

HYDROLOGY AND WATER QUALITY

4.10 HYDROLOGY AND WATER QUALITY

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project that are related to hydrology and water quality. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of project and cumulative impacts.

4.10.1 ENVIRONMENTAL SETTING

4.10.1.1 REGULATORY FRAMEWORK

Federal Regulations

Clean Water Act

The United States Environmental Protection Agency (USEPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) (codified at 33 United States Code Sections 1251 to 1376) of 1972 is the primary federal law that governs and authorizes water quality control activities by the EPA, as well as the states. Various elements of the CWA, which address water quality, are discussed below.

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 territorial seas and traditional navigable waters, perennial and intermittent tributaries to those waters, lakes and ponds and impoundments of jurisdictional waters, and wetlands adjacent to jurisdictional waters. 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 Policy Act 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, an application for Individual Water Quality Certification and/or Waste Discharge Requirements must be submitted for any activity that would result in the placement of dredged or fill material in waters of the State 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 (RWQCB).

Under federal law, the USEPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. 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

HYDROLOGY AND WATER QUALITY

designated uses. Section 304(a) requires the USEPA 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 USEPA has delegated authority to the SWRCB and its RWQCBs 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, nonpoint, 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.

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 (MS4). 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 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 that discharge pollutants into waters of the United States are required to obtain a NPDES permit. Requirements for stormwater discharges are also regulated under this program. In California, the NPDES permit program is administered by the SWRCB through the nine RWQCBs. The City of San Rafael lies within the jurisdiction of San Francisco Bay RWQCB (Region 2) and is subject to the waste discharge requirements for the Phase II Small MS4 Permit (Order No. 2013-0001-DWQ) and NPDES Permit No. CAS000004, with the last amendment, Order No. WQ 2018-0007-EXEC, issued in March 2018 and the latest amendments taking effect on January 1, 2019.

Under Provision E.12 of the NPDES Permit, 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 accomplished primarily through the implementation of low impact development techniques. In addition, projects that create and/or replace one acre or more of impervious surfaces must comply with the hydromodification requirements specified in the E.12 provisions of the Phase II Small MS4 permit. These requirements include implementing site design measures to achieve infiltration, evapotranspiration, and/or harvesting/reuse of the 85th percentile 24-hour storm runoff event to the extent feasible and treatment of the remaining runoff with bioretention facilities. The hydromodification provisions also require that post-project runoff does not exceed pre-project runoff for the 2-year, 24-hour storm event.

HYDROLOGY AND WATER QUALITY

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year. The locations within the 100-year floodplain are provided on Figure 4.10-3.

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

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

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.

HYDROLOGY AND WATER QUALITY

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act provides the basic authority for the United States Fish and Wildlife Service (USFWS) to evaluate impacts to fish and wildlife from proposed water resource development projects. This act requires that all federal agencies consult with the USFWS, the National Marine Fisheries Service, and State wildlife agencies (i.e., the California Department of Fish and Wildlife or CDFW) for activities that affect, control, or modify waters of any stream or bodies of water. Under this act, the USFWS has responsibility for reviewing and commenting on all water resources projects. For example, it would provide consultation to the USACE prior 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 must also accompany an application for an incidental take permit. The purpose of a habitat conservation plan is to ensure that the effects of the permitted action on 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. This act established the SWRCB and divided the state into nine regional basins, each under the jurisdiction of an RWQCB. The SWRCB is the primary State agency responsible for the protection of California’s water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan or basin plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region’s ground and surface water, and local water quality conditions and problems. As stated previously, San Rafael is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

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

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.

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

HYDROLOGY AND WATER QUALITY

Bay. The RWQCB's jurisdiction includes all the San Francisco Bay's segments extending to the mouth of the Sacramento-San Joaquin Delta.

State Water Resources Control Board Construction General Permit

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

Construction activities that disturb one or more acres of land that could impact hydrologic resources must comply with the requirements of the SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ and 2012-0006-DWQ. Under the terms of the permit, applicants must file Permit Registration Documents (PRD) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (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 nonvisible pollutants if there is a failure of the best management practices, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Some sites (Risk Level 2 and 3) also require implementation of a Rain Event Action Plan 48 hours prior to a 50 percent or greater chance of a precipitation event.

In addition, the SWRCB requires all projects subject to a grading permit or a building permit that has the potential for erosion or significant discharges of sediment and/or construction waste, to submit an Erosion and Sediment Control Plan (ESCP) for approval by the City. The ESCP must describe erosion and sediment control measures that will be implemented during the construction phase as well as final stabilization control measures. The BMPs specified in the ESCP must be implemented year-round and the ESCP format should follow the most recent version of the MCSTOPPP Construction Erosion and Sediment Control Plan Applicant Package. This requirement applies to projects that are less than one acre in size if they require grading permits or building permits that could result in non-stormwater discharges to a storm drain. Projects subject to the SWRCB Construction General Permit may include the ESCP provisions within the SWPPP.

State Water Resources Control Board Trash Amendments

On April 7, 2015, the SWRCB adopted an amendment to the *Water Quality Control Plan for Ocean Waters of California* to control trash and Part 1, Trash Provisions, of the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California*. They are collectively referred to as "the Trash Amendments". The Trash Amendments apply to all surface waters of California and include a land-use-

HYDROLOGY AND WATER QUALITY

based compliance approach to focus trash controls on areas with high trash-generation rates. Areas such as high density residential, industrial, commercial, mixed urban, and public transportation stations are considered priority land uses. There are two compliance tracks for Phase I and Phase II MS4 permittees:

- Track 1: Permittees must install, operate, and maintain a network of certified full capture systems in storm drains that capture runoff from priority land uses.
- Track 2: Permittees must implement a plan with a combination of full capture systems, multibenefit projects, institutional controls, and/or other treatment methods that have the same effectiveness as Track 1 methods.

The Trash Amendments provide a framework for permittees to implement their provisions. Full compliance must occur within 10 years of the permit, and permittees must also meet interim milestones such as average load reductions of 10 percent per year. The amendment mandates that the City needs to install catch basin filters on all City catch basins by December 2, 2030.¹ However, the City is concerned about the effect that these filters may have on the performance of the storm drain system.² There currently are some trash devices installed at commercial properties, such as the Northgate Mall, but the City does not maintain these devices.

State Water Resources Control Board General Industrial Permit

The Statewide General permit for Storm Water Discharges Associated with Industrial Activities, Order No. 2014-0057-DWQ and amended by 2015-0122-DWQ (2018) implements the federally required storm water regulations in California for storm water associated with industrial activities that discharge to waters of the United States. This regulation covers facilities that are required by federal regulations or by the RWQCBs to obtain an NPDES permit. Dischargers are required to eliminate nonstorm water discharges, develop SWPPPs that include BMPs, conduct monitoring of stormwater runoff, and submit all compliance documents via the SWRCB's SMARTS program.

California Water Code Section 13751: Water Wells

Section 13751 of the Water Code requires a Well Completion Report (WCR) to be completed by each person who digs, bores, or drills a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well or abandons or modifies an existing well. The WCR should be filed with the California Department of Water Resources (DWR) within 60 days of the date that construction, alteration, abandonment, or destruction of a well is completed.³ Completed WCRs are sent to and maintained at the DWR regional office that serves the area where the well is located.

¹ State Water Resources Quality Control Board. January 7, 2019. Storm Water Program - Trash Implementation Program. https://www.waterboards.ca.gov/water_issues/programs/stormwater/trash_implementation.html

² City of San Rafael Public Work Department. May 8, 2019. Interview with Kevin McGowan, Assistant Public Works Director/City Engineer.

³ California Department of Water Resources, 2020. Well Completion Reports, accessed on July 7, 2020, <https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports>.

HYDROLOGY AND WATER QUALITY

California Coastal Act of 1976

The California Coastal Act of 1976 established three designated coastal management agencies to plan and regulate the use of land and water in the coastal zone: the California Coastal Commission, the San Francisco Bay Conservation and Development Commission (BCDC), and the California Coastal Conservancy. Under California's federally approved Coastal Management Program, the California Coastal Commission manages development along the California coast except for San Francisco Bay, which is overseen by the BCDC. The City of San Rafael is under the jurisdiction of the BCDC for all land within 100 feet of the shoreline. The mission of the California Coastal Conservancy is to purchase, protect, restore, and enhance coastal resources and provide shoreline access. Additional information on the BCDC is discussed in Regional Regulations, below.

California Department of Fish and Wildlife

The CDFW protects streams, water bodies, and riparian corridors through the streambed alteration agreement process under Sections 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.

Water Conservation in Landscaping Act of 2006

The Water Conservation in Landscaping Act includes the State of California's Model Water Efficient Landscape Ordinance (MWELO), which requires cities and counties to adopt landscape water conservation ordinances. The MWELO was revised in July 2015 via Executive Order B-29-15 to address the ongoing 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 DWR. The 2015 revisions to the MWELO improve water conservation in the landscaping sector by promoting efficient landscapes in new developments and retrofitted landscapes. The revisions increase water efficiency by requiring more efficient irrigation systems, incentives for grey water usage, improvements in on-site stormwater capture, and limiting the portion of landscapes that can be covered in high-water-use plants and turf. New development projects that include landscape areas of 500 square feet or more are subject to the MWELO. This applies to residential, commercial, industrial, and institutional projects that require a permit, plan check, or design review. The previous landscape size threshold for new development projects ranged from 2,500 square feet to 5,000 square feet.⁴ The size threshold for rehabilitated landscapes has not changed and remains at 2,500 square feet.

Chapter 13.02 of the Marin Municipal Water District (MMWD) Code adopts an ordinance that incorporates updates consistent with the 2015 update. The City of San Rafael has adopted the MMWD

⁴ California Department of Water Resources, 2015. Updated Model Water Efficient Landscape Ordinance, Guidance for California Local Agencies, <https://water.ca.gov/LegacyFiles/wateruseefficiency/landscapeordinance/docs/2015%20MWELO%20Guidance%20for%20Local%20Agencies.pdf>, accessed on March 20, 2019.

HYDROLOGY AND WATER QUALITY

Ordinance, as codified in the San Rafael Municipal Code (SRMC) Section 14.16.370, Water-Efficient Landscape.

Regional Regulations

San Francisco Bay Regional Water Quality Control Board

The City of San Rafael is within the jurisdiction of the San Francisco Bay RWQCB (Region 2). The San Francisco Bay RWQCB addresses regionwide 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 May 4, 2017. This Basin Plan designates beneficial uses of the State waters within Region 2, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan.⁵ The *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*, as adopted by the SWRCB in 1995 and last amended in 2018, also provides water quality principles and guidelines to prevent water quality degradation and protect the beneficial uses of waters of enclosed bays and estuaries.⁶ The San Francisco Bay RWQCB also administers the Phase II Small MS4 permit for Marin County and the municipalities within Marin County, including the City of San Rafael. Additional information regarding this permit is provided in the NPDES section on page 4.10-2.

Bay Protection and Toxic Cleanup Program

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

San Francisco Bay Conservation and Development Commission

The California Coastal Act carries out its mandate locally through the BCDC. BCDC's jurisdiction for San Francisco Bay includes all sloughs, marshlands between mean high tide and five feet above mean sea level, tidelands, submerged lands, and land within 100 feet of the shoreline. This includes the San Pablo Bay and San Rafael Bay shorelines within the Environmental Impact Report (EIR) Study Area, but BCDC's

⁵ San Francisco Bay RWQCB, 2017 *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*, https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf, accessed on June 22, 2020.

⁶ State Water Resources Control Board, 1995. *Water Quality Control Policy for the Enclosed Bays and Estuaries of California, as Adopted by Resolution No. 95-84 on November 16, 1995*. Latest revision on June 5, 2018.

HYDROLOGY AND WATER QUALITY

jurisdiction ends at the mouth of San Rafael Creek/Canal. The precise boundaries are clarified by BCDC upon request.

The current BCDC policy allows for the protection of existing and planned development from flooding by the placement of fill, encourages innovative means of dealing with flood danger, and states that local governments will determine how best to deal with development projects inland of BCDC's jurisdiction, which extends 100 feet inland from the shoreline. The provisions of BCDC's *San Francisco Bay Plan* do not apply outside BCDC's jurisdiction for purposes of implementing the California Environmental Quality Act (CEQA).⁷

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. Projects within the shoreline band, the area within 100 feet of the shoreline, need only address risks to public access.

As a permitting authority along the San Francisco Bay shoreline, BCDC is responsible for granting or denying permits for any proposed fill, extraction of materials, or change in the use of any water, land, or structure within BCDC's jurisdiction. Permits may be granted or denied only after public hearings and after the process for review and comment has been completed by the City (or by the County for projects within unincorporated areas). BCDC will approve the permit if it is determined that the project is in accordance with defined standards for use of the shoreline, provisions for public access, and advisory review of appearance.

Projects within BCDC jurisdiction that involve bay fill must be consistent with the policies of the BCDC's *San Francisco Bay Plan* on the safety of fills and shoreline protection. Land elevation changes caused by tectonic activity or consolidation/compaction of soft soils, such as bay muds, is variable around the San Francisco Bay. Consequently, some parts of the San Francisco Bay may experience a greater relative rise in sea level than other areas. According to BCDC policies, new projects built on fill or near the shoreline should be set back from the edge of the shore so that the project will not be subject to dynamic wave energy; be built so the bottom floor of structures will be above a 100-year flood elevation that takes future sea level rise into account for the expected life of the project; be specifically designed to tolerate periodic flooding; or employ other effective means of addressing the impacts of future sea level rise and storm activity.

Marin County Stormwater Pollution Prevention Program

Marin County's 11 cities and towns, including the City of San Rafael and the County of Marin began addressing stormwater pollution in the early 90s. In 1993 they created the Marin County Stormwater Pollution Prevention Program (MCSTOPPP). The following goals are key to implementing the MCSTOPPP:

⁷ 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.*

HYDROLOGY AND WATER QUALITY

- Prevent stormwater pollution.
- Protect and enhance water quality in creeks and wetlands.
- Preserve beneficial uses of local waterways.
- Comply with State and federal regulations.

Each MCSTOPPP member agency implements a local stormwater pollution prevention program and funds the countywide MCSTOPPP, which provides for the coordination and consistency of approaches between the local stormwater programs.⁸ MCSTOPPP also provides technical assistance to member agencies and the public and implements an outreach and education program. Resources are also provided for construction projects, including the MCSTOPPP Erosion and Sediment Control Plan Applicant Package, which must be submitted to the applicable municipality for review and approval prior to the start of construction. Minimum control measures for small (<1 acre) construction projects are provided. If dewatering will occur, the project applicant must follow the MCSTOPPP trench dewatering BMPs. Post-construction stormwater requirements are also provided at MCSTOPPP's website, which includes projects that create and/or replace more than 2,500 square feet of impervious area.⁹

Bay Area Stormwater Management Agencies Association

The Bay Area Stormwater Management Agencies Association (BASMAA) is a consortium of the following nine San Francisco Bay Area municipal stormwater programs:

- Alameda Countywide Clean Water Program
- Contra Costa Clean Water Program
- Fairfield-Suisun Urban Runoff Management Program
- Marin County Stormwater Pollution Prevention Program
- Napa Countywide Stormwater Pollution Prevention Program
- San Mateo Countywide Water Pollution Prevention Program
- Santa Clara Valley Urban Runoff Pollution Prevention Program
- Sonoma County Water Agency
- Vallejo Sanitation and Flood Control District

BASMAA was initiated by local governments in response to the NPDES permitting program for stormwater to promote regional consistency and to facilitate efficient use of public resources. BASMAA encourages information sharing and cooperation and develops products and programs that are more cost-effective when produced regionally than could be accomplished locally.¹⁰ The BASMAA Post-construction Manual includes standards and requirements applicable to development projects within the city of San Rafael and the EIR Study Area. The Manual provides a low impact development approach to implementing Provision E.12 of the Phase II Small MS4 permit, which requires postconstruction stormwater BMPs. Provision E.12

⁸ County of Marin, 2019, About MCSTOPPP <https://www.marincounty.org/depts/pw/divisions/creeks-bay-and-flood/mcstoppp/about-mcstoppp>, accessed on March 20, 2019.

⁹ County of Marin, 2020. Development Projects/Post Construction Stormwater Management. Accessed at <https://www.marincounty.org/depts/pw/divisions/creeks-bay-and-flood/mcstoppp/development/new-and-redevelopment-projects?panelnum=2> on October 5, 2020.

¹⁰ Bay Area Stormwater Management Agencies Association, The Mission of BASMAA <http://basmaa.org/About-BASMAA>, accessed on March 20, 2019.

HYDROLOGY AND WATER QUALITY

requires single-family homes that create and/or replace 2,500 square feet of impervious surface or small projects that create and/or replace between 2,500 and 5,000 square feet of impervious surface to implement at least one BMP to reduce runoff. Regulated projects that create and/or replace 5,000 square feet or more of impervious surface must implement site design and runoff reduction BMPs and prepare a Stormwater Control Plan (SCP).

Marin County Flood Control and Water Conservation District

The mission of the Marin County Flood Control and Water Conservation District (MCFCWCD) is to reduce the risk of flooding for the protection of life and property within Marin County. The MCFCWCD is responsible for the planning, design, construction, operation, and maintenance of facilities such as stormwater pump stations, detention basins, bypass drains, creeks, ditches, and levees.

Multiple flood control district zones have been established within the MCFCWCD to address specific flooding problems across Marin County. These zones do not cover the entire county and are, for the most part, concentrated in the county's eastern urbanized corridor. Zone 6 is in the city limits and encompasses the residential area known as the San Rafael Meadows. Zone 6 was created in the 1960s to address frequent flooding in the low-lying area just west of US-101 across from the Marin County Civic Center. Zone 6 is overseen by a five-member advisory board. In the early 2000s, construction of a new subdivision rerouted stormwater around the community, eliminating a significant source of flooding in the zone. Work within Zone 6 includes an annual vegetation maintenance program along 0.75 mile of Gallinas Creek.

Zone 7 is located outside the city limits and encompasses the area known as Santa Venetia that is in the EIR Study Area. Zone 7 was created in 1962 to address creek and tidal flooding within the low-lying neighborhood of Santa Venetia. Santa Venetia was one of the first developments in Marin County to be constructed on fill over Bay mud and, due to the low initial elevation of the fill and compression of the underlying Bay mud, the area has subsided and is now below the high tide level. Work in Zone 7 includes regular servicing of 14 pumps at five pump stations, maintenance of five portable pumps, maintenance of 1.9 miles of flood protection levees, maintenance of tide gates and trash racks, and an annual vegetation maintenance program along 0.85 mile of Gallinas Creek.¹¹

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs relevant to hydrology and water quality are primarily in the Sustainability, Safety, and Air and Water Quality Elements. As part of the proposed General Plan 2040, some existing General Plan goals, policies, and programs would be amended or substantially changed and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.10.3, Impact Discussion.

¹¹ Marin County Flood Control and Water Conservation District, 2020. About the Flood Control Zones. Accessed at <https://www.marinwatersheds.org/flood-protection/flood-control-zones#undefined6> on June 23, 2020.

HYDROLOGY AND WATER QUALITY

San Rafael Municipal Code

The SRMC includes various directives to minimize adverse impacts to water quality and prevent flooding in San Rafael. The SRMC is organized by title, chapter, and section. Sections of the SRMC related to hydrology and water quality impacts include Title 3, Finance and Taxation, Title 9, Health and Sanitation, Title 11, Public Works, Title 17, Waters and Waterways, and Title 18, Protection of Flood Hazard Areas, as follows:

- **Chapter 3.32, Public Facilities Development Fees.** This chapter establishes fees for new construction in the City to pay for needed public facilities and improvements. The fees are used to:
 - Pay for the planning, design, and construction of designated public facilities.
 - Reimburse the City for public facilities constructed by the City with local funds from other sources.
 - Reimburse developers who have constructed designated public facilities that exceed the capacity needed to mitigate impacts of the individual development project.
 - Pay for and/or reimburse costs of development and ongoing administration of the fee program.
- **Chapter 9.12, Offensive Wastes and Growths.** Section 9.12.020 of this chapter prohibits the dumping of garbage or sewage into the San Rafael Canal within the limits of the city or into any tidewater tributary to the canal or any slough, creek, inlet, ditch, or body of water fed by the San Rafael Canal.
- **Chapter 9.24, Well Standards.** This chapter protects groundwater and surface water by establishing standards regulating the construction, placement, reconstruction, and destruction of water wells, water supply sources, test holes, cathodic protection wells, and monitoring wells in the city. Section 9.24.070, Prohibition, prohibits the use of well water for more than one residential lot if the well is located within the MMWD's service area.
- **Chapter 9.30, Urban Runoff Pollution Prevention.** This chapter sets forth stormwater controls to be implemented to protect and enhance watercourses and fish and wildlife habitat by:
 - Minimizing discharges other than stormwater runoff to storm drains or watercourses.
 - Responding to the discharge of spills, preventing and controlling the discharge of spills to storm drains or watercourses, and prohibiting dumping or disposal of materials other than stormwater.
 - Reducing pollutants in stormwater discharges to the maximum extent practicable.
 - Requiring operators of construction sites, new or redeveloped land, and industrial and commercial facilities to install, implement, or maintain appropriate BMPs.
 - Maintaining predevelopment stormwater runoff rates and preventing nonpoint-source pollution whenever possible, through stormwater management controls and ensuring that these management controls are properly maintained.

Section 9.30.140, Construction-Phase BMPs, specifies construction-phase BMPs to prevent the discharge of contaminants to stormwater during construction, and Section 9.39.150 requires an ESCP to be prepared for review and approval by the City. Section 9.30.151, Land Development Standards for Permanent Stormwater Controls for New and Redevelopments, requires submittal and implementation of an SCP, subject to approval by the City and in accordance with the BASMAA Post-construction Manual and the Phase II Small MS4 Permit.

- **Chapter 9.40, Regulatory Fee for Clean Stormwater Activities.** This chapter ensures the future health, safety, and general welfare of the citizens of the city by establishing a funding source to provide enforcement of the City's Urban Runoff Pollution Prevention Ordinance, to provide maintenance and

HYDROLOGY AND WATER QUALITY

repair of the city's stormwater drainage facilities, to provide capital improvements to the city's storm drainage system, and to provide other clean stormwater activities.

- **Chapter 11.30, Watercourses.** This chapter prohibits any person from diverting, obstructing, or altering any watercourse, drainage channel, or drainage basin in the city, except in cases approved by the Department of Public Works and/or the City Engineer.
- **Chapter 14.18, Parking Standards.** This chapter provides landscaping requirements for new or renovated parking lots with more than five spaces. Included in the chapter is Section 14.18.160 (j), Biofiltration. These are measures to minimize the discharge of pollutants to the storm drain system, including the use of permeable pavers, bioswales, at-grade curbs, and opening in curbs to allow the filtration of runoff through landscaped areas.
- **Chapter 17.10, Dumping, Dredging, and Construction Within Tidal Waterways.** This chapter prohibits any dumping, dredging, uncontrolled filling, excavation, or construction in all portions of San Pablo Bay and San Rafael Bay, tidelands, shorelines, waterways, canals, beaches, or salt marshes within the city unless a Tidelands Permit is filed and approved.
- **Title 18, Protection of Flood Hazard Areas.** Regulations within Title 18 to minimize public and private losses due to flood conditions and is consistent with FEMA's National Flood Insurance Program. To accomplish its purposes, this title includes methods and provisions to:
 - Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities.
 - Require that uses vulnerable to floods be protected against flood damage at the time of initial construction.
 - Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters.
 - Control filling, grading, dredging, and other development that may increase flood damage.
 - Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or may increase flood hazards in other areas.

Local Hazard Mitigation Plan

The San Rafael Local Hazard Mitigation Plan (LHMP), adopted in November 2017, is a guide to hazard mitigation within the city and serves as a tool to help decision-makers direct hazard mitigation activities and resources. In the context of an LHMP, mitigation is an action that reduces or eliminates long-term risk to people and property from hazards, including flooding and sea level rise. Table 4.10-1 lists the LHMP actions to help reduce the risk of these hazards.

TABLE 4.10-1 LOCAL HAZARD MITIGATION PLAN MITIGATION ACTIONS RELEVANT TO WATER QUALITY

Number	Mitigation Action
Action 15	Elevate/Raise Low Lying Roadways.
Action 16	Elevate Critical Infrastructure.
Action 17	Improvements to Existing Berms, Levees and Flood Control Systems.
Action 18	Continued involvement in the BayWAVE county-wide vulnerability assessment (Phase 1 and 2); Implement resulting strategies from Phase 2 of the program.
Action 19	Develop a Climate Adaptation Plan and Implement Resulting Strategies.

HYDROLOGY AND WATER QUALITY

TABLE 4.10-1 LOCAL HAZARD MITIGATION PLAN MITIGATION ACTIONS RELEVANT TO WATER QUALITY

Number	Mitigation Action
Action 20	Freitas Ditch Riparian and Flood Improvement Project.
Action 21	Spinnaker Point Levee Assessment Study.
Action 31	Develop and Maintain a Community Rating System (CRS).
Action 32	Beach Drive Structural Flood Protection.
Action 33	Adopt a Drain Program.
Action 34	City Pump Station Analysis and Improvements.
Action 35	City Storm Drain System Analysis and Improvements.
Action 36	City Flood Alert System.
Action 37	Gallinas Creek Dredging.
Action 38	San Rafael Canal Dredging.

Source: City of San Rafael San Rafael Local Hazard Mitigation Plan, adopted in June 2017.

4.10.1.2 EXISTING CONDITIONS

Topography

The EIR Study Area extends from 1,800 feet above sea level in the coastal mountains to sea level at the tidal marshes and baylands on the eastern edge of the city. The higher, hilly portions of the EIR Study Area include the Terra Linda and Sleepy Hollow Open Space Areas in the northwest corner, Southern Heights Ridge on the southwestern edge, and Black Canyon and San Pedro Mountain in the eastern portion. The lower, flatter portions of the EIR Study Area include the Downtown Precise Plan Area and the Canal neighborhood. Santa Venetia, in the unincorporated area along Gallinas Creek, also is at a low elevation and subject to flooding.

Regional Hydrology

The EIR Study Area is located within three watersheds, as shown on Figure 4.10-1 and described below. Water typically flows from the northwest to the southeast through natural and urbanized creeks.

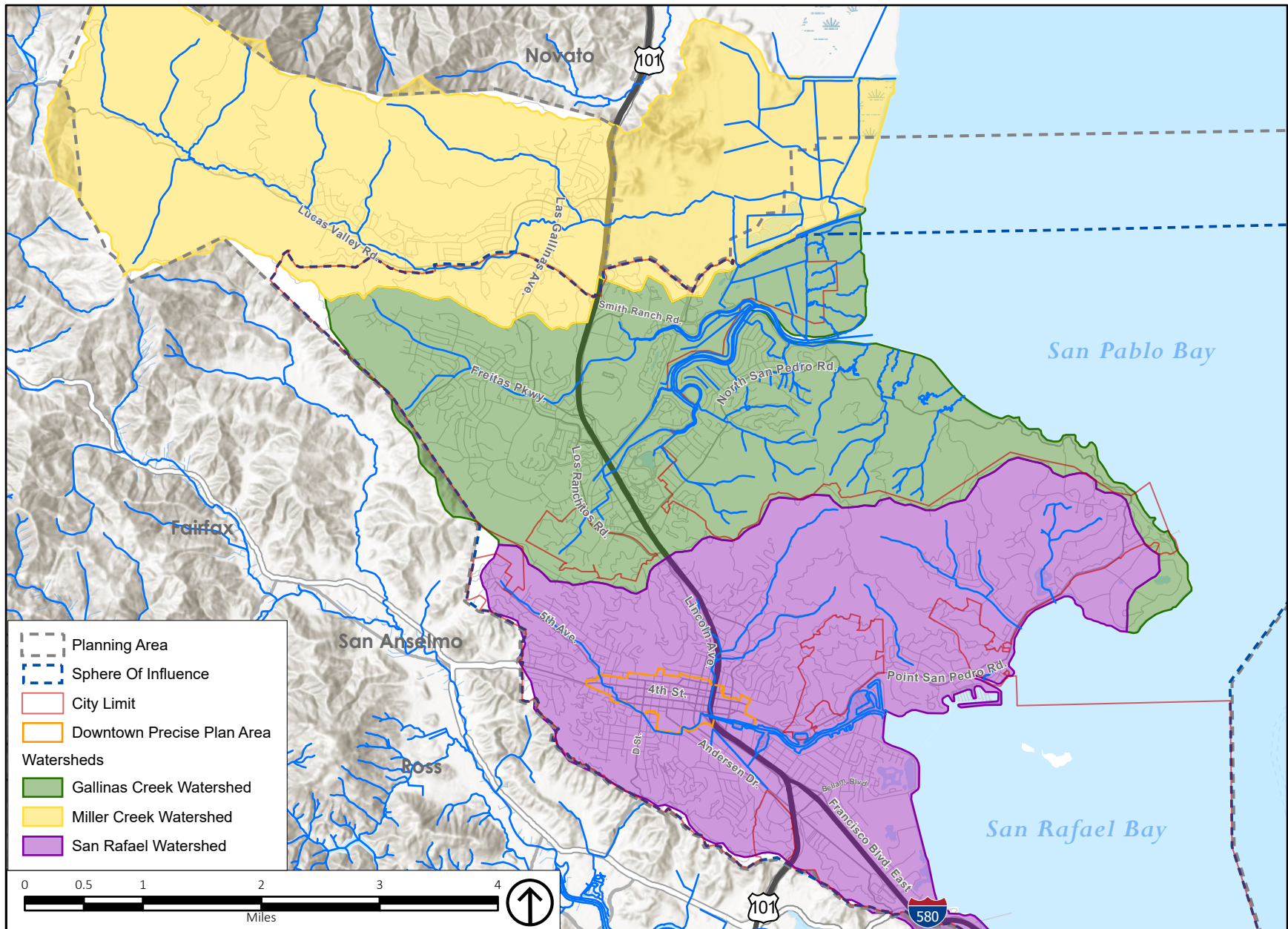
- Miller Creek Watershed.** The Miller Creek Watershed is in the northern portion of the EIR Study Area, immediately north of the Gallinas Creek Watershed. The watershed encompasses 12 square miles and flows eastward from the western end of the Lucas Valley, through Miller Creek Estates and Marinwood, to the Baylands at the Northwest Pacific Railroad Bridge.¹² Elevations range from 1,880 feet at Big Rock Ridge to sea level at San Pablo Bay.¹³ The upper watershed is located in Marin County Open Space, and the riparian habitat is somewhat degraded. The lower watershed flows through narrow, leveed channels into San Pablo Bay.¹⁴

¹² Marin Watershed Program, 2019 *Miller Creek*, <https://www.marinwatersheds.org/creeks-watersheds/miller-creek>, accessed on April 29, 2019.

¹³ City of San Rafael, 2004, *San Rafael General Plan 2020, Draft EIR*, Chapter 10, Hydrology, Water Quality, and Flood Hazards.

¹⁴ Marin Watershed Program, 2019, *Miller Creek Watershed, History and Habitat*, <https://www.marinwatersheds.org/miller-creek-watershed-history-and-habitat>, accessed on April 29, 2019.

HYDROLOGY AND WATER QUALITY



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.10-1
Watersheds

HYDROLOGY AND WATER QUALITY

- **Gallinas Creek Watershed.** The Gallinas Creek Watershed is located between the Miller Creek and San Rafael Creek watersheds. The watershed encompasses 5.6 square miles that is split into two drainage areas, the North Fork and the South Fork of Gallinas Creek.¹⁵ The North Fork is the larger of the two and flows from the ridgeline through Santa Margarita Valley and the Terra Linda neighborhood to the South Gallinas slough near McInnis Park. Because of tidal influences on the North Fork of Gallinas Creek, the low-lying communities of Santa Venetia, Marin Lagoon, and Contempo Marin are protected by flood control levees. The South Fork originates in the San Rafael Hills and San Pedro Ridge and flows through San Rafael Meadows and Santa Venetia into the Gallinas Slough. Elevations of the Gallinas Creek Watershed range from 1,100 feet in the western portion to sea level in the eastern portion of the drainage area.¹⁶ The upper slopes of the watershed are County-owned open space, and the creek is tidally influenced and channelized east of US-101.¹⁷ A significant portion of the watershed consists of tidal marshes, and the marshes adjacent to San Pablo Bay contain man-made levees.
- **San Rafael Creek Watershed.** The San Rafael Creek Watershed is the southernmost of the three watersheds and is located south of the Gallinas Creek Watershed. The watershed encompasses 11 square miles, including the Downtown Precise Plan Area, and is densely developed from the hills to the filled wetlands.¹⁸ San Rafael Creek originates in the hills above Tamalpais Cemetery and flows through highly urbanized areas before forming the San Rafael Canal in the vicinity of Second Street at US-101. The upper stream corridor consists of short stretches of open stream channels, underground culverts, and trapezoidal open channels. San Rafael Creek eventually enters San Rafael Bay at Pickleweed Park.¹⁹ Elevations of the San Rafael Creek Watershed range from 1,100 feet in the hills above Tamalpais Cemetery to sea level at the San Rafael Bay.²⁰ The San Rafael Creek Watershed encompasses several tributary watersheds, including Irwin Creek, Black Canyon Creek, Sister's Creek, and Mahon Creek. In the eastern portion of the watershed, Glenwood Creek and Peacock Gap Creek drain directly to San Rafael Bay. San Rafael Bay lies between Point San Quentin to the south and Point San Pedro to the north and is a wide, shallow mudflat that is an embayment of San Pablo Bay.

Local Hydrology

Stormwater runoff within the EIR Study Area is conveyed to the San Pablo Bay and the San Rafael Bay via natural drainage channels and the City's and County's storm drain system. The storm drain system within the City of San Rafael consists of 20 miles of corrugated metal pipes, 84 miles of concrete pipe, and 12 miles of plastic pipe. The storm drain system has 3,800 drain inlets, 20 major headwalls, and 745 smaller

¹⁵ Marin Watershed Program, 2019, *Gallinas Creek, Zone 6: San Rafael Meadows & Zone 7: Santa Venetia & CSA 6: Gallinas Creek, 2019* at <https://www.marinwatersheds.org/creeks-watersheds/gallinas-creek#undefined1>, accessed on April 29, 2019..

¹⁶ City of San Rafael, 2004, *San Rafael General Plan 2020, Draft EIR, Chapter 10, Hydrology, Water Quality, and Flood Hazards*.

¹⁷ Marin Watershed Program, 2019, *Gallinas Creek Watershed, History and Habitat*, <https://www.marinwatersheds.org/gallinas-creek-watershed-history-and-habitat>, accessed on April 29, 2019.

¹⁸ Marin Watershed Program, 2019, *San Rafael Creek*, <https://www.marinwatersheds.org/creeks-watersheds/san-rafael-creek#undefined1>, accessed on April 29, 2019.

¹⁹ Marin Watershed Program, 2019, *San Rafael Creek*, <https://www.marinwatersheds.org/creeks-watersheds/san-rafael-creek#undefined1>, accessed on April 29, 2019.

²⁰ City of San Rafael, 2004, *San Rafael General Plan 2020, Draft EIR, Chapter 10, Hydrology, Water Quality, and Flood Hazards*.

HYDROLOGY AND WATER QUALITY

headwalls.²¹ The City also maintains approximately 35 miles of open ditches and culverts and 12 stormwater pump stations.²² Stormwater pipelines in San Rafael range from 4 to 60 inches in diameter. Reinforced box culverts are also part of the storm drain system. A more detailed discussion of the storm drain system is provided in Chapter 4.17, Utilities and Service Systems, of this Draft EIR.

The City is responsible for maintaining the storm drains and certain waterways within City easements. Property owners are responsible for storm drains that are located on their properties.²³ The MCFCWCD operates and maintains stormwater pump stations, detention basins, bypass drains, creeks, ditches, and levees that are outside of the city limits but within the EIR Study Area. A more detailed discussion of these zones and the maintenance programs is provided in the section on Flood Zones, below. San Rafael Canal from Grand Avenue Bridge to San Rafael Bay is maintained by the USACE because it is classified a navigable waterway. The USACE conducts periodic dredging in the canal to remove accumulated sediment and keep the waterway accessible for commercial and recreational traffic.²⁴

Groundwater

Two groundwater basins identified in the DWR Bulletin 118 are within the EIR Study Area, specifically the San Rafael Valley and Novato Valley Basins. The locations of these groundwater basins are shown on Figure 4.10-2. However, existing groundwater resources within the EIR Study Area are very limited due to a lack of substantial underlying groundwater aquifers and poor groundwater quality. In addition, SRMC Section 9.24.070, Prohibition, prohibits the use of well water for more than one residential lot if the well is located within the MMWD's service area. Groundwater use within the MMWD's service area is limited to small, domestic use through private groundwater wells. The MMWD has studied the potential for municipal groundwater use since the 1970s, and the results of these studies have shown that the potential for municipal groundwater use within the boundaries of the MMWD service area is very limited due to limited production capabilities, water quality constraints, and potential water rights issues. As a result of these studies, groundwater is not currently used or planned to be used as a municipal water supply source by the MMWD, though private groundwater wells are used in the study area.²⁵

Regional groundwater quality data is very limited for the EIR Study Area. Groundwater quality is generally considered adequate for domestic and irrigation uses; however, localized areas experience poor groundwater quality. Saline intrusion continues to be an issue in areas bordering San Pablo Bay.

²¹ City of San Rafael Public Work Department, May 8, 2019, Email correspondence with Mark Wright, Operations and Maintenance Manager.

