4.8 HYDROLOGY AND WATER QUALITY

This chapter describes the existing hydrologic conditions of the study area and evaluates the potential environmental consequences of future development that could occur by adopting and implementing the proposed project as they relate to hydrology and water quality. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of General Plan and cumulative impacts.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 REGULATORY FRAMEWORK

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

Federal Regulations and Agencies

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.[1] 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.[2] 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.

Clean Water Act

The U.S. Environmental Protection Agency (US 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 US EPA, as well as the states. Various elements of the CWA address water quality, and they are discussed below.

[1] Federal Emergency Management Agency's Library, *National Flood Insurance Program Description*, http://www.fema.gov/media-library-data/20130726-1447-20490-2156/nfipdescrip_1_.pdf, accessed on February 26, 2015.

[2] Federal Emergency Management Agency (FEMA), 2003. Guidelines and Standards for Flood Risk Analysis and Mapping, https://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping, accessed on February 26, 2015.

HYDROLOGY AND WATER QUALITY

Permits to dredge or fill waters of the United States are administered by the United States 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 US 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 US 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 US 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 Project site, San Francisquito Creek and Lower San Francisco Bay are listed as a Section 303(d) impaired water bodies.[3]

[3] State Water Resources Control Board (SWRCB), 2010. *Final Integrated Report (CWA Section 303(d) List/305(b) Report.* http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml, accessed on November 16, 2015.

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 storm water 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 Menlo Park 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 became effective as of January 1, 2016. The San Mateo County permittees include San Mateo County, the San Mateo County Flood District, 15 cities, and 5 towns, including the City of Menlo Park. The new MRP has more stringent requirements for mercury and PCB load reductions in stormwater, trash load reductions, and requires permittees to develop a Green Infrastructure Plan.

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.

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. “Navigable waters” under Section 10 of the Rivers and Harbors Act 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 and has ultimate control over state water rights and water quality policy. The RWQCBs carry out the regulation, protection, and administration of water quality policies 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 conditions and problems. 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. As described above, Menlo Park is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

State Water Resources Control Board

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. 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 Pesticide Regulation (DPR), the California Department of Fish and Wildlife (CDFW), and the Office of Environmental Health and Hazard Assessment (OEHHA).

Regional authority for planning, permitting, and enforcement is delegated to the nine 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. The project is within the jurisdiction of the San

Francisco Bay RWQCB (Region 2), which regulates surface water and groundwater quality in San Francisco Bay. The RWQCB's jurisdiction includes all of the San Francisco Bay's segments extending to the mouth of the Sacramento-San Joaquin Delta.

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation and triennial update of the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). The Basin Plan was adopted in 1995 and most recently amended in 2015. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters designated in the Basin Plan.[4]

State Water Resources Control Board Construction General Permit

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 (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 now submitted electronically to the SWRCB via the SMARTS website.

Applicants must also demonstrate conformance with applicable best management practices (BMPs) and prepare a 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 project site. 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 non-visible 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), effective on July 17, 2012, also requires project sites to comply with post-construction runoff reduction requirements.

California Fish and Game Code

The CDFW protects streams, water bodies, and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is "unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake" without notifying the CDFW, incorporating necessary mitigation and obtaining a streambed alteration agreement. CDFW's jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

[4] San Francisco Bay RWQCB, 2007. *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*, http://www.swrcb.ca.gov/rwqcb2/basin_planning.shtml, accessed on November 16, 2015.

Water Conservation Act of 2009

Mandatory requirements, per state law (SB-X7 7), mandate the reduction of per capita water use and agricultural water use throughout the state by 20 percent by 2020.

State Updated Model Landscape Ordinance

The State of California's Model Water Efficient Landscape Ordinance (MWELO), which requires cities and counties to adopt landscape water conservation ordinances, was recently revised in July 2015 to address the current drought and build resiliency for future droughts. State law requires all land use agencies, which includes cities and counties, to adopt a WELO that is at least as efficient as the MWELO prepared by the Department of Water Resources (DWR). The revisions to the MWELO reduces the size threshold for landscapes subject to the ordinance from 2,500 square feet to 500 square feet for both commercial and residential properties. Land use agencies also will be required to report on ordinance adoption and enforcement each year.

The City adopted Ordinance No. 968, Water Efficient Landscaping Regulations, in 2010, which was presented in Municipal Code Chapter 12.44, *Water-Efficient Landscaping*. A new landscape ordinance was adopted on January 26, 2016 and incorporates the State's MWELO requirements into the revised City's Municipal Code Chapter 12.44. The new WELO applies to all new landscapes exceeding 500 square feet and rehabilitated landscapes exceeding 1,000 square feet associated with projects requiring City review and approval.

California Coastal Act of 1976

The California Coastal Act of 1976 extended the California Coastal Commission's (CCC's) authority indefinitely to protect coastal resources, including shoreline public access and recreation, terrestrial and marine habitat protection, and water quality, and control construction along the State's 1,100 miles of shoreline. The Act also transfers permitting authority to local governments through adoption and certification of Local Coastal Programs (LCPs) by the CCC. Under California's federally approved Coastal Management Program, the CCC manages development along the California coast except for San Francisco Bay, where the San Francisco Bay Conservation and Development Commission (BCDC) oversees development. The California Coastal Conservancy was also established in 1976 to purchase, protect, restore, and enhance coastal resources and provide shoreline access. Additional information on BCDC, which has jurisdiction for projects in and around Menlo Park, is discussed in the Local Regulations section below.

Local Regulations

San Francisco Bay Conservation and Development Commission

The San Francisco BCDC is a California State commission dedicated to the protection, enhancement, and responsible use of San Francisco Bay. BCDC's jurisdiction for San Francisco Bay includes all sloughs, marshlands between mean high tide and 5 feet above mean sea level, tidelands, submerged lands, and

land within 100 feet of the Bay shoreline. The precise boundary is determined by BCDC on request. For planning purposes, BCDC assumes that projects have a lifespan of at least 50 to 90 years.[5]

Since the issuance of the Governor's Executive Order S-13-08 on 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 and that were based on existing elevations.[6] 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.[7,8] These amendments include revised findings and policies to adapt to the effects of sea level rise.

Several findings describe migration of the tidal marsh inland as a consequence of the sea level rise and the recommended adaptation. Finding o. in the new section on Climate Change states:

> *"Approaches for ensuring public safety in developed vulnerable shoreline areas through adaptive management strategies include but are not limited to: (1) protecting existing and planned appropriate infill development; (2) accommodating flooding by building or renovating structures or infrastructure systems that are resilient or adaptable over time; (3) discouraging permanent new development when adaptive management strategies cannot protect public safety; (4) allowing only new uses that can be removed or phased out if adaptive management strategies are not available as inundation threats increase; and (5) over time and where feasible and appropriate, removing existing development where public safety cannot otherwise be ensured…"*

San Mateo County Flood Control District

The San Mateo County Flood Control District is a Countywide Special District, created by State legislation, to provide a mechanism to finance flood control projects. The legislation requires that a flood control zone should be formed over an entire watershed and a proposed funding source should be determined before a flood control project is undertaken. Recent changes in the State Constitution require an election if a flood control zone is to be financed with property assessments or taxes. There are currently three active flood control zones; the one that impacts Menlo Park is the San Francisquito Creek Flood Control Zone. San Francisquito Creek overtopped its banks in 1998 and flooded portions of Palo Alto, East Palo Alto, and Menlo Park. The San Francisquito Creek Joint Powers Authority, as described below, was

[5] BCDC, 2011. *San Francisco Bay Plan.* Available online at: http://www.bcdc.ca.gov/plans/sfbay_plan.html, accessed on November 16, 2015.

[6] BCDC, 2009. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline.*

[7] BCDC, 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.)

[8] BCDC, 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. Adopted October 6, 2011. Online at: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf.

subsequently formed to develop solutions to the flooding problem and provide a coordinated approach to flood planning within the San Francisquito Watershed.

San Mateo Countywide Stormwater Pollution Prevention Program

The San Mateo Countywide Stormwater Pollution Prevention Program (SMCWPPP) is a partnership of the City/County Association of Governments, each incorporated city and town within San Mateo County, and the County of San Mateo, which share a common NPDES permit. This partnership also relies on each of the municipalities to implement local stormwater pollution prevention and control activities for its own local storm drain systems. The SMCWPPP's Stormwater Management Plan (SWMP) outlines priorities, key elements, strategies, and evaluation methods to implement the SMCWPPP. The comprehensive program includes pollution reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The SWMP also includes a public education effort, target pollutant reduction strategies, and watershed assessment and monitoring. The SWMP, in conjunction with NPDES permit adopted by the Water Board, is designed to enable SMCWPPP to meet the requirements of the Clean Water Act. In addition to obtaining coverage under the State NPDES General Permit for construction activities, the project would also be subject to coverage under the MRP, applicable to post-construction operations. The stormwater pollution prevention plan required for future development would have to be consistent with the SWMP.

San Francisquito Creek Joint Powers Authority

The San Francisquito Creek Joint Powers Authority (SFCJPA) is a governmental organization with a board of directors made up of the elected officials of the Cities of Menlo Park, Palo Alto, East Palo Alto, San Mateo County, and the Santa Clara Valley Water District (SCVWD). The agency was formed in 1999 with the objective of protecting properties along San Francisquito Creek from 100-year floods, stabilizing creek banks, as well as enhancing the natural habitat.[9] The SFCJPA and USACE are planning for large-scale, comprehensive flood risk reduction. The SFCJPA is responsible for planning, designing, and implementing projects, which include increasing channel capacity through dredging, reducing flood risk by building levees and floodwalls, as well as through reconnecting the creek to 14 acres of Baylands in Palo Alto city limits to serve as creek floodplain.[10] The SFCJPA's projects are typically funded by local, State, and federal partners. Another finance mechanism is the San Mateo County Flood Control District, which implements Countywide Special District flood control projects for projects on San Francisquito Creek.

City of Menlo Park General Plan

The City of Menlo Park General Plan includes goals, policies, and actions that apply broadly to hydrology and water quality issues potentially, which are identified later in this chapter under Section 4.8.3, Impact Discussion.

[9] San Francisquito Creek Joint Powers Authority 2015. *Agency Overview*, http://sfcjpa.org/web/about/agency-overview/, accessed on November 17, 2015.

[10] San Francisquito Creek Joint Powers Authority 2015. *SF Bay to Highway 101*, http://sfcjpa.org/web/projects/active/s.f.-bay-to-highway-101/, Accessed on November 17, 2013.

City of Menlo Park Municipal Code

Chapter 7.35, Water Conservation[11]

The purpose of this chapter is to promote water conservation and provide the City with the flexibility to respond to a drought emergency. Upon the adoption of emergency water conservation regulations by the SWRCB and within the timelines prescribed by the SWRCB, or drought-related actions imposed by the San Francisco Public Utilities Commission, the City Council of Menlo Park shall adopt by resolution a water conservation plan that mandates those water conservation measures. On May 5, 2015, the City adopted water regulations to adhere to the Governor's April 2015 Executive Order, which imposes restrictions to achieve an aggregate statewide 25 percent reduction in potable water use through February 2016. The SWRCB adopted an extended emergency regulation on February 2, 2016 that continues restrictions on urban water use through October 2016 while providing urban water suppliers more flexibility in meeting their conservation requirements. To respond to these restrictions, the City now limits watering days and times, requires hoses to be fitted with automatic shutoff nozzles for washing vehicles, sidewalks, and driveways, and requires restaurant to serve water only upon request. There are additional water conservation measures that can be found on the City's website under Drought Response Plan Guidelines.[12]

Chapter 7.42, Stormwater Management Program[13]

Chapter 7.42 of the Municipal Code is intended to protect and enhance water quality in Menlo Park by 1) eliminating non-stormwater discharges to the storm drain system, 2) controlling the discharge from spills, dumping, or disposal of materials other than storm water into the storm drain system, and 3) reducing pollutants in storm water discharges to the maximum extent practicable. This chapter includes regulations and restrictions related to pollutants in stormwater discharges and non-stormwater discharges, including spills and dumping or disposal of materials. To reduce pollutants in stormwater, the City requires that new development or redevelopment projects use BMPs to achieve these goals.

Chapter 12.42, Flood Damage Prevention[14]

This chapter contains standards for any construction projects in areas of special flood hazard and coastal high hazard areas. The City designates special flood hazard areas based on the Flood Insurance Study (FIS), FIRMs, and Flood Boundary and Floodway Maps (FBFMs). In these areas, the City requires using flood-resistant construction materials and utility equipment as well as construction methods that minimize flood damage.

[11] City of Menlo Park, Municipal Code Chapter 7.35, Water Conservation, http://www.codepublishing.com/ca/menlopark/, accessed on November 17, 2015.

[12] City of Menlo Park, Municipal Water District, 2015. *Drought Response Plan Application*, http://www.menlopark.org/DocumentCenter/View/7795 accessed on November 17, 2015.

[13] City of Menlo Park, Municipal Code Chapter 7.42, *Storm Water Management Program*, http://www.codepublishing.com/CA/menlopark/, accessed on November 17, 2015.

[14] City of Menlo Park, Municipal Code Chapter 12.42, *Flood Damage Prevention*, http://www.codepublishing.com/CA/menlopark/, accessed on November 17, 2015.

