groundwater table, would not impact the regional groundwater system, and would not result in regional groundwater drawdown. Dewatering activities would require obtaining a Waste Discharge Requirements (WDR) permit from San Francisco Bay RWQCB, which includes testing to prevent discharged water from posing a risk to water quality in San Francisco Bay. These existing regulatory requirements would ensure that the discharge of construction dewatering would not significantly impact groundwater quality.

The following goals and policies would ensure that new development projects under the proposed Plan would minimize impacts to groundwater:

- **Policy EH-4.10: Groundwater Protection.** Protect San Leandro’s groundwater from the potentially adverse effects of urban uses. Future land uses should be managed to reduce public exposure to groundwater hazards and minimize the risk of future hazards.

- **Action EH-4.10.A: Groundwater Monitoring.** Encourage continued monitoring of local groundwater by State regulatory agencies and the private sector and take steps to prevent further contamination.

- **Action EH-4.10.B: EBMUD Injection Wells.** Work with EBMUD on groundwater management and safety, including plans for injection wells and aquifer storage of groundwater.

- **Policy OSC-7.2: Water Conservation.** Promote the efficient use of existing water supplies through a variety of water conservation measures, including the use of recycled water for landscaping.

- **Action OSC-7.2.A: Urban Water Management Plan.** Take the actions necessary to implement EBMUD’s Urban Water Management Plan at the local level.

Policy OSC-7.4: Development Standards. Maintain local planning and building standards that require the efficient use of water through such measures as low-flow plumbing fixtures and water-saving appliances. Require water conservation measures as a condition of approval for major developments.

With implementation of these control measures and regulatory provisions the proposed Plan will not use substantial groundwater supplies or interfere substantially with groundwater recharge; therefore, the impact would be considered less than significant.

Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. Future redevelopment would increase water demands that could have the potential to deplete groundwater resources. However, none of the anticipated development or redevelopment allowed by the Zoning Code amendments would be served by existing groundwater wells. In addition, future development under the Zoning Code amendments would comply with existing regulations and proposed policies that protect groundwater resources. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

Significance before Mitigation: Less than significant.

Proposed General Plan Update

New development or redevelopment on vacant or underdeveloped sites within the EIR Study Area and changes in land use could result in an increase in impervious surfaces. This in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause erosion or siltation in drainage swales and streams. However, future development is not anticipated to require alteration of the course of any existing streams or rivers. Future development under the proposed Plan would occur primarily on infill sites in areas that are already developed or paved; C.3 provisions require that new development on these sites implement construction phase BMPs as well as post-construction site design measures, source control measures, and stormwater treatment measures to minimize erosion and siltation.

Typical construction BMPs include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrance/exits. Each new development or redevelopment project that disturbs one or more acre of land would also be required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. The City of San Leandro also
requires preparation and submittal of an Erosion and Sediment Control Plan for review by the City Engineer prior to the issuance of grading permits.

Once projects within the EIR Study Area have been constructed, there are C.3 requirements for new development or redevelopment projects which create and/or replace 10,000 square feet or more of impervious surface or 5,000 square feet or more of impervious surface for special land use categories (i.e., uncovered parking lots, restaurants, auto service facilities, and gasoline stations). These requirements would include source control measures, site design measures, LID, and treatment measures that address stormwater runoff and would reduce the potential for erosion or siltation. Site design and runoff reduction measures include minimizing the compaction of highly permeable soils, limiting clearing and grading of native vegetation, minimizing impervious surfaces, and minimizing stormwater runoff by directing roof runoff into cisterns, into rain barrels, or onto vegetated areas.

Regulated projects subject to water treatment measures would require LID features, such as harvesting and reuse, bioretention areas, pervious paving, green roofs, flow-through planters, tree well filters, and media filters. Systems must be designed to treat stormwater runoff volume equal to 80 percent of the annual runoff from the site, a flow design basis of 0.2 inches/hour intensity, or equivalent method. Only a small portion of the city east of I-580 is subject to hydromodification (HM) measures, as determined by the CWP’s Hydromodification Management Susceptibility Map. This would require projects within the hydromodification area that create and/or replace one acre or more of impervious surface to match post-development stormwater flow rates and volumes to pre-development conditions.