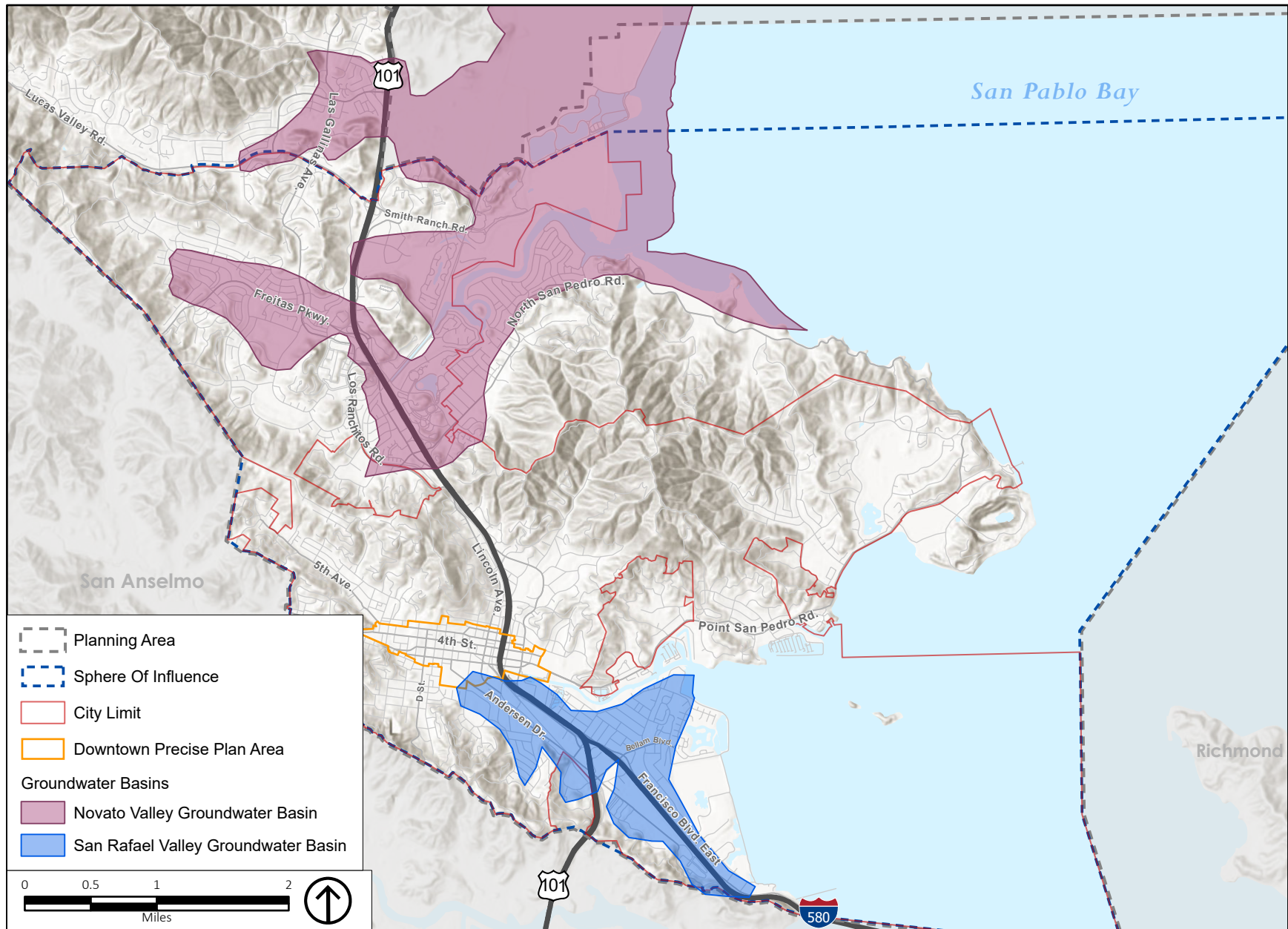
²² City of San Rafael Public Work Department, May 8, 2019, Interview with Kevin McGowan, Assistant Public Works Director/City Engineer.

²³ City of San Rafael Public Work Department, May 8, 2019, Interview with Kevin McGowan, Assistant Public Works Director/City Engineer.

²⁴ US Army Corps of Engineers - San Francisco District, *San Rafael Creek*, <https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Projects-by-Category/Projects-for-Navigable-Waterways/San-Rafael-Creek---/>, accessed on May 10, 2019.

²⁵ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

HYDROLOGY AND WATER QUALITY



Source: CA Department of Water Resources, 2020; ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.10-2
Groundwater Basins

HYDROLOGY AND WATER QUALITY

Although use of groundwater for domestic purposes is limited within the EIR Study Area, shallow groundwater is present beneath a large portion of the city, ranging in depths from 3 to 10 feet below ground surface.^{26,27} Shallow groundwater depths vary with large rainfall events, periods of drought, and tidal influences near shorelines. In addition, groundwater levels are at the highest levels (i.e., closest to the ground surface) during the rainy season and decreasing during the drier months. As sea levels rise, the intrusion of salt water along the coastline will push the fresh groundwater layer up, creating a rise in groundwater levels. If the groundwater rises to the surface, it can create emergent flooding and ponds. Because a large portion of the development within San Rafael is built on artificial, unconsolidated fill, shallow groundwater could contribute to a higher liquefaction risk during a seismic event. Rising groundwater can also cause inflow and infiltration into wastewater pipes.

If construction dewatering is required with future development within the EIR Study Area, the City must be contacted. Staff will determine whether groundwater can be discharged to the storm drain system and what measures must be taken to reduce sediment in the discharge. Some dewatering discharges may require a NPDES permit for the San Francisco Bay RWQCB. More information regarding construction dewatering is available from MCSTOPPP: BMPs for Trench Dewatering.²⁸

Climate

The EIR Study Area experiences a semiarid, Mediterranean climate, which consists of hot, dry summers with low humidity and very mild winters. The area receives about 35.6 inches of rain annually, which is primarily recorded during the five-month stretch between October and April. The winter average low temperature is about 41 degrees Fahrenheit and the average summer high temperature is about 82 degrees Fahrenheit.²⁹

Water Quality

Surface water quality is affected by point-source and nonpoint-source pollutants. Point source pollutants are emitted at a specific point, such as a pipe, and nonpoint-source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, and landscaped areas. Point-source pollutants are controlled with pollutant discharge regulations or water discharge requirements. Nonpoint-source pollutants are more difficult to monitor and control, although they are important contributors to surface water quality in urban areas.

Stormwater runoff pollutants vary based on land use, topography, the amount of impervious surface, the amount and frequency of rainfall, and irrigation practices. Runoff in developed areas typically contains oil,

²⁶ Gregg Drilling, 2020. Northern California Groundwater Depth Chart. Accessed at <http://www.greggdrilling.com/resources/> on October 6, 2020.

²⁷ State Water Resources Control Board, 2020. GeoTracker – site locations with groundwater wells within San Rafael undergoing remediation. Accessed at <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=San+Rafael%2C+CA> on October 6, 2020.

²⁸ MCSTOPPP, 2020. Marin County Stormwater Pollution Prevention Program – Best Management Practices for Trench Dewatering. Accessed at https://www.marincounty.org/-/media/files/departments/pw/mcstoppp/development/trenchingswreqmcsstopppfinal6_09.pdf?la=en on October 6, 2020.

²⁹ Foster Morrison, 2017, *City of San Rafael Local Hazard Mitigation Plan*, Page 2-3.

HYDROLOGY AND WATER QUALITY

grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations usually occur at the beginning of the wet season during the “first flush,” when early rainfall flushes out pollutants that have accumulated on hardscape surfaces during the preceding dry months.

The San Francisco Bay RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater within Marin County and San Rafael. The beneficial uses for surface water bodies and groundwater within the EIR Study Area are listed in Table 4.10-2.

TABLE 4.10-2 DESIGNATED BENEFICIAL USES OF WATER BODIES IN THE EIR STUDY AREA

WATER BODY	DESIGNATED BENEFICIAL USE
Surface Water	
Gallinas Creek	COLD, RARE, WARM, WILD, REC-1, REC-2
Miller Creek	COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2
San Rafael Creek	COLD, WARM, WILD, REC-1, REC-2, NAV
San Pablo Bay	IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, NAV
Groundwater	
San Rafael Valley	MUN, PRO, IND, AGR – Potential Uses
Novato Valley	MUN, PRO, IND, AGR – Potential Uses

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

Source: San Francisco Bay RWQCB, 2017. *Water Quality Control Plan (Basin Plan)*.

In addition to the establishment of beneficial uses and water quality objectives, another approach to improve water quality is a watershed-based methodology that focuses on all potential pollution sources and not just those associated with point sources. If a body of water does not meet established water quality standards under traditional point source controls, it is listed as an impaired water body under Section 303(d) of the Clean Water Act. For 303(d) listed water bodies, a limit is established that defines the maximum amount of pollutants that can be received by that water body. Listed impaired water bodies in the EIR Study Area and their associated pollutants of concern are presented in Table 4.10-3.

Once a water body has been placed on the 303(d) list of impaired waters, states are required to develop a TMDL threshold 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. A TMDL has been approved by the EPA for mercury in Central San Francisco Bay and diazinon in San Rafael Creek, Miller Creek, and Gallinas Creek.

HYDROLOGY AND WATER QUALITY

TABLE 4.10-3 LISTED IMPAIRED WATER BODIES IN SAN RAFAEL

Name	Pollutants of Concern		
San Rafael Creek	▪ Diazinon ^a		
Miller Creek	▪ Diazinon		
Gallinas Creek	▪ Diazinon		
Central San Francisco Bay	▪ Chlordane ^b	▪ Furan Compounds ^d	▪ PBDEs ^f
	▪ DDT ^a	▪ Invasive Species	▪ Selenium ^g
	▪ Dieldrin ^a	▪ Mercury	▪ Trash
	▪ Dioxin Compounds ^c	▪ PCBs ^e	
San Pablo Bay	▪ Chlordane	▪ Dioxin Compounds	▪ Mercury
	▪ DDT	▪ Furan Compounds	▪ PCBs Selenium
	▪ Dieldrin	▪ Invasive Species	▪ Trash

Notes:

^a Used as an insecticide.

^b Used as a pesticide.

^c Burning processes, such as commercial or municipal waste incineration, backyard burning, and the use of fuels, such as wood, coal, or oil, produce dioxins. The compounds collect in high concentrations in soils and sediments.

^d Furan is used in the formation of lacquers and as a solvent for resins.

^e PCBs were used widely in electrical equipment like capacitors and transformers. They were banned in the US in 1979.

^f PBDEs are fire retardant chemicals.

^g The greatest use of selenium compounds is in electronic and photocopier components, but they are widely used in other products as well. Selenium releases to the environment have been primarily from copper smelting industries.

Source: State Water Resource Control Board, 2019, Impaired Waters.

Flood Zones

FEMA determines floodplain zones to assist cities in mitigating flooding hazards through land use planning. FEMA also outlines specific regulations for any construction within a 100-year floodplain. The 100-year floodplain is defined as an area that has a 1 percent chance of being inundated during a 12-month period. FEMA also prepares maps for 500-year floods, which mean that in any given year, the risk of flooding in the designated area is 0.2 percent.

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

There are two main types of flooding that occur in the EIR Study Area: (1) tidal flooding and (2) watershed flooding. Tidal and watershed flooding can also occur simultaneously.

- **Tidal flooding** can occur due to extreme high tides, storm surge, and/or heavy rains in combination with high tides. The result is water that overflows the top bank elevation of tidal sloughs or channels, or the crest of levees. The filling of former baylands along the coastline allowed for urban development, and the higher land elevations initially protected the areas from flooding. However, subsequent subsidence of the bayland fill reduced the level of flood protection. Levees were constructed to protect the subsided areas from tidal flooding. The two major areas susceptible to tidal flooding in the EIR Study Area are along the lower portions of Gallinas Creek and San Rafael Creek,

HYDROLOGY AND WATER QUALITY

including the Canal neighborhood.³⁰ Levee overtopping and subsequent tidal flooding has occurred in the communities of Santa Venetia and low-lying areas of eastern San Rafael.³¹ Tidal flooding has also occurred along Point San Pedro Road.

- **Watershed flooding** occurs with the development of former floodplains, and an increase in stormwater flow rates with an increase in impervious surfaces. Excessive rainfall amounts over a short period of time can also result in flash flooding. Mud and debris slides may occur in the hillside areas. The primary causes of watershed flooding are the local streams and rivers overtopping their banks during extreme rainfall events, coupled by the inability of the topography and City's storm drain system to handle the stormwater runoff from these events.³²

In north San Rafael, Gallinas Creek is a major source of flooding. Other problem areas include Oleander Road, Los Gamos Road, and other roads in low-lying areas. The following areas may become isolated during heavy flooding: Point San Pedro Road near North Marin Yacht Club, Peacock Gap, and China Camp areas. Flooding has also occurred in the past on the southern tributaries to San Rafael Creek, in the Bret Harte/Picnic Valley and Irwin Street neighborhoods, and Lucas Valley Road near the intersection with Highway 101. Flooding also poses a serious threat to East San Rafael due to subsidence and consolidation of the bay muds. Much of the development in this area was constructed at or has subsided below the FEMA 100-year flood elevation.³³ The community of Santa Venetia, which is segregated from Las Gallinas Creek by levees, has experienced flooding, which has been exacerbated by hillslope debris obstructing inlet channels and pump station inlets. According to the City, numerous parcels and roads within the EIR Study Area that are not included in the FEMA 100- and 500-year floodplain maps may be subject to flooding during heavy rains.³⁴

A map of the EIR Study Area locations that are within the 100-year floodplains is shown on Figure 4.10-3. The 100-year flood zone is also known as a Special Flood Hazard Area; homeowners with mortgages within the Special Flood Hazard Area are required to be protected by flood insurance. Zone A on the 100-year floodplain map includes Zones AE and AH. Zone AE is defined as an area subject to inundation by the 100-year flood event where BFEs have been calculated. Zone AH is defined as an area subject to inundation by the 100-year flood with shallow flooding (usually areas of ponding)—average depths between one and three feet—and with BFEs derived from hydraulic analyses. Also included on the map are Zones VE, defined as coastal high hazard areas, which extend offshore to the inland limit that is subject to high-velocity wave action. The boundary of Zone VE is generally based on wave heights (3 feet or greater) or wave run-up depths (3 feet or greater).

As shown on Figure 4.10-3, most of the land south of Point San Rafael Road is within the 100-year floodplain and is subject to overflow from San Rafael Creek and/or tidal flooding.³⁵

³⁰ Foster Morrison Consulting, 2017. *San Rafael Local Hazard Mitigation Plan*. Dated June 2017.

³¹ County of Marin, 2005. *Flooding, Technical Background Report*. Marin Countywide Plan. Dated November 2005.

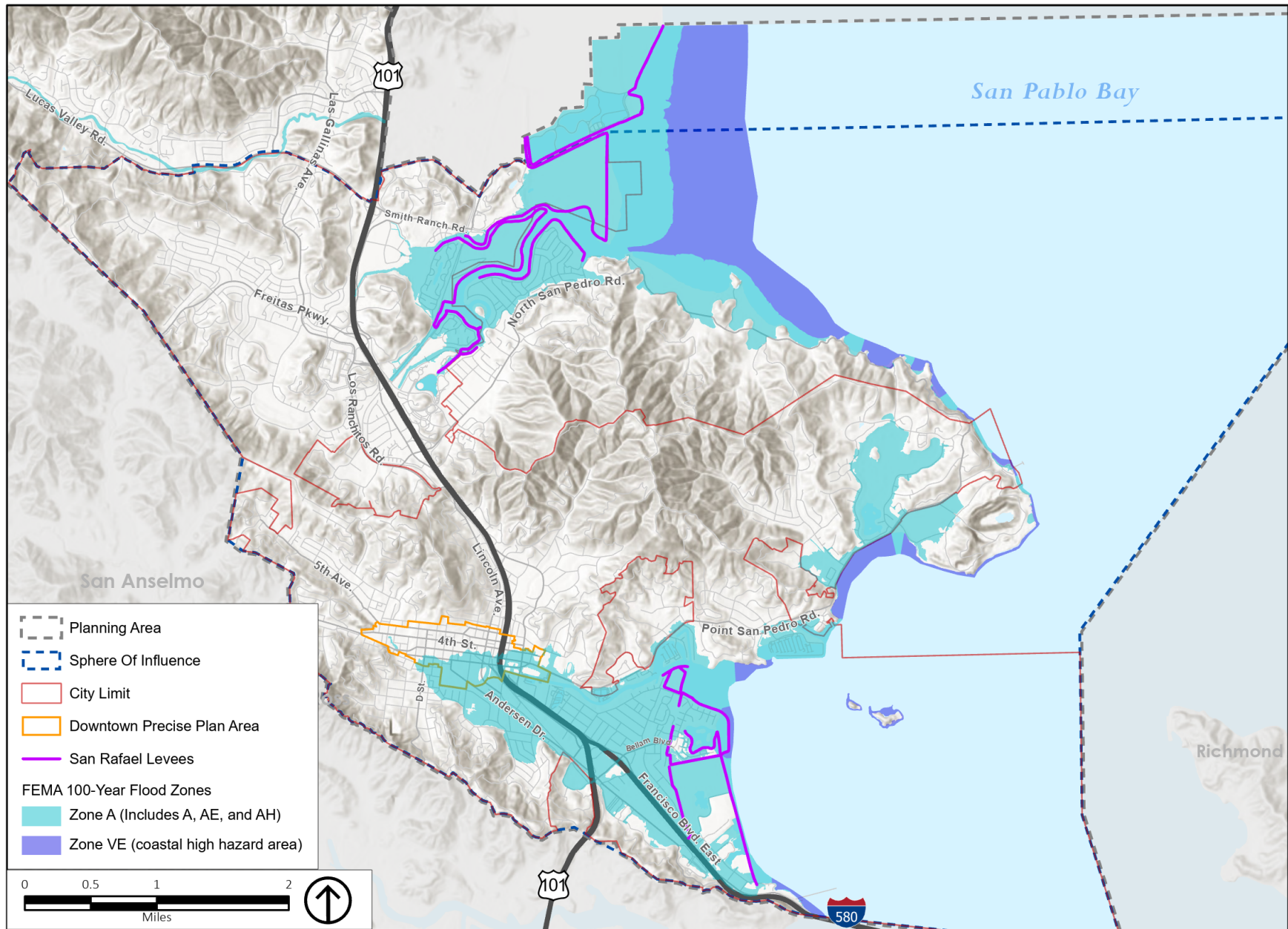
³² City of San Rafael, 2017. *San Rafael Local Hazard Mitigation Plan*. Dated June 2017.

³³ City of San Rafael, 2017. *San Rafael Local Hazard Mitigation Plan*. Dated June 2017.

³⁴ City of San Rafael, 2017. *San Rafael Local Hazard Mitigation Plan*. Dated June 2017.

³⁵ Federal Emergency Management Agency, Various *FIRM Maps Including 06081C0306E to 06081C309E*, <http://msc.fema.gov/portal>, accessed on April 29, 2019.

HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; County of Marin, 2009; ESRI, 2017; FEMA, 2017; National Levee Database, 2020; PlaceWorks, 2019.

Figure 4.10-3
FEMA 100-Year Flood Zones

HYDROLOGY AND WATER QUALITY

The area north of North San Pedro Road is also within the 100-year floodplain and subject to overflows from Las Gallinas Creek and/or tidal flooding. The eastern portion of San Rafael in the Peacock Gap neighborhood is within the 100-year floodplain, and the southern portion of the Downtown Precise Plan Area is also within the 100-year floodplain.

The DWR is in the process of developing “best available maps” (BAM) that display 100-year, 200-year, and 500-year floodplains for all counties in the state. Different than the FEMA maps, which are used to support the National Flood Insurance Program, the BAMs are provided for informational purposes, and the 100-year floodplains are a composite of multiple mapping sources from FEMA, USACE, and DWR. This provides the community and residents with an additional tool for understanding potential flood hazards that are not currently mapped as a regulated floodplain. The BAMs for the EIR Study Area are still in the process of development, and only the 100-year floodplains are currently mapped. The maps can be found at <https://gis.bam.water.ca.gov/bam/>.

In the downstream reaches of Miller Creek, Gallinas Creek, and San Rafael Creek, the tidal influence of San Pablo Bay reduces the floodwater conveyance potential of the channels. As a result, flood control measures, including levees and stormwater pumping stations, have been implemented to reduce the potential for flooding and facilitate the removal of stormwater during flood events. Levees are located along the creek outlets and many of the bayfront areas. Levees reduce but do not eliminate the risk to individuals or structures behind them. Overtopping failure occurs when the flood water level rises above the crest of the levee.

The locations of levees in San Rafael are also shown on Figure 4.10-3. The levee system in the northern portions of the city extends from Miller Creek outlet to Gallinas Creek outlet and includes levees along the north side of McInnis County Park. In the southern portion of the city, the levee system extends from Pickleweed Park eastward along San Rafael Canal to I-580 along the shoreline.³⁶

Although various locations within the EIR Study Area are protected from flooding by levees, FEMA’s policy is to disregard any flood protection benefit provided by a levee if that levee is not certified as meeting NFIP standards for freeboard and geotechnical stability.³⁷ There are no levees in the City of San Rafael that are currently certified. However, the City, in conjunction with MCFCWCD and the USACE, is in the process of improving some of the levees, such as the Gallinas Creek Levee.

The MCFCWCD has designated two of the areas in the 100-year floodplain as flood control zones; these include Zone 6: San Rafael Meadows and Zone 7: Santa Venetia.³⁸ In Zone 6, there are no pump stations, levees, floodwall, or critical infrastructure except for creeks and drainage ditches, which typically do not flood as long as the channels are maintained and kept clear of growth and debris. This area is not within the 100-year floodplain. In 2004, Redwood Village was developed within the southern portion of this zone. The stormwater infrastructure was rerouted around the Corrillo Drive neighborhood, eliminating a

³⁶ FEMA, 2018, *FEMA Flood Zones (Map Service)*.

³⁷ FEMA, 2015. *Levee Certification vs. Levee Accreditation*. Accessed at <https://www.fema.gov/media-library/assets/documents/22957> on February 25, 2016.

³⁸ Marin County Flood Control & Water Conservation District, 2019, *Flood Control Zones*, <http://www.marinwatersheds.org/flood-protection/flood-control-zones#undefined5>, accessed on April 29, 2019.

HYDROLOGY AND WATER QUALITY

significant cause of flooding in Zone 6.³⁹ Zone 7, Santa Venetia, has subsided due to the compression of Bay mud and is now below the high tide level. Work in Zone 7 includes regular servicing of 14 pumps at 5 pump stations, maintenance of 1.9 miles of flood protection levees, maintenance of tide gates and trash racks, and an annual vegetation maintenance program along 0.85 mile of Gallinas Creek.

Within the EIR Study Area, Conservation Corps North Bay performs annual vegetation maintenance work in creeks and ditches under the direction of the City. Sediment removal is performed on an as-needed basis before, during, and after storms. The Conservation Corps North Bay inspects and clears facilities as needed and is also available for sandbagging and/or tarping levees and creek banks, as requested.⁴⁰

Dam Inundation Zones

There are four dams in Marin County that are in the vicinity of the city. The dam inundation areas of three of the dams show discharges with dam failure to the northwest and away from the City. The closest dam to the study area is the Phoenix Lake dam, which is approximately two miles southwest of the EIR Study Area. However, the Phoenix Lake dam has a dam inundation zone along Corte Madera Creek southwest of the EIR Study Area.⁴¹ There are no dam inundation zones within the EIR Study Area.

Sea Level Rise

A rise in average global temperatures due largely to an increase in greenhouse gas emissions is expected to be accompanied by a rise in global sea levels. California Executive Order S-13-2008 states that 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 from sea level rise.⁴² The *State of California Sea-Level Rise Guidance, 2018 Update* incorporates the most recent scientific findings from the Ocean Protection Council (OPC).⁴³ OPC predicts a range of sea level rise for San Pablo and San Francisco Bays based on risk-aversion scenarios. Risk aversion is defined as the strong inclination to avoid taking risks in the face of uncertainty.⁴⁴ Using medium-high risk aversion, OPC projects sea level rise in the San Pablo and San Francisco Bay Area to be 1.9 feet by

³⁹ Marin County Flood Control and Water Conservation District, May 28, 2019, Correspondence with Gerhard Epke, Senior Program Coordinator.

⁴⁰ County of Marin Public Works, 2019, *Marin Watershed Program Projects*.
<http://www.marinwatersheds.org/resources/projects/2015-2016-maintenance-storm-preparedness-zone-6-san-rafael-meadows>, accessed on April 29, 2019.

⁴¹ California Division of Safety of Dam, 2020, *California Dam Breach Inundation Maps*,
https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2, accessed May 10, 2020.

⁴² State of California, *Executive Order S-13-08*, <http://gov.ca.gov/news.php?id=11036>, accessed on November 17, 2015.

⁴³ California Natural Resources Agency, California Ocean Protection Council, 2018,
http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf.

⁴⁴ California Natural Resources Agency, California Ocean Protection Council, 2018, *State of California Sea-Level Rise Guidance, 2018 Update*, http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf.

HYDROLOGY AND WATER QUALITY

2050 and between 5.7 and 6.9 feet by 2100.⁴⁵ Most shoreline damage from sea level rise will occur as a result of coastal storms in combination with higher sea levels, which can temporarily raise sea levels by an additional two feet. The key factors that contribute to coastal flooding include high tides, storm surge, high waves, and high runoff rates from rivers and creeks.⁴⁶

Marin County has recently completed 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 and coastal storms.⁴⁷ The vulnerability assessment includes both incorporated and unincorporated areas of Marin County and assesses impacts to land use, buildings, transportation networks, utilities, recreation, and emergency services. Storm and tidal impacts are already occurring, and according to the *Marin Sea Level Rise Vulnerability Assessment*, approximately 2,121 acres, over 1,798 living units, 41 miles of road, 475 commercial parcels, and approximately 18 percent of all buildings in San Rafael will be affected by sea level rise by 2100.⁴⁸

San Rafael recently completed their *Sea-Level Rise Adaptation Study*, which assessed existing flood risks with future sea level rise projections, developed reasonable adaptations for the City's shoreline, evaluated the cost and benefits of adaptation measures, and created a phased adaptation plan to guide implementation. This study integrated the *Marin Sea Level Rise Vulnerability Assessment* with FEMA flood hazard zones and hydraulic monitoring to determine sea level rise and flood hazards in six specific areas: Bayfront South, Canal South, Canal North, Loch Lomond, Point San Pedro Road, and Las Gallinas.⁴⁹

Figure 4.10-4 and Figure 4.10-5 show the projected sea level rise citywide for 2050 and 2100, respectively. Figure 4.10-6 and Figure 4.10-7 show the projected sea level rise coinciding with the 100-year storm surge for 2050 and 2100, respectively. As shown, neighborhoods along the mouth of Gallinas Creek, the Bahia Vista and Canal neighborhoods, and areas near Point San Pedro are vulnerable to flooding from sea level rise and coastal storms by 2050. By 2100, the inundation area will spread farther inland along Gallinas Creek and San Rafael Creek, increasing the vulnerability of US-101 to regular flooding and inundation.

⁴⁵ California Natural Resources Agency, California Ocean Protection Council, 2018, *State of California Sea-Level Rise Guidance, 2018 Update*, http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A OPC_SLR_Guidance-rd3.pdf

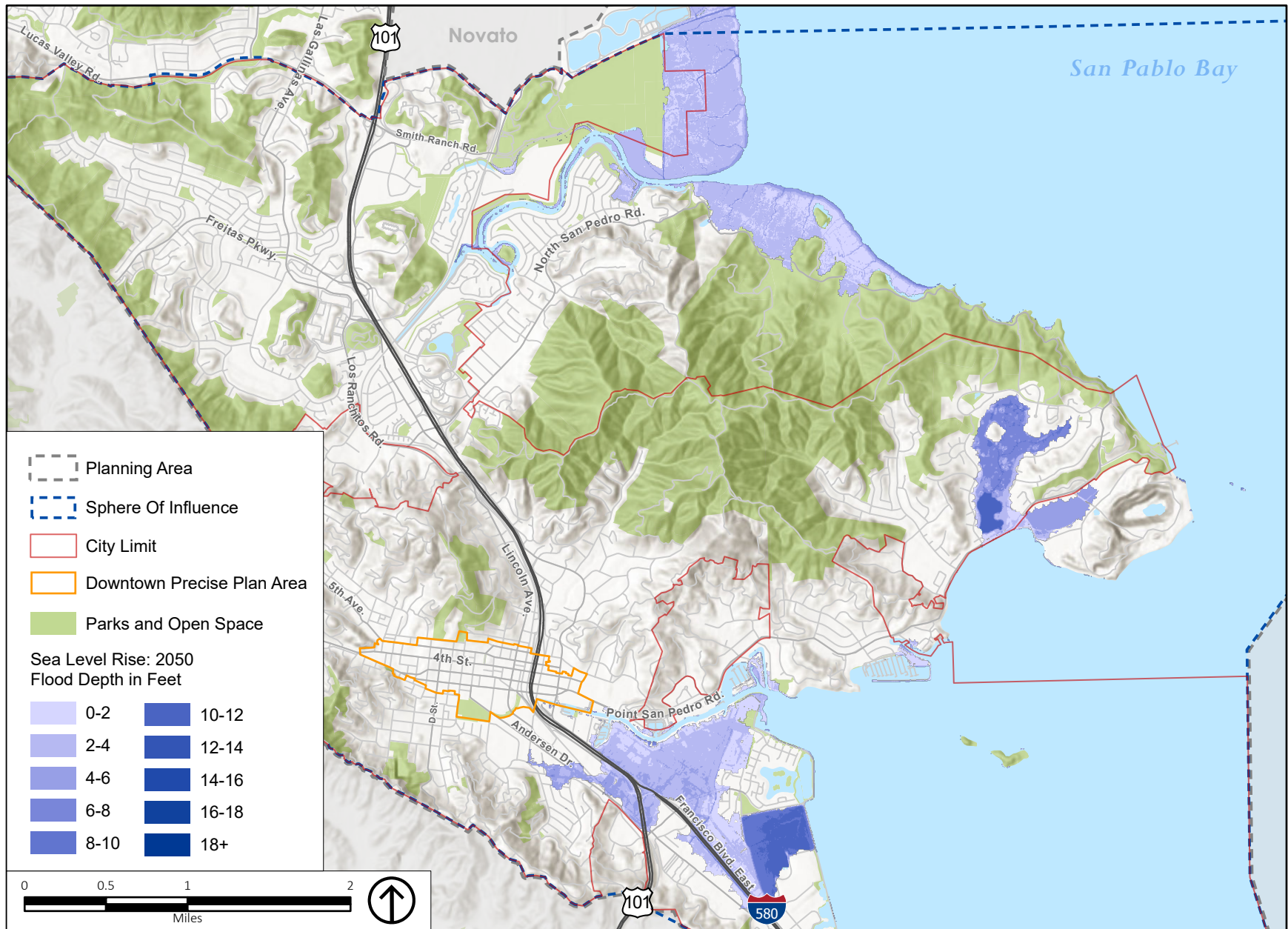
⁴⁶ San Francisco Bay Conservation and Development Commission, 2011, *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*.

⁴⁷ BVB Consulting LLC, 2017, *Marin Shoreline Sea Level Rise Vulnerability Assessment*.

⁴⁸ BVB Consulting LLC, 2017, *Marin Shoreline Sea Level Rise Vulnerability Assessment: San Rafael Community Profile*, Page 259.

⁴⁹ Environmental Science Associates, 2020, *San Rafael Sea-Level Rise Adaptation Study*, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2020/10/San-Rafeal-SLR-Vulnerability-Study-2020Jun19.pdf>.

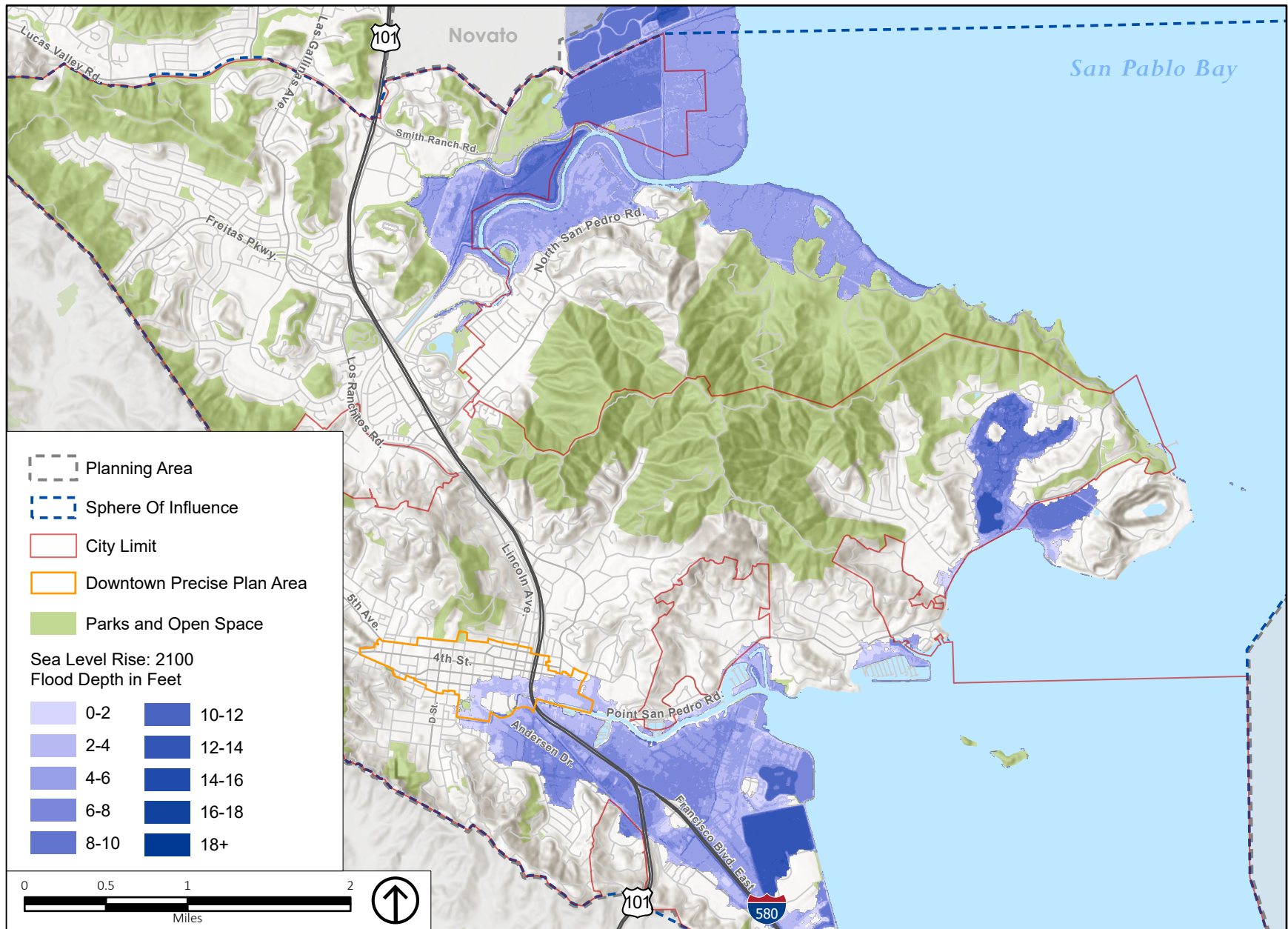
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-4
 Sea Level Rise in 2050

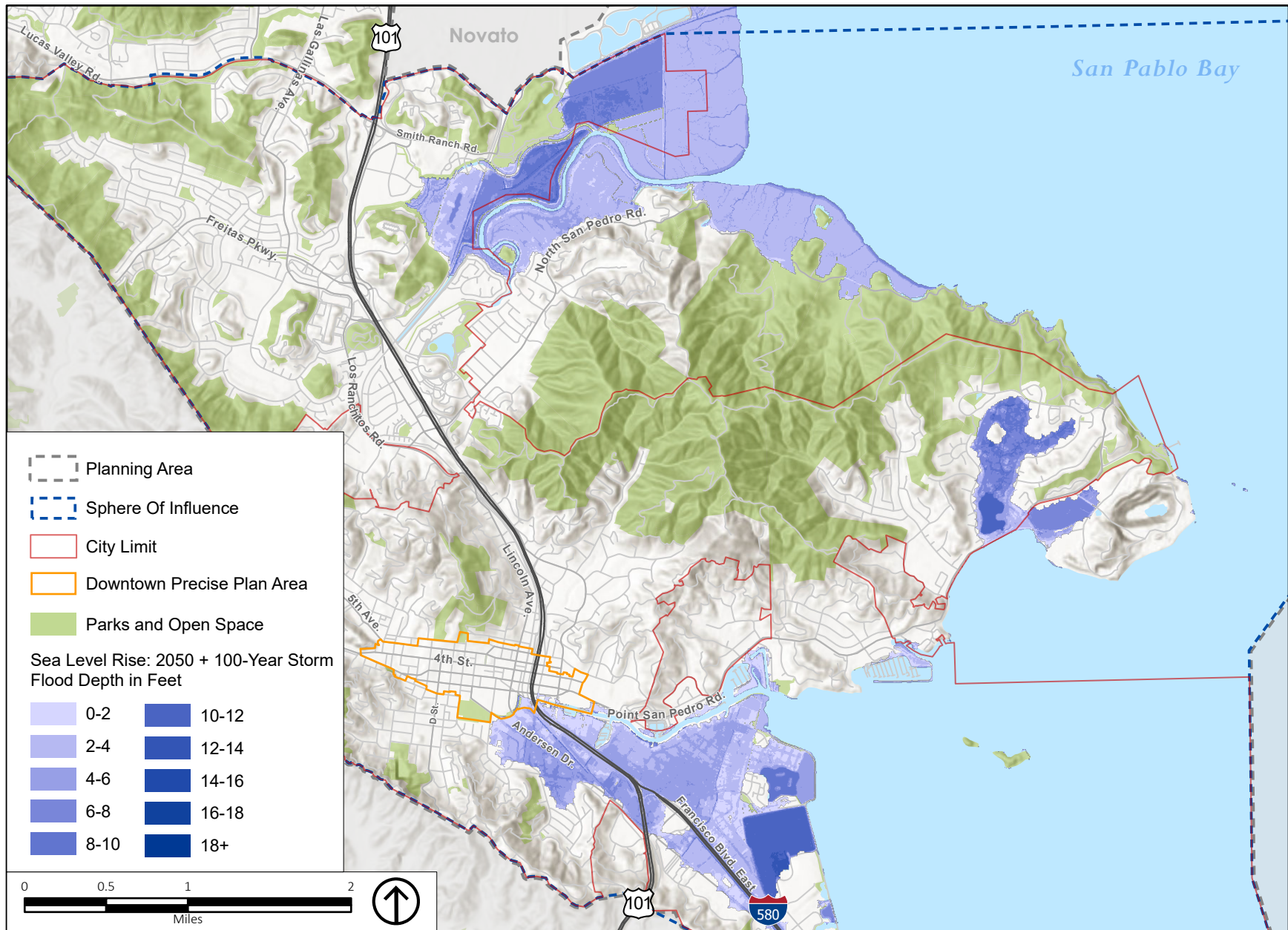
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-5
 Sea Level Rise in 2100