Any construction projects within the special flood hazard area must comply with the Engineering Division's Plan Review Checklist to Comply with FEMA Requirements.[15] The application package must include certification from a licensed engineer or architect that the plans comply with the City's Flood Damage Prevention Code, plans showing the location and elevation of the project, proposed elevation of the 1-percent chance storm Base Flood Elevation (BFE) in relationship to the lowest floor of all structures, on-site drainage plan that shows how flood waters will be directed around the structures, and a statement that a finished construction elevation certificate will be provided at project completion. Variances may be issued for the repair, rehabilitation, or restoration of historic structures, as listed in the National Register of Historic Places or the State Inventory of Historic Places.

Chapter 12.44, Water Efficient Landscaping[16]

Water-efficient landscaping standards to conserve water use on irrigation are included in this chapter. The provisions of this chapter apply to landscaping projects that include new landscape areas exceeding 500 square feet and rehabilitated landscapes exceeding 1,000 square feet associated with projects requiring City review and approval.

Prior to construction, the applicant must submit a landscape project application and processing fee and demonstrate landscape water efficiency by either prescriptive compliance (turf area limitation and no high water use plants) or water budget calculations.[17] The applicant must also submit a soil management and grading survey and a certificate of completion and installation upon completion of the landscape project. The landscape and irrigation designs must be prepared and signed by a certified or authorized professional. After construction and prior to final approval of the project, the applicant must submit a landscape audit report. The City also requires the applicant maintain landscape irrigation facilities and comply with the landscape and irrigation maintenance schedule requirements.

4.8.1.2 EXISTING CONDITIONS

Physical Environment

This section describes the physical environment that affects hydrological conditions in Menlo Park, including topography, watershed and creek system, climate, groundwater, and water quality.

Topography

Menlo Park stretches from 326 feet above sea level in the foothills of Jasper Ridge (part of the Santa Cruz Mountains) in the east, through the flatlands in the center of the valley, to sea level at the marshes and mudflats of San Francisco Bay in the north-northeast. The city's center is relatively flat, with slopes of

[15] City of Menlo Park, 2016. *Plan Review Checklist to Comply with FEMA Requirements.* Accessed at http://www.menlopark.org/DocumentCenter/View/794 on May 4, 2016.

[16] City of Menlo Park, Municipal Code Chapter 12.44, *Water Efficient Landscaping*, http://www.codepublishing.com/CA/menlopark/, accessed on November 17, 2015.

[17] City of Menlo Park, 2016. *Water Efficient Landscaping Ordinance.* Accessed at http://www.menlopark.org/361/Water-efficient-landscaping-ordinance on May 5, 2016.

approximately 0.5 to 0.8 percent. The higher, hilly portion of the city is southwest of the Alameda de las Pulgas. The lower, flatter portion of the city is northeast of Alameda de las Pulgas.

Watershed and Creek Systems

The city is located within the approximately 45-square mile San Francisquito Creek watershed, which includes portions of both Santa Clara County and San Mateo County. The uppermost elevations of the watershed are west of Highway 35 (locally known as Skyline Boulevard), and its lowest points are in East Palo Alto where San Francisquito Creek empties into the San Francisco Bay. San Francisquito Creek forms the eastern boundary of Menlo Park. The headwaters of the watershed are in the Santa Cruz Mountains above Menlo Park, and it flows into southwest San Francisco Bay. A map of the San Francisquito Watershed is provided as Figure 4.8-1.

Water typically flows from the southwest to the northeast through natural creeks and streams and channelized waterways. In the undeveloped marshes, water flows through Flood Slough and Ravenswood Slough. In the urbanized portion of the study area, the main creek system is San Francisquito Creek. In general, the creek flows in a northeasterly direction, and ultimately drains into the San Francisco Bay. San Francisquito Creek flows through Menlo Park largely in its natural alignment, and it forms the eastern boundary of the city limits. Riparian vegetation around the creek spans a 25- to 75-meter-wide space, depending on adjacent land use and topography, consisting primarily of willow, bay laurels, redwoods, alders, cottonwoods, dogwoods, valley oaks, and coast live oaks.[18]

Storm Drain System

The City's storm drain system is maintained by the Menlo Park Public Works Department and consists of 17 individual systems that serve 17 drainage areas, according to a study conducted in 2003 by BKF Engineers.[19] The area north of Middlefield Road drains to the Bay through either the Belle Haven Storm Drain system or through the City of East Palo Alto storm drain lines. The area south of Middlefield Road drains to either Atherton Channel on the northwest or San Francisquito Creek on the southeast. Significant portions of the system are not capable of providing conveyance of a 10-year storm event.[20]

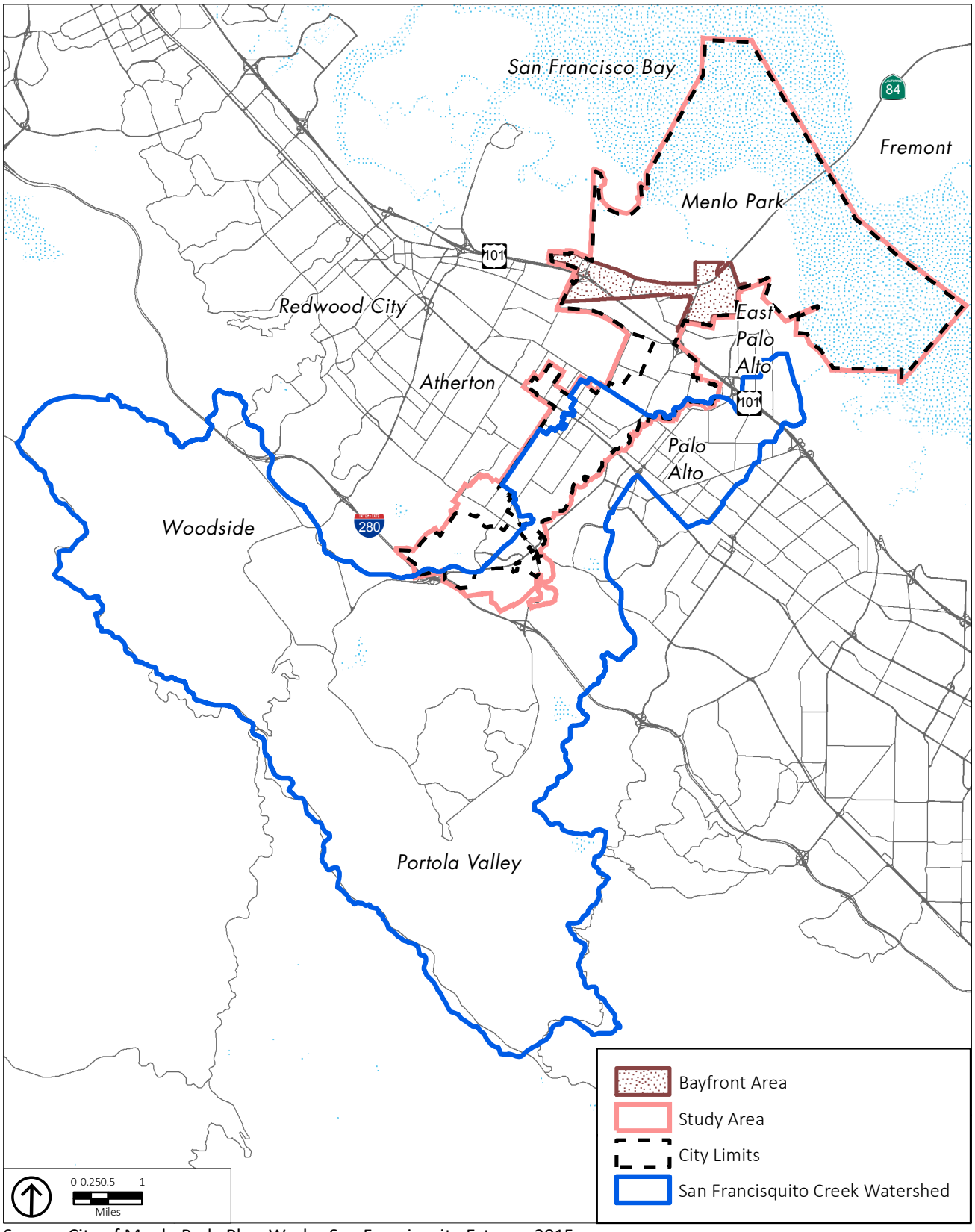
Common issues include undersized storm drain lines, bubble-up storm drain systems, and areas without storm drains. The City conducted a study in 2013 evaluating deficiencies in the storm system design and limited flow capacity along Middlefield Road and proposed alternatives to reduce flooding.[21] Improvements to address flooding along Middlefield Road as well as drainage channel improvements to Atherton Channel are planned in the future. The Atherton Channel flood control project is discussed in further detail in the *Flood Hazard Areas* section of this chapter.

[18] Stanford University Habitat Conservation Plan, *San Francisquito Creek Watershed*. Accessed on November 17, 2015 from: http://hcp.stanford.edu/sfcreek.html

[19] BKF Engineers, 2003. *City-Wide Storm Drainage Study*.

[20] BKF Engineers, 2003. *City-Wide Storm Drainage Study*.

[21] City of Menlo Park, Public Works Department. *Middlefield Road Storm Drain Study.* Accessed on November 17, 2015 at http://www.vwww.menloparklibrary.org/departments/pwk/cip/streets/resurfacing/middlefieldstromdrain.html.



Source: City of Menlo Park; PlaceWorks; San Francisquito Estuary, 2015

Figure 4.8-1
San Francisquito Creek Watershed

Groundwater

As shown on Figure 4.8-2, the city is situated above the Santa Clara Valley groundwater basin and San Mateo Plain subbasin, also known as the San Mateo subbasin. The San Mateo subbasin is bounded by the Santa Cruz Mountains to the west-southwest, the Bay to the north-northeast, San Francisquito Creek to the south-southwest, and the Westside basin to the north-northwest. A relatively shallow water table aquifer overlies confined and semi-confined aquifers near the margins of the Bay, with most wells constructed to draw from the deeper portions. Recharge of the groundwater occurs through infiltration into streambeds and through percolation of rain on the valley floor. Well data from the California Department of Water Resources indicate that groundwater recharge in the study area increases from the hilly areas to the southwest to the flatter northeastern portions of the city, and decreases with increasing depth.[22]

Climate

Menlo Park experiences a coastal Mediterranean climate, which consists of long dry, relatively cool summers and wet, mild winters. The city receives approximately 15.3 inches of rain annually, primarily experienced from the five-month stretch between November and April. The average low temperature of 48.1 degrees Fahrenheit (°F) occurs during December and January and the average high temperature of 66.6°F occurs in August.[23]

Water Quality

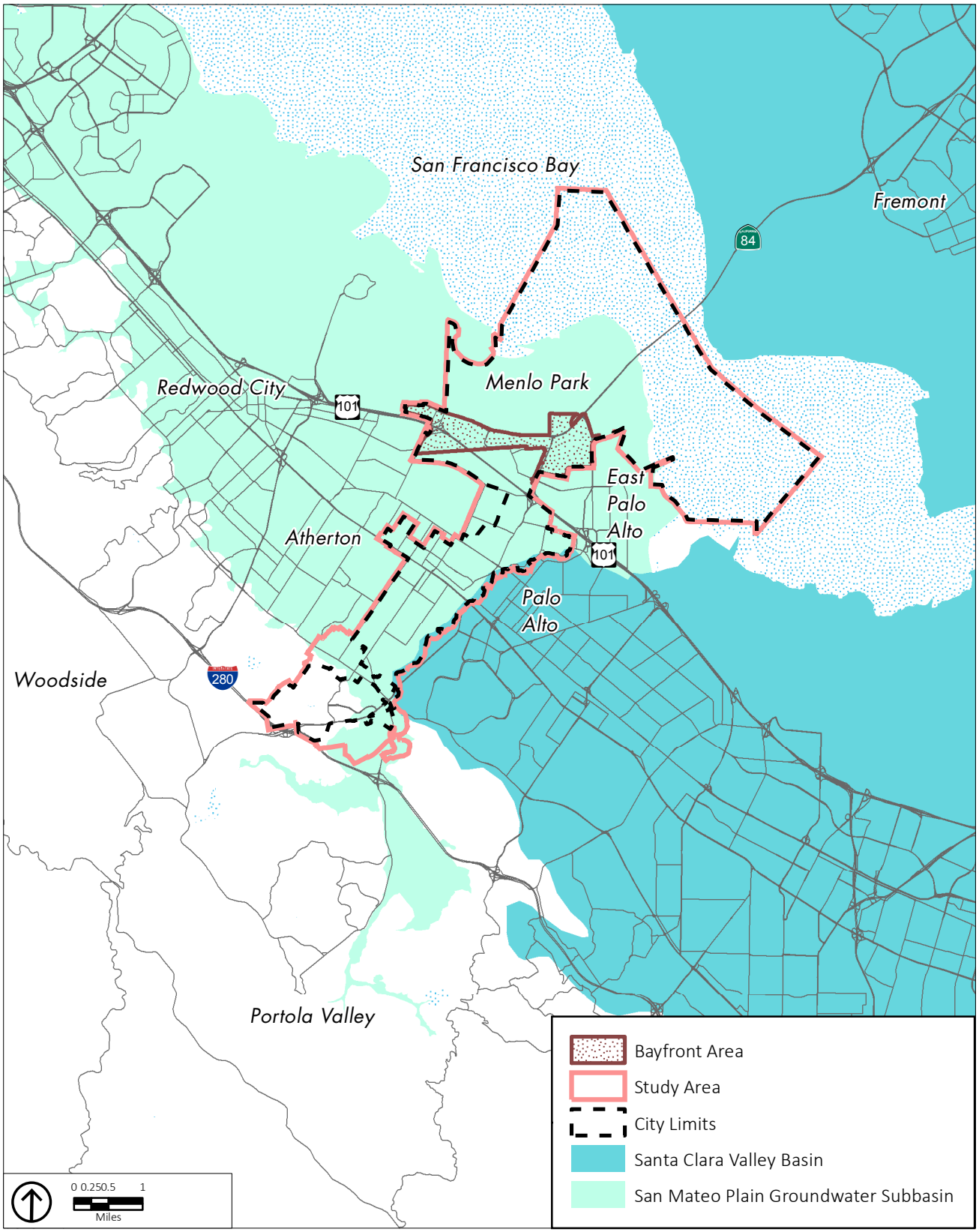
As previously discussed, the study area is within the San Francisquito Creek Watershed. More specifically, runoff from development within Menlo Park eventually discharges into San Francisquito Creek, which flows into South San Francisco Bay.