All regulated projects must also include an operations and maintenance (O&M) Plan and maintenance agreement for review and approval by the City. In addition, all projects would be required to meet the requirements of the City’s Municipal Code Chapter 3-15, Stormwater Management and Discharge Control, and Chapter 7-12, Grading, Excavations and Fill, which includes the preparation of erosion and sedimentation control plans.

The following goals and policies would ensure that new development projects under the proposed Plan would minimize stormwater runoff impacts that could cause substantial erosion or siltation:

- **Policy OSC-5.2: Creekside Development.** Require new development adjacent to San Leandro Creek to maintain setbacks from the top of the creek bank, dedicate public access easements for creekside amenities, and where appropriate, undertake improvements such as erosion control, habitat restoration, vegetation management, bank stabilization, and trail dedication.

- **Policy OSC-5.7: Creek Maintenance.** Support creek maintenance projects that minimize erosion, stabilize creek banks, and protect property from the threat of flooding. Work with private property owners and Alameda County to ensure that fallen vegetation and other potentially hazardous flow obstructions are promptly removed.

- **Policy EH-1.3: Off-Site Impacts of Hillside Development.** Ensure that development within landslide-prone or geologically hazardous areas does not contribute to higher hazard levels on adjacent or

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nearby properties. Require drainage and erosion control provisions in such areas to avoid slope failure and to mitigate potential hazards to other properties.

All detention or stormwater treatment facilities would be designed to the standards of the City of San Leandro and the ACFCD. The proposed policies listed above would reflect implementation of regulatory requirements for drainage improvements to ensure that stormwater runoff is adequately handled and would not contribute to on-site or off-site erosion. Compliance with the established regulatory requirements cited above will ensure that erosion and siltation impacts from new development and redevelopment as part of the proposed Plan would be less than significant.

Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. Future development projects on vacant and underdeveloped sites allowed by both the proposed Plan and the proposed Zoning Code amendments could increase stormwater runoff and result in higher peak discharges to drainage channels in comparison to existing conditions. For example, side yard setbacks in several Downtown Area (DA) districts would be reduced to zero. However, future development under the proposed Zoning Code amendments would occur primarily on infill sites in areas that are already developed or paved and would not be anticipated to require alteration of the course of any existing streams or rivers. As described above, future development under the proposed project would be subject to C.3 provisions that require new development to implement construction phase BMPs as well as post-construction site design measures, source control measures, and stormwater treatment measures. In addition, future development allowed under the proposed Zoning Code amendments would be subject to proposed Plan policies to ensure that stormwater runoff is adequately handled and would not contribute to on-site or off-site erosion. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

Significance before Mitigation: Less than significant.

HYD-4 The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Proposed General Plan Update

New development and/or redevelopment on vacant and underdeveloped sites as part of the proposed Plan and the change in land uses could result in an increase in impervious surfaces, which in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause nuisance flooding in areas without adequate drainage facilities. However, none of the future development would require alteration of the course of an existing stream or river. Most of the future development sites are in infill or already developed areas that are paved and new development on these sites would not create a substantial increase in the amount of impervious surfaces.
In addition, projects that involve the disturbance of one acre or more of land would be subject to NPDES construction permit requirements, including preparation of a SWPPP, which includes BMPs to limit the discharge of sediment and non-stormwater discharges from the site. Projects that involve the creation and/or replacement of more than 10,000 square feet of impervious surfaces would trigger the implementation of source control measures and site design measures to address stormwater runoff, as per the C.3 provisions of the Alameda County Clean Water Program. In addition, stormwater treatment measures are required to contain site runoff, using specific numeric sizing criteria based on volume and flow rate. All detention or stormwater treatment facilities would be designed to the standards of the City of San Leandro and the ACFCD. This would minimize the amount of stormwater runoff from new development and redevelopment sites within the city.

The following goals and policies would ensure that new development projects under the proposed Plan would minimize stormwater runoff impacts that could cause substantial erosion or siltation:

- **Policy OSC-5.7: Creek Maintenance.** Support creek maintenance projects that minimize erosion, stabilize creek banks, and protect property from the threat of flooding. Work with private property owners and Alameda County to ensure that fallen vegetation and other potentially hazardous flow obstructions are promptly removed.