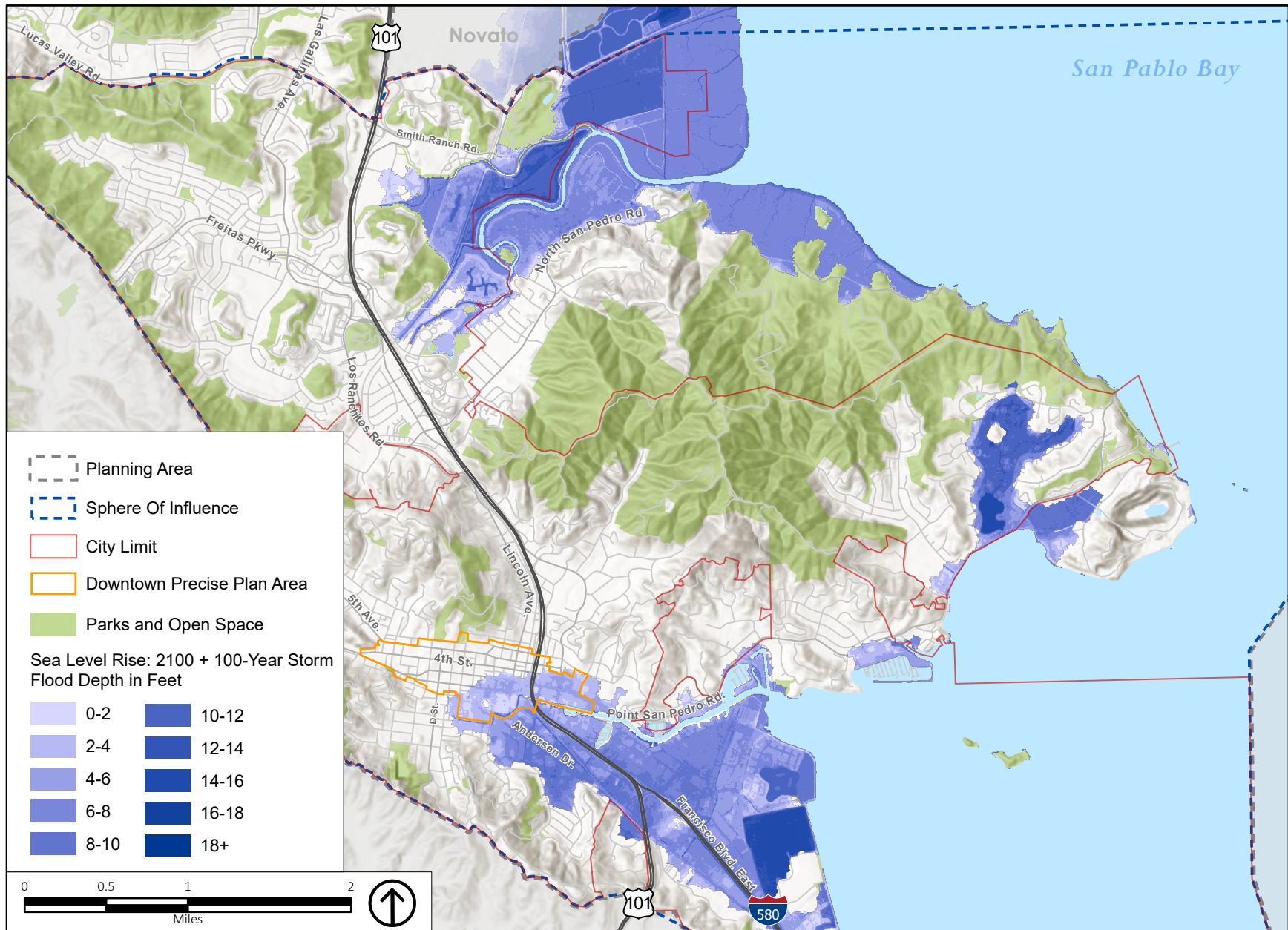
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-6
 Sea Level Rise in 2050 + 100-Year Storm Surge

HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-7
 Sea Level Rise in 2100 + 100-Year Storm Surge

HYDROLOGY AND WATER QUALITY

Tsunami

A tsunami is a series of traveling ocean waves generated by a rare, catastrophic event, including earthquakes, submarine landslides, and submarine or shoreline volcanic eruptions. Tsunamis can travel over the ocean surface at speeds of 400 to 500 miles per hour or more, and wave heights at the shore can range from inches to 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. A bayfront levee system currently protects portions of the city from high tides and waves; however, this could be overtopped by a tsunami.⁵⁰ According to the California Office of Emergency Services and Science Application for Risk Reduction tsunami inundation maps, the northern and southern shorelines of San Rafael and a portion of the Downtown Precise Plan Area are within the tsunami inundation zone.⁵¹ The 1964 Alaska earthquake resulted in a tsunami that caused \$1 million in damages in Marin County and damaged boats in Loch Lomond Marina in San Rafael.⁵² As shown on Figure 4.10-8, areas near the outlets of Gallinas Creek and San Rafael Creek, McInnis Park, and the coastal areas of the Canal, Loch Lomond, Glenwood, and Peacock Gap neighborhoods are within the tsunami inundation zone. The inundation zone extends inland from the Marin Yacht Club and Pickleweed Park to include a small portion of the Downtown Precise Plan Area. Marin County and the City of San Rafael are part of the tsunami warning system that would be implemented to evacuate and protect citizens in the unlikely event that a tsunami occurs.⁵³

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 bathtub. 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 pools can experience seiche waves up to several feet in height during a strong earthquake. However, for a seiche to occur in San Pablo or San Francisco Bay, the wave frequency of a tsunami would have to match the resonance frequency of the bay or harbor. The typical frequency of a tsunami is ten minutes to an hour, and the resonance frequency of the San Pablo and San Francisco Bay is somewhere between one to ten hours. Therefore, tsunamis have frequencies too short to resonate within the San Pablo and San Francisco Bay and a seiche is unlikely. However, since small harbors have a resonance frequency of 10 to 30 minutes, it is possible that a seiche could occur in San Rafael harbors, given a large magnitude earthquake.⁵⁴ There are no large bodies of water within the EIR Study Area that could trigger a seiche. Seiches associated with either Phoenix Lake or Bon Tempe Lake would have a seiche inundation zone much smaller than that of the dam inundation zone, and because the dam inundation zones do not reach the EIR Study Area, the possibility of a seiche impacting the city is negligible.

⁵⁰ Foster Morrison. 2017. City of San Rafael Local Hazard Mitigation Plan, Page 4-90.

⁵¹ 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.*

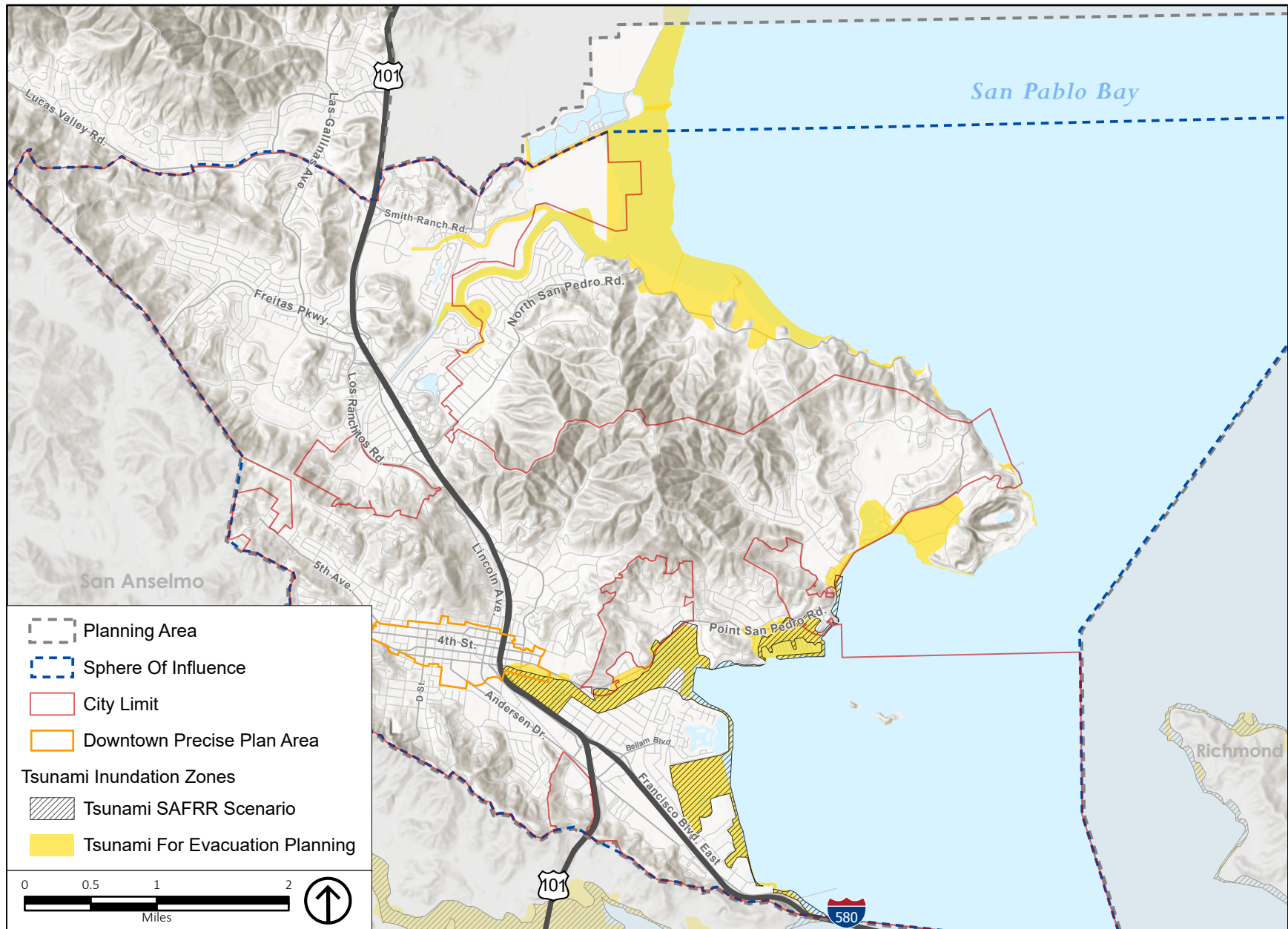
⁵² Foster Morrison, 2017. City of San Rafael Local Hazard Mitigation Plan, page 4-90.

⁵³ Marin County Sheriff's Office of Emergency Services. 2015. Tsunami Annex.

<https://www.marinsheriff.org/assets/downloads/01.30.2015-Tsunami-AnnexUH.pdf>

⁵⁴ Mika McKinnon, 2011. Tsunamis in Bays. Accessed at <https://geomika.com/blog/2011/03/14/tsunami-in-bays/> on June 24, 2020.

HYDROLOGY AND WATER QUALITY



Source: CalEMA, CGS, and USC, 2009; ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.10-8
Tsunami Inundation Zones

HYDROLOGY AND WATER QUALITY

Downtown Precise Plan Area

The Downtown Precise Plan Area is relatively flat, with sloping portions on the northern and western ends near Boyd Memorial Park and the West End neighborhood.⁵⁵ The Downtown Precise Plan Area is serviced by the same stormwater facilities that were described for the EIR Study Area as a whole. Stormwater pipelines in the Downtown Precise Plan Area range from 4 to 48 inches in diameter. A more detailed discussion of the storm drain system within the Downtown Precise Plan Area is provided in Chapter 4.17, Utilities and Service Systems, of this Draft EIR. A map of the portions of the Downtown Precise Plan Area that are within the 100-year floodplain is provided on Figure 4.10-9. As shown on the figure, the southern portion of the Downtown Precise Plan Area is within the 100-year floodplain. Figure 4.10-10 and Figure 4.10-11 show the projected sea level rise for the Downtown Precise Plan Area for the years 2050 and 2100, respectively. The Downtown Precise Plan Area is not impacted by sea level rise in 2050 but the southern and eastern portions of the Downtown Precise Plan Area are projected to experience significant flooding in 2100. Figure 4.10-12 and Figure 4.10-13 show the projected sea level rise coinciding with a 100-year storm surge for 2050 and 2100, respectively. As shown, by 2050 the area south of Second Street near US-101 is vulnerable to flooding with projected sea level rise plus a 100-year storm surge. By 2100, the area vulnerable to sea level rise and storm surge will spread farther north and west into the Downtown Precise Plan Area. As shown on Figure 4.10-14, the southeastern corner of the Downtown Precise Plan Area is within the tsunami inundation zone and inland neighborhoods are not in the zone.

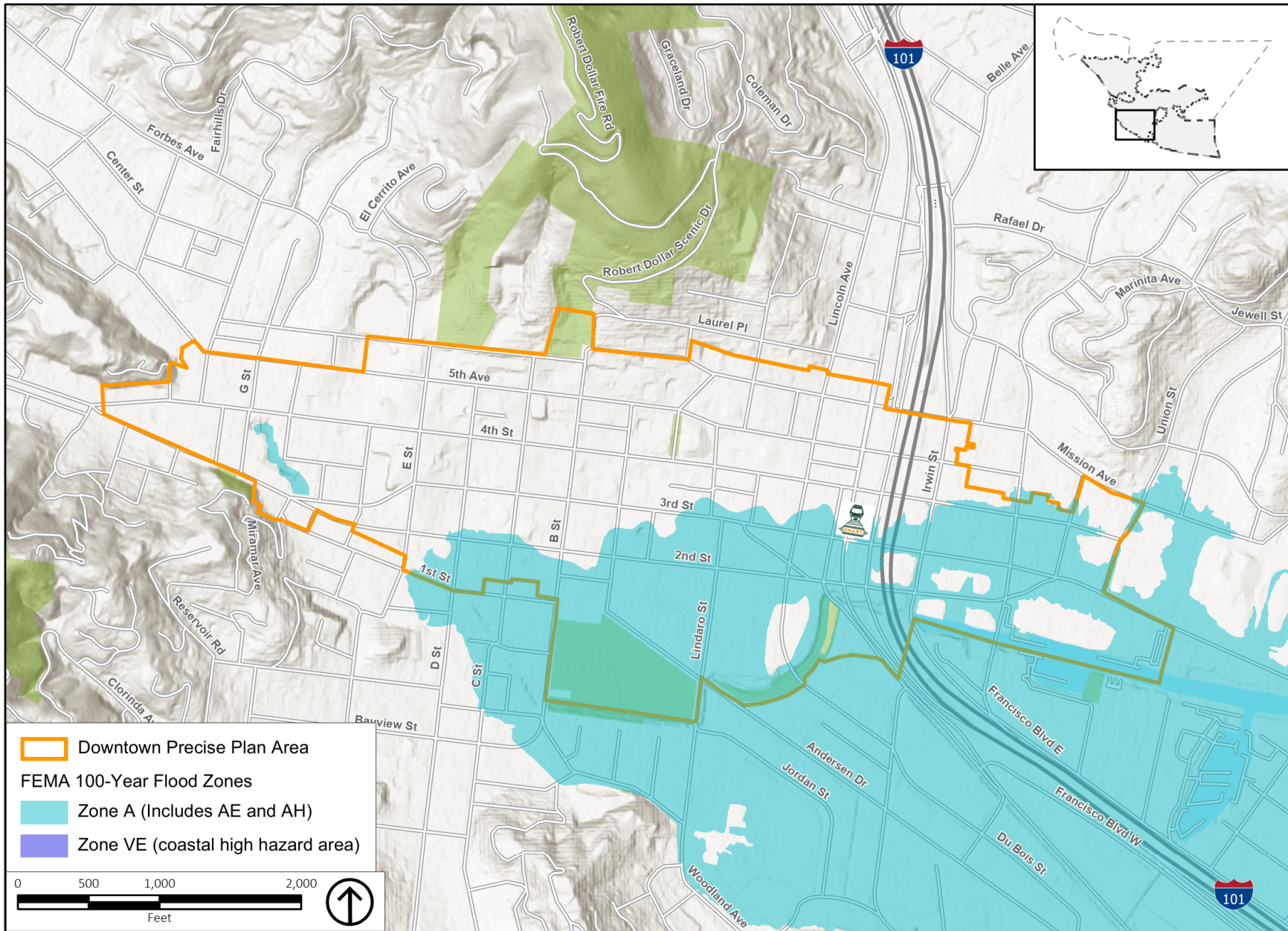
4.10.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant hydrology and water quality impact if it would:

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

⁵⁵ ESRI 2013, *Terrain: Slope Map*, <http://tpc.maps.arcgis.com/home/item.html?id=a1ba14d09df14f42ad6ca3c4bceb3b4>, accessed on April 29, 2019.

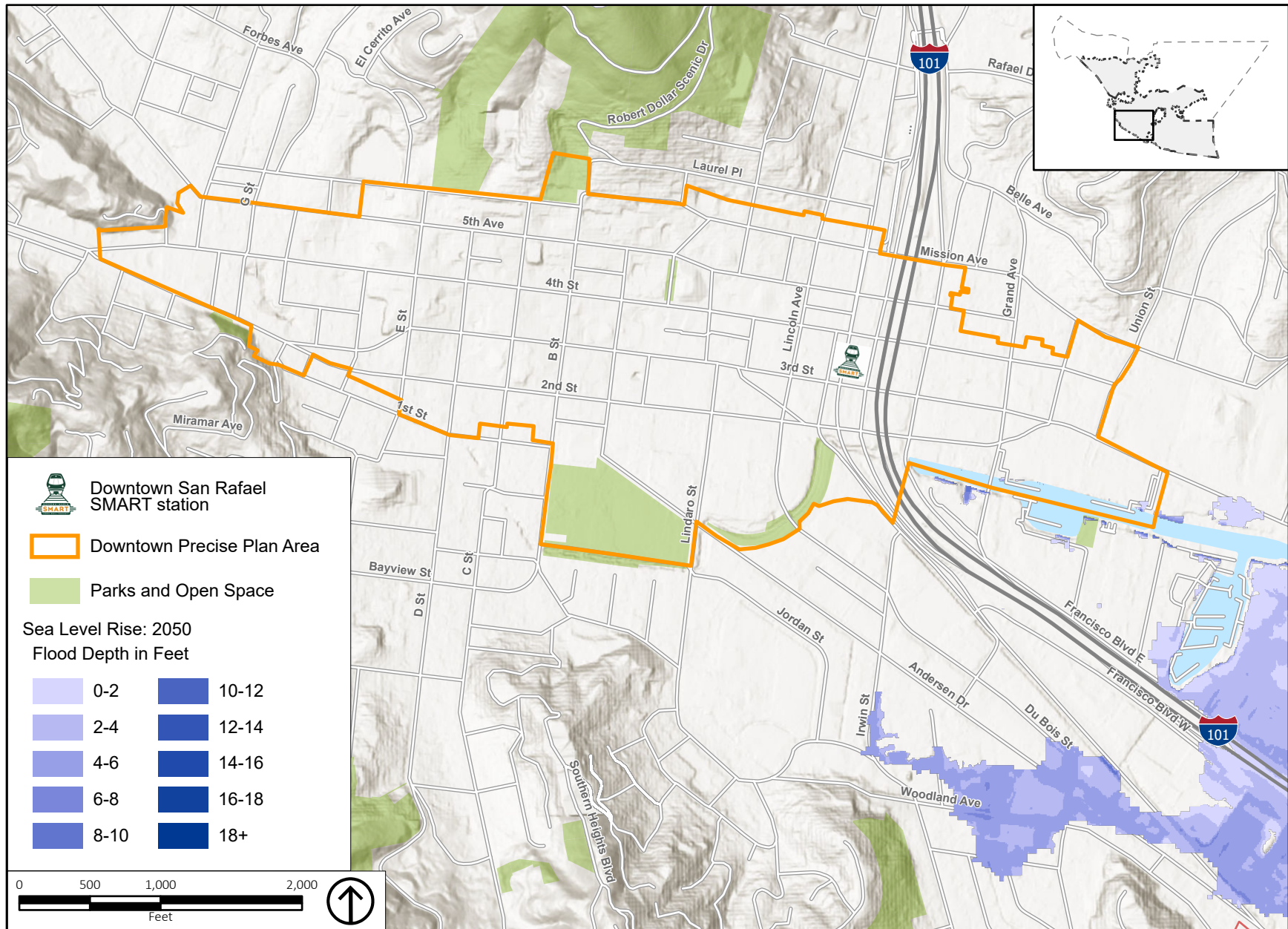
HYDROLOGY AND WATER QUALITY



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; FEMA, 2017; PlaceWorks, 2019.

Figure 4.10-9
Downtown FEMA 100-Year Flood Zones

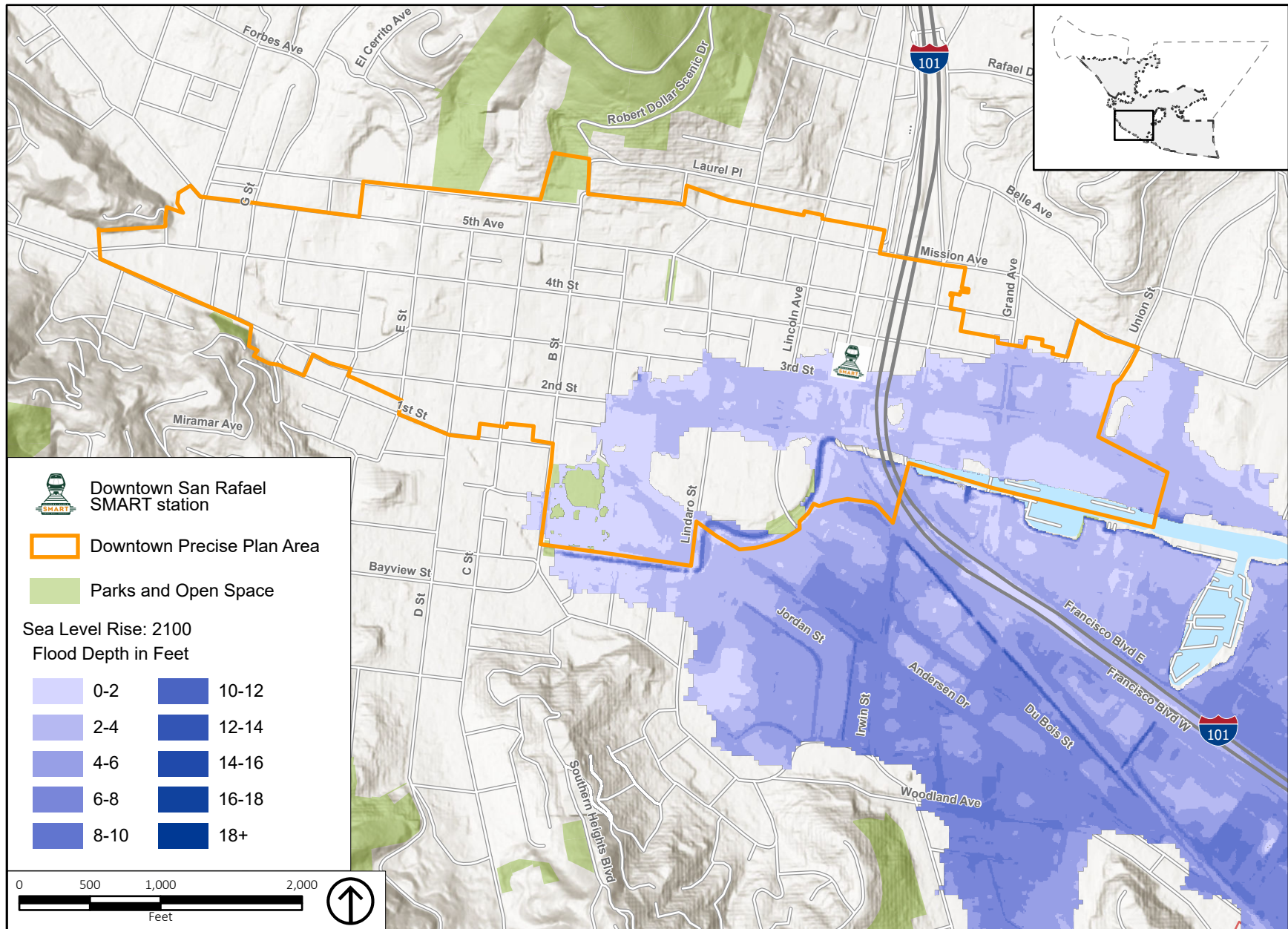
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-10
 Downtown Sea Level Rise in 2050

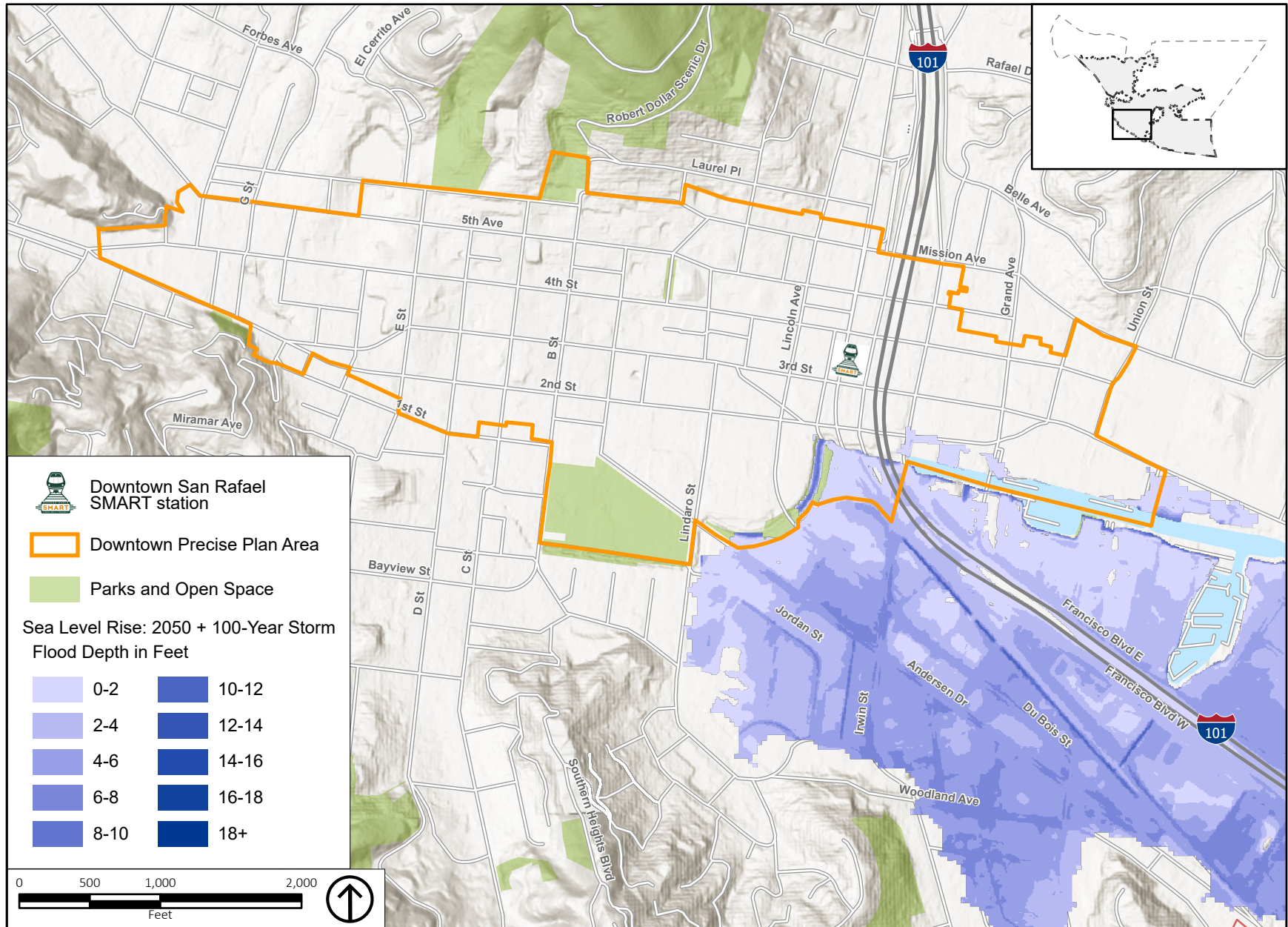
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-11
 Downtown Sea Level Rise in 2100

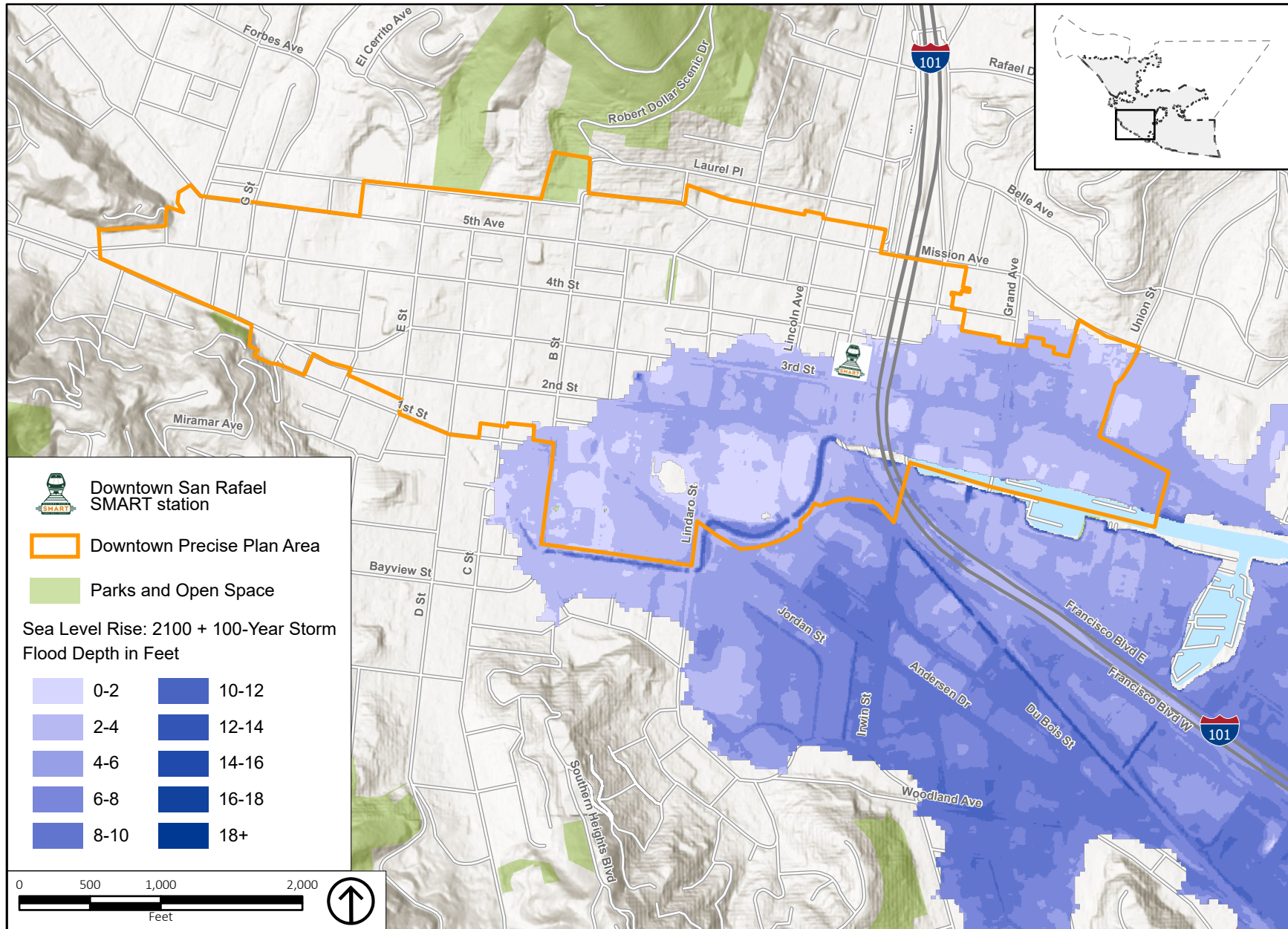
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-12
 Downtown Sea Level Rise in 2050 + 100-Year Storm Surge

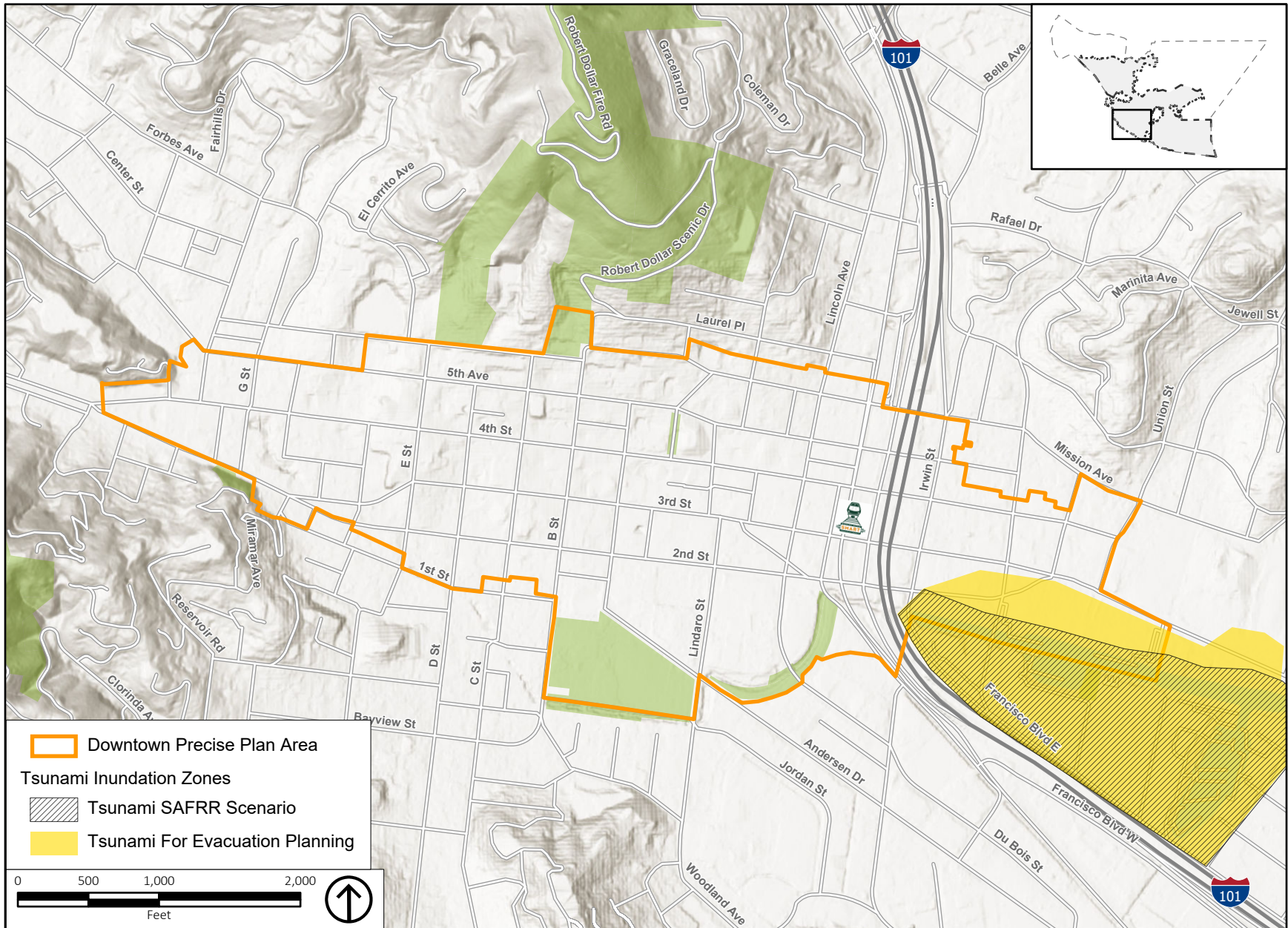
HYDROLOGY AND WATER QUALITY



Source: City of San Rafael, 2019; CoSMoS, 2016; County of Marin, 2009; ESRI, 2017; PlaceWorks, 2019.

Figure 4.10-13
 Downtown Sea Level Rise in 2100 + 100-Year Storm Surge

HYDROLOGY AND WATER QUALITY



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.10-14
Downtown Tsunami Inundation Zones

HYDROLOGY AND WATER QUALITY

4.10.3 IMPACT DISCUSSION

HYD-1	Implementation of the proposed project could violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
--------------	--

General Plan 2040

Discharges from Construction Sites to Stormwater

Buildout of the proposed General Plan 2040 would involve soil disturbance, construction, and operation of developed land uses that could generate pollutants affecting stormwater. Clearing, grading, excavation, and construction activities associated with the proposed General Plan 2040 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, future development pursuant to the proposed General Plan 2040 would require compliance with the Construction General Permit (CGP) Water Quality Order 2009-0009-DWQ (as amended by Order No. 2010-0014-DWQ and 2012-006-DWQ), which includes the preparation and implementation of a SWPPP. A SWPPP requires the incorporation of BMPs to control sediment, erosion, and hazardous materials contamination of runoff during construction and prevent contaminants from reaching receiving water bodies. The SWRCB mandates that projects that disturb one or more acres of land must obtain coverage under the Statewide CGP. The CGP also requires that prior to the start of construction activities, the project applicant must file PRDs with the SWRCB, which includes a Notice of Intent, risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations. The construction contractor is required to maintain a copy of the SWPPP at the site and implement all construction BMPs identified in the SWPPP during construction activities. Prior to the issuance of a grading permit, the project applicant is required to provide proof of filing of the PRDs with the SWRCB. Categories of potential BMPs that would be implemented for the proposed General Plan 2040 are described in Table 4.10-4.

Submittal of the PRDs and implementation of the SWPPP throughout the construction phase of development pursuant to the proposed General Plan 2040 will address anticipated and expected pollutants of concern from construction activities. Furthermore, future projects would abide by the requirements of SRMC Chapter 9.30, which specifies construction-phase BMPs to prevent the discharge of contaminants to stormwater during construction and requires an ESCP to be prepared for review and approval by the City. As a result, water quality impacts associated with construction activities would be less than significant.