The beneficial uses of the surface water bodies in Menlo Park have been designated in the *Water Quality Control Plan for the San Francisco Bay Region* (Basin Plan).[24] These potential and beneficial uses are summarized in Table 4.8-1.

[22] California Department of Water Resources, *California's Groundwater, Update 2003*, Bulletin 118, San Mateo Subbasin, February 27, 2004, accessed on December 15, 2015.

[23] Winzler & Kelly, 2014. *City of Menlo Park Final 2010 Urban Water Management Plan and Update to the Water Shortage Contingency Plan.* June 2011, amended November 2014.

[24] San Francisco Bay Area Regional Water Quality Control Board (RWQCB). *Water Quality Control Plan for San Francisco Bay Area.* Accessed on November 17, 2013. http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml



Source: City of Menlo Park; PlaceWorks, 2015; California Department of Water Resources, 2013.

Figure 4.8-2
San Mateo Plain Groundwater Subbasin

TABLE 4.8-1 DESIGNATED BENEFICIAL USES OF WATER BODIES IN MENLO PARK

Water Body	Designated Beneficial Use
Surface Water	
San Francisquito Creek	COLD, MIGR, SPWN, WARM, WILD, REC-1, REC-2
South San Francisco Bay	COMM, EST, IND, MIGR, NAV, RARE, REC-1, REC-2, SHELL, SPWN, WILD
Groundwater	
Santa Clara Valley (San Mateo Subbasin)	MUN, PROC, IND, AGR (potential)

Source: San Francisco Bay Area Regional Water Quality Control Board (RWQCB). Water Quality Control Plan for San Francisco Bay Area.

The potential and existing beneficial uses are as follows:

- AGR – Agricultural Supply
- COLD – Cold freshwater habitat
- COMM – Commercial and sport fishing
- EST – Estuarine habitat
- IND – Industrial service supply
- MIGR – Fish migration
- MUN – Municipal and domestic supply
- NAV – Navigation
- PROC – Industrial process supply
- RARE – Preservation of rare and endangered species
- REC-1 – Water contact recreation
- REC-2 – Non-contact water recreation
- SHELL – Shellfish harvesting
- SPWN – Fish spawning
- WARM – Warm freshwater habitat
- WILD – Wildlife habitat

In accordance with Section 303(d) of the Clean Water Act, the State must present US EPA with a list of impaired water bodies that do not meet water quality standards. Listed impaired water bodies within Menlo Park are presented in Table 4.8-2.

Once a water body has been placed on the 303(d) list of impaired waters, states are required to develop a Total Maximum Daily Load (TMDL) to address each pollutant causing impairment. A TMDL defines how much of a pollutant a water body can tolerate and still meet water quality standards. TMDLs have been approved by US EPA for diazinon in San Francisquito Creek, and mercury and PCBs in South San Francisco Bay.

TABLE 4.8-2 SECTION 303(D) LIST OF IMPAIRED WATER BODIES IN MENLO PARK

Water Body	Pollutant	Potential Source	Status of TMDL
San Francisquito Creek	Diazinon	Urban runoff/storm sewer	Approved (2007)
	Sedimentation/siltation	Non-point source	Estimated (2013)
	Trash	Illegal dumping, urban runoff/storm sewers	Estimated (2021)
South San Francisco Bay	Chlordane	Non-point source	Estimated (2013)
	DDT	Non-point source	Estimated (2013)
	Dieldrin	Non-point source	Estimated (2013)
	Dioxin compounds	Atmospheric deposition	Estimated (2019)
	Furan compounds	Atmospheric deposition	Estimated (2019)
	Invasive species	Ballast water	Estimated (2019)
	Mercury	Industrial and municipal point sources, resource extraction, atmospheric deposition, natural sources, non-point sources	Approved (2008)
	PCBs	Unknown non-point sources	Approved (2010)
	Selenium	Domestic use of groundwater	Estimated (2019)

Source: San Francisco Bay Area Regional Water Quality Control Board (RWQCB). Water Quality Control Plan for San Francisco Bay Area.

The Basin Plan also contains water quality criteria for groundwater. Menlo Park is within the San Mateo Plain Subbasin of the Santa Clara Valley Groundwater Basin. Groundwater in this subbasin is generally characterized as calcium magnesium calcium carbonate water and the mineral content is very "hard," averaging 471 milligrams per litre (mg/l) of calcium carbonate.[25] Some wells have reported concentrations of nitrate-nitrogen that exceed US EPA maximum contaminant levels (MCLs).

Groundwater contamination can result from releases of hazardous materials from underground storage tanks or historical industrial activities. There are RWQCB or Department of Toxic Substance Control (DTSC) hazardous waste cleanup sites within Menlo Park.[26] The location and status of these hazardous waste sites are discussed in more detail in Chapter 4.7, Hazards and Hazardous Materials, of this Draft EIR. If groundwater dewatering activities are required as part of future construction efforts, a detailed assessment of the potential impact of contaminated groundwater would be warranted.

[25] California Department of Water Resources (DWR), 2003. *California's Groundwater Bulletin 118, Update 2003.*

[26] State Water Resources Control Board (SWRCB). *Geotracker Database.* Accessed on November 17, 2015 at http://geotracker.waterboards.ca.gov/.

Flood Hazard Areas

FEMA prepares maps of the 100-year flood hazard area of U.S. communities. Areas within the 100-year flood hazard area are subject to 100-year flood, which means that in any given year, the risk of flooding in the designated area is 1 percent. Maps are also available for 500-year floods, which means that in any given year, the risk of flooding in the designated area is 0.2 percent.

In some locations, FEMA also provides a measurement of base flood elevation for the 100-year flood, which is the minimum height of the flood waters during a 100-year event; base flood elevation 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.

A map of the locations that are within the 100-year and 500-year floodplain is shown on Figure 4.8-3. As shown, most of the Bayfront Area, specifically much of the area between Constitution Drive and U.S. Highway 101 (US 101), is within the 100-year floodplain that is subject to tidal flooding from San Francisco Bay.[27] In addition, some portions of Menlo Park, including the Bayfront Area between Middlefield Road and US 101, are within the 100-year floodplain due to overflow from San Francisquito Creek.[28] Some of the proposed new residential locations are within the 100-year floodplain, as shown on Figure 4-8.3.

There also are three smaller areas of Menlo Park, including the Bayfront Area, that are subject to 500-year flood hazards. These areas are: 1) northwest of San Francisquito Creek between Middlefield Road and Elm Street to approximately 400 feet west of Santa Monica Avenue; 2) south of the US 101 and Marsh Road interchange to approximately 450 feet south of the rail line; and 3) the area bounded by Ivy Drive to the north, Willow Road to the east, US 101 to the south, and Sevier Avenues to the east.

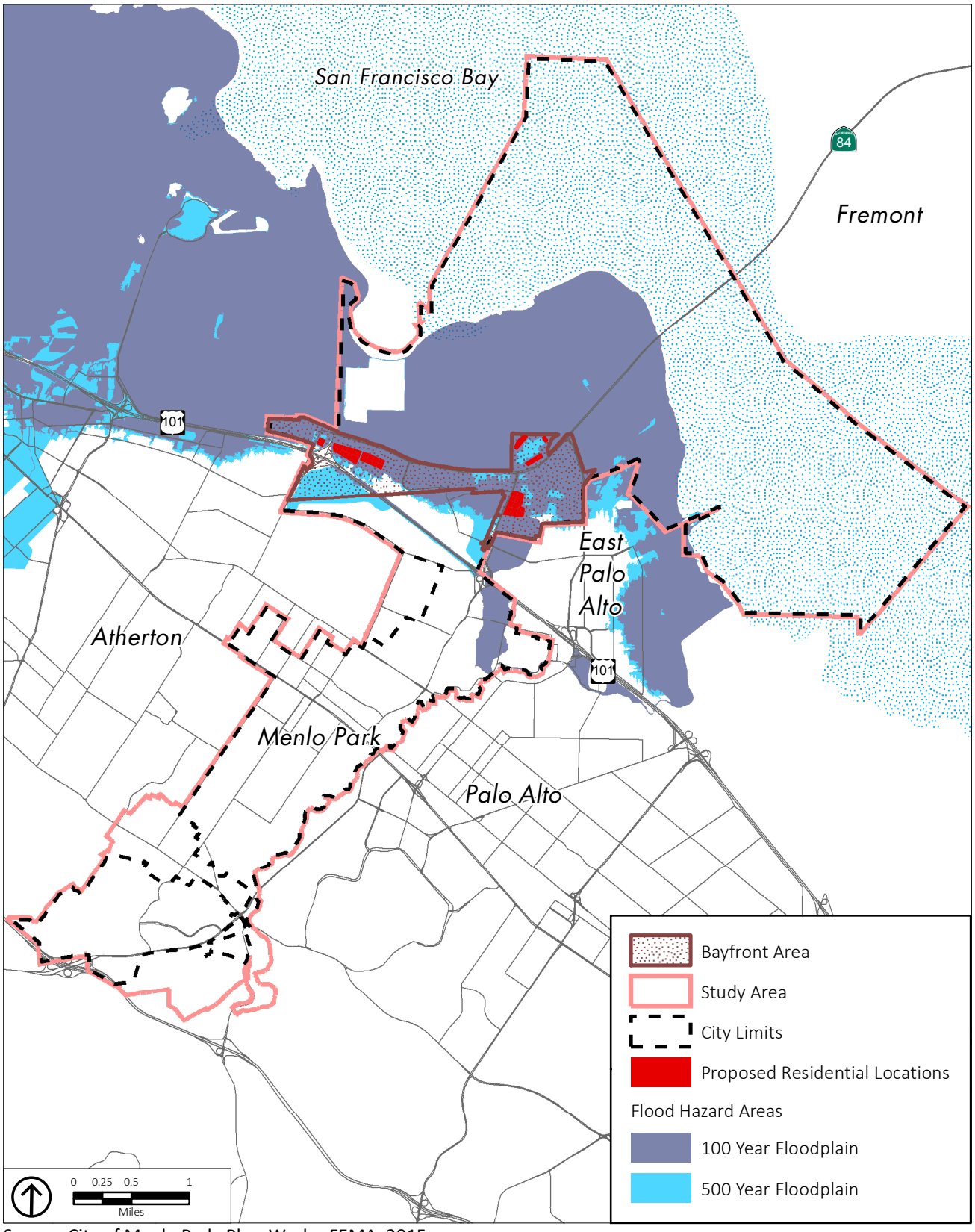
FEMA has performed detailed coastal engineering analyses and mapping of the San Francisco Bay shoreline within nine adjoining counties, including San Mateo County.[29] The analyses and mapping has resulted in updated preliminary FIRM panels and revised SFHAs for the areas within Menlo Park that are north of US 101. The preliminary FIRMs can be accessed at FEMA's San Francisco Bay Area Coastal Study website[30] and have been incorporated into Figure 4.8-3.

[27] Federal Emergency Management Agency (FEMA). Various *FIRM Maps Including 06081C0306E to 06081C309E.* Accessed on November 17, 2015, http://msc.fema.gov/portal.

[28] San Francisquito Creek Joint Powers Authority (SFCJPA). *San Francisquito Creek Floodplain Mapping – 100-year Fluvial Flood Inundation Map.* Accessed on November 17, 2015 at http://www.sfcjpa.org/documents/Corps_of_Engineers_100-year_floodplain_map.pdf.

[29] Federal Emergency Management Agency (FEMA), 2016. *Region IX National Flood Insurance Program, Risk Mapping, Assessment, and Planning, San Francisco Bay Area Coastal Study, San Mateo, California.* Website http://www.r9map.org/Pages/ProjectDetailsPage.aspx?choLoco=41&choProj=267, accessed on May 6, 2016.

[30] FEMA, 2016. Region IX National Flood Insurance Program, San Francisco Bay Area Coastal Study, San Mateo, California. Accessed at http://www.r9map.org/Pages/ProjectDetailsPage.aspx?choLoco=41&choProj=267 on May 5, 2016.



Source: City of Menlo Park; PlaceWorks; FEMA, 2015.