- **Policy CD-7.4: Urban Open Space.** Encourage the incorporation of drought-tolerant landscaped open spaces, such as plazas, courtyards and pocket parks, within new development and redevelopment projects.

- **Action CD-7.4.A: Paving of Planter Strips.** Consider an ordinance or zoning amendment to prohibit the paving of planter strips along City streets, except where these strips are narrow and such a prohibition would be impractical or conflict with the City’s water conservation goals.

- **Action CD-7.4.B: Bio-Swales in Planter Strips.** Consider a program wherein, at the request of the homeowner, the City would remove existing planter strips so that they may be replaced with Bay-friendly landscaping, or converted to bio-swales that support the City’s stormwater management and green infrastructure plans. If initiated, such a program would need to be grant-funded or funded by property owners, with on-going maintenance provided by property owners rather than the City.

- **Action EH-4.1.B: Municipal Regional Permit Implementation.** As required by Section C3 of the Stormwater Municipal Regional Permit (also known as "C3" requirements), ensure that the City's development review procedures continue to include water quality protection measures. These include measures related to water supply, flood control, habitat protection, groundwater recharge, Bay-friendly landscaping, and sustainable development. In addition, the City will continue to require Stormwater Pollution Prevention Plans for qualifying projects and will ensure that such projects include appropriate measures to minimize the potential for water pollution.

- **Policy EH-4.2: Clean Water Education.** Promote the public information and participation provisions of the Alameda Countywide Clean Water Program.

- **Policy EH-4.11: Green Infrastructure.** Consistent with the Municipal Regional Stormwater Permit for the San Francisco Bay Area, promote the increased use of green infrastructure as a means of improving stormwater quality. This shall include the incorporation of low impact development (LID) drainage design in public and private streets, parking lots, roofs, and other facilities. This also includes the use of best management practices to reduce impervious surfaces, including strategies using vegetation, soils, and natural processes to manage water and create a healthier urban environment.
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- **Action EH-4.11.A: Green Infrastructure Plan.** Develop and implement a Green Infrastructure Plan, as required by the Regional Water Quality Control Board. The Plan should include a mechanism to prioritize and map areas for planned and potential projects, projections for impervious surface reductions, a process for tracking and mapping completed projects, design guidelines and details for green infrastructure projects, an implementation program, and an evaluation of funding options to cover construction and ongoing maintenance.

- **Action EH-4.11.B: Green Infrastructure Capital Projects.** Annually review planned capital projects to identify opportunities to incorporate green infrastructure.

- **Action EH-4.11.C: Green Infrastructure Outreach.** Conduct outreach and education to gain support for green infrastructure plans and demonstrate the benefits of such plans, such as water quality improvement, flood control, greenhouse gas reduction, and safer pedestrian and bike access.

With implementation of these control measures and regulatory provisions to limit runoff from new development sites, the proposed Plan would not result in significant increases in runoff that could contribute to on-site or off-site flooding. Therefore, implementation of the proposed project would have a less-than-significant impact with respect to alterations in drainage patterns that could result in flooding.

**Significance before Mitigation:** Less than significant.

**Proposed Zoning Code Amendments**

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. Future development on vacant and underdeveloped sites allowed under both the proposed Plan and the proposed Zoning Code amendments could increase impervious surfaces, which in turn could increase stormwater runoff, generate higher peak discharges to drainage channels, or cause nuisance flooding in areas without adequate drainage facilities. However, future development under the proposed Zoning Code amendments would occur primarily on infill sites in areas that are already developed or paved and would not be anticipated to create a substantial increase in the amount of impervious surfaces. As described above, future development under the proposed project would be subject to control measures and regulatory provisions to limit runoff from new development sites, as well as proposed Plan policies to minimize stormwater runoff impacts. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

**Significance before Mitigation:** Less than significant.

**HYD-5**

The proposed project would not 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.