HYDROLOGY AND WATER QUALITY

TABLE 4.10-4 CONSTRUCTION BEST MANAGEMENT PRACTICES TO PREVENT EROSION

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	<ul style="list-style-type: none"> Use project scheduling and planning to reduce soil or vegetation disturbance (particularly during the rainy season) Prevent or reduce erosion potential by diverting or controlling drainage Prepare and stabilize disturbed soil areas 	Scheduling, preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextile and mats, wood mulching, earth dikes and drainage swales, velocity dissipation devices, slope drains, streambank stabilization, compost blankets, soil preparation/roughening, and non-vegetative stabilization
Sediment Controls	<ul style="list-style-type: none"> Filter out soil particles that have been detached and transported in water 	Silt fence, sediment basin, sediment trap, check dam, fiber rolls, gravel bag berm, street sweeping and vacuuming, sandbag barrier, straw bale barrier, storm drain inlet protection, manufactured linear sediment controls, compost socks and berms, and biofilter bags
Wind Erosion Controls	<ul style="list-style-type: none"> Apply water or other dust palliatives to prevent or minimize dust nuisance 	Dust control soil binders, chemical dust suppressants, covering stockpiles, permanent vegetation, mulching, watering, temporary gravel construction, synthetic covers, and minimization of disturbed area
Tracking Controls	<ul style="list-style-type: none"> Minimize the tracking of soil offsite by vehicles 	Stabilized construction roadways and construction entrances/exits, and entrance/outlet tire wash
Nonstorm Water Management Controls	<ul style="list-style-type: none"> Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges 	Water conservation practices, temporary stream crossings, clear water diversions, illicit connection/discharge, potable and irrigation water management, and the proper management of the following operations: paving and grinding, dewatering, vehicle and equipment cleaning, fueling and maintenance, pile driving, concrete curing, concrete finishing, demolition adjacent to water, material over water, and temporary batch plants
Waste Management and Controls (i.e., good housekeeping practices)	<ul style="list-style-type: none"> Manage materials and wastes to avoid contamination of stormwater 	Stockpile management, spill prevention and control, solid waste management, hazardous waste management, contaminated soil management, concrete waste management, sanitary/septic waste management, liquid waste management, and management of material delivery storage and use

Source: Compiled by PlaceWorks from information provided in the California Stormwater Quality Association's Construction BMP Handbook.

Discharges from Developed Land Uses (Post-construction) to Stormwater

With the proposed land use changes, development resulting from the proposed General Plan 2040 may result in long-term impacts to the quality of stormwater and urban runoff, subsequently impacting downstream water quality. Developments can potentially create new sources for runoff contamination through changing land uses. As a consequence, developments within the EIR Study Area as a whole may have the potential to increase the post-construction pollutant loadings of certain constituent pollutants associated with the proposed land uses and their associated features, such as landscaping and plaza areas.

HYDROLOGY AND WATER QUALITY

To help prevent long-term impacts associated with land use changes and in accordance with the requirements of the BASMAA Post-Construction Manual and the Phase II Small MS4 permit (Order No. 2013-0001-DWQ), designated new development and significant redevelopment projects must incorporate low-impact development (LID)/site design and BMPs to address post-construction stormwater runoff. Table 4.10-5 summarizes the minimum requirements for new projects or redevelopment projects.

In addition, projects that create and/or replace one acre or more of impervious surfaces must comply with the hydromodification requirements specified in the E.12 provisions of the Phase II Small MS4 permit. These requirements include implementing site design measures to achieve infiltration, evapotranspiration, and/or harvesting/reuse of the 85th percentile 24-hours storm runoff event to the extent feasible and treatment of the remaining runoff with bioretention facilities. The hydromodification provisions also require that post-project runoff does not exceed pre-project runoff for the 2-year, 24-hour storm event.

TABLE 4.10-5 PHASE II MS4 PERMIT REQUIREMENTS

Type of Project	Project Requirements
Single-Family Homes^{a, b} Projects that create or replace 2,500 square feet (SF) or more of impervious surface.	Implement at least one measure to reduce runoff, for example by dispersing runoff to landscape or using pervious pavements. Additional Requirements: <ul style="list-style-type: none"> ▪ Limit clearing, grading, and soil compaction. ▪ Minimize impervious surfaces.
Small Projects^b Projects that create or replace between 2,500 and 5,000 SF of impervious surface.	<ul style="list-style-type: none"> ▪ Conserve natural areas of the site as much as possible consistent with local General Plan policies. ▪ Comply with stream setback ordinances/requirements. ▪ Protect slopes and channels against erosion.
Regulated Projects , other than single-family homes, ^a that create or replace 5,000 SF or more of impervious surface. ^c	Site Design/Runoff Reduction Measures (above), plus: <ul style="list-style-type: none"> ▪ Route remaining runoff to bioretention or other facilities sized and designed according to the criteria in Chapter 4 of the BASMAA Post-Construction Manual. ▪ Identify potential sources of pollutants and implement corresponding source control measures in Appendix A of the BASMAA Post-Construction Manual. ▪ Provide for ongoing maintenance of bioretention facilities.

Notes:

^a. Single-family homes (determined by planning department) that are not part of a larger plan of development.

^b. Single Family Homes or Small Projects may be required to follow requirements for Regulated Projects where deemed appropriate by the municipality based on the nature and extent of the proposed project

^c. Includes roads and linear utility projects that create 5,000 SF or more of newly constructed, contiguous impervious surface.

Source: Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual, 2019.

All regulated projects are required to prepare a Stormwater Control Plan or “SCP” that demonstrates that the project incorporates site design measures and treatment facilities that will:

- Minimize imperviousness
- Retain or detain stormwater
- Slow runoff rates
- Reduce pollutants in post-development runoff

HYDROLOGY AND WATER QUALITY

In particular, the SCP would show that all runoff from impervious areas is either dispersed to landscape or routed to a properly designed LID treatment facility.⁵⁶ LID is an approach to land development (or redevelopment) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features and minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to adhere to these principles, such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions.

Since the proposed General Plan 2040 does not include specific or detailed development plans, SCPs are not required at this time. New development and redevelopment projects within the EIR Study Area will be required to prepare SCPs consistent with the guidance in the BASMAA Post-Construction Manual and the Phase II MS4 permit at the time of project application.

As part of the statewide mandate to reduce trash within receiving waters, the City is required to adhere to the requirements of the California Trash Amendments. The requirements include the installation and maintenance of trash screening devices at all public curb inlets, grate inlets, and catch basin inlets. The trash screening devices must be approved by the local agency and be consistent with the minimum standards of the Trash TMDL.

Additionally, all development pursuant to the proposed General Plan 2040 shall comply with the requirements of the SRMC, which prohibits illicit connections to the storm drainage system and forbids prohibited discharges. All development that discharge storm water associated with industrial activity shall also comply with the requirements of the General Industrial Permit (Order No. CAS000001). Development that involves the installation or decommissioning of water wells shall do so in accordance with Section 13751 of the Water Code. As stated previously, the SRMC Section 9.30.151 requires submittal and implementation of an SCP for new or significant redevelopment projects, subject to approval by the City and in accordance with the BASMAA Post-Construction Manual and the Phase II Small MS4 Permit.

The proposed Conservation and Climate Change (C), Safety and Resilience (S), and Community Services and Infrastructure (CSI) Elements contain goals, policies, and programs that require local planning and development decisions to consider impacts to water quality. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts on water quality and wastewater discharge:

Goal C-3: Clean Water. Improve water quality by reducing pollution from urban runoff and other sources, restoring creeks and natural hydrologic features, and conserving water resources.

⁵⁶ Bay Area Stormwater Management Agencies Association, January 2019, *BASMAA Post-Construction Manual*, <https://www.countyofnapa.org/DocumentCenter/View/3780/Bay-Area--Stormwater-Management-Agencies-Association-BASMAA-Post-Construction-Manual-PDF>, accessed May 10, 2020.

HYDROLOGY AND WATER QUALITY

- **Policy C-3.1: Water Quality Standards:** Continue to comply with local, state and federal water quality standards.
 - **Program C-3.1A: Interagency Coordination.** Coordinate with the local, state, and federal agencies responsible for permitting discharges to San Rafael's creeks and surface waters, monitoring water quality, and enforcing adopted water quality standards and laws.
- **Policy C-3.2: Reduce Pollution from Urban Runoff:** Require Best Management Practices (BMPs) to reduce pollutants discharged to storm drains and waterways. Typical BMPs include reducing impervious surface coverage, requiring site plans that minimize grading and disturbance of creeks and natural drainage patterns, and using vegetation and bioswales to absorb and filter runoff.
 - **Program C-3.2A: Countywide Stormwater Program.** Continue to participate in the countywide stormwater pollution prevention program and comply with its performance standards.
 - **Program C-3.2B: Reducing Pollutants in Runoff.** Continue to reduce the discharge of harmful materials to the storm drainage system through inspections, enforcement programs, reduced use of toxic materials, and public education.
 - **Program C-3.2C: Construction Impacts.** Continue to incorporate measures for stormwater runoff control, management, and inspections in construction projects and require contractors to comply with accepted pollution prevention planning practices. Provisions for post-construction stormwater management also should be included.
 - **Program C-3.2D: System Improvements.** Improve storm drainage performance through regular maintenance and clean-out of catch basins, installation of trash capture devices, a City street sweeping program, and prioritizing Trash Reduction Implementation measures, including installation of trash capture devices. When existing drainage lines are replaced, design changes should be made as needed to increase capacity to handle intensifying storms and expected sea level rise impacts.
 - **Program C-3.2E: Pesticide and Fertilizer Management.** On City property, reduce or eliminate the use of toxic pesticides and fertilizers. Ensure that the application of pesticides follows all applicable rules and regulations and is performed through a transparent process in which the public receives early notification.
 - **Program C-3.2F: Monitoring.** Support ongoing water quality testing in San Rafael's creeks and waterways to evaluate the effectiveness of existing programs and determine where additional pollution control measures may be needed.
- **Policy C-3.3: Low Impact Development:** Encourages construction and design methods that retain stormwater on-site and reduce runoff to storm drains and creeks.
 - **Program C-3.3A: Development Review.** Provide guidance to developers, contractors and builders on the use of rain gardens, bioswales and bio-retention facilities, permeable pavers, grass parking lots, and other measures to absorb stormwater and reduce runoff rates and volumes.
 - **Program C-3.3B: Non-Traditional Gardens.** Evaluate best practices in the use of roof gardens, vertical gardens/ green walls, pollinator gardens and other measures that increase the City's capacity to sequester carbon, plant trees, and enhance environmental quality. Encourage the incorporation of such features in new development.
- **Policy C-3.4: Green Streets.** Requires the City to design streets and infrastructure so they are more compatible with the natural environment, mitigate urban heat island effects, and have fewer negative impacts on air and water quality, flooding, climate, and natural habitat.

HYDROLOGY AND WATER QUALITY

- **Program C-3.4A: Green Streets Planning.** Develop a Green Streets Plan that includes policy guidance, tools, analytics, and funding mechanisms to create more sustainably designed street and storm drainage systems. Street and drainage system improvements should support City conservation and climate change goals.
- **Program C-3.4B: Funding.** Identify and apply for grants and federal, state, and regional funds to upgrade stormwater facilities, rehabilitate roads, and implement other Green Streets initiatives.
- **Policy C-3.5: Groundwater Protection.** Protect San Rafael’s groundwater from the adverse effects of urban uses. Encourage opportunities for groundwater recharge to reduce subsidence and water loss, and support water-dependent ecosystems.
 - **Program C-3.5A: Underground Tank Remediation.** Continue efforts to remediate underground storage tanks and related groundwater hazards. Avoid siting new tanks in areas where they pose hazards, including areas prone to sea level rise.

Goal S-2: Resilience to Geologic Hazards. Minimize potential risks associated with geologic hazards, including earthquake-induced ground shaking and liquefaction, landslides, erosion, sedimentation, and settlement.

- **Policy S-2.5: Erosion Control.** Requires appropriate control measures in areas susceptible to erosion, in conjunction with proposed development. Erosion control measures should incorporate best management practices (BMPs) and should be coordinated with requirements for on-site water retention, water quality improvements, and runoff control.
 - **Program S-2.5A: Erosion and Sediment Control Plans.** Require Erosion and Sediment Control Plans (ESCPs) for projects meeting the criteria defined by the Marin County Stormwater Pollution Prevention Program, including those requiring grading permits and those with the potential for significant erosion and sediment discharges. Projects that disturb more than one acre of soil must prepare a Stormwater Pollution Prevention Plan, pursuant to State law.
 - **Program S-2.5B: Grading During the Wet Season.** Avoid grading during the wet season due to soil instability and sedimentation risks. Require that development projects implement erosion and/or sediment control measures and runoff discharge measures based on their potential to impact storm drains, drainageways, and creeks.
- **Policy S-2.6: Septic Systems.** Discourage the use of septic systems within San Rafael’s Planning Area. If no other alternatives exist, then soil tests shall be required to determine if soils are suitable for a septic system or other innovative means of onsite wastewater disposal. . In hillside areas, an evaluation of the impact of additional water from a septic system on hillside stability shall be required. New or improved septic systems shall be designed by a registered civil engineer that specializes in septic design.

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.4: Sustainable Design.** Plan, design, and operate infrastructure to minimize non-renewable energy and resource consumption, improve environmental quality, promote social equity, and reduce greenhouse gas emissions. An evaluation of costs and benefits must be a factor in all improvements. This includes the potential costs of inaction and potential for “avoided costs,” particularly with respect to climate change.

HYDROLOGY AND WATER QUALITY

- **Program CSI-4.4A: Public Space and Infrastructure.** Seek opportunities to improve environmental quality in the design of streets, infrastructure, and public spaces. For example, public space improvements provide an opportunity to retain and treat stormwater through groundwater infiltration and subsurface water storage.
- **Program CSI-4.4B: Reducing Impervious Surfaces.** Pursue porous pavement, rain catchment areas, and similar elements that reduce runoff.

Therefore, with the implementation of these policies in conjunction with State and local regulatory requirements, potential future development would not violate water quality standards or waste discharge requirements for both construction and operational phases, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Roughly half of the proposed development through horizon year 2040 is anticipated to occur in the Downtown Precise Plan Area, which is a highly developed and urbanized area of the city. Potential future development in this area would occur on a limited number of vacant parcels in the form of infill/intensification on sites already developed and/or underutilized or in close proximity to existing development. Much like potential future development in the remainder of the city, new development or redevelopment within the Downtown Precise Plan Area would be required to comply with the General Plan 2040 goals, policies, and programs as well as State and local regulatory requirements that would minimize impacts to water quality during both operation and construction phases.

Within the Downtown Gateway sub-area of the Downtown Precise Plan, future projects such as an urban wetland could be suitable on the southern edge near US-101, south of Second Street and east of Lincoln Avenue. An urban wetland would help alleviate local flooding during the rainy season and to combat sea-level rise in the future. An urban wetland project would require parcel acquisition along San Rafael Creek. An urban wetland could be designed to widen the connection of Irwin Creek and San Rafael Creek and create a natural downtown amenity.

Compliance with these regulatory requirements would ensure that development in the Downtown Precise Plan Area would not violate any water quality standards or waste discharge requirements for both construction and operational phases, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

HYD-2	Implementation of the proposed project could substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
--------------	--

General Plan 2040

Implementation of the proposed project would result in a significant environmental impact if it would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that

HYDROLOGY AND WATER QUALITY

there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. New development under the proposed General Plan 2040 could result in an increase in impervious surfaces, thus reducing groundwater recharge. Also, new projects that involve construction dewatering could have a temporary impact on the shallow groundwater aquifer.

Groundwater Recharge

New projects developed pursuant to the proposed General Plan 2040 are required to implement BMPs and LID measures—which include on-site infiltration—where feasible. The E.12 Post-Construction Measures in the Phase II Small MS4 Permit require site design measures, source control measures, LID standards, and hydromodification measures to be included in an SCP that must be submitted to and approved by the City. These measures minimize the impact of impervious areas by including pervious pavements, drainage to landscaped areas and bioretention areas, and the collection of rooftop runoff in rain barrels or cisterns for new development projects. These measures also increase the potential for groundwater recharge. In addition, groundwater within the EIR Study Area is not used by municipal water agencies and is limited in capacity and quality.

Groundwater Use

The two groundwater basins within the EIR Study Area are categorized as low priority basins and there is no groundwater withdrawal for municipal use. Groundwater is limited to domestic and irrigation uses from private groundwater wells. The MMWD has determined that the potential for municipal groundwater use is very limited due to low production capabilities, water quality constraints, and potential water rights issues. Therefore, groundwater beneath the EIR Study Area is not currently used and is not planned to be used as a municipal water supply source by MMWD. Projects pursuant to the proposed project would receive their water supply from surface water sources and thus would not decrease groundwater supplies.

The proposed Conservation and Climate Change (C) and Community Services and Infrastructure (CSI) Elements contain goals, policies, and programs that require local planning and development decisions to consider impacts to groundwater. As previously listed under impact discussion HYD-1, proposed General Plan Policy C-3.5 requires the City to protect San Rafael's groundwater from the adverse effects of urban uses and encourages opportunities for groundwater recharge to reduce subsidence and water loss. Program C-3.5A requires the City to continue efforts to remediate underground storage tanks and related groundwater hazards. Program CSI-4.4A requires the City to seek opportunities to improve environmental quality in the design of streets, infrastructure, and public spaces, which could include public space improvements that provide opportunities to retain and treat stormwater through groundwater infiltration and subsurface water storage. Program CSI-4.4B requires the City to pursue porous pavement, rain catchment areas, and similar elements that reduce runoff, which would also support groundwater recharge.

Potential future development as a result of implementation of the General Plan 2040 would not use groundwater supplies or interfere with groundwater recharge, and General Plan 2040 includes goals, policies, and programs that would further protect groundwater; therefore, impacts would be *less than significant*.

HYDROLOGY AND WATER QUALITY

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As shown on Figure 4.10-2, a small portion of the San Rafael Valley groundwater basin is within the southern edge of the Downtown Precise Plan Area. However, groundwater within this groundwater basin is not used by municipal water agencies and is limited in capacity and quality. Similar to the EIR Study Area requirements, adherence to E.12 provisions in the Phase II Small MS4 Permit require site design measures, source control measures, LID standards, and hydromodification measures to be implemented for new construction or reconstruction, which would increase the potential for groundwater recharge in the Downtown Precise Plan Area. Therefore, potential future development in the Downtown Precise Plan Area would not use groundwater supplies or interfere with groundwater recharge, and the goals, policies, and programs of the General Plan 2040 that protect groundwater would also apply to the Downtown Precise Plan Area; therefore, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

HYD-3	Implementation of the proposed project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows.
--------------	---

General Plan 2040

Erosion and Siltation

New development or redevelopment within the EIR Study Area and changes in land use could result in an increase in impervious surfaces. This, in turn, could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause erosion or siltation in drainage swales and streams. Increases in tributary flows can exacerbate creek bank erosion or cause destabilizing channel incision.

All potential future development pursuant to the proposed General Plan 2040 would be required to implement construction-phase BMPs as well as post-construction site design, source control measures, and treatment controls in accordance with the requirements of the CGP, the SRMC, the Phase II MS4 Permit, and the BASMAA Post-Construction Manual. Typical construction BMPs include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrance/exits. Each new development or redevelopment project that disturbs one or more acre of land would be

HYDROLOGY AND WATER QUALITY

required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. In addition, the City requires preparation and submittal of an ESCP for review prior to the issuance of grading permits.

Once potential future development projects have been constructed, there are Provision E.12 requirements in the Phase II Small MS4 permit for new development or redevelopment projects that must be implemented and include site design measures, source control measures, LID, and treatment measures that address stormwater runoff and would reduce the potential for erosion and siltation. Site design measures include limits on clearing, grading, and soil compaction; minimizing impervious surfaces; conserving the natural areas of the site as much as possible; complying with stream setback ordinances; and protecting slopes and channels from erosion. LID measures include the use of permeable pavements, directing runoff to pervious areas, and the construction of bioretention areas. The SCP must also include operation and maintenance procedures and an agreement to maintain any stormwater treatment and control facilities for perpetuity. Adherence to the streambed alteration agreement process under Sections 1601 to 1606 of the California Fish and Game Code would further reduce erosion and siltation impacts that may occur due to streambed alterations. Compliance with these regional and local regulatory requirements will ensure that erosion and siltation impacts from new development and redevelopment projects would be *less than significant*.

Flooding On- or Off-Site

New development and/or redevelopment and changes in land uses could result in an increase in impervious surfaces, which in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause nuisance flooding in areas without adequate drainage facilities. However, all potential future development must comply with the requirements of the Phase II MS4 Permit and the BASMAA Post-Construction Manual. Regulated projects must implement BMPs, including LID BMPs and site design BMPs, which effectively minimize imperviousness, retain or detain stormwater on-site, decrease surface water flows, and slow runoff rates. Projects that create and/or replace one acre of impervious surface must also adhere to the hydromodification requirements of the BASMAA Post-Construction Manual to ensure that post-project runoff does not exceed pre-project runoff for the 2-year, 24-hour storm. SRMC Chapter 9.30 also mandates that projects maintain pre-development stormwater runoff rates to the extent possible. Adherence to these regulatory requirements would minimize the amount of stormwater runoff from new development and redevelopment within the study area. Therefore, projects pursuant to the proposed General Plan 2040 would not result in flooding on- or off-site, and impacts would be *less than significant*.

Stormwater Drainage System Capacity

As stated in the impact discussions above, an increase in impervious surfaces with new development or redevelopment within the EIR Study Area could result in increases in stormwater runoff, which in turn could exceed the capacity of existing or planned stormwater drainage systems. All potential future development and redevelopment projects would be required to comply with the Phase II Small MS4 permit requirements and follow the BASMAA Post-Construction Manual when designing on-site stormwater treatment facilities. The hydrology study and SCP for each project is subject to City review to verify that the on-site storm drain systems and treatment facilities can accommodate stormwater runoff

HYDROLOGY AND WATER QUALITY

from the site and would not exceed the capacity of downstream drainage systems at the point of connection. Also, implementation of the E.12 provisions for new development, which include LID design and bioretention areas, would minimize increases in peak flow rates or runoff volumes, thus reducing stormwater runoff to the storm drain system. In addition, the SRMC Chapter 9.30 states that pre-development stormwater runoff rates should be maintained whenever possible for new development projects. Finally, as part of the permitting process, new development projects would be required to pay public utility fees, as per SRMC Chapter 3.32, which finances improvements to the municipal storm drain system to accommodate increased flows.

Potential future development within the EIR Study Area would be infill projects or the intensification of existing land uses and would be in urban areas with existing storm drain systems. With the implementation of the E.12 provisions for new projects within the EIR Study Area, there would not be a significant increase in stormwater runoff to the City's storm drain system.

Further, new development and redevelopment within the EIR Study Area would not create substantial additional sources of polluted runoff. During the construction phase, projects would be required to prepare SWPPPs and ESCPs, thus limiting the discharge of pollutants from the site. During operation, projects must implement BMPs and LID measures that minimize the amount of stormwater runoff and associated pollutants.

With implementation of these control measures and regulatory provisions to limit runoff from new development sites, the proposed General Plan 2040 would not result in significant increases in runoff that would exceed the capacity of existing or planned storm drain facilities, and the impact is *less than significant*.

Redirecting Flood Flows

The discussion above regarding on- and off-side flooding is also applicable to the analysis of impeding or redirecting flood flows. Since new development projects are required to comply with E.12 provisions of the Phase II Small MS4 Permit and retain stormwater on-site via the use of bioretention facilities, any flood flows would also be retained for a period of time on-site, which would minimize the potential for flooding impacts. The following section, HYD-4, discusses the potential for impeding or redirecting flood flows with development in areas within the 100-year floodplain. Based on these discussions, impacts related to impeding or redirecting flood flows would be *less than significant*.

The proposed Community Design and Preservation (CDP), Conservation and Climate Change (C), Safety and Resilience (S), and the Community Services and Infrastructure (CSI) Elements contain goals, policies, and programs that require local planning and development decisions to consider impacts to hydrology. The following General Plan 2040 goals, policies, and programs would serve to minimize potential adverse impacts on drainage patterns:

Goal CDP-4: Quality Construction and Design. Encourage quality construction and design that enhances San Rafael's character and creates places of lasting value.

HYDROLOGY AND WATER QUALITY

- **Policy CDP-4.10, Landscape Design:** Encourages privately owned and maintained landscaping that contributes to neighborhood quality, complements building forms and materials, improves stormwater management and drainage, and enhances the streetscape.
 - **Program CDP-4.10A: Zoning Regulations.** Periodically evaluate the landscape provisions in the Zoning Ordinance to respond to climate change, hazards, water availability, shading needs, and other issues. Zoning should support the City's goal of having a strongly landscaped character.
 - **Program CDP-4.10B: Industrial Landscape Design.** Ensure that landscape guidelines for new industrial and general commercial development provide effective buffering, while also supporting water conservation, water quality, and fire hazard reduction goals.
 - **Program CDP-4.10C: Parking Lot Landscaping Requirements.** Review City standards for parking lot landscaping to ensure that they adequately address visual screening, water conservation, environmental quality, and climate-related issues. Standards should allow for solar shade structures within parking areas.

Goal C-1: Supporting Our Natural Communities. Protect, restore, and enhance San Rafael's environment and natural communities.

- **Policy C-1.9, Enhancement of Creeks and Drainageways:** Conserve or improve the habitat value and hydrologic function of creeks and drainageways so they may serve as wildlife corridors and green infrastructure to improve stormwater management, reduce flooding, and sequester carbon. Require creek enhancement and associated riparian habitat restoration/ creation for projects adjacent to creeks to reduce erosion, maintain storm flows, improve water quality, and improve habitat value where feasible.
 - **Program C-1.9A: Watercourse Protection Regulations.** Maintain watercourse protection regulations in the San Rafael Municipal Code. These regulations should be periodically revisited to ensure that they adequately protect creeks and drainageways. Consider specific measures or guidelines to mitigate the destruction or damage of riparian habitat from roads, development, and other encroachments.
 - **Program C-1.9B: Creek Restoration.** Encourage and support efforts by neighborhood associations, environmental organizations, and other interested groups to fund creek enhancement, restoration, and daylighting projects, as well as creek clean-ups and ongoing maintenance programs.
 - **Program C-1.9C: Upper Gallinas Watershed Restoration.** Support implementation of creek restoration projects in the Upper Gallinas Creek Watershed, consistent with the Restoration Opportunities Report prepared in December 2016. It remains a priority of the City to restore the creek by removing the concrete channel, creating a walkway/ bikeway alongside, and planting native trees to provide shade and filter runoff. Pursue grants and other funds, including capital improvement projects and general operating funds, to restore natural creek conditions and native vegetation.
 - **Program C-1.9D: Restoration of San Rafael, Mahon, and Irwin Creeks.** Pursue opportunities for creek restoration and beautification along San Rafael, Mahon, and Irwin Creeks, building on past efforts supporting biological and ecological restoration, education, and water quality improvements along these waterways.

HYDROLOGY AND WATER QUALITY

Goal C-3: Clean Water. Improve water quality by reducing pollution from urban runoff and other sources, restoring creeks and natural hydrologic features, and conserving water resources.

- **Policy C-3.3: Low Impact Development:** Encourages construction and design methods that retain stormwater on-site and reduce runoff to storm drains and creeks.
 - **Program C-3.3A: Development Review.** Provide guidance to developers, contractors and builders on the use of rain gardens, bioswales and bio-retention facilities, permeable pavers, grass parking lots, and other measures to absorb stormwater and reduce runoff rates and volumes.
 - **Program C-3.3B: Non-Traditional Gardens.** Evaluate best practices in the use of roof gardens, vertical gardens/ green walls, pollinator gardens and other measures that increase the City's capacity to sequester carbon, plant trees, and enhance environmental quality. Encourage the incorporation of such features in new development.
- **Policy C-3.4, Green Streets:** Requires the City design streets and infrastructure so they are more compatible with the natural environment, mitigate urban heat island effects, and have fewer negative impacts on air and water quality, flooding, climate, and natural habitat.
 - **Program C-3.4A: Green Streets Planning.** Develop a Green Streets Plan that includes policy guidance, tools, analytics, and funding mechanisms to create more sustainably designed street and storm drainage systems. Street and drainage system improvements should support City conservation and climate change goals.
 - **Program C-3.4B: Funding.** Identify and apply for grants and federal, state, and regional funds to upgrade stormwater facilities, rehabilitate roads, and implement other Green Streets initiatives.

Goal S-2: Resilience to Geologic Hazards. Minimize potential risks associated with geologic hazards, including earthquake-induced ground shaking and liquefaction, landslides, erosion, sedimentation, and settlement.

- **Policy S-2.5: Erosion Control.** Requires appropriate control measures in areas susceptible to erosion, in conjunction with proposed development. Erosion control measures should incorporate best management practices (BMPs) and should be coordinated with requirements for on-site water retention, water quality improvements, and runoff control.
 - **Program S-2.5A: Erosion and Sediment Control Plans.** Require Erosion and Sediment Control Plans (ESCPs) for projects meeting the criteria defined by the Marin County Stormwater Pollution Prevention Program, including those requiring grading permits and those with the potential for significant erosion and sediment discharges. Projects that disturb more than one acre of soil must prepare a Stormwater Pollution Prevention Plan, pursuant to State law.
 - **Program S-2.5B: Grading During the Wet Season.** Avoid grading during the wet season due to soil instability and sedimentation risks. Require that development projects implement erosion and/or sediment control measures and runoff discharge measures based on their potential to impact storm drains, drainageways, and creeks.

Goal S-3: Resilience to Flooding and Sea Level Rise. Recognize, plan for, and successfully adapt to the anticipated effects of increased flooding and sea level rise.

- **Policy S-3.8, Storm Drainage Improvements:** Requires new development to mitigate potential increases in runoff through a combination of measures, including improvement of local storm

HYDROLOGY AND WATER QUALITY

drainage facilities. Other measures, such as the use of porous pavement, bioswales, and “green infrastructure” should be encouraged.

- **Program S-3.8A: Storm Drainage Improvements.** Consistent with Countywide and regional stormwater management programs, require new development with the potential to impact storm drainage facilities to complete hydrologic studies that evaluate storm drainage capacity, identify improvements needed to handle a 100-year storm, and determine the funding needed to complete those improvements.
- **Program S-3.8B: Green Infrastructure Guidelines.** Evaluate potential measures to more sustainably manage stormwater, erosion, and improve water quality associated with urban runoff. *This includes improvements such as rain gardens and permeable pavement, which attenuate flooding downstream and provide ecological benefits.*

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.10, Storm Drainage Facilities:** Require the continued monitoring and improving of the storm drainage system, including programs to reduce flooding, improve water quality, remove trash, and respond to climate-related changes. **Evaluate the potential for restoration of the natural hydrologic function of creeks and drainageways where possible.**
 - **Program CSI-4.10A: Replacement of Aging Facilities.** Pursue the replacement of older or failing drainage facilities such as metal pipes and stormwater pumping stations with more durable and resilient materials, or with new structures and pumps.
 - **Program CSI-4.10B: Silt Removal.** Continue to remove accumulated silt from City maintained drainageways, ponds, and creeks subject to tidal siltation such as Mahon and Irwin Creeks. **Sediment from stream flow and deposition should be considered a potential resource.**
 - **Program CSI-4.10C: Sustainable Stormwater Management.** Seek funding for projects that restore the natural characteristics and functions of stormwater systems, such as bioswales and conversion of concrete ditches to natural creeks. Such projects should mitigate the effects of urban runoff, reduce flood hazards, and improve water quality and habitat value.

With the implementation of regulatory requirements and the proposed General Plan 2040 policies listed above, these hydrology impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Like elsewhere in the city, the potential future development or redevelopment within the Downtown Precise Plan Area would be required to prepare SWPPPs and erosion and sediment control plans during project construction. During operation, projects in the Downtown Precise Plan Area must implement BMPs and LID measures. Additionally, projects that create and/or replace 1 acre of impervious surface must also adhere to the hydromodification requirements of the BASMAA Post-Construction Manual, and SRMC Chapter 9.30 further mandates that projects maintain pre-development stormwater runoff rates to the extent possible. Compliance with these regional and local regulatory requirements would ensure that erosion and siltation impacts, flooding on- or off-site, and impacts to the stormwater drainage system

HYDROLOGY AND WATER QUALITY

capacity, would be *less than significant* from new development and redevelopment projects in the Downtown Precise Plan Area.

Depending on the final design, future projects such as an urban wetland could alter the course of the existing San Rafael Creek, which could result in redirecting flood flows. However, the intent of an urban wetland is to alleviate local flooding and combat sea level rise. As shown on Figure 4.10-3, the property south of Second Street and east of Lincoln Avenue, where a potential urban wetland could be located, is within the FEMA 100-year flood zone. Also, as shown on Figure 4.10-13, this area is within the area of sea level rise plus storm surge by 2050. Additionally, portions of the Downtown Precise Plan Area would be impacted by sea level rise by 2100.

Implementation of an urban wetland project would require consultation with the USACE, which issues permits to dredge waters of the United States under Section 404 of the CWA and for activities involving the construction of any structures in or over navigable waters of the United States under the River and Harbors Act of 1899. An urban wetland project would also require consultation with CDFW because it would result in streambed alteration under Sections 1601 to 1606 of the California Fish and Game Code. Compliance with federal and regional regulatory requirements would ensure impacts related to impeding or redirecting flood flows, from an urban wetland or similar flood control project, would be *less than significant* for the Downtown Precise Plan.

Potential future development and redevelopment within the Downtown Precise Plan Area is also required to comply with E.12 provisions of the Phase II Small MS4 Permit and retain stormwater on-site via the use of bioretention facilities. Therefore, any flood flows would be retained temporarily on-site, which would minimize the potential for flooding impacts. Developments in the Downtown Precise Plan Areas that are within the 100-year floodplain would be subject to FEMA and City floodplain building regulations, as discussed in the following section, HYD-4. Based on these discussions, impacts related to impeding or redirecting flood flows would be *less than significant* in the Downtown Precise Plan Area.

With the compliance with the regulatory requirements and the proposed General Plan 2040 goals, policies, and programs listed above, impacts to existing drainage patterns and the course of a stream or river would be *less than significant*.

Significance without Mitigation: Less than significant.

HYD-4	Implementation of the proposed project could risk release of pollutants due to project inundation if in a flood hazard, tsunami, or seiche zones.
--------------	--

General Plan 2040

Flood Hazard Zones

Buildout pursuant to the proposed General Plan 2040 could involve development of some projects in FEMA 100-year flood zones. As shown on Figure 4.10-3, most of the land along Miller Creek, the outlets of Gallinas Creek and San Rafael Creek, and land adjacent to San Pablo Bay are within the 100-year floodplain.

HYDROLOGY AND WATER QUALITY

The proposed General Plan 2040 land use map designates residential and airport/recreational land uses within the 100-year flood zone at the outlet of Gallinas Creek. Residential land use designations are also located within the 100-year flood zone adjacent to the San Pablo Bay in the northeast area of the city. At the San Rafael Creek outlet, light and general industrial, mixed use, and residential land uses are designated within the 100-year flood zone. Residential land use designations are also assigned within the 100-year flood zone adjacent to Miller Creek.

As discussed in Section 4.10.1, Environmental Setting, there are levees along the creek outlets and many of the bayfront areas. In the northern portion of the city, levees extend from Miller Creek outlet to Gallinas Creek outlet, including levees along the north side of McInnis Park. In the southern portion, levees extend from Pickleweed Park to US-580 along the shoreline.

Potential future development in 100-year flood zones would be subject to floodplain requirements listed in SRMC Title 18. Prior to the start of construction or development within a Flood Hazard Area (i.e., 100-year floodplain), the City of San Rafael requires project applicants to obtain a development permit from the City's Floodplain Administrator and construct new development in accordance with the standards in SRMC Section 18.50.010, Standards of Construction. The standards of construction vary depending on whether the proposed structure is in Zone A or Zone VE and include provisions for flood risk reduction, including anchoring and flood-resistant materials and construction methods, with the lowest floors elevated above the base flood elevation. Prior to occupancy of any building, proof that a Letter of Map Revision and an elevation certificate has been obtained from FEMA must be provided to the City. Compliance with FEMA's National Flood Insurance Program requirements and SRMC requirements would reduce potential flood hazards and ensure that pollutants are not released during flood inundation.

Additionally, the San Rafael LHMP includes hazard mitigation actions to help reduce the risk of damage or injury from floods. These actions include improvements to drainage systems, levee assessments, development of a City Flood Alert System, and San Rafael Canal dredging.⁵⁷

Tsunami

Given the history of tsunamis in the San Francisco Bay Area, the risk of flooding due to a tsunami event is considered to be unlikely for the city of San Rafael.⁵⁸ Tsunami hazards in the San Pablo and San Francisco Bays are much smaller than along the Pacific Coast because the bays are enclosed body of waters. However, as shown on Figure 4.10-8, the land surrounding the outlets of Gallinas Creek, San Rafael Creek, McInnis Park, and the coastal areas of the Canal, Loch Lomond, Glenwood, and Peacock Gap neighborhoods are within the mapped tsunami inundation zones.

The tsunami zone surrounding the Gallinas Creek outlet and the Peacock Gap neighborhood is designated open space in the General Plan 2040 Land Use Map. The zone surrounding the San Rafael Creek outlet is

⁵⁷ City of San Rafael, July 2017, *Local Hazard Mitigation Plan*, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2018/01/City-of-San-Rafael-LHMP-Complete.pdf>, accessed May 12, 2020.

⁵⁸ City of San Rafael, 2017. San Rafael Local Hazard Mitigation Plan. Dated June 2017.

HYDROLOGY AND WATER QUALITY

designated mixed use and residential land use. Loch Lomond includes mixed-use designations within the tsunami zone, and the Glenwood area and Canal include residential land use.

Due to the infrequent nature of tsunamis and relatively low predicted tsunami wave height in the area, the City is reasonably safe from tsunami hazards. Furthermore, SRMC Title 18 includes requirements for development within coastal high-hazard areas, which includes tsunami zones.