Figure 4.8-3
FEMA Special Flood Hazard Areas

The SFCJPA is developing a regional comprehensive plan to provide 100-year flood protection for flood-prone reaches of San Francisquito Creek both upstream and downstream from US 101.[31] The goal is to eliminate the need for more than 8,400 properties to contribute to the NFIP because of overflows from San Francisquito Creek and San Francisco Bay tides. The SFCJPA is designing and implementing local projects without waiting for federal support, although there is the possibility of coordinating efforts with the USACE in the future.

The SFCJPA in conjunction with the USACE and the SCVWD, are implementing improvements to provide 100-year flood protection for flood-prone reaches of San Francisquito Creek both upstream and downstream from US 101.[32] The goal is to eliminate the need for more than 5,400 properties to contribute to the NFIP because of overflows from San Francisquito Creek and San Francisco Bay tides.

Cities and unincorporated communities in San Mateo County, including Menlo Park, generate runoff that flows into the Bayfront Canal via the Atherton Channel and six other drainage basins. Historically, flooding has occurred in the neighborhoods near the Bayfront Canal (Redwood City) and Atherton Channel (Menlo Park and Atherton), particularly during storms that coincide with high tides.[33] The Bayfront Canal and Atherton Channel do not have enough detention capacity to prevent flooding in low lying areas. In addition, during storms that coincide with high tides, the Canal and Channel cannot discharge sufficient stormwater flows to the Bay because of tide gate limitations. The Bayfront Canal and Atherton Channel Improvement Project will include installing a culvert to direct water to the Ravenswood Ponds; making open channel improvements upstream and downstream of the culvert; and installing water control structures within and around the Ravenswood Ponds to allow the flow from the culvert to move between the ponds and ultimately to the Bay.[34] The project will be implemented by the Association of Bay Area Governments (ABAG) and is expected to be completed in January 2018. In addition, the City of Redwood City is partnering with the Coastal Conservancy to integrate the Salt Pond Restoration Project with the Bayfront Canal/Atherton Channel Flood Improvement Project.[35] When complete, this project would restore 15,100 acres of industrial salt ponds to tidal wetlands and other habitats and serve as stormwater detention for the Bayfront Canal and Atherton Channel drainage areas.

Sea Level Rise

A rise in average global temperatures due largely to an increase in greenhouse gas (GHG) emissions is expected to be accompanied by a rise in global sea levels. California Executive Order S-13-2008 states that

[31] San Francisquito Creek Joint Powers Authority. *Projects Overview.* Accessed on May 5, 2016 at http://sfcjpa.org/web/projects/projects-overview/.

[32] San Francisquito Creek Joint Powers Authority. *Projects Overview.* Accessed on November 17, 2015 at http://sfcjpa.org/web/
projects/projects-overview/.

[33] Bay Area Integrated Regional Water Management Plan, 2013. Bayfront Canal Flood Management and Habitat Restoration Project. Accessed on November 17, 2015 at http://bairwmp.org/projects/bayfront-canal-flood-management-and-habitat-restoration-project.

[34] Moffat & Nichol, 2014. *Bayfront Canal Flood Improvements – Project Description.* Dated March 6, 2014.

[35] Bay Area Integrated Regional Water Management Plan, 2016. Bayfront Canal Flood Management and Habitat Restoration Project. Accessed on May 5, 2016 at http://bairwmp.org/projects/bayfront-canal-flood-management-and-habitat-restoration-project.

all state agencies planning construction projects in areas vulnerable to sea level rise must consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and to the extent feasible, reduce expected risks to sea level rise.[36] The State of California's current guidance incorporates the most recent scientific findings from the National Research Council (NRC).[37] The NRC predicts a range for San Francisco Bay sea level rise of 5 to 24 inches by 2050 and 17 to 66 inches by 2100. The BCDC predicts a sea level rise of 16 inches by 2050 and 55 inches by 2100.[38]

The previous BCDC policy language recommended that new development not be approved in low-lying areas that are in danger of flooding now or in the future unless the development was elevated above possible flood levels. The new amended policies allow protection from flooding, encourage innovative means of dealing with flood danger, and make it clear that local governments will determine how best to deal with development proposals inland of BCDC's jurisdiction. The BCDC has jurisdiction to regulate new development within 100 feet inland from the Bay shoreline. Local government retains its authority over development more than 100 feet inland from the Bay shoreline and the provisions of the Bay Plan do not apply outside BCDC's jurisdiction for purposes of implementing CEQA.[39]

The new BCDC policies require sea level rise risk assessments to be conducted when planning shoreline areas or designing large shoreline projects within BCDC's jurisdiction. Risk assessments are not required for repairs of existing facilities, interim projects, small projects that do not increase risks to public safety, and infill projects within existing urbanized areas. Risk assessments are only required within BCDC's jurisdiction and projects located only in the shoreline band, the area within 100 feet of the shoreline, need only address risks to public access. The risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current and planned flood protection. A range of sea level projections for mid-century and end of century should be used in the risk assessment and inundation maps should be prepared. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failures, and risks to existing habitat from proposed flood protection devices. All projects should be designed to be resilient to a mid-century sea level rise projection. If it is likely that the project will remain in place longer than mid-century, an adaptive management plan should be developed to address the long-term impacts that will arise, based on the risk assessment. Shoreline protection projects, such as levees and seawalls, must be designed to withstand the effects of projected sea level rise and to be integrated with adjacent shoreline protection. Whenever feasible, projects must integrate hard shoreline protection structures with natural features, such as marsh or upland vegetation, that enhance the Bay ecosystem.[40]

[36] State of California. *Executive Order S-13-08.* Accessed on November 17, 2015 at http://gov.ca.gov/news.php?id=11036.

[37] National Research Council, 2012. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future.*

[38] San Francisco Bay Conservation and Development Commission, 2011. *Resolution No. 11-08, Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan.*

[39] San Francisco Bay Conservation and Development Commission, *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan.*

[40] San Francisco Bay Conservation and Development Commission, 2014, *New Sea Level Rise Policies Fact Sheet*.

Different scenarios and models used to predict sea level rise result in different estimates in the magnitude of sea level rise. Most shoreline damage from flooding will occur as a result of storm activity in combination with higher sea levels. The key factors that contribute to coastal flooding include high tides, storm surge, high waves, and high runoff rates from rivers and creeks.[41]

San Mateo County is currently conducting a sea level rise vulnerability assessment with a broad coalition of civic leaders, elected officials, and concerned citizens to better understand and prepare for the potential impacts of sea level rise related to flooding and inundation, storm and tide surge, salt water intrusion, and shoreline erosion.[42] San Mateo County is considered to be the most vulnerable county in the Bay Area in terms of sea level rise. Results of the assessment will include detailed inundation maps and recommended adaptation measures. As a member of the SFCJPA, the City of Menlo Park is also participating in the SAFER Bay Project (Strategy to Advance Flood protection, Ecosystems, and Recreation), which is intended to protect nearly 5,000 properties from tidal flooding and restore more than 1,000 acres of historic marshlands as well as address the impact of sea level rise.

Figure 4.8-4 shows the projected sea level rise for Menlo Park. As shown on this figure, the area north of US 101 and the Bayfront Area are vulnerable to flooding with the projected sea level rise.

Dam Failure Inundation

Dam failure is the uncontrolled release of impounded water behind a dam. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism, and terrorism can all cause a dam to fail.[43] Dam failure can occur with little warning. Intense storms may produce floods in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures and breaches can take much longer to occur, from days to weeks. However, dam failure is a very rare occurrence. There is no historic record of dam failure in San Mateo County or Menlo Park.[44]

The California Governor's Office of Emergency Services (Cal OES) is required by State law to work with State and federal agencies, dam owners and operators, municipalities, floodplain managers, planners, and the public to make available dam inundation maps.[45] Dam inundation maps are used in the preparation of Local Hazard Mitigation Plans (LHMPs) and General Plan Safety Element updates. In addition, Cal OES requires all dam owners to develop Emergency Action Plans (EAPs) for warning, evacuation, and post-flood actions in the event of a dam failure.

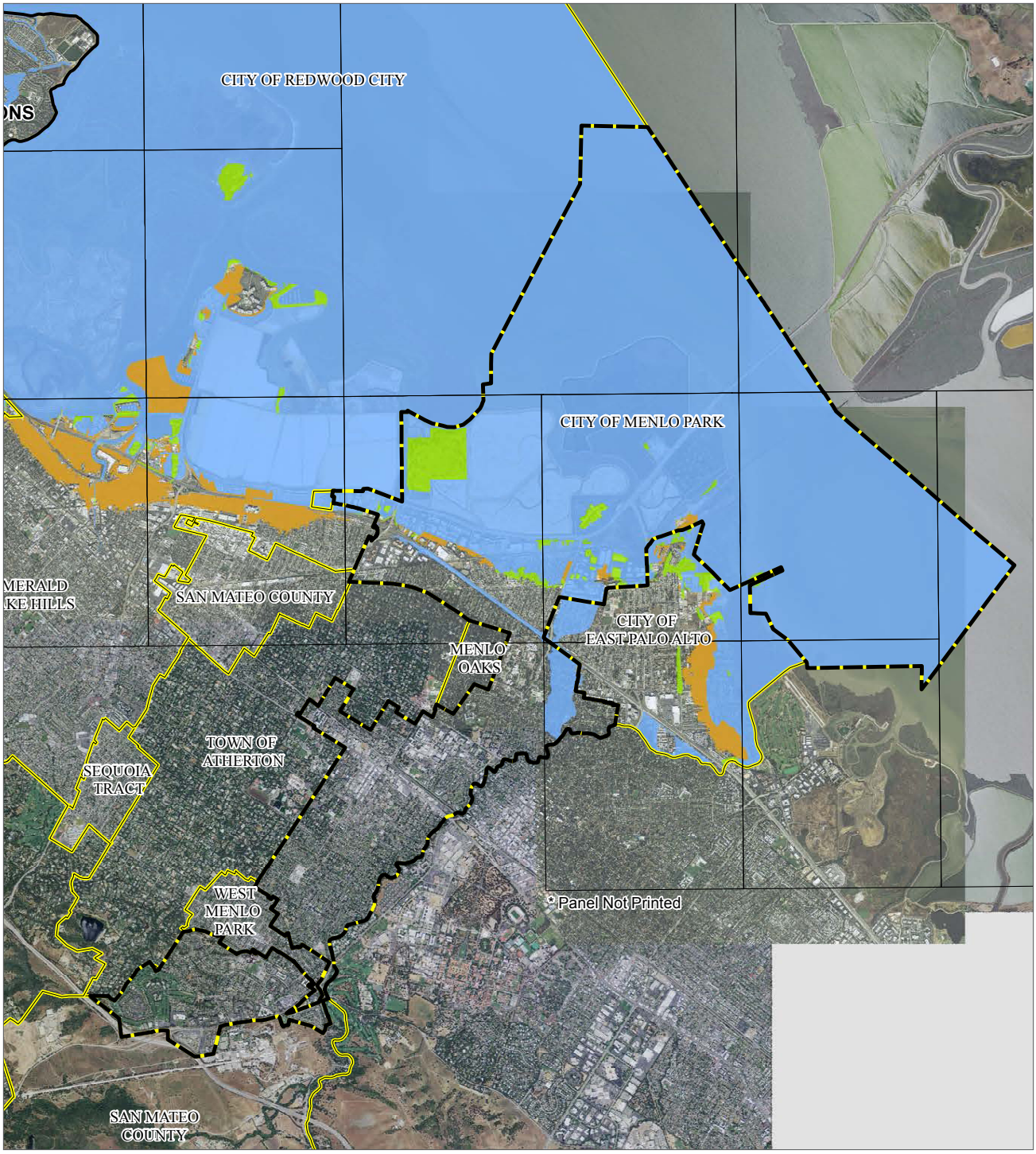
[41] San Francisco BCDC, 2011. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline.*

[42] San Mateo County, 2015. *San Mateo County Sea Level Rise Vulnerability Assessment, Summary of Kickoff Meeting, June 5, 2015.* Available at http://seachangesmc.com/wp-content/uploads/2015/09/LWC_SMC_SVA_KO_Meeting_Summary_FINAL_082515.pdf, accessed on November 17, 2015.

[43] California Office of Emergency Services, 2013, *California Multi-Hazard Mitigation Plan.*

[44] Association of Bay Area Governments (ABAG), 2011. *Taming Natural Disasters. Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area.*

[45] California Office of Emergency Services, 2013. California Multi-Hazard Mitigation Plan.



Source: FEMA Risk Map, 2015.

Figure 4.8-4
Sea Level Rise

Several reservoirs in the area present the remote risk of downstream inundation in the event of a dam failure as the result of an earthquake or other catastrophic event. As shown on Figure 4.8-5, the Cal OES dam inundation maps show portions of Menlo Park are within the Searsville Reservoir, Felt Lake dam and Bear Gulch dam inundation zones.[46] The area within the dam inundation zones is south of El Camino Real and east of Middle Avenue.

The dam inundation zone of Searsville Reservoir would actually be much smaller than the area shown on Figure 4.8-5, because the reservoir has filled with sediment, reducing its capacity to less than 10 percent of the original storage capacity. The dam inundation zone map was prepared assuming full storage capacity. In addition, Stanford University, the owner and operator of Searsville Reservoir, is considering two options for future use: 1) creating an opening at the base of the dam to allow creek flow and provide fish passage, and 2) allowing the reservoir to fill completely, creating new wetlands. Both of these options would result in much smaller inundation zones or possibly no inundation zone at all.