**Proposed General Plan Update**

As stated in the impact discussions above, an increase in impervious surfaces with development on vacant and underdeveloped sites within the EIR Study Area could result in increases in stormwater runoff, which in turn could exceed the capacity of the existing or planned stormwater drainage systems. New
Development or redevelopment projects would need to construct adequately sized storm drainage systems to convey on-site stormwater runoff to existing storm drain facilities. The on-site systems would be subject to City and ACFCD review to verify that they are designed to accommodate increased flows and would not exceed the capacity of downstream drainage systems. The ACFCD is in the process of developing a Hydrology and Hydraulics Manual to provide guidance on sizing and designing drainage systems, based on prescribed storm events. Also, implementation of C.3 provisions for new development, which include LID design and bioretention areas, flow-through planters, vegetated buffer strips, and/or on-site retention facilities, would minimize increases in peak flow rates or runoff volumes, thus reducing stormwater runoff to the storm drain system.

In addition, the City of San Leandro would require as a standard condition of approval that developers verify that on-site and off-site drainage facilities can accommodate increased stormwater flows. In addition to building and extending on-site storm drainage infrastructure, the Project applicant would be required to pay for improvements to the storm drain system, if necessary, to accommodate increased flows from the development. The majority of future development would be infill projects or the intensification of existing land uses and would be located in areas with existing storm drain systems. With the implementation of C.3 provisions for new development and redevelopment projects, there would not be a significant increase in the amount of stormwater runoff to the city’s storm drain system.

New development and redevelopment within the city would not create substantial additional sources of polluted runoff. During the construction phase, projects would be required to prepare SWPPPs and erosion and sediment control plans, thus limiting the discharge of pollutants from the site. During operation, projects must implement BMPs and LID measures that minimize the amount of stormwater runoff and associated pollutants, as described in earlier discussions.

The following policies and actions in the proposed Environmental Hazards Element would ensure that new development projects under the proposed Plan would minimize stormwater runoff impacts that could exceed the capacity of the storm drain system or provide additional sources of polluted runoff:

- **Policy EH-1.7: Reducing Flood Hazards.** Work collaboratively with County, State, and federal agencies to develop short- and long-term programs that reduce flood hazards in the City. At the local level, the City will regularly maintain its storm drainage system and ensure that those portions of San Leandro Creek under its jurisdiction remain clear of obstructions.

- **Action EH-1.7.A: Coordination With ACFCWCD.** Improve coordination with the Alameda County Flood Control and Water Conservation District to ensure that flood channels are regularly cleaned and maintained. This should include coordination of tree removal projects on ACFCWCD land.

- **Action EH-1.7.B: Increase Flood Channel Capacity.** Work with Alameda County, State and federal agencies, and elected officials to improve flood control channel Line A Zone 2 (the Estudillo Canal) to reduce flood hazards, including reconstruction of golf course bridges to improve channel capacity. As appropriate and necessary, pursue measures to increase the capacity of other flood control facilities to reduce the number of adjacent San Leandro properties subject to flooding.

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48 City of San Leandro, 2016, Municipal Code, Section 7-1-910 Improvements Required, and Section 7-12-600, General Requirements Applicable for All Grading Work Unless Modified by the City Engineer.
Policy EH-4.1: Urban Runoff Control. Continue to implement water pollution control measures aimed at reducing pollution from urban runoff. These measures should emphasize best management practices by residents, businesses, contractors, and public agencies to ensure that surface water quality is maintained at levels that meet state and federal standards.

Action EH-4.1.A: Trash Capture Devices. Develop a funding plan for the installation and maintenance of trash capture devices on City storm drains, in order to comply with the unfunded State mandate for 100 percent trash capture in local storm drain systems.

Action EH-4.1.B: Municipal Regional Permit Implementation. As required by Section C3 of the Stormwater Municipal Regional Permit (also known as "C3" requirements), ensure that the City's development review procedures continue to include water quality protection measures. These include measures related to water supply, flood control, habitat protection, groundwater recharge, Bay-friendly landscaping, and sustainable development. In addition, the City will continue to require Stormwater Pollution Prevention Plans for qualifying projects and will ensure that such projects include appropriate measures to minimize the potential for water pollution.

Policy EH-4.2: Clean Water Education. Promote the public information and participation provisions of the Alameda Countywide Clean Water Program.

Policy EH-4.5: Public Works Maintenance. Continue, and if feasible expand, City Public Works maintenance activities, including scheduled street sweeping and cleaning of storm drains and culverts, to minimize pollution from surface runoff.

Policy EH-4.6: Illicit Discharges. Control illicit discharges into the City's stormwater system through inspections, compliance evaluations, enforcement programs, and tracking activities.