In addition, there are various precautions and warning systems that would be implemented by the City in the event of a tsunami. The City uses an automated telephone and text message system that can notify affected portions of the community when emergency alerts or notifications are needed. Also, the National Oceanic and Atmospheric Administration operates the National Tsunami Warning Center and the Pacific Tsunami Warning Center that alert local authorities to order the evacuation of low-lying areas, if necessary.

Marin County and the City are part of the tsunami warning system. The Marin Operational Area Emergency Operations Plan provides information and guidance for tsunami warnings, advisories, watches, and information statement bulletins, and specifies the roles and responsibilities of local response agencies in alert and warning dissemination. Additionally, the Marin Emergency Recovery Plan provides a concept of operations for long term recovery and restoration after extensive damage due to tsunami.⁵⁹ Both the Marin Operational Area Emergency Operations Plan and the Marin Emergency Recovery Plan are discussed further in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR.

A bayfront levee currently protects portions of the city from high tides and waves. Although the lower elevation portions of the levees could be overtopped by a tsunami, the potential for significant damage is low given the distance of structures from the levee and the short duration of a tsunami, the impact would be less than significant.⁶⁰

Sea Level Rise

As discussed in the Flood Hazard discussion above, potential development under the proposed General Plan 2040 could involve development in areas that will be inundated by sea level rise and associated coastal flooding. As shown on Figures 4.10-4 to Figure 4.10-7, most of the land along the outlets of the Miller Creek, Gallinas Creek, and San Rafael Creek will be in sea level rise inundation areas by 2050 and 2100, with additional land being inundated during a 100-year storm surge. Other areas that will be inundated by sea level rise and storm surge in 2100 include southern San Rafael east of I-580, Peacock Gap golf course and surrounding neighborhood, and marshlands near Santa Venetia Marsh Preserve. Other marshland areas adjacent to San Pablo Bay and San Francisco Bay are also at risk of inundation from sea level rise and coastal flooding.

⁵⁹ Marin County Sheriff's Office of Emergency Services. 2015. *Tsunami Annex*.
<https://www.marinsheriff.org/assets/downloads/01.30.2015-Tsunami-AnnexUH.pdf>

⁶⁰ City of San Rafael, July 2017, *Local Hazard Mitigation Plan*,
<https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2018/01/City-of-San-Rafael-LHMP-Complete.pdf>, accessed May 12, 2020.

HYDROLOGY AND WATER QUALITY

As shown on Figure 3-7 in Chapter 3, Project Description, of this Draft EIR, nearly every land use designated on the General Plan 2040 land use map, with the exception of Hillside Resource Residential and Hillside Residential, would have some land within the projected sea level rise inundation area for 2050 with a 100-year storm surge. Many of the inundation areas would include parks and open space, residential, commercial, or mineral resource uses along Miller Creek, Gallinas Creek, and San Rafael Creek and areas adjacent to the San Pablo and San Francisco Bays.

As discussed above, there are levee systems in both northern and southern areas of the EIR Study Area that protect development from inundation from sea level rise and storm surge. These levees extend from the Miller Creek outlet to the Gallinas Creek outlet and along McInnis Park in the north, and from Pickleweed Park to US-580 along the shoreline in the south.

Additionally, the City has developed the *San Rafael Sea-Level Rise Adaptation Study*, which identifies potential adaptation measures to reduce the risk of inundation from sea level rise and coastal flooding. Potential citywide measures include flood barriers and hydraulic pump stations; creating guidance on structure elevation, shoreline setbacks, and disclosure requirements; and developing and applying protocols for assessing pump station inflows, discharge capacity, and resilience with climate change.⁶¹ Potential adaptation measures in the six specific areas, identified in the Section 4.10.1.2, Existing Conditions, above, consist of raising shoreline levees and floodwalls, long-term restoration of canals and diked marshes, raising roadways to maintain evacuation routes, and upgrading the culverts and pumping stations that help with stormwater control.⁶²

Furthermore, potential future development under the proposed General Plan 2040 within 100 feet of the San Pablo or San Francisco Bay shoreline would be subject to review and approval by the BCDC. Potential future development and large shoreline projects, including shoreline protection projects, would be required to conduct a sea level rise risk assessment and be designed to be resilient to a midcentury sea level rise projection. BCDC also requires that if it is likely that the project will remain in place longer than midcentury, an adaptive management plan should be developed to address the long-term impacts that will arise, based on the risk assessment. Potential new development under the proposed General Plan 2040 more than 100 feet inland from San Pablo or San Francisco Bay shoreline would not be subject to BCDC review. However, potential future development under the proposed General Plan 2040 would be required to comply with SRMC Title 18, Protection of Flood Hazards, which restricts development in floodable areas and requires protections for new development within inundation areas.

The proposed Land Use (LU), Conservation and Climate Change (C), Safety and Resilience (S), and Community Services and Infrastructure (CSI) Elements contain goals, policies, and programs that require local planning and development decisions to consider impacts to hydrology. The following General Plan 2040 goals, policies, and programs would minimize potential adverse impacts due to flooding:

⁶¹ Environmental Science Associates, 2020, San Rafael Sea-Level Rise Adaptation Study, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2020/10/San-Rafeal-SLR-Vulnerability-Study-2020Jun19.pdf>.

⁶² Environmental Science Associates, 2020, San Rafael Sea-Level Rise Adaptation Study, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2020/10/San-Rafeal-SLR-Vulnerability-Study-2020Jun19.pdf>.

HYDROLOGY AND WATER QUALITY

Goal LU-1: Well-Managed Growth. Grow and change in a way that serves community needs, improves fiscal security, and enhances the quality of life.

- **Policy LU-1.2: Development Timing.** Allow new development only when adequate infrastructure is available, consistent with the following findings [relevant to hydrology and water quality]:
 - Sewer, water, and other infrastructure improvements needed to serve the proposed development will be in place and available to serve the development by the time it is constructed.
 - The project has incorporated design and construction measures to mitigate exposure to hazards, including flooding, sea level rise, and wildfire.
 - **Program LU-1.2A: Development Review.** Implement Policy LU-2 through the development review and environmental review processes. The City may modify the requirements associated with this policy if it determines that its application as stated would preclude all economically viable use of a subject property.
- **Policy LU-1.12: Transfer of Development Rights.** Allow transfer of development rights (TDR) or density/FAR from one property to another in cases where:
 - Special circumstances (e.g., historic preservation, wetlands protection, sea level rise) are found to exist, potentially causing significant environmental impacts if the transfer was not allowed; or
 - A significant public benefit would be provided as a result of the transfer.
 - **Program LU-1.12A: Transfer of Development Rights (TDR) Program.** Evaluate opportunities for TDR as a response to issues such as sea level rise and wildfire hazards. This evaluation also should address how TDRs are sold and recorded.
- **Policy LU-1.17: Building Heights.** Use General Plan Figure 3-3 as the basis for determining “baseline” maximum building heights in San Rafael. Maximum heights should continue to be codified through zoning and the Downtown Precise Plan. In addition, the following specific provisions related to building heights shall apply:
 - Height of buildings existing or approved as of January 1, 1987, shall be considered as conforming to zoning standards.
 - Hotels outside of the Downtown Precise Plan boundary have a 54-foot height limit. Within Downtown, the height provisions of the Downtown Precise Plan apply.
 - As provided for by Policy LU-18, “baseline” building heights are subject to height bonuses of up to 24 feet where specific community benefits are provided, where a Variance or zoning exception is granted, or where a Transfer of Development Rights (TDR) is being implemented.
 - Heights may be increased by up to six (6) feet above the baseline allowable building heights is necessary to mitigate the exposure of properties to sea level rise and other flooding hazards (e.g., raising the first floor of habitable floor space above anticipated tidal flood elevations).

Goal C-1: Habitat Protection. Protect, restore, and enhance San Rafael’s environment and natural habitat.

- **Policy C-1.9: Enhancement of Creeks and Drainageways.** Requires that the City conserve or improve the habitat value of creeks and drainageways so they may serve as wildlife corridors and green infrastructure to improve stormwater management, reduce flooding, and sequester carbon.
 - **Program C-1.9A: Watercourse Protection Regulations.** Maintain watercourse protection regulations in the San Rafael Municipal Code. These regulations should be periodically revisited to ensure that they adequately protect creeks and drainageways. Consider adding specific measures

HYDROLOGY AND WATER QUALITY

or guidelines to mitigate the destruction or damage of riparian habitat from roads, development, and other encroachments.

- **Program C-1.9B: Creek Restoration.** Encourage and support efforts by neighborhood associations, environmental organizations, and other interested groups to fund creek enhancement, restoration, and daylighting projects, as well as creek clean-ups and ongoing maintenance programs.
- **Program C-1.9C: Upper Gallinas Watershed Restoration.** Support implementation of creek restoration projects in the Upper Gallinas Creek Watershed, consistent with the Restoration Opportunities Report prepared in December 2016. It remains a top priority of the City to restore the creek by removing the concrete channel, creating a walkway/ bikeway alongside, and planting native trees to provide shade and filter runoff. Grants and other funds should be pursued to restore natural creek conditions and native vegetation.
- **Program C-1.9D: Restoration of San Rafael, Mahon, and Irwin Creeks.** Pursue opportunities for creek restoration and beautification along San Rafael, Mahon, and Irwin Creeks, building on past efforts supporting biological and ecological restoration, education, and water quality improvements along these waterways.

Goal C-3: Clean Water. Improve water quality by reducing pollution from urban runoff and other sources, restoring creeks and natural hydrologic features, and conserving water resources.

- **Policy C-3.2: Reduce Pollution from Urban Runoff.** Require Best Management Practices (BMPs) to reduce pollutants discharged to storm drains and waterways. Typical BMPs include reducing impervious surface coverage, requiring site plans that minimize grading and disturbance of creeks and natural drainage patterns, and using vegetation and bioswales to absorb and filter runoff.
 - **Program C-3.2D: System Improvements.** Improve storm drainage performance through regular maintenance and clean-out of catch basins, installation of trash capture devices, a City street sweeping program, and improvements to the existing system. When existing lines are replaced, design changes should be made as needed to increase capacity to handle intensifying storms and expected sea level rise impacts.

Goal S-1: A Safer, More Resilient City: Minimize San Rafael's vulnerability to the impacts of environmental and public health emergencies.

- **Policy S-1.2: Location of Future Development.** Permit development only in those areas where potential danger to the health, safety, and welfare of the community can be adequately mitigated. Land uses and densities should take environmental hazards such as earthquakes, flooding, and fires into consideration.
 - **Program S-1.2A: Entitlement Process.** Use the entitlement process to evaluate the potential for hazards and to require appropriate mitigation measures and approval conditions.
- **Policy S-1.3: Location of Public Improvements.** Avoid locating public improvements and utilities in areas with high hazard levels. When there are no feasible alternatives, require effective mitigation measures to reduce the potential for damage.
 - **Program S-1.3B: Use of Hazard Maps in Development Review.** Review slope stability, seismic, flood hazard, sea level rise, wildfire, and other environmental hazard maps when development is

HYDROLOGY AND WATER QUALITY

proposed. Require appropriate studies and actions to ensure that hazards are identified and mitigated.

Goal S-3: Resilience to Flooding and Sea Level Rise. Recognize, plan for, and successfully adapt to the anticipated effects of increased flooding and sea level rise.

- **Policy S-3.1: Sea Level Rise Projection Map.** Utilize Figure S-2 (Sea Level Rise Projection Map) to address flooding and sea level rise hazards. The figure should be used to:
 - maximize public awareness and disclosure to property owners and the public.
 - assess and address impacts to future development.
 - establish a zoning “overlay zone” and building code requirements for future planning and adaptation.
 - plan opportunity areas for adaptation.
 - inform funding and financing decisions about short-term and long-term adaptation projects.
- **Program S-3.1A: Incorporate into City GIS.** Incorporate the Sea Level Rise Projection Map into the City’s Geographic Information System (GIS) map and utilize GIS as a publicly accessible tool for tracking flooding and sea level rise hazards.
- **Program S-3.1B: Periodic Update of Sea Level Rise Projection Map.** Review sea level rise data at least once every five (5) years to determine the need for Map updates.
- **Program S-3.1C: Sea Level Rise Overlay Zone.** Adopt an “overlay zone” on the City Zoning Map incorporating the Sea Level Rise Projection Map. The “overlay zone” shall include land use regulations for site planning and a minimum construction elevation that reflects flooding and sea level rise data.
- **Policy S-3.3: Awareness and Disclosure.** Maximize awareness and disclosure by providing information to property owners and the public on areas subject to increased flooding and sea level rise vulnerability.
 - **Program S-3.3A: Residential Building Resale (RBR) Reports.** Revise the RBR Report template to include a disclosure of potential property risk to increased flooding and sea level rise. Utilize the Sea Level Rise Prediction Map for confirming property vulnerability.
- **Policy S-3.4: Mitigating Flood and Sea Level Rise Impacts.** Consider and address increased flooding and sea level rise impacts in vulnerable areas (see Figure S-2) in development and capital projects, including resiliency planning for transportation and infrastructure systems.
 - **Program S-3.4A: Development Projects.** Where appropriate, require new development, redevelopment projects, and substantial additions to existing development to consider and address increased flooding and sea level rise impact, and to integrate resilience and adaptation measures into project design.
 - **Program S-3.4B: Capital Projects.** Prepare a guidance document for addressing increased flooding, sea level rise impacts, and adaptation measures into the City’s capital projects and planning process. This should include strategies for identifying and evaluating the costs, benefits and potential revenue sources for elevating or redesigning low-lying roadways and critical infrastructure. If the life of a public improvement in a vulnerable area extends beyond 2050, adaptation measures should be incorporated.
 - **Program S-3.4C: Coordination with Utilities and Services.** Coordinate with the utilities and services that have infrastructure and facilities in vulnerable areas (for example: wastewater treatment

HYDROLOGY AND WATER QUALITY

plants) to ensure that sea level rise information and goals are consistent with the City's goals, and that infrastructure/utilities projects address and plan for increased flooding and sea level rise.

- **Policy S-3.5: Minimum Elevations.** For properties in vulnerable areas, ensure that new development, redevelopment, and substantial additions to existing development meets a minimum required construction elevation. Minimum elevations should provide protection from the potential impacts of a 100-year flood (a flood with a one percent chance of occurring in any given year), the potential for increased flooding due to sea level rise, and the ultimate settlement of the site due to consolidation of bay mud from existing and new loads and other causes.
 - **Program S-3.5B: Ground Elevation Survey.** Perform periodic ground elevation surveys in the Sea Level Rise vulnerability zone. The result of the surveys should be considered when developing projects to reduce coastal flooding potential.
- **Policy S-3.6: Resilience to Tidal Flooding.** Improve San Rafael's resilience to coastal flooding and sea level rise through a combination of structural measures and adaptation strategies.
 - **Program S-3.6A: Sea Level Rise Adaptation Plan.** Prepare and adopt an adaptation plan addressing increased flooding and sea level rise.
- **Policy S-3.7: Shoreline Levees.** Improve and expand San Rafael's shoreline levee system. When private properties are developed or redeveloped, require levee upgrading as appropriate, based on anticipated high tide and flood conditions.
 - **Program S-3.7A: Levee Improvement Plans.** Assess existing levees, berms, and flood control systems to identify reaches with the greatest vulnerability. Develop improvement plans based on existing conditions and projected needs, as documented in adaptation plans. This should include improvement studies for the Spinnaker Point levee, as recommended by the LHMP, and the Canalways levee along San Pablo Bay.
 - **Program S-3.7B: Financing Levee Improvements.** Coordinate with property owners; residents and businesses; federal, state, and regional agencies; utilities; and other stakeholders to evaluate potential methods of improving levees and funding ongoing levee maintenance, including assessment or maintenance districts. The cost and fiscal impacts of levee improvements should be evaluated against potential benefits, as well as the potential costs and consequences of inaction.
- **Policy S-3.9: Flood Control Improvements.** Pursue financing and funding opportunities to fund short-term and long-term flood control and adaptation projects. Funding tools and opportunities would include, among others tax or bond measures, assessment districts, geologic hazard abatement districts and grants. The City will also support legislation that provides regional, state, and federal funding for these projects, and will pursue such funding as it becomes available.
 - **Program S-3.9A: Incremental Flood Control Improvements.** Where needed and possible, new development/ redevelopment projects shall include measures to improve area flood protection. Such measures would be identified and required through the development review process.
 - **Program S-3.9B: Flood Hazard Mitigation Projects.** Undertake flood hazard mitigation projects as outlined in the Local Hazard Mitigation Plan, including sewer relocation and replacement, pump station rehabilitation, corrugated metal pipe replacement, and improvements to flood-prone streets such as Beach Drive.

HYDROLOGY AND WATER QUALITY

- **Program S-3.9C: Restoration and Dredging Projects.** Implement restoration and dredging projects that will increase stormwater drainage capacity and reduce flood hazards. As noted in the LHMP, this could include restoration of the Freitas Parkway flood channel and dredging of Gallinas Creek and the San Rafael Canal.

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.6: Climate Change Impacts.** Incorporate sea level rise and increased storm intensity forecasts in the planning and design of local infrastructure projects.
 - **Program CSI-4.6A: Guidance Document.** Prepare a guidance document for incorporating sea level rise into the City's capital planning process.
 - **Program CSI-4.6B: Coordination with Service Providers.** Coordinate with water, sewer, energy, solid waste, and telecommunication service providers to prepare a plan for retrofitting critical infrastructure for rising sea levels, more intense storms, and other climate-related impacts.
- **Policy CSI-4.9: Wastewater Facilities.** Ensure that wastewater collection, treatment and disposal infrastructure is regularly maintained and meets projected needs. Improvements should be programmed to meet state and federal standards, respond to sea level rise and seismic hazards, repair and replace aging or leaking pipes, and protect environmental quality.
 - **Program CSI-4.9A: Coordination of Services.** Support efforts by the Las Gallinas Sanitary District, Central Marin Sanitation Agency and San Rafael Sanitation District to maintain high-quality wastewater collection and treatment facilities.
- **Policy CSI-4.10: Storm Drainage Facilities.** Requires the continued monitoring and improving of the storm drainage system, including programs to reduce flooding, improve water quality, remove trash, and respond to climate-related changes.
 - **Program CSI-4.10A: Replacement of Aging Facilities.** Pursue the replacement of older or failing drainage facilities such as metal pipes and stormwater pumping stations with more durable and resilient materials, or with new structures and pumps.
 - **Program CSI-4.10B: Silt Removal.** Continue to remove accumulated silt from City maintained drainageways, ponds, and creeks subject to tidal siltation such as Mahon and Irwin Creeks
 - **Program CSI-4.10C: Sustainable Stormwater Management.** Seek funding for projects that restore the natural characteristics and functions of stormwater systems, such as bioswales and conversion of concrete ditches to natural creeks. Such projects should mitigate the effects of urban runoff, reduce flood hazards, and improve water quality and habitat value.

With the implementation of regulatory requirements and the listed General Plan goals, policies, and programs, impacts from implementation of the General Plan 2040 would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As discussed in Section 4.10.1.2, Existing Conditions, portions of the Downtown Precise Plan Area are within the FEMA 100-year flood zone (Figure 4.10-9), the tsunami inundation zone (Figure 4.10-14), and

HYDROLOGY AND WATER QUALITY

sea level rise inundation areas by 2100 (Figures 4.10-10 through 4.10-13). The southeastern portion of the Downtown Area is also within the 100-year floodplain and is subject to both overflow from San Rafael Creek and sea level rise in 2050 and 2100. Specific areas that will be subject to projected sea level rise include Albert Park, the Downtown San Rafael SMART station, and San Rafael High School. Therefore, potential future development in portions of the Downtown Precise Plan Area could risk the release of pollutants due to project inundation.

Projects in the 100-year flood zones within the Downtown Precise Plan Area would be subject to FEMA requirements and floodplain requirements listed in SRMC Title 18, Protection of Flood Hazards. SRMC Title 18 restricts development in floodable areas, including tsunami zones, and requires protections for new development within inundation areas. Furthermore, as stated previously, the General Plan 2040 includes several goals, policies, and programs that would ensure existing and future development would be protected from damage from sea level rise inundation. With the compliance with the regulatory requirements and the proposed General Plan 2040 goals, policies, and programs listed above, impacts resulting from implementation of the proposed Downtown Precise Plan would be *less than significant*.

Significance without Mitigation: Less than significant.

HYD-5 Implementation of the proposed project could conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

General Plan 2040

Adherence to the CGP, the SRMC, the Phase II MS4 Permit, and the BASMAA Post-Construction Manual would ensure that surface and groundwater quality are not adversely impacted during construction and operation of development pursuant to the proposed General Plan 2040. As a result, site development will not obstruct or conflict with the implementation of the San Francisco Bay Basin Water Quality Control Plan. Furthermore, potential future development will be within the MMWD service area, which relies solely on surface water supply. Groundwater is not currently used or planned to be used as a municipal water supply source by the MMWD, and future projects would not conflict with the sustainable management of the groundwater basins. Therefore, the proposed General Plan 2040 would not obstruct or conflict with the RWQCB's Basin Plan or groundwater management plans, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Similar to the requirements for development elsewhere in the city, potential future development in the Downtown Precise Plan Area would be required to adhere to the CGP, SRMC, the Phase II MS4 Permit, and the BASMAA Post-Construction Manual would ensure that surface and groundwater quality are not adversely impacted during construction and operation of development pursuant to potential future development within the Downtown Precise Plan Area. Additionally, groundwater is not currently used or

HYDROLOGY AND WATER QUALITY

planned to be used as a municipal water supply source by the MMWD and future projects would not conflict with the sustainable management of the groundwater basins. Because the San Rafael Valley Groundwater Basin is considered by DWR to be a very low priority basin, there are no current plans or requirements to prepare a sustainable groundwater management plan for this basin. Therefore, potential future development in the Downtown Precise Plan Area would not obstruct or conflict with the RWQCB's Basin Plan or groundwater management plans, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

HYD-6 Implementation of the proposed project could result in a cumulatively considerable impact to hydrology and water quality.

The geographic context used for the cumulative assessment to hydrology, drainage, flooding, and water quality encompasses the watersheds within the EIR Study Area: Gallinas Creek watershed, San Rafael Creek watershed, and Miller Creek watershed. (see Figure 4.10-1). New development in these watersheds could increase impervious areas, thus increasing runoff and flows into the storm drainage systems. Potential future development would be required to comply with the Phase II MS4 Permit, implement BMPs that direct drainage to landscaped areas, and integrate bioretention facilities into the site design. Implementation of these BMPs on a regional basis would reduce cumulative impacts to hydrology and drainage to *less than significant*.

All projects would be required to comply with various SRMC provisions and policies and County ordinances as well as numerous water quality regulations that control construction-related and operational discharge of pollutants into stormwater. The water quality regulations implemented by the San Francisco Bay RWQCB take a basinwide 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 Phase II Small MS4 Permit encompasses all of the surrounding municipalities to manage stormwater systems and be collectively protective of water quality. Projects in these watersheds would implement structural and nonstructural source-control BMPs that reduce the potential for pollutants to enter runoff, and treatment control BMPs that remove pollutants from stormwater. Therefore, cumulative water quality impacts would be less than significant after compliance with these permit requirements, and impacts would not be cumulatively considerable.

Projects in the watersheds may be constructed within 100-year flood zones, areas of sea level rise, or tsunami inundation zones. Such projects would be mandated to comply with National Flood Insurance Program requirements. In addition, other jurisdictions within these watersheds regulate development within flood zones in a similar manner as San Rafael's Municipal Code Title 18 and in compliance with FEMA standards to limit cumulative flood hazard impacts. Therefore, cumulative impacts to hydrology, drainage, and flooding would be *less than significant*, and impacts of the proposed project would not be cumulatively considerable.

Significance without Mitigation: Less than significant.

4.11 LAND USE AND PLANNING

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project that are related to land use and planning. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of project impacts and cumulative impacts.

4.11.1 ENVIRONMENTAL SETTING

4.11.1.1 REGULATORY FRAMEWORK

State Regulations

California Housing Element Law

California Housing Element Law¹ includes provisions related to the requirements for housing elements of local government general plans. Among these requirements, some of the necessary parts include an assessment of housing needs and an inventory of resources and constraints relevant to the meeting of these needs. Additionally, in order to ensure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goals, this section of the Government Code calls for local jurisdictions to plan for and allow the construction of a share of the region's projected housing needs, known as the Regional Housing Needs Allocation. The City of San Rafael's 2015–2023 Housing Element Update was adopted in January 2015. Though it is not being updated as part of the proposed General Plan 2040, the goals, policies, and programs in the proposed General Plan 2040 would continue to support adequate housing in San Rafael. The next housing element update will be in 2021 to 2022, with adoption before January 31, 2023.

Cortese-Knox Act

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000² established a Local Agency Formation Commission (LAFCo) in each county in California, and authorized these commissions to review, approve, or deny proposals for boundary changes and incorporations for cities, counties, and special districts. The LAFCo established a "sphere of influence" (SOI) for cities within their jurisdiction that describes the city's probable future physical boundaries and service area. The San Rafael SOI is regulated by the Marin County LAFCo. The San Rafael SOI is shown on Figure 3-2 in Chapter 3, Project Description, of this Draft Environmental Impact Report (EIR). The City does not propose to annex or de-annex any areas of the SOI as part of the proposed project.

¹ Government Code Sections 65580–65589.8.

² California Government Code, Sections 56000–56001.

LAND USE AND PLANNING

Regional Regulations

Plan Bay Area

As discussed in Chapter 4, Environmental Analysis, of this Draft EIR, *Plan Bay Area* is the regional transportation plan/sustainable community strategy, as mandated by the Sustainable Communities and Climate Protection Act (Senate Bill 375). *Plan Bay Area* lays out a development scenario for the nine-county Bay Area region that works to align transportation and land use planning in order to reduce vehicle miles traveled through modified land use patterns. The current *Plan Bay Area* projects growth and development patterns through 2040 and is currently being updated to extend to 2050.

Plan Bay Area is prepared and regularly updated by the Metropolitan Transportation Commission (MTC) in partnership with the Association of Bay Area Governments (ABAG), Bay Area Air Quality District (BAAQMD), and the Bay Conservation and Development Commission (BCDC). Each of the agencies has a different role in regional governance. ABAG primarily does regional land use planning, housing, environmental quality, and economic development; MTC is tasked with regional transportation planning, coordinating, and financing; BAAQMD is responsible for regional air pollution regulation; and BCDC's focus is to preserve, enhance, and ensure responsible use of the San Francisco Bay.³

As described in Chapter 4, Environmental Analysis, *Plan Bay Area* designates Priority Development Areas (PDAs) and Transit Priority Areas (TPAs) throughout the region. PDAs are areas along transportation corridors which are served by public transit that allow opportunities for development of transit-oriented, infill development within existing communities that are expected to host the majority of future development. TPAs are similar in that they are formed within one-half mile around a major transit stop such as a transit center or rail line. Overall, over two-thirds of all regional growth by 2040 is allocated to PDAs and TPAs. As shown on Figure 4-1, the EIR Study Area has three PDAs and three TPAs. The PDAs include the North San Rafael PDA, Civic Center Smart Station TPA, Southeast San Rafael / Canal PDA, Downtown San Rafael SMART Station PDA and TPA, and a very small portion of the Larkspur TPA.

Plan Bay Area 2040 distributes future growth across the San Francisco Bay Area region in order to meet its GHG emissions reduction, housing, and other performance targets, but it is not intended to override local land use control. Cities and counties, not MTC/ABAG, are ultimately responsible for the manner in which their local communities continue to be built out in the future. For this reason, cities and counties are not required to revise their land use policies and regulations, including general plans, to be consistent with the regional transportation plan or an alternative planning strategy. Rather than increase regional land use control, *Plan Bay Area 2040* facilitates implementation by expanding incentives and opportunities available to local jurisdictions to support growth in PDAs. In addition to funding transportation and planning projects in PDAs, *Plan Bay Area 2040* sets the stage for cities and counties to increase the efficiency of the development process, if they choose, for projects consistent with *Plan Bay Area* and other state legislation.⁴

³ Metropolitan Transportation Commission and Association of Bay Area Governments, *Plan Bay Area 2040*, Strategy for a Sustainable Region, page 69.

⁴ *Plan Bay Area* website, Frequently Asked Questions page: Does *Plan Bay Area* override local land use control?, <https://www.planbayarea.org/2040-plan/quick-facts/faq-page#n4851>, accessed on April 30, 2019.

LAND USE AND PLANNING

San Francisco Bay Conservation and Development Commission

In 1969, the McAteer-Petris Act designated the San Francisco BCDC as the agency responsible for the protection of the San Francisco Bay and its natural resources. BCDC fulfills this mission through the implementation of the *San Francisco Bay Plan* (Bay Plan), an enforceable plan that guides the future protection and use of San Francisco Bay and its shoreline. The Bay Plan includes a range of policies on public access, water quality, dredging and fill, and project design. The Bay Plan also designates shoreline areas that should be reserved for water-related sports, industry, and public recreation; airports; and wildlife areas. Impacts related to biological resources and water quality are discussed in Chapter 4.4, Biological Resources, and Chapter 4.10, Hydrology and Water Quality, of this Draft EIR.

BCDC has jurisdiction within 100 feet of the San Francisco Bay's shoreline, and proposed development in its jurisdiction is subject to BCDC *Public Access Design Guidelines*, which are intended to ensure that maximum feasible public access is provided. BCDC defines "public access" to include physical public access to and along the shoreline of the San Francisco Bay and visual public access to the San Francisco Bay from other public spaces.⁵ Physical improvements, as defined by BCDC, may include waterfront promenades, trails, plazas, play areas, overlooks, parking spaces, landscaping, site furnishings, and connections from public streets to the water's edge.⁶ Note that the San Rafael Canal is not within BCDC's jurisdiction.

Marin Countywide Plan

The 2017 *Marin Countywide Plan* is a comprehensive long-range guide for land use in the unincorporated portions of the county, including land outside of San Rafael's city limit but within the EIR Study Area. The *Marin Countywide Plan* includes provisions for "fringe" development. The *Marin Countywide Plan* directs the County to generally maintain land use designations in "urban fringe areas" that are consistent with land use designations surrounding urban areas. This direction is in the "Community Development" section of the built environment element:

Goal CD-6: Confinement of Urban Development. Concentrate new medium- to high-intensity land uses at infill areas where services can be provided.

Policy CD-6.1: Coordinate Urban Fringe Planning. Seek city review of development proposed adjacent to urban areas. Discourage development requiring urban levels of service from locating outside urban service areas. Coordinate with cities and towns regarding their plans and rules for annexing urbanized areas.

⁵ San Francisco Bay Conservation and Development Commission, 2005, *Public Access Design Guidelines for the San Francisco Bay*, page 3.

⁶ San Francisco Bay Conservation and Development Commission, 2005, *Public Access Design Guidelines for the San Francisco Bay*, page 3.

LAND USE AND PLANNING

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to land use and planning are primarily in the Land Use (LU) and Housing (H) Elements. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended or substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact in Section 4.11.3, Impact Discussion.

San Rafael Municipal Code

Besides the General Plan, the City of San Rafael Municipal Code (SRMC) is the primary tool that regulates physical development in San Rafael. The SRMC contains all ordinances for the city and identifies land use categories, site development regulations, and other general provisions that ensure consistency between the General Plan and proposed development projects. The SRMC is organized by title, chapter, and section. Most provisions related to land use impacts are in Title 14, Zoning Ordinance. The primary purpose of the Zoning Ordinance is to “promote and protect the public health, safety, peace, comfort and general welfare” of the city of San Rafael, with specific purposes listed under Section 14.01.030, Purposes. The Zoning Ordinance is the mechanism used to implement the land use goals, policies, and programs of the General Plan and to regulate all land use in the city. The Zoning Ordinance describes zoning designations and contains the zoning map and development standards for the zoning designations.

Other City Plans

All specific plan, area plans, master plans, or similar plans—such as a climate action plan or a hazard mitigation plan—and zoning in the city must be consistent with the General Plan. The following describes some of the other key plans that guide development in San Rafael.

Station Area Plans

The *Civic Center Station Area Plan*, approved in August 2012 and amended September 2013, sets a conceptual framework for development and circulation improvements in the area immediately adjacent to the Civic Center SMART (Sonoma-Marin Area Rail Transit) station. The goals of the plan are to set the stage for creating a vibrant, mixed-use, livable area supported by a mix of transit opportunities, and it focuses on key pedestrian, bicycle, and transit connections as well as identifying transit-oriented land use opportunities.⁷

⁷ City of San Rafael, adopted August 2012, amended September 2013, Civic Center Station Area Plan and associated Resolution No. 13618.

LAND USE AND PLANNING

The *Downtown Station Area Plan*, approved June 2012, assesses the area within one-half mile of the downtown SMART station, an area which is largely under the Downtown San Rafael PDA and TPA designated by *Plan Bay Area 2040*. The *Downtown Station Area Plan* considers traffic, pedestrian and bicycle connections, and land use pattern conditions—such as the location of residential neighborhoods in relation to transit facilities and commercial development.

Bicycle and Pedestrian Master Plan

The *Bicycle and Pedestrian Master Plan*, updated in 2018, contains an analysis of priority areas that is intended to guide development of the bicycle and pedestrian network in San Rafael. The plan encourages using natural and man-made corridors, including shorelines, for the alignment of future multiuse trails, and also encourages construction and updating of bike and pedestrian paths along major transportation corridors.

Climate Change Action Plan 2030

The City of San Rafael *Climate Change Action Plan (CCAP) 2030* was adopted in May 2019. The CCAP includes a series of strategies intended to help the City meet the greenhouse gas emissions reduction target of 40 percent below 1990 emissions levels by 2040 and 80 percent below 1990 levels by 2050. The CCAP includes a variety of regulatory, incentive-based, and voluntary strategies that are expected to reduce emissions from both existing and new development in San Rafael.

4.11.1.2 EXISTING CONDITIONS

This section describes the existing General Plan 2020 land use designations and Zoning Districts in the EIR Study Area as a whole and identifies which land use designations and Zoning Districts are specific to the Downtown Precise Plan Area.

Existing General Plan 2020 Land Use Designations

San Rafael is known for a range of urban and suburban land uses, including a variety of residential neighborhoods, a downtown area, parks, and business centers. San Rafael’s development pattern is largely consistent with the patterns of adjacent communities. The existing General Plan 2020 land use designations are listed below. The 20 land use designations that appear in the Downtown Precise Plan Area are shown in **bold**, but only 6 of these are mapped in the Downtown exclusively; the others appear Downtown as well as elsewhere in the city.

LAND USE AND PLANNING

- **Hillside Residential Resource**
- Hillside Residential
- Large Lot Residential
- **Residential-Low Density**
- **Residential-Medium Density**
- **High Density Residential**
- **General Commercial**
- **Neighborhood Commercial**
- **Retail Office**
- **Office**
- **Residential Office**
- **Hetherton Office**
- **Lindaro Mixed Use**
- **Lindaro Office**
- **Second/Third Mixed Use**
- **Fourth Street Commercial Core**
- **Fifth/Mission Residential/Office**
- **West End Village**
- **Park**
- Open Space
- Conservation
- **Public-Quasi Public**
- **Industrial**
- Light Industry/Office
- **Marine Related**
- Mineral Resources
- Airport/Recreation

Existing Zoning Districts

The SRMC Title 14, Zoning, implements the General Plan land use designations by establishing comprehensive regulations and development standards for each Zoning District. San Rafael has 36 Zoning Districts and 4 overlay zones. The existing overlay zones and Zoning Districts are listed below. Existing Zoning Districts in the Downtown Precise Plan Area are shown in **bold**, but only a few of these are mapped in the Downtown exclusively; most appear Downtown as well as in other parts of the city.

Overlay Zones

- Hillside Development Overlay District (-H)
- Wetland Overlay District (-WO)
- Eichler/Alliance Overlay District (-E/A)
- Canalfront Review Overlay District (-C)

LAND USE AND PLANNING

Zoning Districts

- Single-Family Residential District Minimum Lot Size: 2 Acres (R2a)
- Single-Family Residential District Minimum Lot Size: 1 Acres (R1a)
- Single-Family Residential District Minimum Lot Size: 20,000 Square Feet (R20)
- Single-Family Residential District Minimum Lot Size: 10,000 Square Feet (R10)
- Single-Family Residential District Minimum Lot Size: 7,500 Square Feet (R7.5)
- Single-Family Residential District Minimum Lot Size: 5,000 Square Feet (R5)
- Duplex Residential District 2,500 Square Feet Per Dwelling Unit (DR)
- Multifamily Residential District (Medium Density) 5,000 Square Feet Per Dwelling Unit (MR5)
- Multifamily Residential District (Medium Density) 3,000 Square Feet Per Dwelling Unit (MR3)
- **Multifamily Residential District (Medium Density) 2,500 Square Feet Per Dwelling Unit (MR2.5)**
- Multifamily Residential District (Medium Density) 2,000 Square Feet Per Dwelling Unit (MR2)
- Multifamily Residential District (High Density) 1,800 Square Feet Per Dwelling Unit (HR1.8)
- Multifamily Residential District (High Density) 1,500 Square Feet Per Dwelling Unit (HR1.5)
- **Multifamily Residential District (High Density) 1,000 Square Feet Per Dwelling Unit (HR1)**
- **General Commercial District (GC)**
- **Neighborhood Commercial District 1,800 Square Feet Per Dwelling Unit (NC)**
- Office District (O)
- **Commercial/Office District 1,000 Square Feet Per Dwelling Unit (C/O)**
- **Residential/Office District 1,000 Square Feet Per Dwelling Unit (R/O)**
- Francisco Boulevard West Commercial District (FBWC)
- **Fourth Street Retail Core (4SRC)**
- Cross Street Mixed Use District (CSMU)
- **Hetherton Office District (HO)**
- **Second/Third Mixed Use District East District (2/3 MUE)**
- **Second/Third Mixed Use District West District (2/3 MUW)**
- **West End Village District (WEV)**
- **Fifth/Mission Residential/Office District (5/M R/O)**
- Industrial District (I)
- Light Industrial/Office District (LI/O)
- Core Canal Industrial/Office District (CCI/O)
- Lindero Mixed Use District (LMU)
- Planned Development District (PD)
- **Marine District (M)**
- **Public/Quasi-Public District (P/QP)**
- **Parks/Open Space District (P/OS)**
- Water District (W)

LAND USE AND PLANNING

4.11.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project would result in significant land use and planning impacts if it would:

1. Physically divide an established community.
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.
3. Result in a cumulative impact related to land use and planning.