Tsunami, Seiche, and Mudflow

Tsunami

A tsunami is a series of traveling ocean waves generated by a rare, catastrophic event, including earthquakes, submarine landslides, and volcanic eruptions. Tsunamis can travel over the ocean surface at speeds of 400 to 500 miles per hour (mph) or more, and wave heights at the shore can range from inches to an excess of 50 feet. Factors influencing the size and speed of a tsunami include the source and magnitude of the triggering event, as well as off-shore and on-shore topography.

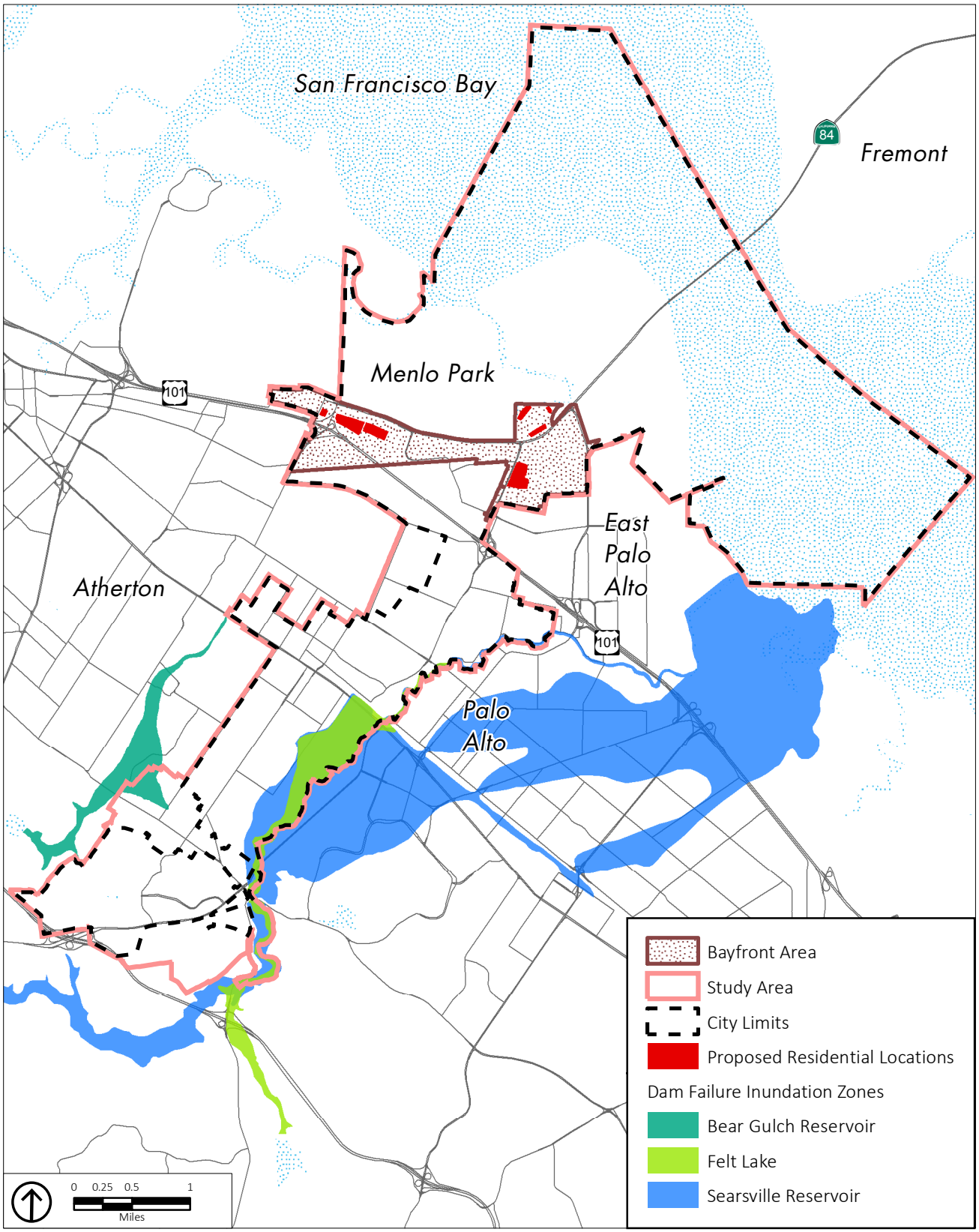
According to the Cal OES tsunami inundation map for emergency planning, Redwood Point Quadrangle, only the most northern portion of Menlo Park that consists mainly of sloughs and undeveloped land is within the tsunami inundation zone.[47] As shown on Figure 4.8-6, all proposed areas of future development are outside of the tsunami inundation zone. In addition, San Mateo County and the City of Menlo Park are part of the tsunami warning system that would be implemented to evacuate and protect citizens in the unlikely event that a tsunami occurs.

Seiche

A seiche is an oscillation wave generated in a closed or partially closed body of water, which can be compared to the back-and-forth sloshing in a bath tub. Seiches can be caused by winds, changes in atmospheric pressure, underwater earthquakes, tsunamis, or landslides into the water body. Bodies of water such as bays, harbors, reservoirs, ponds, and swimming ponds can experience seiche waves up to several feet in height during a strong earthquake.

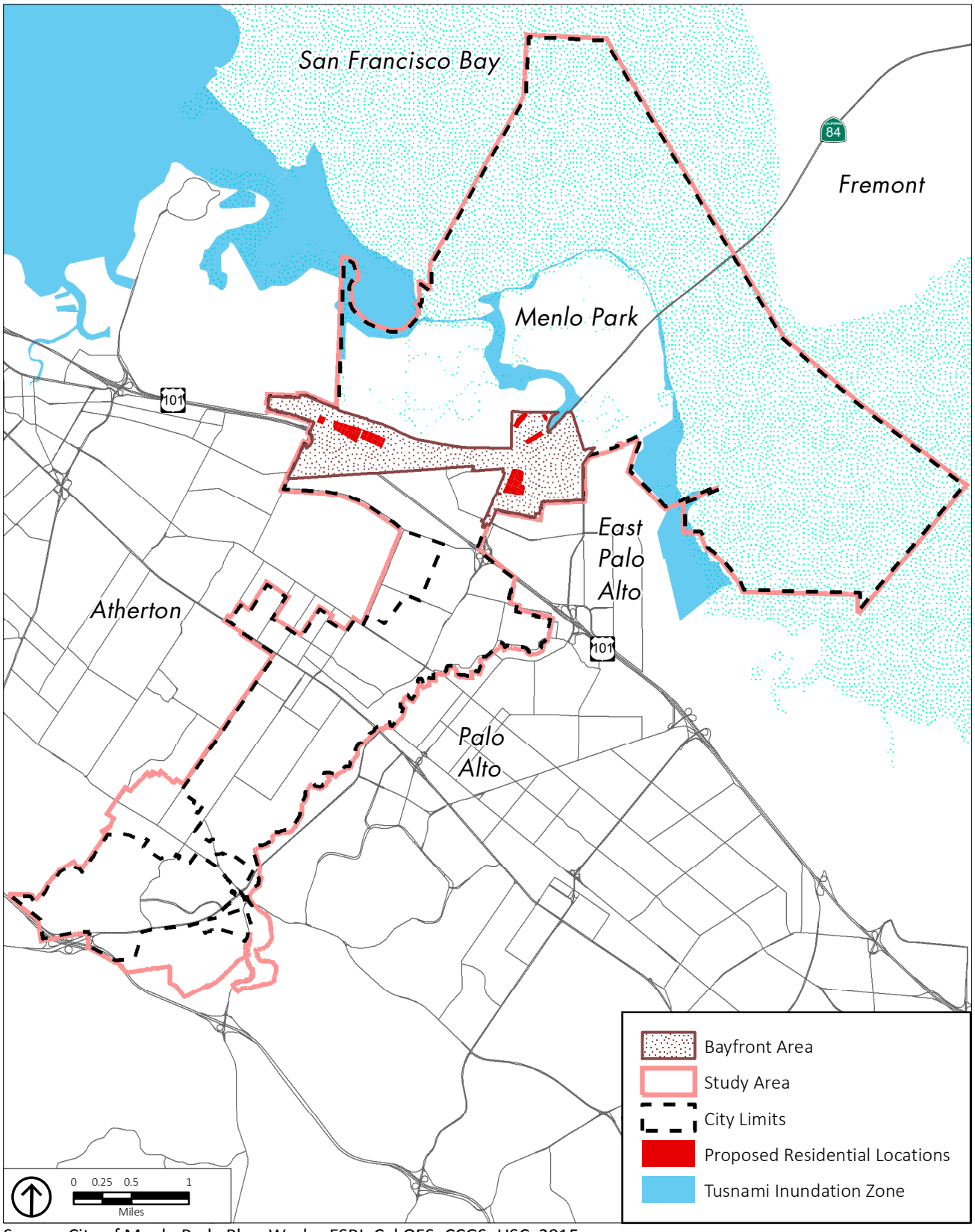
[46] California Office of Emergency Services, 2009. *Dam Inundation Registered Images and Boundary Files in Shape Format, Version DVD 3.*

[47] California Office of Emergency Services, 2009. *Tsunami Inundation Map for Emergency Planning, State of California – County of San Mateo, Redwood Point Quadrangle, Palo Alto Quadrangle.*



Source: City of Menlo Park; PlaceWorks; ESRI; State of California Emergency Management Agency, 2007.

Figure 4.8-5
Dam Failure Inundation Zones



Source: City of Menlo Park; PlaceWorks; ESRI; Cal OES; CCGS; USC, 2015

Figure 4.8-6
Tsunami Inundation Zone

Menlo Park is located next to San Francisco Bay and a small portion of the city is within the tsunami inundation zone. A seiche could theoretically occur in the Bay as the result of an earthquake or other disturbance, but the flooding impact would be no greater than that of a tsunami inundation zone.

There are no large bodies of water within the city of Menlo Park that could trigger a seiche. Seiches associated with either Searsville Reservoir or Felt Lake would have an inundation zone much less than that of the dam inundation zone and given their distance from the city, the impact if a seiche would occur is negligible.

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. The majority of Menlo Park is relatively flat and the city is outside of the impacted zones for rainfall-induced landslides and debris flow source areas.[48] Therefore, there is no likelihood of mudflows or debris slides to occur within Menlo Park.

4.8.2 STANDARDS OF SIGNIFICANCE

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

[48] Association of Bay Area Governments (ABAG). *Landslide Maps and Information: Earthquake Induced Landslides and Rainfall Induced Landslides.* Available at http://resilience.abag.ca.gov/landslides/, accessed on November 17, 2015.

9. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a levee or dam, or flooding due to sea level rise.

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

4.8.3 IMPACT DISCUSSION

HYDRO-1 Implementation of the proposed project would not violate any water quality standards or discharge requirements.

The proposed project would substantially affect water quality standards or waste discharge requirements if an increase in the total area of impervious surfaces would result in a greater potential to introduce pollutants to receiving waters. Urban runoff can carry a variety of pollutants, such as oil and grease, metals, sediments, and pesticide residues from roadways, parking lots, rooftops, and landscaped areas, and deposit them into an adjacent waterway via the storm drain system. New construction allowed by the proposed project could also result in the degradation of water quality with the clearing and grading of sites, releasing sediment, oil, greases, and other chemicals to nearby water bodies.

Construction Impacts

Clearing, grading, excavation, and construction activities with new development and/or redevelopment would have the potential to impact water quality through soil erosion and increasing the amount of silt and debris carried in runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Finally, the refueling and parking of construction vehicles and other equipment on site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

To minimize these potential impacts, new development that disturbs one or more acres of land within the study area would be required to comply with the NPDES Construction General Permit (CGP) as well as prepare a SWPPP that requires the incorporation of BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. In addition, a project applicant must file Permit Registration Documents (PRDs) with the SWRCB, which includes a Notice of Intent (NOI), risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations. Projects must also comply with Menlo Park's requirement to submit a construction erosion and sediment control plan as well as a grading and drainage plan as part of the permit package. Project applicants for future development must also implement BMPs during construction to control stormwater runoff and minimize potential impacts to water quality. If substantial groundwater dewatering is required during or after construction, an individual NPDES Permit/WDR may be required, which involves sampling and monitoring to ensure water discharged from the site is not impacting water quality.

Operational Impacts

Runoff from residential and commercial properties and parking lots typically contain oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as

fertilizers, herbicides, pesticides, and other pollutants. Precipitation at the beginning of the rainy season may result in an initial stormwater runoff (first flush) with high pollutant concentrations.

Water quality in stormwater runoff is regulated locally by the SMCWPPP, which include the C.3 provisions set by the San Francisco Bay RWQCB. Adherence to these regulations requires new development or redevelopment projects to incorporate treatment measures, an agreement to maintain them, and other appropriate source control and site design features that reduce pollutants in runoff to the maximum extent practicable. Many of the requirements consider Low Impact Development (LID) practices such as the use of on-site infiltration through landscaping and vegetated swales that reduce pollutant loading. Incorporation of these measures can even improve on existing conditions. Also, all development or redevelopment projects that create or replace one acre or more of impervious surface and are located in a hydromodification area must implement hydromodification management measures (i.e., post-project runoff rates shall not exceed estimated pre-project rates and durations). The portion of Menlo Park south of State Route 82 (El Camino Real) is within a hydromodification area and would be subject to these requirements.