Policy EH-4.11: Green Infrastructure. Consistent with the Municipal Regional Stormwater Permit for the San Francisco Bay Area, promote the increased use of green infrastructure as a means of improving stormwater quality. This shall include the incorporation of low impact development (LID) drainage design in public and private streets, parking lots, roofs, and other facilities. This also includes the use of best management practices to reduce impervious surfaces, including strategies using vegetation, soils, and natural processes to manage water and create a healthier urban environment.

Action EH-4.11.A: Green Infrastructure Plan. Develop and implement a Green Infrastructure Plan, as required by the Regional Water Quality Control Board. The Plan should include a mechanism to prioritize and map areas for planned and potential projects, projections for impervious surface reductions, a process for tracking and mapping completed projects, design guidelines and details for green infrastructure projects, an implementation program, and an evaluation of funding options to cover construction and ongoing maintenance.


Action EG-4.11.C: Green Infrastructure Outreach. Conduct outreach and education to gain support for green infrastructure plans and demonstrate the benefits of such plans, such as water quality improvement, flood control, greenhouse gas reduction, and safer pedestrian and bike access.

With implementation of these control measures and regulatory provisions to limit the amount of and pollutants in runoff from new development sites, the proposed Project would not result in significant increases in runoff that could contribute to on-site or off-site flooding or substantial additional sources of
polluted runoff. Therefore, implementation of the proposed project would have a less-than-significant impact with respect to alterations in drainage patterns that could result in flooding.

Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. Future development on vacant and underdeveloped sites allowed under both the proposed Plan and the proposed Zoning Code amendments could increase impervious surfaces, which in turn could generate runoff that would exceed the capacity of the existing or planned stormwater drainage system. However, future development under the proposed Zoning Code amendments would be subject to control measures and regulatory provisions to limit and control runoff from new development sites, as well as proposed Plan policies to minimize stormwater runoff impacts affecting downstream capacity, and water quality due to polluted runoff. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

Significance before Mitigation: Less than significant.

| HYD-6 | The proposed project would not otherwise substantially degrade water quality. |

Proposed General Plan Update

There are no additional sources of water pollutants other than those previously discussed in Impact HYD-1. Implementation of the Plan would require source control, site design, and LID measures to be incorporated in new development and redevelopment projects, in compliance with the C.3 provisions in the MRP. Implementation of these stormwater control measures, such as bioretention areas and flow-through planters, would provide natural filtration of pollutants from stormwater runoff prior to entry into the storm drain system or San Francisco Bay.

Additionally, compliance with San Leandro Municipal Code Section 3-15, Stormwater Management and Discharge Control, which establishes measures to minimize and reduce runoff entering the stormwater system, would further protect water quality with implementation of future development projects. With implementation of these BMPs and City and County regulatory requirements, the potential impact on water quality would be less than significant.

Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. The proposed Zoning Code amendments would not increase the amount of future development allowed in San Leandro beyond the amount already analyzed above.
Therefore, the Zoning Code amendments do not add to or worsen the potential future pollutant loads in stormwater. Future development under the proposed Zoning Code amendments would be subject to City and County stormwater management guidelines and Municipal Code requirements to protect water quality. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

**Significance before Mitigation:** Less than significant.

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**HYD-7**

The proposed project would place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

Placing housing within a 100-year floodplain is not a CEQA impact. Pursuant to the 2015 CBIA v BAAQMD case, CEQA applies to a project’s impacts on the environment, not the environment’s impact on the project unless the project would exacerbate the environmental hazard.\(^49\) Implementation of the project would not cause or worsen existing conditions; therefore, the project would not exacerbate the potential for flooding. No further discussion is required.

**HYD-8**

The proposed project would not result in significant impacts associated with placing within a 100-year flood hazard area structures which would impede or redirect flood flows.

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**Proposed General Plan Update**

Future development in the EIR Study Area could result in the placement of structures in existing FEMA-designated 100-year Special Flood Hazard Areas (SFHAs) that could impede or redirect flood flows. The areas within the City of San Leandro that are within the 100-year floodplain are shown on Figure 4.8-4 and Figure 4.8-5. However, FEMA and the City of San Leandro have adopted standards for construction in flood hazard zones that specify building design and construction activities to ensure that flood flows are not impeded or redirected.