4.11.3 IMPACT DISCUSSION

LU-1	Implementation of the proposed project could physically divide an established community.
-------------	---

General Plan 2040

The physical division of an established community typically refers to the construction of a physical feature or the removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community or between a community and outlying areas. For example, an airport, roadway, or railroad track through an existing community could constrain travel from one side of the community to another or impair travel to areas outside of the community.

As discussed in Chapter 3, Project Description, of this Draft EIR, the proposed General Plan 2040 builds off the current General Plan 2020 by incorporating the topics that are now required by State law and revising relevant goals, policies, and programs to meet those requirements. An overview of major changes to the goals, policies, and programs in each General Plan 2040 element is provided in Section 3.7.1.2, General Plan Goals, Policies, and Programs, in Chapter 3, Project Description. As described in detail in Chapter 3, the proposed General Plan 2040 includes changes that may influence the types and intensities of land uses permitted on different sites in the city.

- It changes how residential density is measured—from “gross” density to “net” density—because most of the city’s future development is expected on small infill sites, and so that the General Plan land use designations align with Zoning Districts.
- It consolidates General Plan land use designations from 28 to 19 to improve consistency between the proposed General Plan and the existing zoning regulations and to streamline General Plan 2040.
- It includes three new General Plan land use designations: Downtown Mixed Use; Parks, Recreation, and Open Space; and Sea level Rise Prediction Area (an overlay with underlying base land use designations). No Zoning District changes are proposed other than to change the Zoning District in the Downtown Precise Plan Area, which is discussed below under the subheading “Downtown Precise Plan.”

LAND USE AND PLANNING

The proposed General Plan 2040 also extends the planning horizon forward by 20 years, consistent with other regional plans, including *Plan Bay Area 2040*. Population projections are discussed in Chapter 4.14, Population and Housing, of this Draft EIR.

Potential future development from implementation of the proposed General Plan 2040 would not result in a change in land use or zoning that would cause the construction or removal of any physical features or means of access throughout the EIR Study Area or the region. The proposed General Plan 2040 would increase development potential in the EIR Study Area; however, potential future development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized, and/or in close proximity to existing development and infrastructure. Additionally, the proposed General Plan 2040 maintains the existing roadway patterns and would not include any new major roadways or other physical features through existing neighborhoods that would create new physical barriers in the EIR Study Area. Therefore, implementation of the proposed General Plan 2040 would not physically divide an established community, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The proposed Downtown Precise Plan is a critical part of the proposed General Plan because roughly half of the city's future housing and employment growth is expected to occur in the Downtown Precise Plan Area. The Downtown Precise Plan identifies growth and development opportunities; provides the principles, policies, and strategies to guide investment; and proposes a form-based code to replace the current zoning standards. Once the Downtown Precise Plan is adopted and the San Rafael Zoning Ordinance is amended, the Downtown Precise Plan will serve as the overarching guiding document that provides strategies and recommendations for growth within the Downtown Precise Plan Area.

Like potential future development in the remainder of the EIR Study Area outside of the Downtown Precise Plan Area, such development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing development and infrastructure. The proposed Downtown Precise Plan distinguishes areas in the Downtown Precise Plan Area with four distinct sub-areas, which group portions of the Downtown Precise Plan Area that are similar in character. Recommendations in each sub-area reflect existing conditions to enhance the connectivity and design character of the sub-area. Future development under the proposed project would generally retain the existing roadway patterns and would include circulation improvements, such as access points, sidewalks, and bike lanes/paths, that are intended to improve circulation and multimodal connectivity. These improvements do not propose any new major roadways or other physical features through parcels designated for residential use or other communities that would create new barriers in the Downtown Precise Plan Area or greater San Rafael. Therefore, while land use and zoning changes are proposed within the Downtown Precise Plan Area, the proposed project would not divide existing established community, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

LAND USE AND PLANNING

LU-2 Implementation of the proposed project could cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

General Plan 2040

The proposed General Plan's potential to conflict with other applicable plans and regulations adopted for the purpose of avoiding or mitigating an environmental effect is discussed in detail in the other environmental topic chapters of this Draft EIR. Specifically, these discussions are in Chapter 4.3, Air Quality; Chapter 4.4, Biological Resources; Chapter 4.5, Cultural and Tribal Cultural Resources; Chapter 4.8, Greenhouse Gas Emissions; Chapter 4.9, Hazards and Hazardous Materials; Chapter 4.10, Hydrology and Water Quality; Chapter 4.13, Noise; Chapter 4.14, Population and Housing; Chapter 4.15, Public Services and Recreation; Chapter 4.16, Transportation; Chapter 4.17, Utilities and Service Systems; and Chapter 4.18, Wildfire. As discussed in these chapters, implementation of the proposed General Plan 2040 would not be inconsistent with or obstruct the implementation of any applicable plan or regulation adopted for the purposes of avoiding or mitigating an environmental effect.

The proposed General Plan 2040 Land Use (LU) Element maintains consistency with the *Marin Countywide Plan* through a goal, policies, and a program that ensure land use planning decisions inside and adjacent to the San Rafael city limits do not conflict with one another. The following goal, policies, and program ensure a collaborative process as potential future development outside the San Rafael city limits occurs:

Goal LU-1: Well-Managed Growth and Change. Grow and change in a way that serves community needs, improves fiscal stability, and enhances the quality of life.

- **Policy LU-1.5: Development Beyond the Urban Service Area.** Retain undeveloped areas outside of San Rafael's Urban Service Area boundary but within its Planning Area in agricultural or open space uses.
- **Policy LU-1.7: Land Use Planning in Surrounding Jurisdictions.** Continue to work with the County of Marin and the cities of Larkspur, Novato, Ross, and San Anselmo to ensure that land use changes outside the San Rafael city limits will positively affect San Rafael.
 - **Program LU-1.7A: Development Adjacent to San Rafael.** Work with the County, other jurisdictions, neighborhood groups, and residents to review applications for development in areas adjacent to San Rafael's city limits or within the Sphere of Influence.

The proposed General Plan 2040 is the primary planning document for the city of San Rafael. The proposed update is intended to ensure consistency between the General Plan, Zoning Ordinance, and State law. Because the proposed General Plan 2040 is the overriding planning document for the city, and because the proposed General Plan 2040 involves amending the General Plan 2020 and the Zoning Ordinance in the Downtown Precise Plan Area to improve consistency, the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

LAND USE AND PLANNING

Downtown Precise Plan

As stated above, the General Plan is the primary planning document for the City of San Rafael. Adoption and implementation of the proposed Downtown Precise Plan would further the objectives and policies of the General Plan and would not obstruct its attainment. The proposed Downtown Precise Plan is intended to ensure consistency between the General Plan and Zoning Ordinance.

The proposed Downtown Plan includes the Downtown Code, which includes an amendment to the City's Zoning Ordinance in order to be consistent with the Downtown Precise Plan Area's proposed Downtown Mixed Use land use designation. The proposed Downtown Code has been prepared to reduce potential environmental impacts from future development in the Downtown Precise Plan Area. Other than as identified, no other development regulations are being modified or added as part of the proposed Downtown Precise Plan. The proposed Downtown Code would replace existing Zoning Districts and regulations for all of the properties in the Downtown Precise Plan Area with the exception of a few parcels in the Latham Street area, which will retain their Multifamily Residential District ([Medium Density] 2,500 square feet per dwelling unit [MR2.5]) zoning designation, and the existing open space zoning designations. The proposed Downtown Code would establish new Downtown Zones for the Downtown Precise Plan Area. Each of the Downtown Zones are established based on the intent of the desired physical form and character of particular environments envisioned in the proposed Downtown Precise Plan. The proposed zones focus on mixed-use, walkable areas of the Downtown Precise Plan Area and range in function and intensity.

While the proposed Downtown Precise Plan is the guiding document for the Downtown Precise Plan Area, land use planning and policies for the Downtown Precise Plan Area are dictated by the proposed General Plan 2040. The Downtown Precise Plan would be adopted as part of the General Plan 2040. The proposed Downtown Precise Plan complements and provides more specifics to the proposed General Plan 2040 but does not include policy details that override the policies which would be adopted as part of the proposed General Plan 2040. Therefore, because the General Plan is the overriding planning document for the City, and because the proposed Downtown Precise Plan involves amending the General Plan and Zoning Ordinance to ensure consistency, the impact would be *less than significant*.

Significance with Mitigation: Less than significant.

LU-3 Implementation of the proposed project could result in a cumulatively considerable impact to land use and planning.

The geographic context for the cumulative land use and planning impacts would occur from potential future development under the proposed project combined with impacts of development on lands adjacent to the city.

As discussed in Impact Discussions LU-1 and LU-2, the proposed project would not divide an established community or conflict with established plans, policies, and regulations. The proposed project would not conflict with any State, regional, or local land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Future development that would be allowed under the

LAND USE AND PLANNING

proposed project would not create substantial land use impacts. Development would likely continue to occur in the surrounding cities and the unincorporated areas of Marin County. However, such development would largely be taking place in already urbanized areas as infill development and would not require development or demolition that would create land use conflicts or divide established communities. Therefore, the proposed project would not result in a cumulatively considerable contribution to cumulative impacts related to land use changes, and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

4.12 MINERAL RESOURCES

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project related to mineral resources. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of project impacts and cumulative impacts.

4.12.1 ENVIRONMENTAL SETTING

4.12.1.1 REGULATORY FRAMEWORK

State Regulations

State regulations require the preservation of mineral resource sites and ensure that nearby land uses are compatible with extraction. The California Department of Conservation, Geological Survey (California Geologic Survey) is the State agency responsible for inventorying and mapping mineral resources in California. Regulations pursuant to the California Geological Survey mineral resource determinations are generally linked with county general plan land use elements and other types of local and regional development rules. The California State Mining and Geology Board maintains information on mineral deposits of statewide or regional significance.

The California Geological Survey classifies lands into Aggregate and Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1974. Cities and counties are required to incorporate MRZs delineated by the State into their general plans.¹ The MRZs identify whether known or inferred significant mineral resources are present in areas. MRZs are grouped by the State into four categories based on geologic factors, with MRZ-2 lands having the greatest importance. MRZ-2 sites are underlain by demonstrated mineral resources considered important to the region or the State as a whole. The only mineral resource land in the Environmental Impact Report (EIR) Study Area is the San Rafael Rock Quarry and McNear Brickworks, which is identified by the State as MRZ-2.

Local Regulations

Marin Countywide Plan

The *Marin Countywide Plan* is a comprehensive long-range guide for land use in the unincorporated portions of Marin County, including land outside of San Rafael's city limit but within the EIR Study Area. The current *Marin Countywide Plan* was adopted on November 7, 2007, and includes the following mineral (MIN) policies identified in the Built Environment Element:

- **MIN-1.4 Require Best Available Management Practices.** Require best available management practices through the use-permit process to minimize or avoid nuisances, hazards, or adverse environmental impacts.

¹ Public Resources Code Section 2762(a)(1).

MINERAL RESOURCES

- **MIN-1.6 Address Operational Issues.** When a use permit comes up for renewal, or if a property owner amends a surface mining and quarrying permit, the environmental impacts of the project shall be evaluated and mitigated through the California Environmental Quality Act and the permit process.

The Marin County Public Works Department is responsible for issuing permits and overseeing permit compliance for the San Rafael Rock Quarry and McNear Brickworks. Additional information on the San Rafael Rock Quarry and McNear Brickworks, with respect to operations and permit compliance, can be found on the Marin County's webpage "San Rafael Rock Quarry" at www.marincounty.org.

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs relevant to mineral resources, particularly the existing San Rafael Rock Quarry and McNear Brickworks, are in the Neighborhoods Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. Policies in the Neighborhoods Element related to the San Rafael Rock Quarry and McNear Brickworks have been strengthened, reflecting edits requested by property owners and the neighboring residents of Peacock Gap. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.12.3, Impact Discussion.

4.12.1.2 EXISTING CONDITIONS

The 300-acre San Rafael Rock Quarry and McNear Brickworks site, owned by the Dutra Group, is one of the largest privately held properties in the EIR Study Area.² The site is located on Point San Pedro Road to the east of the city limits but within the City's sphere of influence and EIR Study Area. Most of the area is designated as Mineral Resource, with low-lying areas and wetlands designated as Conservation in General Plan 2020.³ The San Rafael Rock Quarry and McNear Brickworks is the only parcel designated as a mineral resource with local, regional, or State significance within the vicinity of the EIR Study Area.⁴ It is identified by the State as Class 2 Mineral Resource Zone (MRZ-2) lands and is a State-designated resource.⁵

The San Rafael Rock Quarry and McNear Brickworks has been active for over 100 years. It has become the primary supplier of aggregate material to Marin County and is a key supplier in the greater Northern California area. Materials supplied include asphalt, drain rock, base rock, rip rap, and sand.⁶

² California Geologic Survey. 2013. Update of Mineral Land Classification: Aggregate Materials in The North San Francisco Bay Production-Consumption Region, Sonoma, Napa, Marin, And Southwestern Solano Counties, California. file:///C:/Users/jprotsman/Downloads/SR%20205%20North%20Bay%20Report_Final.pdf.

³ City of San Rafael, February 11, 2020, Planning Commission Staff Report, pages 10 to 11.

⁴ City of San Rafael, February 2004, San Rafael General Plan 2020 Draft Environmental Impact Report, Exhibit EIR-2, page 17

⁵ City of San Rafael, January 2009, San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit, Combined Final Environmental Impact Report, State Clearinghouse Numbers 2005102122 and 2007082097, Page 3-10.

⁶ Dutra Group, San Rafael Rock Quarry, Materials, <http://www.sanrafaelrockquarry.com/materials>, accessed on December 11, 2019.

MINERAL RESOURCES

The County of Marin approved a Surface Mining and Quarrying Permit and Reclamation Plan for the San Rafael Rock Quarry in 2010 that mandates a cease of operations in 2024.⁷ The Reclamation Plan was a requirement for approval of the Surface Mining and Quarrying Permit. Reclamation work outlined in the Reclamation Plan includes grading, erosion and sediment control measures, and vegetation restoration for the northeastern portion of the site, which was no longer operational at the time of permit approval. Permit approval also required continuous on-site monitoring, which includes air, noise, and seismic monitoring, as well as working closely with the United States Fish and Wildlife Service to protect the California red-legged frog. A grading permit issued in 2018 included more specific details for the avoidance of the California red-legged frog.⁸

The Dutra Group recently submitted an application amendment to extend operations through 2044 to allow access to rock reserves remaining under the existing entitlements for the San Rafael Rock Quarry and McNear Brickworks.⁹ The Amended Surface Mining and Quarrying Permit and Amended Reclamation Plan would maintain all conditions of the 2010-approved documents, including maintaining the San Rafael Rock Quarry's vested mining rights to extract a total of 17.5 million tons of rock from the site.¹⁰ The Amended Surface Mining and Quarrying Permit and associated Final EIR (State Clearinghouse Number 2008082097) and the Amended Reclamation Plan and associated Final EIR (State Clearinghouse Number 2005102122) also include a Blasting Operation Safety Plan, a Noise Reduction Plan, a Greenhouse Gas Reduction Plan, and a Marsh Restoration Plan.¹¹

Both the San Rafael General Plan 2020 and the San Rafael Rock Quarry Reclamation Plan Final EIR include policies that support an opportunity for the City of San Rafael to annex the quarry site upon the cessation of operations.^{12,13} General Plan 2020 includes language in the Neighborhoods Element that reflects the Reclamation Plan's possibility of developing the site of the San Rafael Rock Quarry and McNear Brickworks with a harbor and marina along with commercial, residential, neighborhood commercial, administrative and professional, and open space uses in the event the City of San Rafael annexes the land.¹⁴

⁷ County of Marin, September 28, 2010, Marin County Surface Mining and Quarrying Permit # Q-72-03, Amendment #1, Conditions of Approval Including Amended Reclamation Plan for the San Rafael Rock Quarry.

⁸ County of Marin, June 25, 2018, County of Marin- News Releases- Rock Quarry Reclamation, <https://www.marincounty.org/main/county-press-releases/press-releases/2018/dpw-rockquarry-062518>, accessed on December 11, 2019.

⁹ Marin County, Department of Public Works, October 18, 2019, Notice of Project Status, <https://www.marincounty.org/-/media/files/departments/pw/land-use/quarry/notice-of-project-status-complete-new-app.pdf?la=en>, accessed on March 25, 2020.

¹⁰ Pera, Matthew, MarinIJ, October 17, 2019, Updated: October 20, 2019, <https://www.marinij.com/2019/10/17/san-rafael-rock-quarry-applies-for-20-year-mining-extension/>.

¹¹ County of Marin, Department of Public Works, San Rafael Rock Quarry Information, <https://www.marincounty.org/depts/pw/divisions/projects/land-use/quarry>, accessed on December 11, 2019.

¹² City of San Rafael, April 28, 2017, The City of San Rafael General Plan 2020, Neighborhoods Element, Page 119.

¹³ City of San Rafael, January 2009, San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit, Combined Final Environmental Impact Report, State Clearinghouse Numbers 2005102122 and 2007082097, Pages 4.6-5 and 4.6-13.

¹⁴ City of San Rafael, April 28, 2017, The City of San Rafael General Plan 2020, Neighborhoods Element, Page 119.

MINERAL RESOURCES

4.12.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project would result in significant impacts to mineral resources if it would:

1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
2. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.
3. Result in significant cumulative impacts to mineral resources.

4.12.3 IMPACT DISCUSSION

MIN-1	Implementation of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
--------------	---

General Plan 2040

The San Rafael Rock Quarry and McNear Brickworks are the only designated mineral resource sites with local, regional, or State significance in the EIR Study Area. The site is located outside of the San Rafael city limits, but within the EIR Study Area. As discussed in Chapter 3, Project Description, of this Draft EIR, potential future development is expected to occur in existing urban areas and would be concentrated on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing residential and residential-serving development. These urbanized areas do not have known mineral resources of value to the region or the State. Therefore, implementation of General Plan 2040 would not include land use changes that would cause an adverse impact on any lands within or adjacent to the EIR Study Area that have a known mineral resource of value to the region or the State. As discussed in Section 4.12.1.2, Existing Conditions, the County of Marin is currently reviewing an operating permit extension for the San Rafael Rock Quarry and McNear Brickworks that is anticipated to be approved, extending mining operations through 2044.

The proposed Conservation and Climate Change (C) Element and the Neighborhoods Element (NH) contain goals, policies, and programs that require local planning and development decisions to consider impacts to mineral resources. The following General Plan 2040 goals, policies, and programs would serve to minimize potential adverse impacts on mineral resources:

Goal C-1: Supporting our natural communities. Protect, restore, and enhance San Rafael's environment and natural communities.

- **Policy C-1.18: Mineral Resource Management.** Work with the County of Marin to permit the continued use of property in the San Rafael sphere of influence for mineral resource extraction,

MINERAL RESOURCES

subject to permitting procedures and mitigation requirements that reduce potential adverse impacts on the natural environment and surrounding uses.

- **Policy NH-5.6: San Rafael Rock Quarry Operations.** Continue to work with the County of Marin, the quarry operator, and area residents to address community concerns and minimize impacts of quarry operations on surrounding residents, including noise, air quality, vibration, street maintenance, and truck traffic.
 - **Program NH-5.6A: Quarry Impacts.** Seek ongoing input into County code enforcement activities, land use entitlements, or negotiations with the quarry operator that might reduce impacts on City infrastructure or properties in the City of San Rafael. The City will urge the County to require Best Management Practices for Quarry operations, including air quality testing, water quality monitoring and improvements, and runoff controls that reflect the latest technology and scientific methods. The City will further promote joint City-County and Quarry operator efforts to address flooding and sea level rise, pedestrian and bicycle safety, wetlands restoration, and noise mitigation.
 - **Program NH-5.6B: Environmental Review.** If and when the Quarry applies for modifications to its existing Operating Permit, participate in discussions to ensure that:
 - Potential environmental impacts and hazards are minimized.
 - Public health, safety and quality of life are protected.
 - Traffic impacts are addressed, particularly impacts on Point San Pedro Road.
 - Future public costs associated with reclamation, such as long-term environmental restoration and infrastructure repair, are objectively measured and considered in decisions about future quarry operations.
 - Collaborate with residents to ensure that any modifications to the existing Operating Permit remain within the restrictions imposed by existing and future court orders.
- **Policy NH-5.7: San Rafael Rock Quarry and McNear Brickworks Long-Term Plans.** If operations cease during the time frame of this Plan, consider annexation and redevelopment of the San Rafael Rock Quarry and McNear Brickworks, taking into account the following:
 - Consider the County’s Amended Reclamation Plan, as it may be further amended in the future, in land use decisions. The current Reclamation Plan supports a mixture of single family residences, townhomes, and condominium units; a marina; commercial, recreational, hospitality, and other neighborhood-serving uses, and open space. A revised Reclamation Plan is anticipated during the timeframe of this General Plan and could alter the planned post-mining uses. Specific future uses would be determined through a separate entitlement process that would potentially include annexation into the City.
 - Consider redevelopment of the site to the extent that traffic capacity is available and the project can meet the City’s transportation standards, including performance of intersections between the site and US 101. Alternative modes of transportation may be considered to facilitate compliance with City standards. Water transit (including water taxis) should be considered in any phase of the project and factored into the transportation analysis.
 - If needed for traffic capacity and to the extent consistent with City traffic standards, Point San Pedro Road should be expanded to four lanes east of Riviera Drive, including bicycle lanes consistent with the Bicycle and Pedestrian Master Plan.

MINERAL RESOURCES

- Create a public use park band along the existing shoreline averaging at least 100 feet in width linking McNear Beach with the public walkway along Point San Pedro Road, as approved by the Bay Conservation and Development Commission.
- Consider opportunities for community facilities serving residents of the San Pedro Peninsula.
- Protect the freshwater marsh and ponds, taking sea level rise impacts into consideration. Consider restoring the saltwater marsh to tidal action.
- Preserve and gradually restore tree species native to the site's woodland areas.
- Incorporate some of the historic brickworks into the project's design.
- Consider redevelopment of the site in phases as reclamation is completed in specific areas. The McNear Brickyard would likely be the first phase and would require a site access road from Point San Pedro Road that is separate from the road accessing the mining and asphalt operations. Phased redevelopment would require amendments to the existing Quarry entitlements to be approved by the County in coordination with the property owner.
- **Program NH-5.7A: Quarry Planning.** Participate, through the County of Marin, in any revisions to the San Rafael Rock Quarry Reclamation Plan, which should form the basis for decisions about future land uses and possible annexation.
- **Program NH-5.7B: Shoreline Use.** Use the development review process to establish a bay frontage linear park that connects McNear Beach to the existing shoreline walkway along Point San Pedro Road.

Additionally, the *Marin Countywide Plan* includes Policies MIN-1.4 and MIN-1.6, discussed in Section 4.12.1.1, Regulatory Framework, which address the future of the San Rafael Rock Quarry and McNear Brickworks operational best management practices and permitting process. These policies, along with the policies and programs in General Plan 2040, would not result in direct physical changes to the San Rafael Rock Quarry and McNear Brickworks. Furthermore, no land use changes or new development potential are proposed on the San Rafael Rock Quarry and McNear Brickworks property. Therefore, implementation of the proposed General Plan 2040 would not result in the loss of availability of a known mineral resource, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The Downtown Precise Plan Area does not contain known mineral resources that are of value to the region or the State. Therefore, implementation of the Downtown Precise Plan would not cause an adverse impact to a known mineral resource that is of value to the region or to the State, and *no impact* would occur.

Significance without Mitigation: No impact.

MINERAL RESOURCES

MIN-2 **Implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.**

General Plan 2040

The San Rafael Rock Quarry and McNear Brickworks is located within the EIR Study Area and is delineated as a mineral resource in the existing General Plan 2020 and in the proposed project. The San Rafael Rock Quarry and McNear Brickworks has both local and regional significance because resources extracted at the site are used in both local and regional development and municipal construction projects. As discussed in Impact Discussion MIN-1, operations at the San Rafael Rock Quarry and McNear Brickworks are expected to occur throughout 2044 and implementation of General Plan 2040 would not result in loss of any locally important mineral resource recovery sites, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As discussed in Impact Discussion MIN-1, there are no known mineral resources which are of value to the region or the State in the Downtown Precise Plan Area. Therefore, implementation of the Downtown Precise Plan would not result in loss of any locally important mineral resource recovery sites, and *no impact* would occur.

Significance without Mitigation: No impact.

MIN-3 **Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to mineral resources.**

As discussed in Chapter 4, Environmental Analysis, the geographic scope of the cumulative analysis for mineral resources of statewide importance considers the surrounding incorporated and unincorporated land, the region, and the state. Future development throughout the state could result in the loss of mineral resources that are of value to the region and the residents of the state, and therefore impacts could be significant.

The proposed project does not include any changes in land use on or near the San Rafael Rock Quarry and McNear Brickworks site through the project's horizon year. Therefore, implementation of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts related to the conversion of resources, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

MINERAL RESOURCES

This page intentionally left blank.

4.13 NOISE AND VIBRATION

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project that are related to noise and vibration. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of potential impacts and cumulative impacts related to implementation of the proposed project. Noise monitoring and modeling data are included as Appendix H, Noise Data, of this Draft Environmental Impact Report (EIR).

4.13.1 ENVIRONMENTAL SETTING

4.13.1.1 TERMINOLOGY

The following are definitions for terms used throughout this chapter.

- **Sound.** A disturbance created by a vibrating object, which when transmitted by pressure waves through a medium such as air, is capable of being detected by the human ear.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A measure of sound on a logarithmic scale.
- **AWeighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level (L_{eq}).** The mean of the noise level, energy averaged over the measurement period.
- **L_{max} .** The maximum noise level during a measurement period.
- **Statistical Sound Level (L_n).** The sound level that is exceeded “n” percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period). This is also called the “median sound level.” The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the “intrusive sound level.” The L_{90} is the sound level exceeded 90 percent of the time and is often considered the “effective background level” or “residual noise level.”
- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 pm to 7:00 am.
- **Community Noise Equivalent Level (CNEL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the levels occurring during the period from 7:00 pm to 10:00 pm and 10 dB added to the sound levels occurring during the period from 10:00 pm to 7:00 am. Note: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered equivalent/interchangeable.

NOISE AND VIBRATION

- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second or in/sec) due to ground vibration.
- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the United States, the standard reference velocity is 1 micro-inch per second (1×10^{-6} in/sec).
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

4.13.1.2 SOUND FUNDAMENTALS

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Changes of 1 to 3 dBA are detectable under quiet, controlled conditions and changes of less than 1 dBA are usually indiscernible. A 3 dBA change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dBA is readily discernable to most people in an exterior environment whereas a 10 dBA change is perceived as a doubling (or halving) of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are “felt” more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by weighting frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

Sound Measurement

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, an increase of 10 dBA is 10 times more intense than 1 dBA, 20 dBA is 100 times more intense, and 30 dBA is 1,000 times more intense. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

NOISE AND VIBRATION

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as “spreading loss.” For a single point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dBA for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5 dBA for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2 , L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time, or 1, 5, and 15 minutes per hour. These “ L_n ” values are typically used to demonstrate compliance for stationary noise sources with a city’s noise ordinance, as discussed below. Other values typically noted during a noise survey are the L_{min} and L_{max} . These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and the City require that, for planning purposes, an artificial dBA increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 p.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 pm and 10:00 pm. Both descriptors give roughly the same 24-hour level (i.e., typically within 1 dBA of each other), with the CNEL being only slightly more restrictive (i.e., higher); therefore, they are used interchangeably in this assessment.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure, the heart, and the nervous system. Extended periods of noise exposure above 90 dBA can result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation becomes painful. This is called the threshold of pain. Table 4.13-1 shows typical noise levels from familiar noise sources.

NOISE AND VIBRATION

TABLE 4.13-1 TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet	100	
Gas Lawn Mower at three feet	90	
Diesel Truck at 50 feet, at 50 mph	80	Food Blender at 3 feet Garbage Disposal at 3 feet
Noisy Urban Area, Daytime	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
Quiet Urban Daytime	50	Large Business Office Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (background)
	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans), 2013. *Technical Noise Supplement ("TeNS")*.

4.13.1.3 VIBRATION FUNDAMENTALS

Vibration is an oscillating motion. Like noise, vibration is transmitted in waves, but through earth or solid objects. Unlike noise, vibration is typically felt rather than heard.

Vibration can be either natural—e.g., from earthquakes, volcanic eruptions, landslides—or human-made, such as from explosions, heavy machinery, or trains. Both natural and human-made vibration may be continuous, such as from operating machinery, or impulsive, as from an explosion.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude can be characterized in three ways—displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position. Particle velocity is the rate of speed at which the particles move in inches per second (in/sec) or millimeters per second. Table 4.13-2 presents the human reaction to various levels of PPV.

NOISE AND VIBRATION

TABLE 4.13-2 HUMAN REACTION TO TYPICAL VIBRATION LEVELS

Vibration Level Peak Particle Velocity (in/sec)	Vibration Damage	Vibration Annoyance
0.006–0.019	Vibrations unlikely to cause damage of any type	Threshold of perception, possibility of intrusion
0.08	Recommended upper level of vibration to which ruins and ancient monuments should be subjected	Vibrations readily perceptible
0.10	Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings	Level at which continuous vibration begins to annoy people
0.20	Threshold at which there is a risk to “architectural” damage to normal dwelling, i.e., houses with plastered walls and ceilings	Vibrations annoying to people in buildings
0.4–0.6	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges

Source: California Department of Transportation (Caltrans), 2013. *Transportation and Construction Vibration Guidance Manual*.

In addition to PPVs, vibrations also vary in frequency, and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, buses often generate frequencies around 3 Hz at high vehicle speeds. It is less common, but possible, to measure traffic frequencies above 30 Hz.

For vibration annoyance from operational sources, vibration is measured in vibration decibels or VdB. A measurement of 65 VdB would result in an impact to highly sensitive uses with vibration-sensitive equipment (e.g., microscopes in hospitals and research facilities) and a measurement of 72 VdB would result in an impact to residential uses.

4.13.1.4 REGULATORY FRAMEWORK

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, and local governments have established standards and ordinances to control noise.

Federal Regulations

Federal Highway Administration

Proposed federal or federal-aid highway construction projects at a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes, requires an assessment of noise and consideration of noise abatement pursuant to Code of Federal Regulations Title 23, Part 772, “Procedures for Abatement of Highway Traffic Noise and Construction Noise.” The Federal Highway Administration (FHWA) has adopted noise abatement criteria (NAC) for sensitive receivers such as picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals—when “worst-hour” noise levels approach or exceed 67 dBA L_{eq} . The California Department of Transportation

NOISE AND VIBRATION

(Caltrans) has further defined “approaching” the NAC to be 1 dBA below the NAC for noise sensitive receivers (e.g., 66 dBA L_{eq} is considered approaching the NAC).¹

United States Environmental Protection Agency

In addition to FHWA standards, the United States Environmental Protection Agency (USEPA) has identified the relationship between noise levels and human response. The USEPA has determined that over a 24-hour period, an L_{eq} of 70 dBA will result in some hearing loss. Interference with activity and annoyance will not occur if exterior levels are maintained at an L_{eq} of 55 dBA and interior levels at or below 45 dBA. While these levels are relevant for planning and design and useful for informational purposes, they are not land use planning criteria because they do not consider economic cost, technical feasibility, or the needs of the community; therefore, they are not mandated.

The USEPA has also set 55 dBA L_{dn} as the basic goal for exterior residential noise intrusion. However, other federal agencies, in consideration of their own program requirements and goals—as well as the difficulty of actually achieving a goal of 55 dBA L_{dn} —have settled on 65 dBA L_{dn} as their standard. At 65 dBA L_{dn} , activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Safety and Health Administration under the USEPA. Such limitations would apply to the operation of construction equipment and could also apply to any proposed industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility’s Health and Safety Plan, and is therefore not addressed further in this analysis.

United States Department of Housing and Urban Development

The United States Department of Housing and Urban Development (HUD) has set a goal of 65 dBA L_{dn} as a desirable maximum exterior standard for residential units developed under HUD funding. (This level is also generally accepted by the State of California.) While HUD does not specify acceptable interior noise levels, standard construction of residential dwellings typically provides in excess of 20 dBA of attenuation with the windows closed. Based on this premise, the interior L_{dn} should not exceed 45 dBA.

Aircraft Noise Standards

The Federal Aviation Administration Advisory Circular Number 150 5020 2, “Noise Assessment Guidelines for New Helicopters,” recommends the use of a cumulative noise measure, the 24-hour equivalent sound level, or $L_{eq}(24)$, so that the relative contributions of the heliport and other sound sources in the community can be compared. The $L_{eq}(24)$ is similar to the L_{dn} used in assessing the impacts of fixed-wing aircraft. The helicopter $L_{eq}(24)$ values are obtained by logarithmically adding the sound exposure level values over a 24-hour period.

¹ Caltrans Division of Environmental Analysis, 2020, *Traffic Noise Analysis Protocol*.

NOISE AND VIBRATION

Public Law 96 193 also directs the Federal Aviation Administration to identify land uses that are “normally compatible” with various levels of noise from aircraft operations. Because of the size and complexity of many major hub airports and their operations, Federal Aviation Regulation Part 150 identifies a large number of land uses and their attendant noise levels.

State Regulations

General Plan Guidelines

The State of California, through its general plan guidelines, discusses how ambient noise should influence land use and development decisions and includes a table of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable uses at different noise levels, expressed in CNEL. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements. The general plan guidelines provide cities with recommended community noise and land use compatibility standards that can be adopted or modified at the local level based on conditions and types of land uses specific to that jurisdiction.

California Building Code

The California Building Code is Title 24 of the California Code of Regulations. California Building Code Part 2, Volume 1, Chapter 12, Section 1207.11.2, Allowable Interior Noise Levels, requires that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric is evaluated as either the L_{dn} or the CNEL, consistent with the noise element of the local general plan. The City regularly adopts updates to the California Building Code in the San Rafael Municipal Code (SRMC) Chapter 12.100, Adopted Codes.

California Building Code: California Green Building Standards Code

The State of California’s noise insulation standards for nonresidential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards Code. The California Green Building Standards Code noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed projects may use either the prescriptive method (Section 5.507.4.1) or the performance method (Section 5.507.4.2) to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA $L_{eq(1hr)}$.

Airport Noise Standards

California Code of Regulations Title 21, Subchapter 6, Airport Noise Standards, establishes 65 dBA CNEL as the acceptable level of aircraft noise for persons living in the vicinity of airports. Noise-sensitive land uses in locations where the aircraft exterior noise level exceeds 65 dBA CNEL are generally incompatible, unless

NOISE AND VIBRATION

an aviation easement for aircraft noise has been acquired by the airport proprietor, or the residence is a high-rise with an interior CNEL of 45 dBA or less in all habitable rooms and an air circulation or air conditioning system, as appropriate. Assembly Bill (AB) 2776 requires any person who intends to sell or lease residential properties in an airport influence area to disclose that fact to the person buying the property.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to noise are primarily in the Noise Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter in Section 4.13.3, Impact Discussion.

The Noise Element aims to limit the exposure of the community to excessive noise levels by guiding decisions concerning land use and location of new roads and transportation facilities. The City’s land use compatibility standards provide urban planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels.

San Rafael Municipal Code

The SRMC includes various directives pertaining to noise. The SRMC is organized by title, chapter, and section. Most provisions related to noise impacts are included Title 8, Morals and Conduct, as follows:

- **Chapter 8.13, Noise.** This chapter limits exterior noise limits during daytime and nighttime hours. Section 8.13.040, General Noise Limits, states that no person shall produce noise levels greater than as summarized in Table 4.13-3, when measured on the designated property.

TABLE 4.13-3 EXTERIOR PROPERTY NOISE LIMITS (DBA)

Category	Daytime ^a	Nighttime ^b
	Intermittent ^c /Constant ^d	Intermittent ^c /Constant ^d
Residential	60/50	50/40
Mixed Use	65/55	55/45
Commercial	65/55	65/55
Industrial	70/60	NA

Notes:

a. “Daytime” hours are Sunday through Thursday 7:00 a.m. to 9:00 p.m. and 7:00 a.m. to 10:00 p.m. Friday and Saturday

b. “Nighttime” hours are 9:00 p.m. to 7:00 a.m. Sunday through Thursday and 10:00 p.m. to 7:00 p.m. Friday and Saturday

c. For intermittent sound, L_{max} shall be used.

d. For constant sound, L_{eq} shall be used.

Source: City of San Rafael Municipal Code, Section 8.13 Noise.

For public property, the most restrictive noise standard shall apply to any private property adjoining the public property. Interior noise levels of a multifamily residential structure are limited to 40 dBA L_{max} and 35 dBA L_{eq} for daytime hours, and 35 dBA L_{max} and 30 dBA L_{eq} for nighttime hours.

NOISE AND VIBRATION

Under SRMC Section 8.13.050, construction noise is an exception to the provisions of the SRMC during the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. Saturdays, and no construction activities are to take place on Sundays and holidays, unless otherwise approved by the City. In addition to this exception, noise levels are not to exceed 90 dBA L_{max} during allowable construction hours at any point outside the property plane (property line) of the project.

Pursuant to SRMC Section 8.13.050, sound-generating devices or instruments used for any indoor or outdoor sound performances, athletic events, and special events shall be permitted, provided they do not exceed a noise level of 80 dBA measured at a distance of not less than 50 feet from the property line or other limits, as may be established by any required approvals and permits.

Section 8.13.070 exempts the following from the provisions of the SRMC:

- Aerial warning devices which are required by law to protect the health, safety, and welfare of the community;
- Emergency vehicle responses and all necessary equipment utilized for the purpose of responding to an emergency, or necessary to restore, preserve, protect or save lives or property from imminent danger of loss or harm;
- Aviation, railroad, and public transit operations;
- The operation of any municipal or public utility vehicles;
- Public safety training exercises conducted between the hours of eight a.m. (8:00 a.m.) and eight p.m. (8:00 p.m.);
- Uses established through any applicable discretionary review process containing specific noise conditions of approval and/or mitigation measures;
- Work on capital improvements, or repairs on public property by employees or contractors of the city;
- Vehicle noise subject to regulation under the California Vehicle Code;
- Emergency repair work performed by, or at the request of, a property owner on his or her private property, where the delay required to obtain an exception permit under this chapter would result in substantial damage, personal injuries, or property loss to the owner, provided that such emergency work shall be subject to such reasonable conditions as may be imposed by authorized city employees to mitigate the noise level of the activity.
- Portable generator used during emergencies or utility power outages per manufacturer's recommendations.
- Stationary generator installed and used during emergencies, utility power outages or routine testing per manufacturer's recommendations. Routine testing for stationary generators shall be conducted between the hours of ten a.m. (10:00 a.m.) and four p.m. (4:00 p.m.).