In addition, all projects must comply with the requirements of the City's Municipal Code Chapter 7.42, *Stormwater Management Program*. The City of Menlo Park Public Works Department also requires development or redevelopment projects that replace or introduce more than 10,000 square feet of impervious surfaces to prepare a Hydrology Report that requires site design measures to maximize pervious areas, source control measures to keep pollutants out of stormwater, use of construction BMPs, and post construction treatment measures.

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, and the existing Section II, Open Space/Conservation (OSC) and Section IV,Safety (S), of the Open Space/Conservation, Noise and Safety Elements, contain general goals, policies, and programs that would require local planning and development decisions to consider impacts to the environment related to water quality issues. The following General Plan goals, policies, and programs would serve to minimize potential impacts associated with water quality issues:

- Goal LU-4: Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
    - Policy LU-4.5: Business Uses and Environmental Impacts. Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.
- Goal LU-6: Preserve open-space lands for recreation; protect natural resources and air and water quality; and protect and enhance scenic qualities
    - Policy LU-6.11: Baylands Preservation. Allow development near the Bay only in already developed areas.
        - Program LU-6.A: San Francisquito Creek Setbacks. Establish Zoning Ordinance requirements for minimum setbacks for new structures or impervious surfaces within a specified distance of the top the San Francisquito Creek bank.
- Goal OSC-5: Ensure healthy air and water quality.

- Policy OSC-5.1: Air and Water Quality Standards. Continue to apply standards and policies established by the Bay Area Air Quality Management District (BAAQMD), San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), and City of Menlo Park Climate Action Plan through the California Environmental Quality Act (CEQA) process and other means as applicable.

- Goal S-1: Assure a safe community.
  - Policy S-1.25: Creeks and Drainage-ways. Seek to retain San Francisquito and Atherton creeks/channels in their natural state in order to prevent undue erosion of creek banks. Protect creek-side habitat and provide maintenance access along creeks where appropriate.
  - Policy S-1.26: Erosion and Sediment Control. Continue to require the use of best management practices for erosion and sediment control measures with proposed development in compliance with applicable regional regulations.
  - Policy S-1.27: Regional Water Quality Control Board (RWQCB) Requirements. Enforce stormwater pollution prevention practices and appropriate watershed management plans in the RWQCB general National Pollutant Discharge Elimination System requirements, the San Mateo County Water Pollution Prevention Program and the City's Stormwater Management Program. Revise, as necessary, City plans so they integrate water quality and watershed protection with water supply, flood control, habitat protection, groundwater recharge, and other sustainable development principles and policies.

Additionally, as part of the Zoning Code update, the project includes design standards for development in the Bayfront Area. These design standards require future development to provide on-site infiltration of stormwater runoff and implement sustainable stormwater features in open space areas.

Future development under the proposed project, as part of the City's project approval process, would be required to comply with existing federal, State and local regulations discussed above, including General Plan policies and Zoning regulations that have been prepared to minimize impacts related to water quality. The City, throughout the 2040 buildout horizon, would implement the General Plan program that requires the preparation of setback standards to the San Francisquito Creek bank. These regulations combined with implementation of site design, source control, and treatment control measures for new development or redevelopment projects would ensure the protection of water quality. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to water quality.

Significance Without Mitigation: Less than significant.

HYDROLOGY AND WATER QUALITY

HYDRO-2 Implementation of 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).

The proposed project would substantially degrade or deplete groundwater resources or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level, if development used significant amounts of groundwater for water supply or caused significant increases in impervious surfaces or construction dewatering, thus reducing groundwater recharge.

Although the city is primarily built out, future development potential under the current General Plan includes 1.8 million square feet of non-residential land use and 1,000 residential units. In addition, the proposed project would allow new development potential in the Bayfront Area that would result in 2.3 million square feet of non-residential land use, 400 hotel rooms, and 4,500 residential housing units; therefore, the potential to increase impervious surfaces could occur. There may also be the potential diversion of groundwater to surface water if short-term construction dewatering is required due to the shallow groundwater table. These activities could result in a decrease in groundwater recharge to the San Mateo Subbasin of the Santa Clara Valley Groundwater Basin for which beneficial uses have been established by the San Francisco Bay Basin Plan.

Groundwater dewatering may be required during construction, specifically in the Bayfront Area, due to shallow groundwater depths. However, this is not anticipated to adversely impact groundwater resources because required excavations would intersect only the shallow groundwater table, which is not used for potable water supply, and would be a temporary impact. Also, if extensive dewatering is required, projects would be required to obtain a WDR permit from San Francisco Bay RWQCB. The WDR permit requirements would require testing to prevent discharged water from posing a risk to water quality of the receiving water body. In addition, new development and redevelopment projects that disturb one or more acres would be subject to SWPPP requirements, which include measures for spill prevention, control, and containment that would prevent potential construction pollutants from leaching into the shallow groundwater. These existing regulatory requirements would ensure that construction dewatering would not significantly impact groundwater quality.

The city receives its water from four water utility companies: the Menlo Park Municipal Water District (MPMWD), California Water Service, the O'Connor Tract Cooperative Water District, and the Palo Alto Park Mutual Water Company, as described in further detail in Chapter 4.14, Utilities and Service Systems, of this Draft EIR. As discussed in Chapter 4.14, there is sufficient water for future demands at 2040 buildout, including the proposed project, in normal years. However, in single-dry years and multiple-dry years, there would be a water supply shortfall, with or without the proposed project. Water shortage contingency plans would be implemented, as discussed in further detail in Chapter 4.14. But because the MPMWD relies solely on surface water supplied by the San Francisco Public Utilities Commission (SFPUC) for its water source, the new development potential in the Bayfront Area would not have an impact on

groundwater supplies. Furthermore, for new development and redevelopment projects, the implementation of LID measures and on-site infiltration, as specified under the C.3 provisions of the SMCWPPP and the City, will increase the potential for groundwater recharge, which would cause a net benefit for those areas that may require the use of groundwater. 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 reduce the impact of increased impervious surfaces on groundwater recharge.

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, contains general goals, policies and a program that would require local planning and development decisions to consider impacts to the environment related to future development on groundwater resources and recharge. The following General Plan goals, policies and a program would serve to minimize potential impacts associated with groundwater resources:

- Goal LU-4: Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
    - Policy LU-4.5: Business Uses and Environmental Impacts. Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.
- Goal LU-7: Promote the implementation and maintenance of sustainable development, facilities and services to meet the needs of Menlo Park's residents, businesses, workers, and visitors.
    - Policy LU-7.4: Water Protection. Work with regional and local jurisdictions and agencies responsible for ground water extraction to develop a comprehensive underground water protection program in accordance with the San Francisquito Creek Watershed Policy, which includes preservation of existing sources and monitoring of all wells in the basin to evaluate the long term effects of water extraction.
        - Program LU-7.8: Groundwater Wells. Monitor pumping from existing and new wells to identify and prevent potential ground subsidence, salinity intrusion into shallow aquifers (particularly in the Bayfront Areas), and contamination of deeper aquifers.

In addition, as part of the Zoning update, the project includes green and sustainable building standards in the Bayfront Area. These standards require all new buildings within the Bayfront Area to be maintained without the use of well water and include dual plumbing systems for the use of recycled water. Under the Zoning update, no potable water shall not be used for decorative features, unless the water is recycled, and single pass cooling systems are prohibited. Also, future development with a gross floor area of 100,000 square feet or more must submit a proposed water budget for review by the City's Public Works Director prior to certification of occupancy. New buildings with 250,000 square feet of gross floor area or more are required to use an alternate water source for all City-approved non-potable applications. These measures would help to reduce any demands put on groundwater that may be required outside of the Bayfront Area.

Future development under the proposed project, as part of the City's project approval process, would be required to comply with existing federal, State and local regulations discussed above, such as compliance

with the C.3 provisions of the MRP which promote infiltration BMPs, and the minimal use of groundwater for water supply within the city. Future development would also be required to adhere to the General Plan goals and policies that have been prepared to minimize impacts related to water supply. Furthermore, the City, throughout the 2040 buildout horizon, would implement the General Plan program that requires monitoring pumping groundwater to reduce impacts to groundwater. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to groundwater supply and/or groundwater recharge.

Significance Without Mitigation: Less than significant.

HYDRO-3 Implementation of 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 amount of surface runoff in a manner which would result in substantial erosion or siltation on- or off-site.

Future development under the proposed project could substantially increase the amount of stormwater runoff or alter the existing drainage pattern of a project site or area in a manner that would result in substantial erosion or siltation if significant increases in impervious surfaces result in high storm water runoff and higher peak discharges to drainage channels, thus causing erosion or siltation in swales and streams. However, because the city is primarily built out, future development in Menlo Park would occur on sites that are currently developed; therefore, future development is not anticipated to alter the course of an existing stream or river. In addition, adherence to local regulations would ensure that in the course of development and redevelopment activities, watercourse and drainage patterns would not be altered in a manner that would significantly increase the rate or amount of erosion or siltation. The proposed project does not include the conversion of open space areas or creeks to impervious surfaces and therefore would not alter the course of a stream or river.

Within the City of Menlo Park, all new development and redevelopment projects would be required to implement construction phase BMPs as well as post-construction site design measures, source control measures, and stormwater treatment measures. Typical construction BMPs to minimize erosion and siltation include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrance/exits. Also, each new development or redevelopment project that disturbs one or more acre of land would be required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. In addition, the City's Municipal Code (Chapter 7.42, Storm Water Management Program) requires preparation of a Grading and Drainage Plan and incorporation of erosion and sediment controls during construction and will further reduce the potential for substantial erosion or siltation.

There also are required post-construction control measures to minimize the potential for erosion and siltation. A Storm Water Management Plan must be submitted to the City with site design measures to limit impervious surfaces, planting new interceptor trees, minimizing surface parking areas, and directing roof runoff into cisterns or rain barrels or onto vegetated areas. Regulated projects subject to water treatment measures would require LID features, such as harvesting and reuse, infiltration, evapotranspiration, bioretention, 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 or a flow design basis of 0.2 inches per hour (in/hr) intensity. In addition, these regulated projects must include an operations and maintenance (O&M) plan and maintenance agreement for review and approval by the City. All projects would also be required to meet the requirements of the City's Municipal Code Chapter 7.42, *Stormwater Management Program.*

Changes in the timing, peak discharge, and volume of runoff from a site due to land development is known as "hydromodification." When a site is developed, some of the rainwater can no longer infiltrate into the soil so it flows off site at faster rates and greater volumes in a shorter period of time. As a result, erosive levels of flow can occur in creeks and channels downstream of the project. Projects in susceptible areas, as defined by the *HMP Applicability Map* for selected areas of San Mateo County, are subject to hydromodification management (HM) requirements.[49] Some areas of Menlo Park south of State Route 82 (El Camino Real) are within the area subject to HM requirements. The HM requirement states that all projects that create and/or replace one acre or more of impervious surface within the mapped susceptible areas must implement flow control measures so that post-project runoff rates and durations do not exceed estimated pre-project rates and durations.

The regulatory requirements for implementation of construction and post-construction BMPs, submittal of erosion control plans, SWPPPs, and compliance with the City of Menlo Park's Municipal Code (Chapter 7.42 – *Stormwater Management Plan*), adherence to the City's General Plan policies, and the City's ongoing implementation of the General Plan program described in HYDRO-1. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to potential impacts of erosion and siltation.

Significance Without Mitigation: Less than significant.

HYDRO-4 Implementation of 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.

Changes in existing drainage patterns could increase the rate and/or amount of stormwater runoff, contributing to on-site or off-site flooding. As discussed previously, all new and redevelopment projects that create or replace 10,000 square feet or more of impervious space (or 5,000 square feet of impervious space for uncovered parking areas, restaurants, auto service facilities, and retail gasoline outlets) would be required to comply with the C.3 provisions of the MRP requirements and implement various post-construction BMPs and LID features that include site design, stormwater treatment, runoff retention, and peak flow management. In addition, the City of Menlo Park has adopted more stringent requirements that the C.3 provisions and specifies that post-development stormwater volumes must not exceed pre-development volumes for all projects adding net new impervious surface, regardless of whether it is a regulated project or not.

[49] San Mateo Countywide Water Pollution Prevention Program, 2015, *Appendix H, Areas Subject to Hydromodification Management Requirements*, http://www.flowstobay.org/newdevelopment#C3TechGuidance, accessed on November 18, 2015.

HYDROLOGY AND WATER QUALITY

Any increase in peak flow rates shall be handled on-site by retention to treat excess flow for the 10-year storm event. Any retained on-site stormwater would eventually be routed to existing storm drains. The Grading and Drainage Plans for each future project would be reviewed by the City to ensure that on-site drainage, LID features, and retention basins are adequate to prevent on-site or off-site flooding. As a result of implementation of the City's stringent stormwater measures, compliance with the C.3 provisions of the MRP, adherence to the General Plan policies, and the City's ongoing implementation of General Plan programs listed in HYDRO-1 and HYDRO-2, adoption of the proposed project would have a *less-than-significant* impact with respect to on-site or off-site flooding.

Significance Without Mitigation: Less than significant.

HYDRO-5 Implementation of 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.