As discussed previously in the flooding section under *Existing Conditions*, FEMA is currently revising the Flood Insurance Rate Maps (FIRMs) for all nine counties surrounding San Francisco Bay, including the FIRMs for the City of San Leandro. The preliminary FIRMs have been published and the City of San Leandro and Alameda County Public Works Department are working with FEMA to finalize the FIRMs. The Plan does not designate where additional housing or structures would occur but it is possible that some of the planned new development may be within SFHAs.

Prior to the start of construction or development within a Special Flood Hazard Area, the City of San Leandro would require project applicants to obtain a development permit from the City’s Floodplain Administrator and construct new development in accordance with the standards provided in Chapter 7-9, *Floodplain Management*. The standards of construction vary depending on whether the proposed house

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\(^49\) California Supreme Court, 2015, California Building Industry Association v Bay Area Air Quality Management District, Opinion No. S213478, date filed: December 17, 2015.
or structure is located within Zone A, AE, AO, or VE. Additional building requirements apply to projects located in a coastal high hazard area (Zone VE), as specified in the FEMA National Flood Insurance Program requirements for new construction and San Leandro’s Municipal Code, Chapter 7-9-530, *Coastal High Hazard Areas*. Prior to occupancy of any building, proof that a Letter of Map Revision (LOMR) and an elevation certificate has been obtained from FEMA must be provided to the City.

Portions of the Shoreline Development project east of the San Leandro shoreline are within the 100-year floodplain as well as small areas along San Leandro Creek. San Leandro Creek flows through the areas of future development that include MacArthur Corridor, East 14th Corridor, Downtown East, and Station Area and Downtown. The 100-year floodplain associated with San Leandro Creek is characterized as steep creek banks and stream beds and no development is planned within these areas. The other planned future development area within a 100-year floodplain is the Bay Fair area with potential flooding in and around the Bayfair Center and the residential area south of Coelho Drive. Future development areas outside of 100-year floodplains include Industrial Transition/Kaiser North, Industrial Transition/Alvarado Street, and Mid-Washington Corridor.

Construction within Special Flood Hazard Areas is governed by the City’s Municipal Code Chapter 7-9-500, *Standards of Construction*, which sets forth standards for development that would minimize flood hazard risks, including anchoring and floodproofing; requiring that residential construction has the lowest floor, including the basement, at or above the base flood elevation; requiring that non-residential construction be elevated or floodproofed with structural components capable of equalizing hydrostatic flood forces on exterior walls; and requiring that all new and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters. Compliance with the FEMA and City Municipal Code requirements would reduce potential flood hazards and the potential to impede or redirect flood flows to a *less than significant* impact.

In addition, new development and redevelopment projects within SFHAs would be required to comply with the C.3 provisions of the MRP and City Municipal Code requirements that require adequate stormwater control facilities; ongoing storm drainage planning and management; on-site retention of stormwater volumes; drainage system design criteria; and stormwater quality management. Implementation of these measures would further reduce the potential for new development or redevelopment projects to impede or redirect stormwater flows.

The following proposed goals, policies, and actions in the Environmental Hazards Element of the proposed Plan would encourage development that reduces the impacts from flooding that could occur with construction within SFHAs:

- **Goal EH-1: Mitigation of Natural Hazards.** Reduce the potential for injury, property damage, and loss of life resulting from earthquakes, landslides, floods, and other natural disasters.

- **Policy EH-1.1: Risk Management.** Minimize risks from geologic, seismic, flood, and climate change-related hazards by ensuring the appropriate location, site planning, and design of new development. The City’s development review process, and its engineering and building standards, should ensure that new construction is designed to minimize the potential for damage.

- **Policy EH-1.4: Code Revisions.** Revise and update construction codes and regulations to incorporate the latest available information and technology related to earthquake and flood hazards.
**HYDROLOGY AND WATER QUALITY**

- **Policy EH-1.6: Construction in the Flood Plain.** Implement federal requirements relating to new construction in floodplain areas to ensure that future flood risks to life and property are minimized.

- **Action EH-1.6.A: FIRM Amendments.** Continue to work with FEMA to amend and update Federal Insurance Rate Maps (FIRMs) so that they correctly depict flood hazards in the City.