NOISE AND VIBRATION

4.13.1.5 EXISTING CONDITIONS

Primary noise sources in the EIR Study Area include US-101, I-580, the Sonoma-Marín Area Rail Transit (SMART) rail, and traffic on local roadways. In commercial and retail areas, truck loading docks can be a source of localized noise.

Sensitive Receptors

Certain land uses, such as residences, schools, and hospitals, are particularly sensitive to noise and vibration. Sensitive receptors within the EIR Study Area include residences, senior housing, schools, places of worship, and recreational areas. These uses are regarded as sensitive because they are where citizens most frequently engage in activities that are likely to be disturbed by noise, such as reading, studying, sleeping, resting, or otherwise engaging in quiet or passive recreation. Commercial and industrial uses are not particularly sensitive to noise or vibration.

Ambient Noise Measurements

Ambient noise monitoring was conducted within the EIR Study Area by PlaceWorks in May 2019 to determine a baseline noise level at different environments. Measurements were made during weekday periods when the EIR Study Area is expected to be most active. Long-term (48-hour) measurements were conducted at 10 locations within the EIR Study Area, and short-term (10 minute) measurements were conducted at 22 locations in the EIR Study Area. Of these, 3 long-term and 9 short-term measurements were conducted in the Downtown Precise Plan Area. All measurements were conducted from Thursday, May 2, through Thursday, May 9, 2019. Short-term measurements were generally made during morning (7:00 a.m. to 10:00 a.m.) and evening (3:00 p.m. to 7:00 p.m.) peak commute hours.

Meteorological conditions during the measurement periods were favorable for outdoor sound measurements and were noted to be representative of the typical conditions for the season. All sound level meters were equipped with a windscreen during measurements.

All sound level meters used for noise monitoring satisfy the American National Standards Institute standard for Type 1 instrumentation.² The sound level meters were set to “slow” response and “A” weighting (dBA). The meters were calibrated prior to and after the monitoring period. All measurements were at least 5 feet above the ground and away from reflective surfaces. Noise measurement locations are described below and shown on Figure 4.13-1.

Long-Term Noise Monitoring Locations

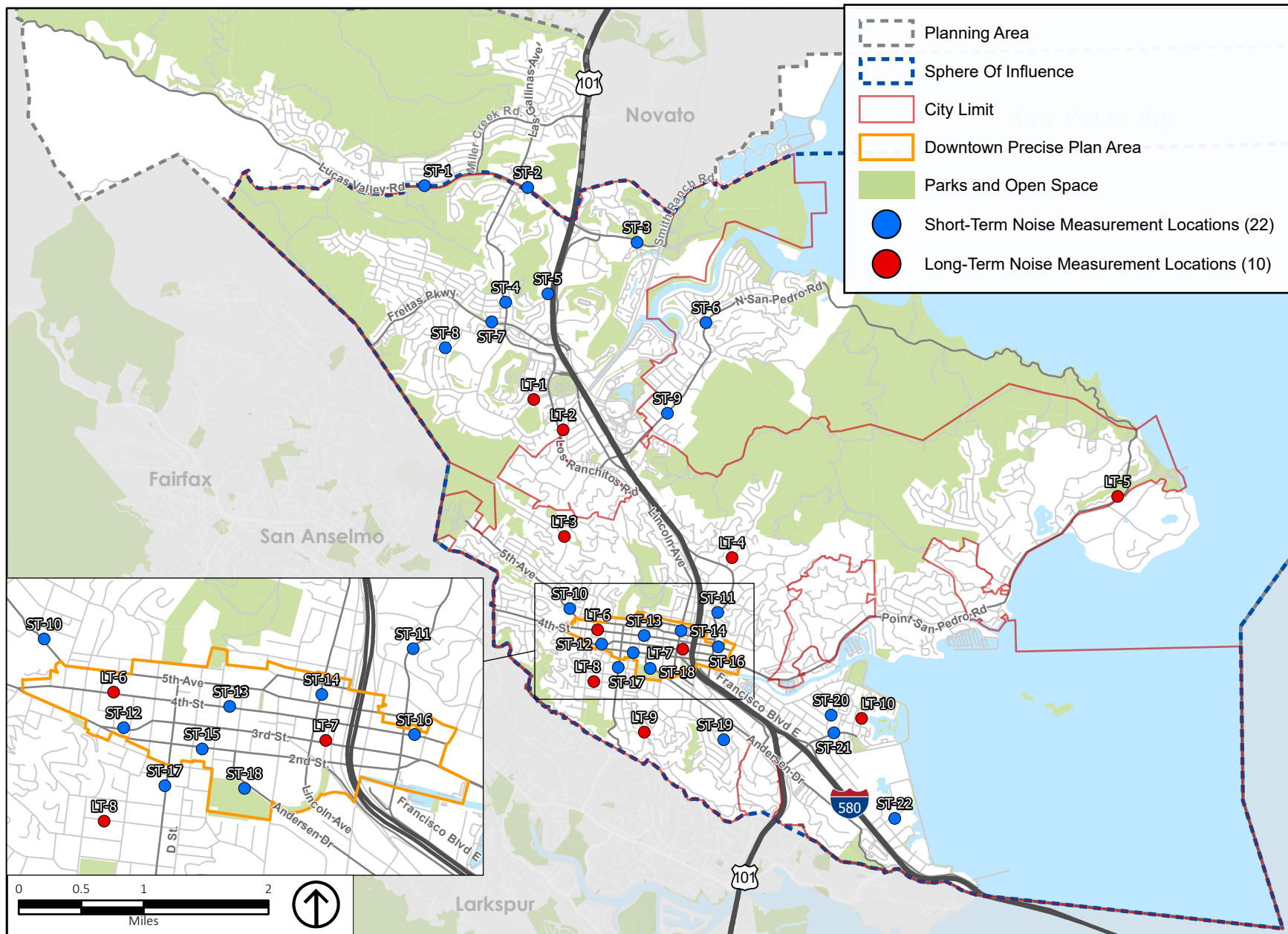
- **Long-Term Location 1 (LT-1)** was on Northgate Drive across from Northgate Mall. The measurement location was approximately 30 feet south of the Northgate Drive eastbound centerline. A 24-hour noise measurement was conducted, beginning at the 5:00 p.m. hour on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic.

² Monitoring of ambient noise was performed using Larson-Davis Model LxT and 820 sound level meters.

NOISE AND VIBRATION

- **Long-Term Location 2 (LT-2)** was adjacent to the SMART train right-of-way at the end of Las Gallinas Avenue. During train pass-bys, the crossing bell was noted, but there was no train horn. The measurement location was approximately 50 feet east of the SMART centerline. A 24-hour noise measurement was conducted, beginning at the 5:00 p.m. hour on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by rail activity and traffic on Los Ranchitos Road.
- **Long-Term Location 3 (LT-3)** was on Elizabeth Way north of Chestnut Avenue. The measurement location was approximately 25 feet east of the Elizabeth Way northbound centerline. A 24-hour noise measurement was conducted, beginning at the 4:00 p.m. hour on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Long-Term Location 4 (LT-4)** was on Mountain View Avenue south of Linden Lane. The measurement location was approximately 15 feet west of the Mountain View Avenue southbound centerline. A 24-hour noise measurement was conducted, beginning at the 8:00 p.m. hour on Thursday, May 2, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Long-Term Location 5 (LT-5)** was on Point San Pedro Road east of Heritage Drive. The measurement location was approximately 45 feet north of the Point San Pedro Road westbound centerline. A 24-hour noise measurement was conducted, beginning at the 4:00 p.m. hour on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Long-Term Location 6 (LT-6)** was on Fourth Street east of F Street. The measurement location was approximately 20 feet north of the Fourth Street westbound centerline. A 24-hour noise measurement was conducted, beginning at the 7:00 p.m. hour on Thursday, May 2, 2019. The noise environment of this site is characterized primarily by local traffic and downtown commercial activity.
- **Long-Term Location 7 (LT-7)** was on the corner of Third Street and Tamalpais Avenue. A 24-hour noise measurement was conducted, beginning at the 6:00 p.m. hour on Thursday, May 2, 2019. The noise environment of this site is characterized primarily by traffic on local roadways and US-101, SMART rail activity, and downtown commercial activity.
- **Long-Term Location 8 (LT-8)** was on Bayview Street west of Marin Street. The measurement location was approximately 20 feet south of the Bayview Street eastbound centerline. A 24-hour noise measurement was conducted, beginning at the 6:00 p.m. hour on Thursday, May 2, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Long-Term Location 9 (LT-9)** was on Southern Heights Boulevard north of Meyer Road. A 24-hour noise measurement was conducted, beginning at the 3:00 p.m. hour on Tuesday, May 7, 2019. The noise environment of this site was noted to be relatively low, however distant property maintenance noise was noted during installation of the noise monitoring equipment.
- **Long-Term Location 10 (LT-10)** was on Catalina Boulevard north of Baypoint Drive. The measurement location was approximately 20 feet west of the Catalina Boulevard southbound centerline. A 24-hour noise measurement was conducted, beginning at the 5:00 pm hour on Thursday, May 2, 2019. The noise environment of this site is characterized primarily by local traffic.

NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-1
 Approximate Noise Monitoring Locations

NOISE AND VIBRATION

Short-Term Noise Monitoring Locations

- **Short-Term Location 1 (ST-1)** was on Lucas Valley Road east of Huckleberry Road. The measurement location was approximately 20 feet north of the Lucas Valley Road westbound centerline. A 15-minute noise measurement was conducted, beginning at 3:28 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional aircraft flyovers and birds.
- **Short-Term Location 2 (ST-2)** was on Lucas Valley Road east of Las Gallinas Avenue. The measurement location was approximately 20 feet north of the Lucas Valley Road westbound centerline. A 15-minute noise measurement was conducted, beginning at 3:02 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Short-Term Location 3 (ST-3)** was on Smith Ranch Road west of Yosemite Road. The measurement location was approximately 35 feet south of the Smith Ranch Road eastbound centerline. A 15-minute noise measurement was conducted, beginning at 3:53 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional aircraft flyovers and distant rail crossing noise.
- **Short-Term Location 4 (ST-4)** was in front of 1054 Las Gallinas Avenue. The measurement location was approximately 30 feet east of the Las Gallinas Avenue northbound centerline. A 15-minute noise measurement was conducted, beginning at 4:39 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included birds and distant highway noise.
- **Short-Term Location 5 (ST-5)** was on Los Gamos Drive north of Oleander Drive. The measurement location was approximately 30 feet east of the Los Gamos Drive northbound centerline. A 15-minute noise measurement was conducted, beginning at 4:17 pm on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by highway traffic. Secondary noise sources included occasional aircraft flyovers and birds. No car pass-bys were observed on Los Gamos Drive.
- **Short-Term Location 6 (ST-6)** was in front of 405 North San Pedro Road. The measurement location was approximately 20 feet west of the North San Pedro Road southbound centerline. A 15-minute noise measurement was conducted, beginning at 9:44 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included distant construction, nearby HVAC equipment, and occasional dogs and chickens.
- **Short-Term Location 7 (ST-7)** was on Manuel T. Freitas Parkway west of Las Gallinas Avenue. The measurement location was approximately 30 feet north of the Manuel T. Freitas Parkway westbound centerline. A 15-minute noise measurement was conducted, beginning at 5:00 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included birds and dogs.
- **Short-Term Location 8 (ST-8)** was in front of 411 Montecillo Road. The measurement location was approximately 20 feet west of the Montecillo Road southbound centerline. A 15-minute noise measurement was conducted, beginning at 5:24 p.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional aircraft flyovers, and typical residential noises such as children playing.

NOISE AND VIBRATION

- **Short-Term Location 9 (ST-9)** was across from 148 North San Pedro Road. The measurement location was approximately 20 feet south of the North San Pedro Road northbound centerline. A 15-minute noise measurement was conducted, beginning at 9:23 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional birds.
- **Short-Term Location 10 (ST-10)** was on Fifth Avenue east of Eye Street. The measurement location was approximately 25 feet north of the Fifth Avenue westbound centerline. A 15-minute noise measurement was conducted, beginning at 3:00 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional birds.
- **Short-Term Location 11 (ST-11)** was in front of 1330 Grand Avenue. The measurement location was approximately 20 feet east of the Grand Avenue northbound centerline. A 15-minute noise measurement was conducted, beginning at 8:56 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway noise. Secondary noise sources included occasional birds.
- **Short-Term Location 12 (ST-12)** was on Third Street west of Shaver Street. The measurement location was approximately 30 feet north of the Third Street westbound centerline. A 15-minute noise measurement was conducted, beginning at 3:30 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included a nearby car wash.
- **Short-Term Location 13 (ST-13)** was in front of 1122 Fourth Street. The measurement location was approximately 20 feet north of the Fourth Street westbound centerline. A 15-minute noise measurement was conducted, beginning at 5:01 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic and downtown commercial activity.
- **Short-Term Location 14 (ST-14)** was on Lincoln Avenue north of Fifth Avenue. The measurement location was approximately 20 feet east of the Lincoln Avenue northbound centerline. A 15-minute noise measurement was conducted, beginning at 6:05 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included occasional birds.
- **Short-Term Location 15 (ST-15)** was on Second Street west of B Street. The measurement location was approximately 20 feet south of the Second Street eastbound centerline. A 15-minute noise measurement was conducted, beginning at 4:24 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic.
- **Short-Term Location 16 (ST-16)** was on Fourth Street east of Grand Avenue. The measurement location was approximately 30 feet north of the Fourth Street westbound centerline. A 15-minute noise measurement was conducted, beginning at 6:36 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway traffic. Secondary noise sources included occasional birds.
- **Short-Term Location 17 (ST-17)** was on D Street north of Ross Street. The measurement location was approximately 30 feet west of the D Street southbound centerline. A 15-minute noise measurement was conducted, beginning at 3:56 p.m. on Tuesday, May 7, 2019. The noise environment of this site is

NOISE AND VIBRATION

characterized primarily by local traffic and distant highway traffic. Secondary noise sources included occasional birds.

- **Short-Term Location 18 (ST-18)** was near the baseball diamond at Albert Park. The measurement location was approximately 65 feet south of the Anderson Drive eastbound centerline. A 15-minute noise measurement was conducted, beginning at 5:37 p.m. on Tuesday, May 7, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway traffic and children playing baseball. Secondary noise sources included occasional birds.
- **Short-Term Location 19 (ST-19)** was in front of 314 Du Bois Street. The measurement location was approximately 20 feet east of the Du Bois Street northbound centerline. A 15-minute noise measurement was conducted, beginning at 8:26 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic. Secondary noise sources included distant yard maintenance and occasional birds.
- **Short-Term Location 20 (ST-20)** was on Kerner Boulevard south of Bahia Way. The measurement location was approximately 20 feet east of the Kerner Boulevard northbound centerline. A 15-minute noise measurement was conducted, beginning at 7:51 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway traffic. Secondary noise sources included typical residential neighborhood sounds such as children.
- **Short-Term Location 21 (ST-21)** was in front of 233 Bellam Boulevard. The measurement location was approximately 25 feet north of the Bellam Boulevard westbound centerline. A 15-minute noise measurement was conducted, beginning at 7:27 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway traffic.
- **Short-Term Location 22 (ST-22)** was on Shoreline Parkway east of Kerner Boulevard. The measurement location was approximately 20 feet south of the Shoreline Parkway eastbound centerline. A 15-minute noise measurement was conducted, beginning at 7:00 a.m. on Thursday, May 9, 2019. The noise environment of this site is characterized primarily by local traffic and distant highway traffic.

Ambient Noise Results, Long-Term Monitoring

During the ambient noise survey, the L_{dn} noise levels at monitoring locations ranged from 47 to 74 dBA L_{dn} . The long-term noise measurement results are summarized in Table 4.13-4. A summary of the daily trend of long-term noise measurement results are shown in Appendix H, Noise Data, of this Draft EIR.

TABLE 4.13-4 LONG-TERM NOISE MEASUREMENT SUMMARY (DBA)

Monitoring Location	Description	L_{dn}	Lowest $L_{eq, 1-Hour}$	Highest $L_{eq, 1-Hour}$
LT-1	Northgate Drive	60	35.1	61.7
LT-2	SMART Rail Crossing	60	37.5	60.5
LT-3	Elizabeth Way	59	31.1	62.3
LT-4	Mountain View Avenue	64	44.7	68.9
LT-5	Point San Pedro Road	58	40.0	61.6
LT-6	Fourth Street	71	56.8	68.5
LT-7	Third Street	74	54.8	75.1
LT-8	Bayview Street	62	41.8	72.2
LT-9	Southern Heights Boulevard	47	29.8	50.0
LT-10	Catalina Boulevard	58	35.0	59.2

Source: PlaceWorks, 2019.

NOISE AND VIBRATION

Short-Term Noise Monitoring Results

The short-term noise measurement results are summarized in Table 4.13-5.

TABLE 4.13-5 SHORT-TERM NOISE MEASUREMENT SUMMARY (dBA)

Monitoring Location	Description	15-Minute Noise Level, dBA		
		L _{min}	L _{eq}	L _{max}
ST-1	Lucas Valley Road - 3:28 pm, 5/9/2019	42.4	71.4	80.8
ST-2	Lucas Valley Road - 3:02 pm, 5/9/2019	49.9	72.1	82.6
ST-3	Smith Ranch Road - 3:53 pm, 5/9/2019	45.8	62.1	71.7
ST-4	Las Gallinas Avenue - 4:39 pm, 5/9/2019	44.9	62.4	74.9
ST-5	Los Gamos Road - 4:17 pm, 5/9/2019	50.5	53.9	61.0
ST-6	N. San Pedro Road - 9:44 am, 5/9/2019	42.4	65.4	77.5
ST-7	Manuel T. Freitas Parkway - 5:00 pm, 5/9/2019	43.1	67.9	77.6
ST-8	Montecillo Road - 5:24 pm, 5/9/2019	37.3	55.4	68.3
ST-9	N. San Pedro Road - 9:23 am, 5/9/2019	48.0	66.9	78.6
ST-10	Fifth Avenue - 3:00 pm, 5/7/2019	42.2	62.1	72.0
ST-11	Grand Avenue - 8:56 am, 5/9/2019	50.9	64.6	76.6
ST-12	Third Street - 3:30 pm, 5/7/2019	48.2	70.8	81.1
ST-13	Fourth Street - 5:01 pm, 5/7/2019	54.2	69.9	87.7
ST-14	Lincoln Avenue - 6:05 pm, 5/7/2019	51.9	62.9	74.2
ST-15	Second Street - 4:24 pm, 5/7/2019	51.4	69.0	82.9
ST-16	Fourth Street - 6:36 pm, 5/7/2019	53.0	63.3	78.0
ST-17	D Street - 3:56 pm, 5/7/2019	47.7	63.6	74.7
ST-18	Albert Park - 5:37 pm, 5/7/2019	46.1	58.1	72.3
ST-19	Du Bois Street - 8:26 am, 5/9/2019	42.7	57.4	78.5
ST-20	Kerner Boulevard - 7:51 am, 5/9/2019	49.0	62.2	79.2
ST-21	Bellam Boulevard - 7:27 AM, 5/9/2019	56.1	63.6	75.7
ST-22	Shoreline Parkway - 7:00 AM, 5/9/2019	50.2	63.9	77.7

Source: PlaceWorks, 2019.

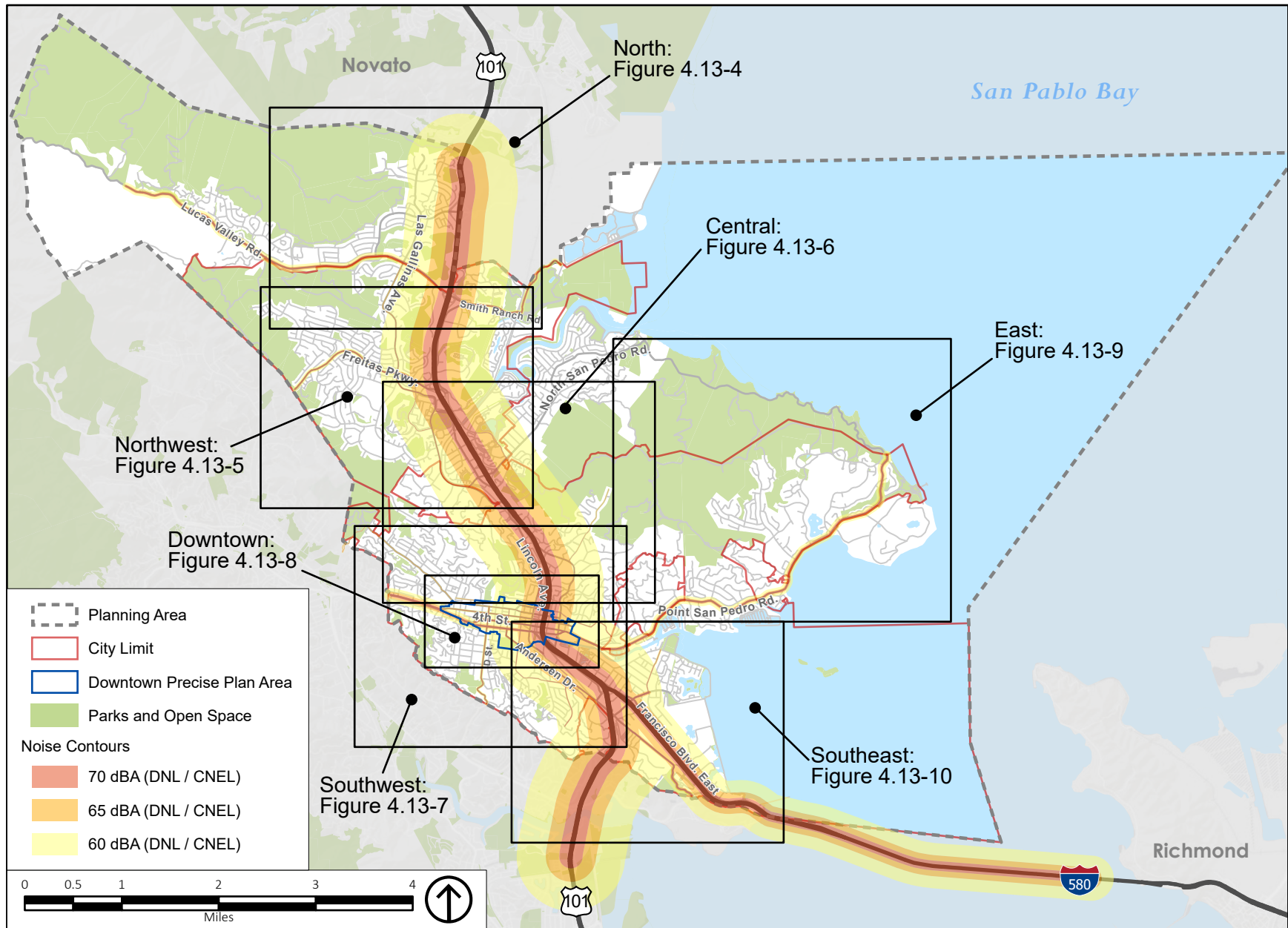
Existing Traffic Noise

Traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction Model and traffic data provided by Fehr & Peers Transportation Consultants (see Appendix H, Noise Data, of this Draft EIR). The FHWA model predicts noise levels through a series of adjustments to a reference sound level. These adjustments account for distances from the roadway, traffic volumes, vehicle speeds, car/truck mix, number of lanes, and road width. Existing (2019) roadway and highway noise contours of 60, 65, and 70 dBA L_{dn} noise contours are shown on Figures 4.13-2 through 4.13-9.

Aircraft Noise

Aircraft noise in the EIR Study Area is characterized as rare but can be intrusive to nearby sensitive receptors. There is one airport in the EIR Study Area, the San Rafael Airport, which is in the northeastern portion of the EIR Study Area. The nearest heliport is the San Rafael Private Heliport located on Kerner Boulevard in San Rafael. The San Rafael Airport is a private airstrip with minimal air traffic. As shown on Figure 4.13-10, airport noise contours from 2003 do not extend much beyond the runway, and aircraft noise does not substantially affect nearby sensitive receptors. Figure 4.13-11 shows the San Rafael Private Heliport noise contours. The heliport is in a commercial area of the EIR Study Area.

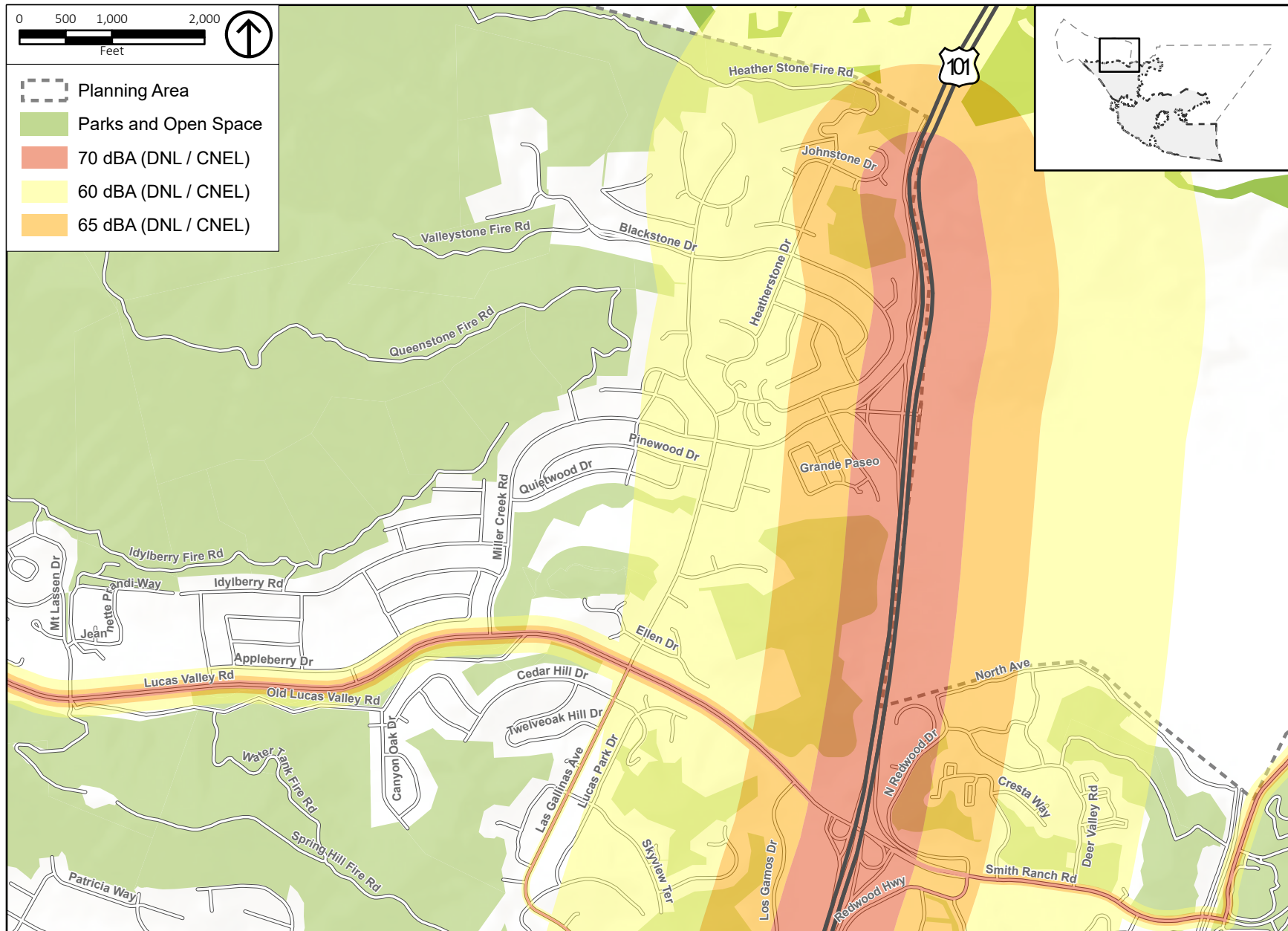
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-2
 Existing Traffic Noise Contours-Planning Area

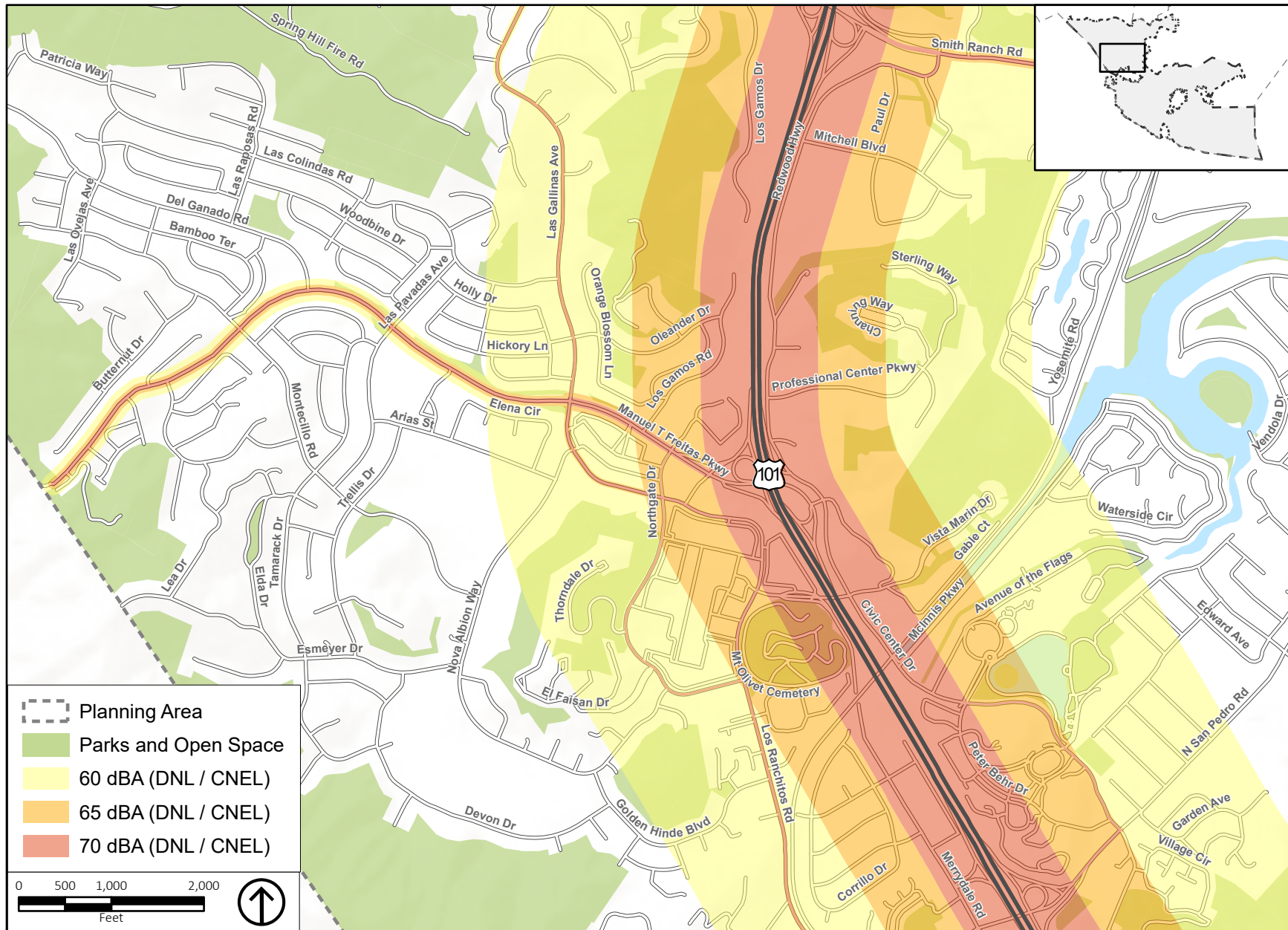
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-3
Existing Traffic Noise Contours-North

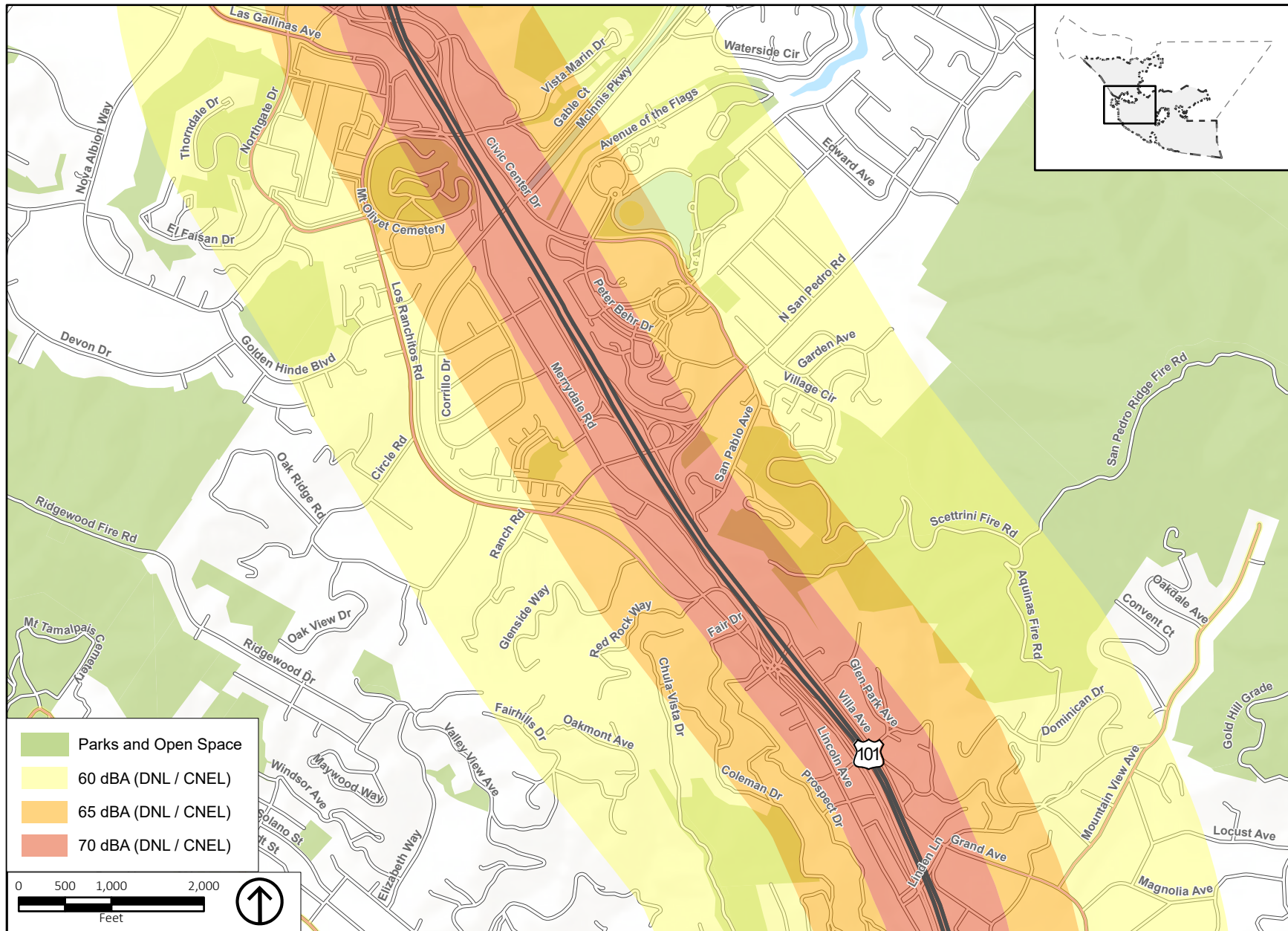
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-4
 Existing Traffic Noise Contours-Northwest

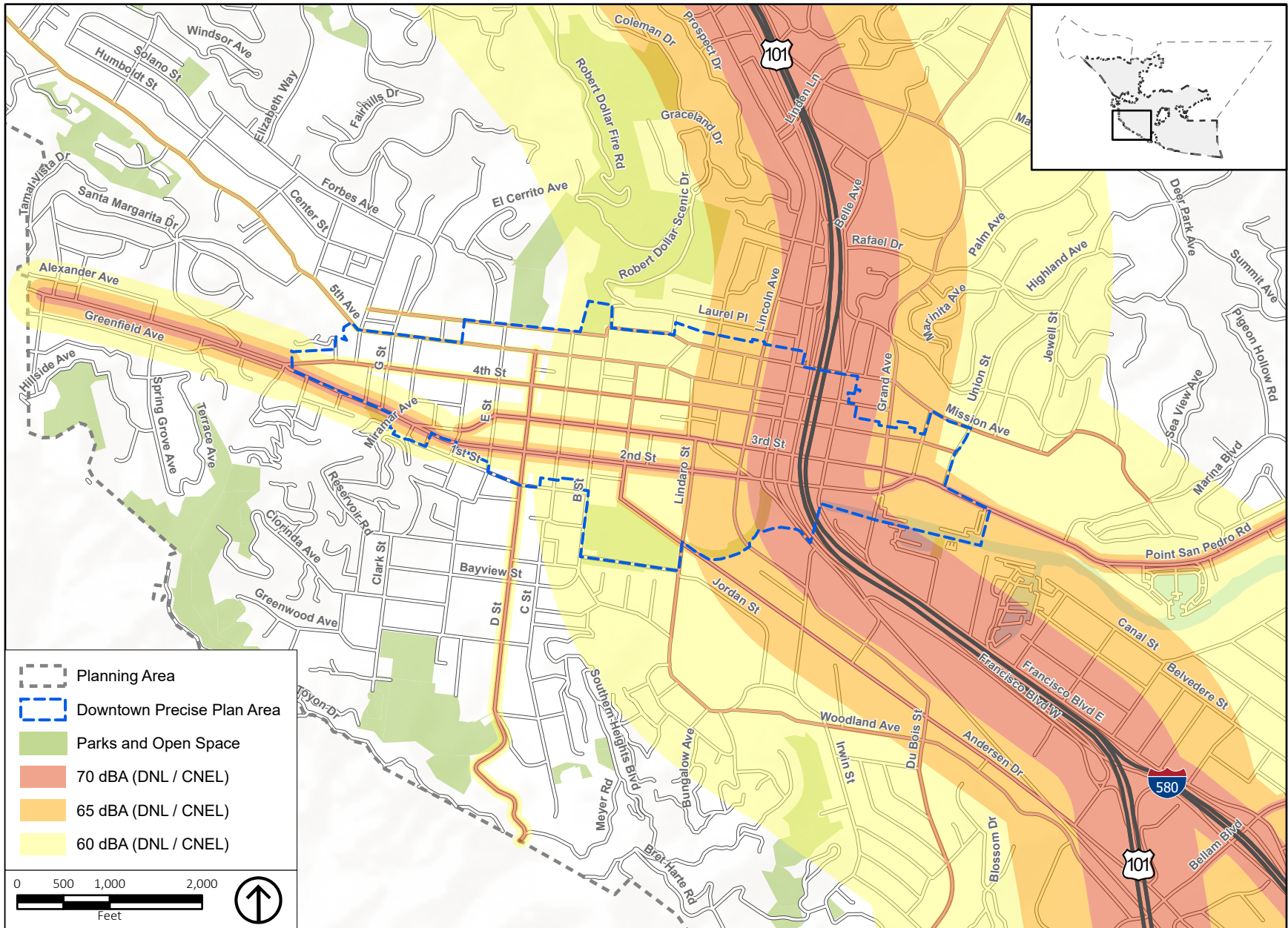
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-5
Existing Traffic Noise Contours-Central