As discussed previously, an increase in impervious surfaces with new development and redevelopment could result in an increase in stormwater runoff which could exceed the capacity of existing or planned stormwater drainage systems. Under existing conditions, portions of the City's storm drainage systems are not capable of containing the runoff from 10-year storm events.[50]

However, the existing development potential in the city and the new development potential as part of ConnectMenlo involves parcels in the Bayfront Area that have already been developed and are covered with impervious surfaces. The City of Menlo Park has very stringent stormwater requirements that exceed the C.3 provisions of the MRP, i.e., post-development stormwater volumes must not exceed pre-development volumes for all projects adding net new impervious surface, regardless of whether the project is regulated. Thus, the capacity of the existing or planned storm drain system would not be exceeded. In addition, implementation of LID design guidelines and engineering review of drainage calculations and development plans by the Menlo Park Public Works Department would further ensure that there are no significant increases in peak flow rates or runoff volumes.

Development consistent with the Menlo Park General Plan would not require significant expansions of the existing stormwater drainage infrastructure, because the majority of sites would be either infill projects or would be located within existing storm drainage systems and because the City requires no net increase in stormwater flow rates. Additionally, the proposed project, as part of the Zoning update, would require future development in the Bayfront Area to implement landscaping features that provide on-site infiltration of stormwater runoff. For these reasons, the adoption of the proposed project would result in *less-than-significant* impacts associated with exceeding stormwater drainage system capacity from stormwater runoff from future development.

Significance Without Mitigation: Less than significant.

[50] BKF Engineers, 2003. *City-Wide Storm Drainage Study, City of Menlo Park.*

HYDRO-6 Implementation of the proposed project would not otherwise substantially degrade water quality.

Future development under the General Plan would substantially degrade water quality if construction and/or operational activities would introduce significant amounts of pollutants into stormwater. Construction activities could result in oil and grease contamination from spills or leaks of equipment and machinery; staging areas could contribute contaminants with the use of paints, solvents, or cleaning agents; and trash, debris, or pesticides are potential pollutants during construction. The principal sources of water pollutants from operation of future development projects within the City are oil and grease, metals, sediment, fertilizers, and chemicals from roadways, parking lots, rooftops, and landscaped areas.

Future development projects would be required to comply with existing regulations to minimize construction pollutants, including preparation of a SWPPP with source control BMPs and preparation of an erosion and sediment control plan. Developers are required to inspect the construction sites before and after storms and sample for potential pollutants in the stormwater runoff, as necessary. For new projects, the Menlo Park Public Works Department imposes conditions of approval related to grading and drainage during construction and also for permanent stormwater controls. As a result, the potential for pollutants to be introduced into stormwater and transported to receiving waters during construction would be minimized.

During the operation of future projects, the types of stormwater pollutants can vary depending on the type of land use, topography, amount of impervious cover, and intensity and duration of storm events. Most pollutants accumulate on rooftops or impervious surfaces and are then washed into the local on-site storm drain system or the City's regional storm drain system, where they are ultimately carried to the receiving water body. However, each new development or redevelopment project would be required to include source control, site design, LID, and stormwater treatment measures, such as retention and/or detention ponds, flow-through planters, permeable pavement, green roofs, roof runoff to landscaped areas, tree well filters, and media filters in compliance with C.3 provisions of the MRP. Implementation of these stormwater control measures would provide natural filtration of pollutants from stormwater runoff prior to entry into the storm drain system. As such, new development and redevelopment projects should improve water quality by the treatment of stormwater on-site and thus reduce stormwater pollution. Long-term operation and maintenance of BMPs is also required by the City. A stormwater treatment construction, operation, and maintenance agreement must be executed and recorded before the building permit can be issued and the agreement must run in perpetuity with the property.

Future development under the proposed project, as part of the City's project approval process, would be required to comply with existing federal, State and local regulations discussed above, such stormwater BMPs to prevent the introduction of pollutants to stormwater and the implementation of stormwater treatment BMPs for all new development and redevelopment projects. Future development would also be required to adhere to the General Plan goals and policies that have been prepared to minimize impacts related to water supply. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to water quality.

Significance Without Mitigation: Less than significant.

HYDROLOGY AND WATER QUALITY

HYDRO-7 Implementation of 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.

Future development under the General Plan would place new housing in the Bayfront Area, which is within a 100-year flood hazard area as shown on Figure 4.8-3. The City has adopted standards for construction in floodplain areas that comply with the National Flood Insurance Program (NFIP).[51] The purpose of these regulations is to promote public health and safety and minimize public and private losses due to flood conditions.

Development within the 100-year flood zone would require the placement of fill to elevate structures above the 100-year floodplain elevation. In order for the future development to be considered outside of the floodplain and no longer subject to special flood hazard requirements, the applicant would have to submit an application to FEMA for a Letter of Map Revision – Fill (LOMR-F) after the fill has been placed. After FEMA has revised the FIRM to show that the future development is now outside of the Special Flood Hazard Areas (SFHA), the City would no longer be required to apply the minimum NFIP floodplain management standards to structures built on the land and the mandatory flood insurance requirements would no longer apply. However, as part of its floodplain management strategy, to reduce possible loss of life and property in the event of a flood, the City would encourage compliance with as many of the standards as financially feasible.

Construction within SFHAs is governed by FEMA regulations and the City's Municipal Code Chapter 12, Section 12.42.51, Standards of Construction, which sets forth standards for development that would minimize flood hazard risks, including anchoring and flood-proofing; limitations on use for structures below the base flood elevation; use of materials and utility equipment resistant to flood damage; the requirement that electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities be designed and/or located to prevent water from entering or accumulating within the components during flood conditions; and the requirement 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.

The existing Section IV, Safety (S) of the Open Space/Conservation, Noise and Safety Elements, contain general goals, policies, and programs that would require local planning and development decisions to consider impacts to the environment related to flooding hazards. The following General Plan goals, policies, and programs would serve to minimize potential impacts associated with flooding hazards:

- Goal S-1: Assure a safe community.
  - Policy S-1.1: Location of Future Development. Permit development only in those areas where potential danger to the health, safety and welfare of the residents of the community can be adequately mitigated.

[51] City of Menlo Park, Municipal Code Chapter 12.42, *Flood Damage Prevention*.

- Policy S-1.5: New Habitable Structures. Require that all new habitable structures incorporate adequate hazard mitigation measures to reduce identified risks from natural and human-caused hazards.
- Policy S-1.8: Safety Element Updates. Review and comprehensively revise the Safety Element whenever substantial new scientific data or evidence related to prevention of natural and human hazards becomes available, and coordinate with other General Plan elements and City emergency plans.
- Policy S-1.9: Community Safety Services and Facilities. In coordination with other agencies, maintain adequate and cost-effective levels of safety services, facilities and programs to address safety concerns in Menlo Park.
- Policy S-1.10: Safety Review of Development Projects. Continue to require hazard mitigation, crime prevention, fire prevention and adequate access for emergency vehicles in new development.
    - Program S-1.10: Safety Review of Development Projects. Continue to require hazard mitigation, crime prevention, fire prevention and adequate access for emergency vehicles in new development.
    - Program S-1.B: Maintain Up-to-Date Hazard Maps and Databases. Maintain up-to-date databases and maps of geologic and other hazards to identify areas prone to hazards for planning purposes on an on-going basis concurrently with the Housing Element Updates.
    - Program S-1.C Review Building Code Updates. Continue to review State Building Code updates and incorporate local amendments as appropriate to require that new construction be designed under the most current safety standards. The review of updates should also consider requirements for facilities housing sensitive populations, such as seniors and persons living with disabilities.
    - Program S-1.D: Require Early Investigation of Potential Hazard Conditions. Require that potential geologic, seismic, soils, and/or hydrologic problems confronting public or private development be thoroughly investigated at the earliest stages of the design process, and that these topics be comprehensively evaluated in the environmental review process by persons of competent technical expertise.
    - Program S-1.E: Modify the Zoning and Subdivision Ordinances as Needed to Address Hazard Mitigation. Modify the Zoning Ordinance as needed when new information on natural hazards becomes available and to provide for hazard reduction measures as a part of the design criteria for development review. Review the Subdivision Ordinance and modify as needed to include hazard reduction in the process of dividing land for development.

Compliance with these FEMA regulations and City Municipal Code requirements, and adherence to the General Plan policies would ensure that placement of housing within the 100-year floodplain would not impede or redirect flood flows. Furthermore, the City's ongoing implementation of the General Plan programs listed above would ensure impacts from flooding hazards would be minimized. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to flooding hazards.

Significance Without Mitigation: Less than significant.

HYDROLOGY AND WATER QUALITY

HYDRO-8 Implementation of the proposed project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.

Future development under the General Plan would substantially impede or redirect flood flows if it would allow placement of structures within the 100-year flood hazard area without compliance with federal and City building requirements. The existing General Plan includes the development potential for 1.8 million square feet of non-residential development in the city, and under the proposed project new development potential in the Bayfront Area proposes an additional 2.3 million square feet of non-residential development; some of the parcels for this future development will be within the 100-year floodplain, as shown on Figure 4.8-3.

As discussed in Impact HYDRO-7, there are stringent federal and City regulations regarding construction within SFHAs that requires the placement of fill to elevate structures or floodproofing of structures. In addition, projects deemed by the City to be a "substantial improvement" (i.e., increase in value of 50 percent or more as compared to the existing structure) must comply with current FEMA standards and the City's Flood Damage Prevention Ordinance. For additions to existing buildings, an elevation certificate must be submitted with the Planning or Building application to certify that residential structures are elevated to or above the base flood elevation (BFE) or that non-residential structures are floodproofed up to or above the BFE. New structures do not require an elevation certificate but site elevations must be clearly shown on the topographic survey. In addition, FEMA and the City require submittal of an on-site drainage plan with the submittal application to show how flood waters will be directed around the structure. This will ensure that the 100-year flood would have no adverse impact on neighboring properties. Also, compliance with the C.3 provisions of the MRP and the City requirement that stormwater runoff rates and volumes do not exceed pre-existing conditions would further reduce the potential for the impedance or redirection of flood flows onto adjacent properties.

Compliance with these federal and City Municipal Code requirements, and adherence to the General Plan policies listed under HYDRO-7 would ensure that placement of structures within the 100-year floodplain would not impede or redirect flood flows. Furthermore, the City's ongoing implementation of the General Plan programs listed under HYDRO-7 would ensure impacts from flooding hazards would be minimized. Accordingly, the adoption of the proposed project would result in *less-than-significant* impacts with respect to flooding hazards. .

Significance Without Mitigation: Less than significant.

HYDRO-9 Implementation of 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 a levee or dam break or flooding as a result of sea level rise.

Dam Inundation

Future development under the General Plan could result in a significant risk of loss, injury, or death if any dams were to catastrophically fail without warning, releasing the water held behind the dams and

resulting in flooding in parts of the Menlo Park. As shown on Figure 4.8-5, dams that pose an inundation threat to the City include Searsville Reservoir and Felt Lake. A major seismic event, if sufficiently intense, would be the most likely cause of dam failure. Dam inundation zones are based on the highly unlikely event of a total catastrophic dam failure occurring in a very short period of time.

The dam inundation zone for the Searsville Reservoir overestimates the potential flooding impact. The Searsville Reservoir has filled with sediment, reducing its capacity to less than 10 percent of the original water capacity.[52] The dam inundation area for Searsville Reservoir shown in Figure 4.8-5 is based on an earlier and greater reservoir capacity, thus overestimating the potential inundation zone. In addition, Stanford University, the owner and operator of Searsville Reservoir, is considering two options for future use: 1) creating an opening at the base of the dam to allow creek flow and provide fish passage to upstream creeks and 2) allowing the reservoir to fill completely with sediment, creating new wetlands and a stream channel through the accumulated sediment.[53] Both options would result in either a much smaller or possibly an eliminated dam inundation zone.

The probability of dam failure that would affect the City is extremely low and there is no historic record of dam failure in San Mateo County or the City of Menlo Park.[54] Also, all of the proposed future development in the Bayfront Area is not in either dam inundation zones. Dams in California are continually monitored by various governmental agencies, including the Division of Safety of Dams (DSOD), which conducts inspections twice a year and reviews all aspects of dam safety. The City of Menlo Park also maintains an Emergency Operation Plan, which includes the potential for dam failure, and has an emergency notification system (Blackboard Connect) that notifies residents for emergencies such as natural disasters, flooding, safety alerts, water main breaks, and road closures.

There are levees present along the north side of Bayshore Expressway and also surrounding the three sides of the Bayfront Area located north of the Bayshore Expressway. Although most of the levees in the South Bay do not meet FEMA or USACE flood protection standards, the absence of a history of significant tidal flooding indicates that these levees do provide flood protection.[55] As part of the South Bay Salt Pond Restoration Project – Ravenswood Ponds, proposed alternative is to improve levees along the All-American Canal, although the levees will not be FEMA-certified for protection from the 100-year storm.[56]

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, and existing Section IV, Safety (S), of the Open Space/Conservation, Noise and Safety Elements, contain general goals, policies and programs that would require local planning and development decisions to

[52] Stanford University, 2015, *Searsville Dam FAQ,* https://news.stanford.edu/searsville/faqs.html, accessed on November 17, 2015.

[53] Stanford University, 2015, Stanford Report, May 1, 2015, *Stanford Identifies its Preferred Approach for the Future of Searsville Dam and Reservoir,* http://news.stanford.edu/news/2015/may/searsville-preferred-plan-050115.html, accessed on November 17, 2015.