Compliance with the FEMA and City regulatory requirements regarding construction of structures in SFHAs and compliance with the stormwater requirements of the MRP and City Municipal Code would ensure that potential flooding impacts resulting from the impedance or redirection of flood flows would be less than significant.

**Significance before Mitigation:** Less than significant.

**Proposed Zoning Code Amendments**

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement the proposed Plan and would help to guide development in key areas of the city. The Zoning Amendments would not have any different effect on locating development within the floodplain that would exceed or worsen the impact analyzed above. As described above, areas of the city that are within the 100-year floodplain and are expected to see increased growth under the proposed project include some narrow strips of land along San Leandro Creek just north of the end of Alvarado Street that are being rezoned. As described above, compliance with FEMA and City Municipal Code requirements would reduce potential flooding impacts in these areas. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

**Significance before Mitigation:** Less than significant.

| HYD-9 | The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of failure of a levee or dam. |

Exposure of people or structures to a significant risk of loss, injury, or death involving flooding from the failure of a levee or dam is not a CEQA impact. Pursuant to the 2015 CBIA v BAAQMD case, CEQA applies to a project’s impacts on the environment, not the environment’s impact on the project unless the project would exacerbate the environmental hazard. Placement of people or structures within a dam inundation zone or in close proximity to a levee would not cause or worsen existing conditions and therefore would not exacerbate the hazard. No further discussion is required.

| HYD-10 | The proposed project would not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. |

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50 California Supreme Court, 2015, California Building Industry Association v Bay Area Air Quality Management District, Opinion No. S213478, date filed: December 17, 2015.
Exposure of people or structures to a significant risk of inundation by seiche or tsunami is not a CEQA impact. Pursuant to the 2015 CBIA v BAAQMD case, CEQA applies to a project’s impacts on the environment, not the environment’s impact on the project, unless the project would exacerbate the environmental hazard. Placement of people or structures within a tsunami or seiche inundation zone would not cause or worsen existing conditions and therefore would not exacerbate the hazard. Therefore, the focus of the following discussion is on potential impacts from mudflows.

**Proposed General Plan Update**

ABAG has interactive maps of areas susceptible to debris flows within the Bay Area. Most of the City of San Leandro is relatively flat and is not in areas subject to debris flows. However, the ABAG map does show isolated pockets in the areas of San Leandro east of I-580 that may be susceptible to debris flows. The City has requirements for building within mudslide/mudflow prone areas, as specified in the Municipal Code, Chapter 7-9-535, Mud Slide (i.e., Mudflow) Prone Areas. Permits for proposed development in these areas are subject to review by the Floodplain Administrator to ensure that the site and improvements would not increase mudslide hazards, including an evaluation of type and quality of soils, evidence of groundwater or surface water problems, depth and quality of fill, overall slope of the site, and the weight that any proposed development would impose on the slope. Within areas subject to mudslide hazards, the City requires a site investigation and study conducted by a qualified geologist or geotechnical engineer that shows the proposed grading excavation and verifies that new construction or redevelopment is adequately designed and protected against mudslide damages and does not create either on- or off-site disturbances. In addition, the study must show that drainage, planting, water, and maintenance would not endanger slope stability.

Future development in this area would be subject to the following goals, policies, and actions in the Environmental Hazards Element of the proposed Plan that seek to minimize risks to San Leandro residents from hillside development and potential landslides and debris flows:

- **Goal EH-1: Mitigation of Natural Hazards.** Reduce the potential for injury, property damage, and loss of life resulting from earthquakes, landslides, floods, and other natural disasters.

- **Policy EH-1.1: Risk Management.** Minimize risks from geologic, seismic, flood, and climate change-related hazards by ensuring the appropriate location, site planning, and design of new development. The City’s development review process, and its engineering and building standards, should ensure that new construction is designed to minimize the potential for damage.

- **Action EH-1.1.A: Soils and Geologic Reports.** Require soils and/or geologic reports for development in areas where potentially serious geologic risks exist. These reports should address the degree of hazard, design parameters for the project based on the hazard, and appropriate mitigation measures.

- **Policy EH-1.3: Off-Site Impacts of Hillside Development.** Ensure that development within landslide-prone or geologically hazardous areas does not contribute to higher hazard levels on adjacent or nearby properties. Require drainage and erosion control provisions in such areas to avoid slope failure and to mitigate potential hazards to other properties.

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51 California Supreme Court, 2015, California Building Industry Association v Bay Area Air Quality Management District, Opinion No. S213478, date filed: December 17, 2015.
In summary, implementation of City policies and actions associated with development in mudslide prone areas, required compliance with the Municipal Code, and preparation of geotechnical reports for development in these areas would ensure that impacts from mudslides would be less-than-significant.

Significance before Mitigation: Less than significant.

Proposed Zoning Code Amendments

The proposed amendments to the Zoning Code would bring the Zoning Code into conformance with the proposed General Plan. The proposed Zoning Code would implement that proposed Plan and would help to guide development in key areas of the city, and the Zoning Code amendments would not have mudflow impacts separate from or worse than those analyzed above. City policies and actions associated with development in mudslide prone areas, required compliance with the Municipal Code, and preparation of geotechnical reports for development in these areas would reduce impacts from mudslides. Goals, policies, and actions in the proposed Plan would help to further reduce potential risks to new development allowed under the proposed Zoning Code amendments. Therefore, impacts from the proposed Zoning Code amendments would be less than significant.

Significance before Mitigation: Less than significant.

4.8.4 CUMULATIVE IMPACTS

The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to hydrology and water quality.

The analysis of cumulative hydrology and water quality impacts considers the larger context of future development within the five watersheds, which encompass San Leandro, based on ABAG’s most recent projections. Cumulative impacts can occur when impacts that are significant or less than significant from a proposed project combine with similar impacts from other past, present, or reasonably foreseeable future projects in a similar geographic area. Cumulative impacts could result from incremental changes that degrade water quality or contribute to drainage and flooding problems within the watershed or city.

As discussed previously, development within San Leandro would require conformance with State and local policies that would reduce hydrology and water quality impacts to less than significant levels. Any new development within the City would be subject to City, State, and federal policies and ordinances, design guidelines, the Zoning Code, and other applicable regulatory requirements that reduce impacts related to hydrology and water quality on a project-by-project basis. More specifically, potential changes related to stormwater quality, stormwater flows, drainage, impervious surfaces, and flooding would be minimized by the implementation of stormwater control measures, retention, infiltration, and LID measures which is reviewed by various City departments such as Community Development, Engineering/Transportation, and/or Public Works to integrate measures to reduce potential flooding impacts.

All cumulative projects would be subject to similar regulatory requirements and would be required to comply with various City regulations (such as the Municipal Code) and County ordinances, as well as
numerous water quality regulations that control the quality and quantity of construction related and operational discharge of pollutants in stormwater. The water quality regulations implemented by the San Francisco Bay RWQCB take a basin-wide approach and consider water quality impairment in a regional context. For example, the NPDES Construction Permit ties receiving water limitations and basin plan objectives to terms and conditions of the permit, and the MRP encompasses all of the surrounding municipalities to manage stormwater systems and be collectively protective of water quality. For these reasons, impacts from future development within the City of San Leandro on hydrology and water quality are not cumulatively considerable.

In addition, the implementation of goals and policies under the proposed Plan and other projects within the watershed would require coordination with the ACFCD to minimize potential impacts to water quality and hydrology with planned developments. Any future development that involves the placement of housing or structures that could impede flood flow within the 100-year floodplain would be required to comply with federal and local regulations as specified in the San Leandro Municipal Code Chapter 7.9, Floodplain Management. This includes construction practices to minimize flood hazard risks, including anchoring, elevation of structures at or above the base flood elevation, and floodproofing. Compliance with these regulatory requirements would result in cumulative impacts for all projects within 100-year floodplains to be less than significant. Policy EH-1.7 promotes working collaboratively with the ACFCD and various State and federal agencies to develop programs that reduced flood hazards in the city and Actions EH-1.7.A and EH-1.7.B promotes coordination with the ACFCD to maintain flood control channels and increase flood channel capacity.

In combination with past, present, and reasonably foreseeable projects, proposed development and redevelopment within San Leandro would not result in a significant cumulative impact with respect to hydrology and water quality and are not cumulatively considerable. Therefore, the proposed project would result in a less-than-significant cumulative impact.

**Significance before Mitigation:** Less than significant.