[54] Association of Bay Area Governments (ABAG), 2011. *Taming Natural Disasters. Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area.*

[55] US Fish and Wildlife Service (FWS), 2012. *Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan of 2012.*

[56] US Fish and Wildlife Service and California Coastal Conservancy, 2016. *South Bay Salt Pond Restoration Project, Final Environmental Impact Statement/Report, Phase 2.* Dated April 2016.

consider impacts to the environment related to dam inundation. The following General Plan goals, policies and programs would serve to minimize potential impacts associated with dam inundation:

- Goal LU-4: Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
  - Policy LU-4.5: Business Uses and Environmental Impacts. Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.
- Goal S-1: Assure a safe community.
  - Policy S-1.23: Potential Dam Inundation. Consider potential risks from dam inundation in the development approval process.
  - Policy S-1.24: Dam Safety. Support programs by the California Division of Safety of Dams to retrofit or replace dams or to increase earthquake resistance of dams and mitigate impacts of dam failures. State efforts to inspect dams and evaluate dam safety requirements shall also be supported.
    - Program S-1.B: Maintain Up-to-Date Hazard Maps and Databases. Maintain up-to-date databases and maps of geologic and other hazards to identify areas prone to hazards for planning purposes on an on-going basis concurrently with the Housing Element Updates
    - Program S-1.L: Evaluate New Community Facilities Proposed in Dam Inundation Zones. Require that new community facilities located within dam inundation zones evaluate the potential for flooding and the impact on evacuation during the development approval process.

The proposed project would include 1.8 million square feet of non-residential development and a limited number of residential units (see Figure 4.8-5) within the City that could potentially occur within the dam inundation zones; however, no new development potential in the Bayfront Area would be within either of the dam inundation zones. Given the very low probability of dam failure, regulatory oversight of DSOD, reduction in the capacity of Searsville Reservoir, and General Plan policies to address the impact of flooding from dam inundation during the development process, implementation of future development under the General Plan would not expose people or structures to a significant risk of loss, injury, or death in the case of dam failure and impacts are *less than significant.* There are a minimal number of levees within the City of Menlo Park and the existing levees protect the areas south and north of Bayshore Expressway from flooding; therefore, a *less than significan*t impact would result.

Significance Without Mitigation: Less than significant.

Sea Level Rise

Sea level rise is a future concern that could occur well beyond the buildout horizon of the Menlo Park General Plan; therefore, this analysis is provided as a conservative approach and to assess potential impacts. The concern is the impact of sea level rise, especially in conjunction with future storm events and coastal flooding, on future development in Menlo Park, including the new development potential in the Bayfront Area.

Menlo Park is partnering with San Mateo County in conducting a sea level rise vulnerability assessment with a broad coalition of civic leaders, elected officials, and concerned citizens to better understand and prepare for the potential impacts of sea level rise related to flooding and inundation, storm and tide surge, salt water intrusion, and shoreline erosion.[57] As shown on Figure 4.8-4, the Bayfront Area is susceptible to sea level rise when coupled with a 100-year storm event. The individual and collective responses of Bay Area counties and municipalities to this flooding potential are in the early stages of development. However, the City of Menlo Park and San Mateo County are in the process of implementing policies and programs to adapt to the changing climate and to utilize estimates of sea level rise and incorporate data into mapping of areas subject to future inundation.

The goal of the sea level rise assessment is to identify vulnerable assets on the Bay and coast side of the San Mateo County peninsula, determine types of impacts, issue initial recommendations on adaptation measures, and improve flooding and sea level rise mapping. Results of the assessment will include detailed inundation maps and recommended adaptation measures. As a member of the SFCJPA, the City of Menlo Park is also participating in the SAFER Bay Project (Strategy to Advance Flood protection, Ecosystems, and Recreation), which is intended to protect nearly 5,000 properties from tidal flooding, restore more than 1,000 acres of historic marshlands, and address the impact of sea level rise.

Proposed development within the Bayfront Area is susceptible to impacts from sea level rise, as shown on Figure 4.8-4. Much of this area is also within the 100-year flood hazard zone. All future development in this area that is within 100 feet of the Bay shoreline would be subject to the BCDC's jurisdiction and would be required to prepare a sea level rise risk assessment. The risk assessment must identify all types of potential flooding, degrees of uncertainty, consequences of defense failures, and risks to existing habitat from proposed flood protection devices. All projects must be designed to be resilient to a mid-century sea level rise projection. Potential adaptation strategies could include the following:

- Managed retreat, with dense development located at greater distances from the shoreline to avoid greater risks.
- Placement of fill to raise the existing grade of proposed development to accommodate the base flood elevation of the 100-year floodplain and also account for sea level rise.
- Construct levees and seawalls according the FEMA accreditation standards that account for sea level rise.
- Floodproofing non-residential buildings to minimize flood impacts and account for sea level rise.

Adaptation strategies are in the process of being developed by the City and San Mateo County, as discussed above. Therefore, specific design measures for sea level rise adaptation within the Bayfront Area have not yet been developed, although compliance with FEMA and City floodplain regulations will elevate structures to or above the base flood elevation (BFE).

The proposed Land Use (LU) Element, and the existing Section IV, Safety (S), of the Open Space/Conservation, Noise and Safety Elements, contain general goals, policies and programs that would

[57] San Mateo County, 2015. *Sea Level Rise Vulnerability Assessment.* Accessed at http://seachangesmc.com/current-efforts/vulnerability-assessment/ on May 6, 2016.

be adopted as part of the proposed project. These would require local planning and development decisions to consider impacts to the environment related to sea level rise. The following General Plan goals, policies and programs would serve to continue to minimize potential impacts associated with sea level rise:

- Goal LU-7: Promote the implementation and maintenance of sustainable development, facilities and services to meet the needs of Menlo Park's residents, businesses, workers, and visitors.
  - Policy LU-7.7: Hazards. Avoid development in areas with seismic, flood, fire, and other hazards to life or property when potential impacts cannot be mitigated.
    - Program LU-7.F: Adaptation Plan. Work with emergency service providers to develop an adaptation plan, including funding mechanisms, to help prepare the community for potential adverse impacts related to climate change, such as sea level rise, extreme weather events, wildfire, and threats to ecosystem and species health.
    - Program LU-7.G: SAFER Bay Process. Coordinate with the SAFER Bay process to ensure that the Menlo Park community's objectives for sea level rise/flood protection, ecosystem enhancement, and recreational trails are adequately taken into consideration. Prior to the conclusion of the SAFER process, consider how new development in areas projected to be vulnerable to tidal flooding could enhance tidal flood protection.
    - Program LU-7.H: Sea Level Rise. Establish requirements based on State Sea Level Rise Policy Guidance for development projects of a certain minimum scale potentially affected by sea level rise to ensure protection of occupants and property from flooding and other potential effects. Prior to establishment of a suite of program measures, require that new development construct buildings with a base flood elevation that takes into account sea level rise.
- Goal S-1: Assure a safe community.
  - Policy S-1.28: Sea Level Rise. Consider sea level rise in siting new facilities or residences within potentially affected areas.

Additionally, as part of the Zoning Code update, the project includes hazard mitigation and sea level rise resiliency for development in the Bayfront Area. The first floor elevation of all new buildings shall be twenty four (24) inches above the Federal Emergency Management Agency base flood elevation (BFE) to account for sea level rise. Where no BFE exists, the first floor (bottom of floor beams) elevation shall be 24 inches above the existing grade. The building design and protective measures shall not create adverse impacts on adjacent sites as determined by the City. Additionally, prior to building permit issuance, all new buildings shall pay any required fee or proportionate fair share for the funding of sea level rise projects, if applicable. Thus, because future development under the proposed project, as part of the City's project approval process, would be required to comply with existing regulations, including General Plan policies and Zoning regulations that have been prepared to minimize impacts related to sea level rise, and because the City, throughout the 2040 buildout horizon, would implement the General Plan programs that require the preparation of sea level rise policies or standards that reduce potential adverse environmental effects, the adoption of the proposed project would result in *less-than-significant* impacts with respect to the placement of housing or structures within areas susceptible to sea level rise.

Significance Without Mitigation: Less than significant.

HYDRO-10 Implementation of the proposed project would not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow.

Implementation of the proposed project would result in flooding impacts by seiche, tsunami, or mudflow if it would allow development in areas susceptible to these events without proper precautions. According to the Cal OES tsunami inundation map shown on Figure 4.8-6, only the most northern portion of Menlo Park is located within a tsunami inundation zone.[58] This is an area of undisturbed marshlands and sloughs and would not be subject to future development under the existing General Plan or the ConnectMenlo project. In addition, San Mateo County and the City of Menlo Park maintain Emergency Alerting Systems (EAS) and have prepared Hazards Mitigation Plans to address potential natural hazards, including tsunamis. These measures and plans will aid in evacuation efforts and emergency response in the event that a tsunami occurs, although there would be no residents or structures within the tsunami inundation zone.

Seiches occur as oscillation waves in closed or partially closed bodies of water, similar to the back-and-forth sloshing of a bathtub. Bodies of water such as bays, harbors, reservoirs, ponds, and pools can experience seiches in the event of a strong earthquake. A seiche could theoretically occur in the Bay but the flooding impact would be no greater than that of a tsunami inundation zone, which would impact only the northern area of Menlo Park consisting of sloughs and marshlands. In addition, the largest seiche wave ever measured in San Francisco Bay, following the 1906 earthquake, was four inches high.[59] Therefore, it is unlikely that a seiche in San Francisco Bay would adversely impact residents in the City of Menlo Park. Although a seiche could occur in Searsville Reservoir or Felt Lake, the flooding impact would be much less than that of the dam inundation zones and as discussed in Impact HYDRO-9, these impacts would be less than significant.

According to the ABAG debris flow source maps, there are no areas within the City or SOI that would result in mud or debris flows.[60] The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, and existing Section IV, Safety (S), of the Open Space/Conservation, Noise and Safety Elements, contain general goals, policies and programs that would require local planning and development decisions to consider impacts to the environment related to seiche, tsunami, or mudflow. The following General Plan goals, policies and a program would serve to minimize potential impacts associated with seiche, tsunami, or mudflow:

- Goal LU-4: Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.

[58] California Office of Emergency Services, 2009. *Tsunami Inundation Map for Emergency Planning, State of California – County of San Mateo, Redwood Point Quadrangle/ Palo Alto Quadrangle*

[59] Alameda County Community Development Agency, 2014,*Safety Element, Alameda County*.

[60] Association of Bay Area Governments, 2015, *Rainfall-Induced Landslides: Debris Flow Source Areas*, http://gis.abag.ca.gov/website/Hazards/?hlyr=debrisFlowSource, accessed on November 18, 2015.

- Policy LU-4.5: Business Uses and Environmental Impacts. Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.

- Goal S-1: Assure a safe community.
  - Policy S-1.21: Flood and Tsunami Hazard Planning and Mapping. Consider the threat of flooding and tsunamis in planning and management practices to minimize risk to life, environment and property and maintain up-to-date tsunami hazard zones maps and flood maps as new information is provided by FEMA and other regional agencies. Modify land use plans in areas where tsunamis and flooding are hazards, and permit only uses that will sustain acceptable levels of damage and not endanger human lives in the event of inundation.
    - Program S-1.B: Maintain Up-to-Date Hazard Maps and Databases. Maintain up-to-date databases and maps of geologic and other hazards to identify areas prone to hazards for planning purposes on an on-going basis concurrently with the Housing Element Updates

Thus, because future development under the proposed project, as part of the City's project approval process, would be required to comply with existing regulations, including General Plan policies that have been prepared to minimize impacts related to seiche, tsunami, or mudflow, and because the City, throughout the 2040 buildout horizon, would implement the General Plan programs that require the ongoing maintenance or hazards maps and databases, the adoption of the proposed project would result in *less-than-significant* impacts with respect to the natural hazards, the potential for flooding from tsunamis, seiches, and mud flows on future development in Menlo Park.

Significance Without Mitigation: Less than significant.

4.8.4 CUMULATIVE IMPACTS

HYDRO-11	**Implementation of 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 geographic context used for the cumulative assessment of water quality and hydrology impacts is the San Francisquito Creek Watershed, which encompasses the entire study area. 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 projects in a similar geographic area.

As discussed previously, new development and redevelopment under the proposed project would require conformance with State and local policies that would reduce hydrology and water quality impacts to *less-than-significant* levels. When applicable, any additional new development within the City would be subject, on a project-by-project basis, to independent CEQA review as well as policies in the Menlo Park General Plan, design guidelines, zoning codes, and other applicable City requirements that reduce impacts related to hydrology and water quality. More specifically, potential changes related to stormwater quality, stormwater flows, drainage, impervious surfaces, and flooding would be minimized via the

implementation of stormwater control measures, retention, infiltration, LID measures, and review by the City's Public Works Department to integrate measures to reduce potential flooding impacts.

All cumulative projects would be subject to similar permit requirements and would be required to comply with City ordinances and General Plan policies, as well as numerous water quality regulations that control 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 MS4 Permit works with all municipalities to manage stormwater systems to be collectively protective of water quality. For these reasons, impacts from future development under the General Plan on hydrology and water quality are not cumulatively considerable and the cumulative impact would be *less than significant.*

Significance Without Mitigation: Less than significant.

HYDROLOGY AND WATER QUALITY

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