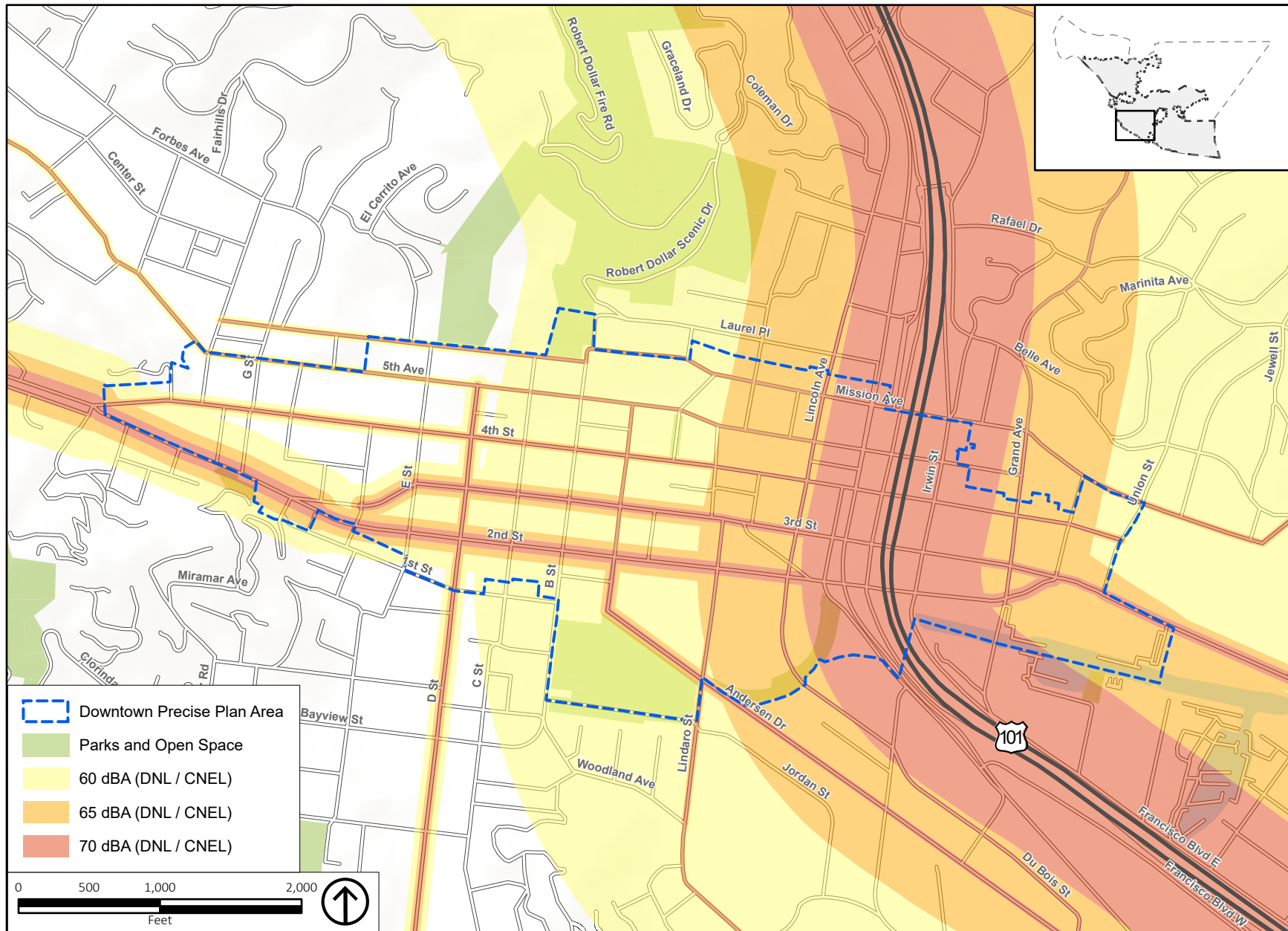
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-6
 Existing Traffic Noise Contours-Southwest

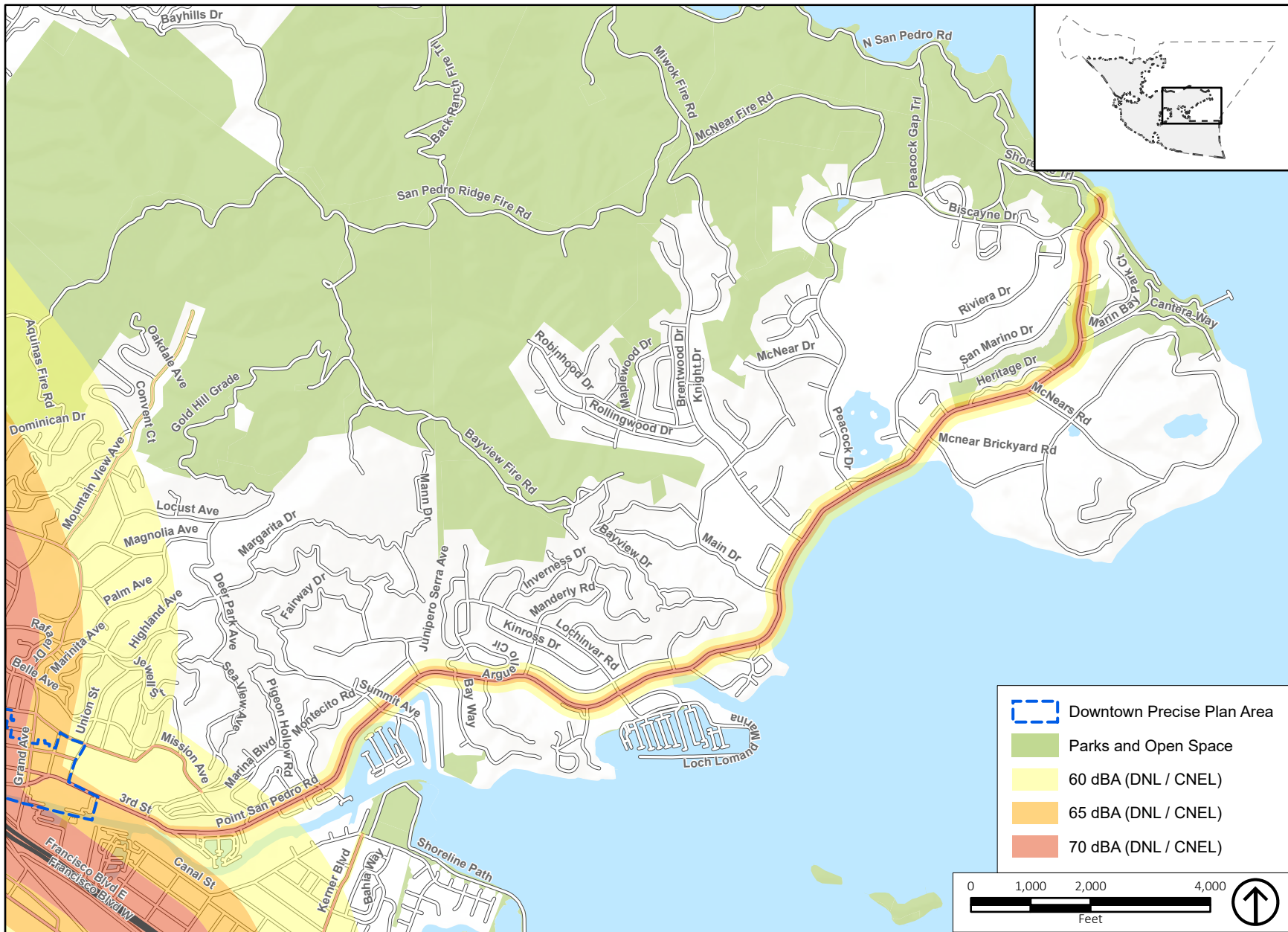
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-7
 Existing Traffic Noise Contours -Downtown

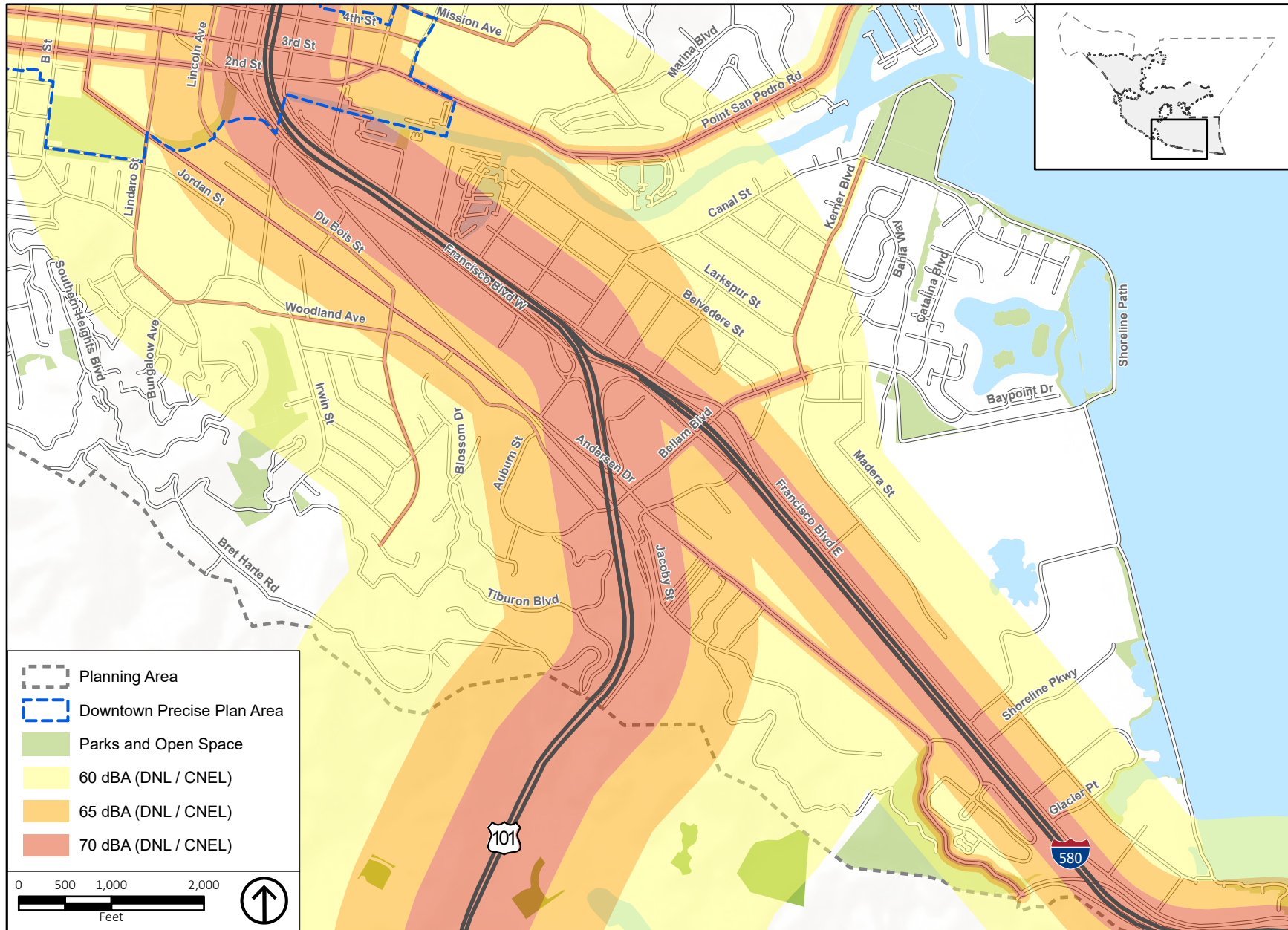
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-8
 Existing Traffic Noise Contours-East

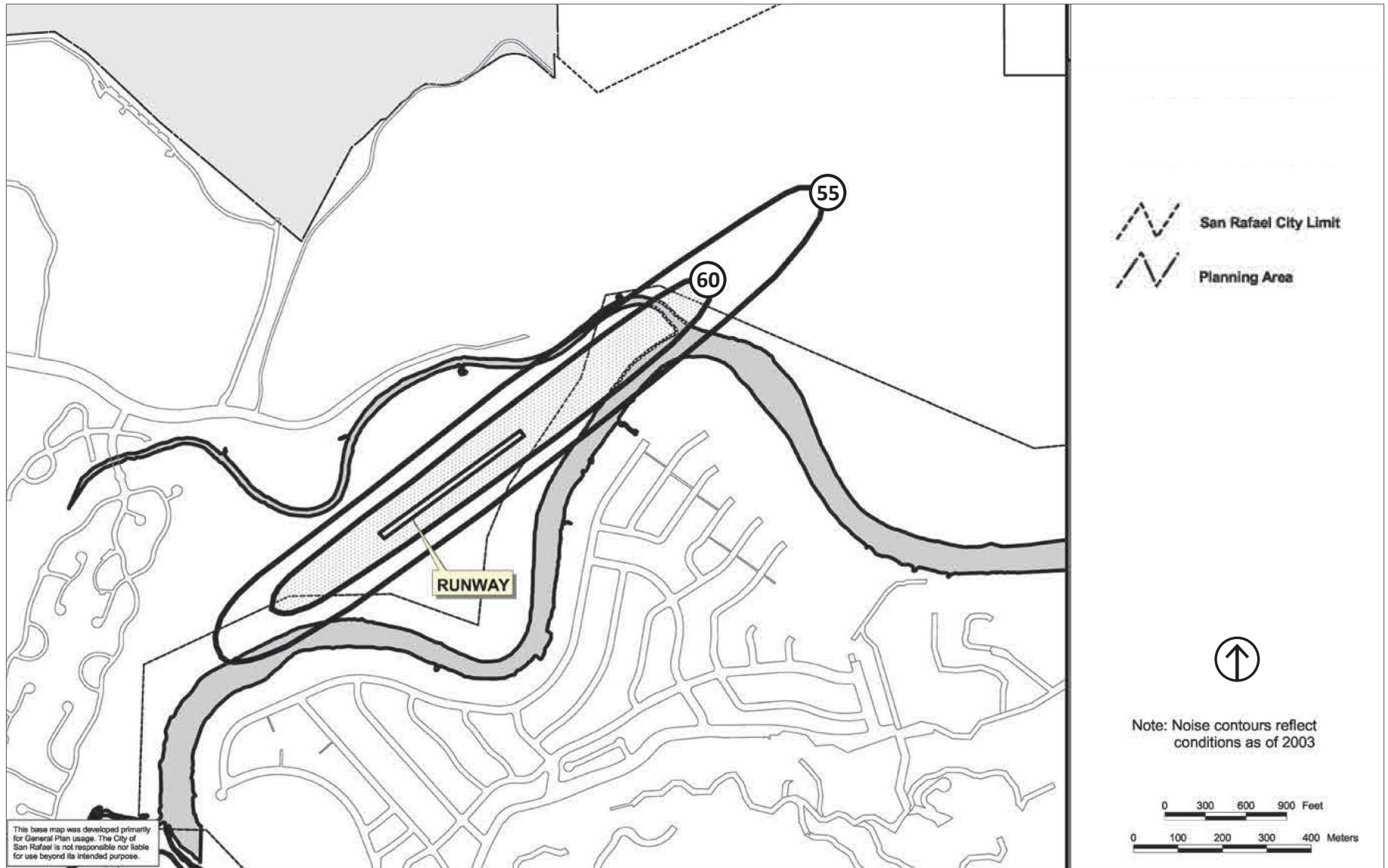
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-9
 Existing Traffic Noise Contours-Southeast

NOISE AND VIBRATION



Source: City of San Rafael General Plan 2020, Exhibit 32.

Figure 4.13-10
San Rafael Airport Noise Contours

NOISE AND VIBRATION



Source: City of San Rafael General Plan 2020, Exhibit 33.

Figure 4.13-11
Heliport Noise Contours

NOISE AND VIBRATION

Railroad Noise

The SMART rail is the only source of rail noise in the EIR Study Area. There is no freight service along the rail line. Due to the establishment of a Quiet Zone in Marin County, noise from the SMART rail is not substantial much beyond the rail right-of-way. Train operators are not required to sound their horn at grade crossings due to the Quiet Zone. However, the train operator may still sound their horn in the case of emergencies at their discretion. Ambient noise monitoring at the long-term monitoring location LT-2 indicates that the 60 L_{dn} noise contour from SMART rail activity does not extend beyond 50 feet from the railroad centerline. Although there were a few locations near the SMART tracks with ambient noise levels exceeding 60 L_{dn} , the higher ambient noise is associated with proximity to local roadways and US-101 rather than SMART rail activity alone.

Stationary Source Noise

Stationary sources of noises may occur on all types of land uses. Residential uses generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses generate noise from heating, ventilation, air conditioning (HVAC) systems, loading docks, and other sources. Industrial uses may generate HVAC systems, loading docks, and possibly machinery. Noise generated by residential or commercial uses are generally short and intermittent. Industrial uses may generate noise on a more continual basis due to the nature of the activities. Nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-throughs, swimming pool and hot tub pumps, school playgrounds, athletic and music events, and public parks are other common noise sources.

Emergency backup generators are also a common outdoor noise source. As discussed in Section 4.13.1.4, Regulatory Framework, effective November 2019, the City has approved an ordinance allowing residents and businesses to use generators during power failures, even when the resulting noise levels exceed adopted limits. This is in response to recent public safety power shutoffs issued by Pacific Gas & Electric that were instituted for wildfire prevention in 2019 and are anticipated to continue to be used as a wildfire prevention mechanism in the future.

The San Rafael Rock Quarry and McNear Brickworks is a major stationary source of noise. Located in unincorporated Marin County adjacent to the city at 1000 Point San Pedro Road, noise sources from the quarry include on-site machinery, truck movements, periodic rock blasting, and on-road haul trucks traveling to and from the site. General Plan 2040 Program NH-5.6A seeks to minimize the effects of quarry noise through cooperative efforts with the County of Marin.

Existing Vibration

Existing sources of operational vibration in the EIR Study Area include vehicle traffic on roadways and the SMART rail. Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that “heavy trucks, and quite frequently buses, generate the highest earthborn vibrations of normal traffic.” Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that “vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 in/sec, with the worst combinations of heavy trucks and poor roadway conditions (while such trucks were moving at freeway speeds). This level coincides with the

NOISE AND VIBRATION

maximum recommended safe level for ruins and ancient monuments (and historic buildings).”³ The 2014 Draft EIR for SMART found that residences located more than 40 feet from the railroad centerline (outside the rail right-of-way) would not experience perceptible vibration.⁴ Construction vibration levels have the potential to be significant when equipment such as impact and vibratory pile drivers, rock blasting, and vibratory rollers is used during project construction.

4.13.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project would result in significant noise impacts if it would:

1. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards.
2. Result in generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.
4. Result in significant cumulative noise-related impacts.

4.13.2.1 CITY OF SAN RAFAEL NOISE LIMITS

Construction Noise

As discussed in Section 4.13.1.4, Regulatory Framework, under the subheading “San Rafael Municipal Code” the SRMC Section 8.13.050 establishes the construction noise thresholds that limits the noise level from construction activity to 90 dBA L_{max} outside the property line.⁵ PlaceWorks interprets this to be at the property line of the nearest noise-sensitive receptor.

Stationary Noise

As with construction noise, the SRMC sets operational noise limits from stationary sources. The SRMC Section 8.13.040 operational noise limits are shown in Section 4.13.1.4, Regulatory Framework, under the subheading “San Rafael Municipal Code” in in Table 4.13-3. These limits are used to determine impact significance for operational noise from stationary noise sources.

³ Caltrans, 2013, *Transportation and Construction Vibration Guidance Manual*.

⁴ Sonoma-Marín Area Rail Transit, 2014, *Downtown San Rafael to Larkspur Extension Environmental Assessment*.

⁵ Personal correspondence between Josh Carman, PlaceWorks, and Raffi Boloyan, Planning Manager, City of San Rafael, June 15, 2020, confirmed L_{max} is the appropriate noise level metric.

NOISE AND VIBRATION

Mobile Noise

A project will normally have a significant effect on the environment related to mobile noise sources such as traffic if it will substantially increase the ambient noise levels for adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually undetectable. A change of 5 dBA is readily audible to most people in an exterior environment. Based on this, the following thresholds of significance are used to assess mobile noise impacts from traffic at sensitive receptor locations:

- Greater than 1.5 dBA increase for ambient noise environments of 65 dBA L_{dn} and higher
- Greater than 3 dBA increase for ambient noise environments of 60 to 64 dBA L_{dn}
- Greater than 5 dBA increase for ambient noise environments of less than 60 dBA L_{dn}

4.13.2.2 FEDERAL TRANSIT ADMINISTRATION VIBRATION LIMITS

Vibration

As described in Section 4.13.1.3, Vibration Fundamentals, there are two types of vibration related impacts; vibration damage to buildings and vibration annoyance to people. The City does not have specific limits or thresholds for vibration.

Vibration Damage from Construction

The Federal Transit Administration (FTA) provides criteria for acceptable levels of groundborne vibration for various types of buildings identified as Category I, II, and III buildings based on the type of materials they are constructed from. These criteria are used for this analysis and shown in Table 4.13-6. A Category III, non-engineered timber and masonry buildings, threshold of 0.20 in/sec PPV would apply to typical residential structures.

TABLE 4.13-6 GROUND BORNE VIBRATION CRITERIA: ARCHITECTURAL DAMAGE

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.50
II. Engineered concrete and masonry (no plaster)	0.30
III. Nonengineered timber and masonry buildings	0.20
IV. Buildings extremely susceptible to vibration damage	0.12

Note: PPV = peak particle velocity

Source: Federal Transit Administration (FTA) 2018. *Transit Noise and Vibration Impact Assessment Manual*.

Vibration Annoyance from Operation

For vibration annoyance from operational sources, the FTA recommends the following criteria for frequent events: 65 VdB for highly sensitive uses with vibration-sensitive equipment (e.g., microscopes in hospitals and research facilities) and 72 VdB for residences.

NOISE AND VIBRATION

4.13.3 IMPACT DISCUSSION

NOISE-1 **Implementation of the proposed project could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the EIR Study Area in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards.**

General Plan 2040: Construction Noise

Potential future development could result in two types of temporary noise impacts during construction.

- The transport of workers and movement of materials to and from the site could incrementally increase noise levels along local access roads.
- Noise would be generated from activities related to demolition, site preparation, grading, and/or physical construction.

Construction is performed in phases, each of which has its own mix of equipment, and, consequently, its own noise characteristics. Table 4.13-7 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a distance of 50 feet between the equipment and noise receptor.

TABLE 4.13-7 **CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS**

Construction Equipment	Typical Max Noise Level (dBA Lmax) ^a	Construction Equipment	Typical Max Noise Level (dBA Lmax) ^a
Air Compressor	81	Pile-Driver (Impact)	101
Backhoe	80	Pile-Driver (Sonic)	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	71	Roller	74
Concrete Vibrator	76	Saw	76
Crane, Derrick	88	Scarifier	83
Crane, Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

Notes:

^a Measured 50 feet from the source.

Source: Federal Transit Administration (FTA) 2018. *Transit Noise and Vibration Impact Assessment Manual*.

NOISE AND VIBRATION

As shown, construction equipment generates high levels of noise, with maximums ranging from 71 dBA to 101 dBA. Construction of individual developments associated would temporarily increase the ambient noise environment and would have the potential to affect noise-sensitive land uses in the vicinity of an individual project. According to SRMC Section 8.13.050, construction activities are exempt from the noise standards between 7:00 a.m. and 6:00 p.m. Monday through Friday, 9:00 a.m. to 6:00 p.m. on Saturdays, and no construction activities are to take place on Sundays and holidays unless approved by the City. Construction activities are exempt provided noise levels do not exceed 90 dBA L_{max} .

Implementation of the proposed General Plan 2040 anticipates an increase in development intensity to accommodate new population and employment growth. Construction noise levels are highly variable and dependent upon the specific locations, site plans, and construction details of individual projects. Significant noise impacts may occur from operation of heavy earth-moving equipment and truck haul operations associated with construction of individual development projects, particularly if construction techniques such as impact or vibratory pile driving are proposed. The time of day that construction activity is conducted would also determine the significance of each project, particularly during the more sensitive nighttime hours. However, construction would be localized and would occur intermittently for varying periods of time.

The proposed Noise (N) Element contains a goal, policies, and programs that require local planning and development decisions to consider noise-related impacts, including during construction. The following General Plan 2040 goal, policies, and program would minimize potential adverse noise-related impacts:

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.9: Maintaining Peace and Quiet.** Minimize noise conflicts resulting from everyday activities such as construction, sirens, yard equipment, business operations, night-time sporting events, and domestic activities.
 - **Program N-1.9B: Construction Noise.** Use the environmental review process to identify measures to reduce the exposure of neighboring properties to excessive noise levels from construction activity.

In most cases, construction of individual developments associated with implementation of the proposed General Plan 2040 would temporarily increase the ambient noise environment in the vicinity of each individual project, potentially affecting existing and future nearby sensitive uses. The implementation of construction best management practices throughout the entire active construction period would also help to ensure that construction noise is minimized to the extent feasible. Some common construction best management practices include requiring projects to:

- Utilize the best available noise control techniques (e.g., improved mufflers, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) wherever feasible on equipment and trucks used for project construction shall.
- Require the contractor to use impact tools (e.g., jack hammers and hoe rams) that are hydraulically or electrically powered wherever possible. Where the use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used along with external noise jackets on the tools.

NOISE AND VIBRATION

- Locate stationary equipment such as generators and air compressors as far as feasible from nearby noise-sensitive uses.
- Locate stockpiling as far as feasible from nearby noise-sensitive receptors.
- Limit construction traffic shall be limited—to the extent feasible—to haul routes approved in advance of issuing building permits by the City.
- Require the telephone numbers of the authorized representatives for the City and the contractor that are assigned to respond in the event of a noise or vibration complaint to be displayed on construction signs posted at the construction site. If the authorized contractor's representative receives a complaint, he/she shall investigate, take appropriate corrective action, and report the action to the City.
- Post signs at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes.
- Require the use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only, to the extent feasible. The construction manager shall use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws.
- Erect temporary noise barriers (at least as high as the exhaust of equipment and breaking line-of-sight between noise sources and sensitive receptors), as necessary and feasible, to maintain construction noise levels at or below the performance standard of 90 dBA L_{max} and/or when the anticipated construction duration is greater than is typical (two years or greater). Barriers shall be constructed with a solid material that has a density of at least 4 pounds per square foot with no gaps from the ground to the top of the barrier.

While the City has established noise limits during the construction phase of potential future projects and General Plan Program N-1.9B, Construction Noise, requires the City to use the environmental review process to identify measures to reduce the exposure of neighboring properties to excessive noise levels from construction activity, these do not address the use routine construction best management practices that would further ensure that noise impacts from construction are reduced to acceptable levels. Therefore, construction noise impacts associated with implementation of the proposed General Plan 2040 are considered *potentially significant*.

Impact NOISE-1: Construction activities associated with potential future development could expose sensitive receptors in close proximity to a construction site to noise that exceed the City's noise limits established in San Rafael Municipal Code Chapter 8.13, Noise.

Mitigation Measure NOISE-1: To ensure receptors that are sensitive to construction noise are not exposed to unacceptable construction noise levels as defined in San Rafael Municipal Code Chapter 8.13, Noise, for discretionary development projects that are subject to CEQA the City shall amend Program N-1.9B (Construction Noise) as follows:

NOISE AND VIBRATION

- **Modified Program: Construction Best Management Practices.** The City shall establish a list of construction best management practices to be implemented during the construction phase and incorporated into San Rafael Municipal Code Chapter 8.13, Noise. The City of San Rafael Building Division shall verify that construction best management practices, as appropriate, are on the demolition, grading, and construction plans prior to issuance of demolition, grading and/or building permits.

Significance with Mitigation: Less than significant.

Downtown Precise Plan: Construction Noise

Same as potential future development in the remainder of the city, the potential future development in the Downtown Precise Plan Area would result in the construction of future projects that could expose sensitive receptors to noise that exceed the City's noise limit. The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations to reduce noise from construction; therefore, the impacts and mitigation described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, impacts would be *less than significant*.

Significance with Mitigation: Less than significant.

General Plan 2040: Operational Noise

Traffic Noise

Future development from implementation of the proposed General Plan 2040 would cause increases in traffic along local roadways. Traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction Model. Traffic volumes for existing and 2040 conditions were obtained from Fehr & Peers (see Appendix H, Noise Data, of this Draft EIR). The FHWA model predicts noise levels through a series of adjustments to a reference sound level. These adjustments account for distances from the roadway, traffic volumes, vehicle speeds, car/truck mix, number of lanes, and road width.

Table 4.13-8 presents the noise level increases on roadways over existing conditions at 50 feet from the centerline of the nearest travel lane. Figures 4.13-12 through 4.13-19 show the 60, 65, and 70 dBA L_{dn} noise contours from roadways and highways.

As shown in Table 4.13-8, traffic noise increases along roadways are generally in the range of 0 to 1.5 dBA CNEL with implementation of the proposed 2040 General Plan, and therefore, traffic noise increases would be *less than significant*.

Increases over 1.5 CNEL are indicated in a few locations, but these areas are subject to a higher threshold of significance (see Section 4.13.2.1, City of San Rafael Noise Limits, under the subheading "Traffic Noise") based on existing ambient noise levels, and thus would result in a *less than significant impact*.

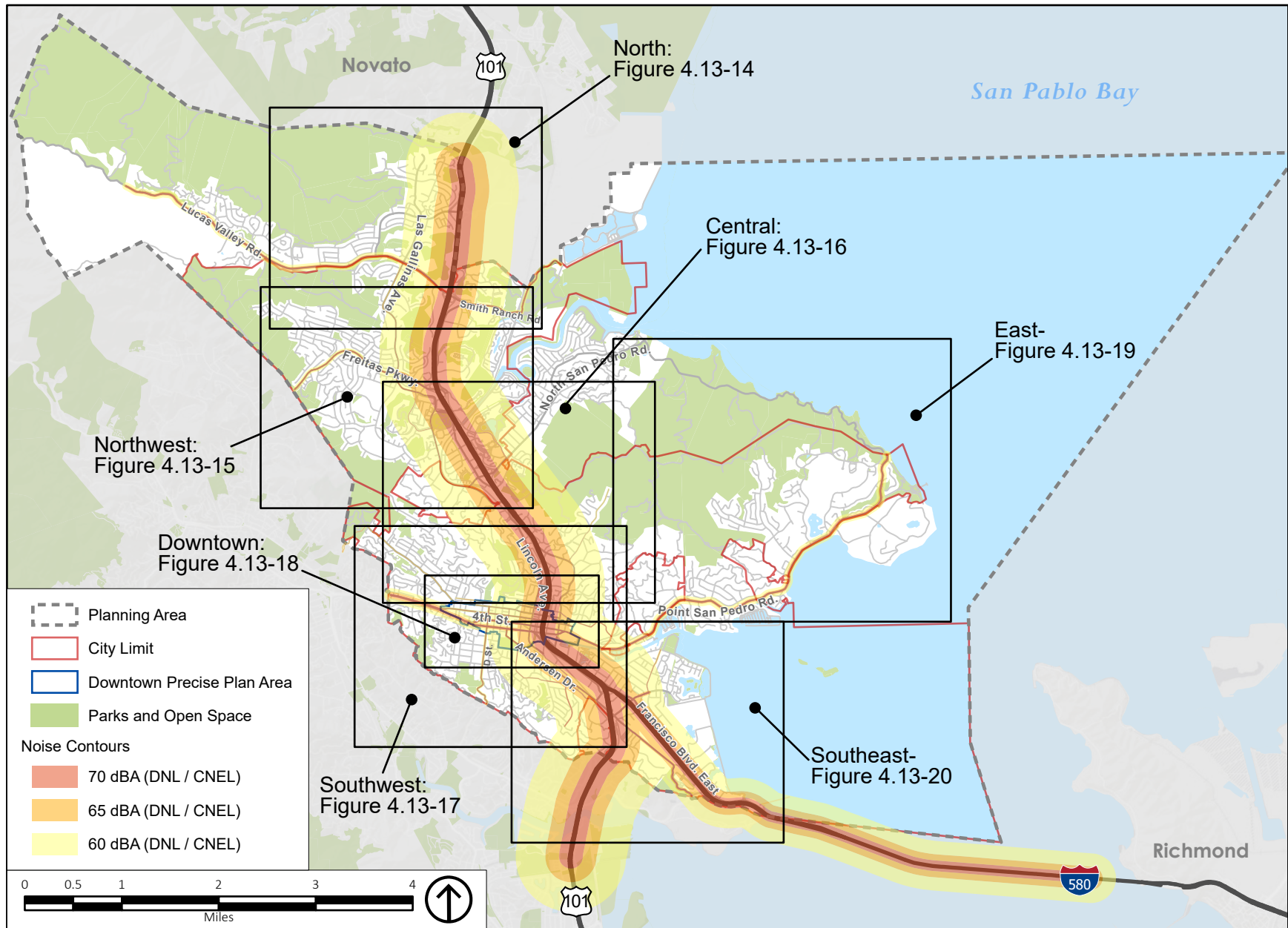
NOISE AND VIBRATION

TABLE 4.13-8 TRAFFIC NOISE INCREASES IN THE EIR STUDY AREA

Roadway Segment	Existing L _{dn} (dBA) at 50 Feet	2040 General Plan L _{dn} (dBA) at 50 Feet	Increase	Threshold	Significant?
2nd St from 2nd-4th-Marquard to Hayes St	71.8	72.4	0.6	1.5	no
2nd St from Hayes St to Grand Ave	69.8	70.3	0.5	1.5	no
3rd St from Shaver St to Union St	67.5	68.4	0.8	1.5	no
3rd St from Union St to Mooring St	68.7	68.7	0.0	1.5	no
4th St from Ross Valley to 2nd-4th-Marquard	73.4	73.4	0.0	1.5	no
4th St from 2nd-4th-Marquard to Grand Ave	61.6	61.7	0.1	3	no
5th Ave from H St to Grand Ave	57.5	58.0	0.5	5	no
A St from 2nd St to 5th St	57.4	57.6	0.1	5	no
Andersen Dr from 2nd St to Bellam Blvd	65.2	65.5	0.3	1.5	no
Andersen from Bellam to Sir Francis Drake	69.2	69.3	0.0	1.5	no
Bellam from Andersen to Kerner	70.2	70.4	0.2	1.5	no
Civic Center Dr from Freitas to Merrydale O/C	63.9	64.9	1.0	3	no
Civic Center from Merrydale O/C to N San Pedro	59.5	61.0	1.6	5	no
D St from 4th to Bayview	62.9	63.0	0.1	3	no
Francisco Blvd East from Grand Ave to Bellam	65.8	66.3	0.5	1.5	no
Francisco East from Bellam to Main	67.2	68.0	0.9	1.5	no
Francisco West from 2nd St to Andersen	59.5	61.1	1.6	5	no
Freitas from Montecillo to Las Gallinas	65.8	66.2	0.4	1.5	no
Freitas from Las Gallinas to Del Presidio	69.3	70.2	1.0	1.5	no
Grand Ave from Villa to Mission Ave	58.0	58.3	0.3	5	no
Grand Ave from Mission to 2nd St	62.0	62.0	0.0	3	no
Hetherton from Mission to 2nd St	68.0	69.2	1.1	1.5	no
Irwin from Mission to 2nd St	67.2	68.1	0.9	1.5	no
Kerner from Canal to Bellam	61.0	61.0	0.0	3	no
Las Gallinas from Lucas Valley to Freitas	59.1	59.5	0.4	5	no
Las Gallinas from Freitas to Northgate	62.8	63.8	1.0	3	no
Lincoln from US-101 SB-Hammondale to Mission	62.3	63.8	1.4	3	no
Lincoln from Mission to Irwin	61.6	64.0	2.5	3	no
Lindaro from 3rd to Andersen	60.5	60.9	0.4	3	no
Los Ranchitos from Northgate to N San Pedro	60.0	60.9	0.9	3	no
Los Ranchitos from N San Pedro to Lincoln	59.9	62.1	2.3	5	no
Lucas Valley from Las Gallinas to US-101 SB Ramps	69.1	69.2	0.1	1.5	no
Mission from H St to Lincoln	57.9	58.4	0.5	5	no
Mission from Lincoln to Grand Ave	60.7	62.9	2.2	3	no
N San Pedro from Los Ranchitos to Civic Center	62.4	63.1	0.7	3	no
Northgate from Freitas to Los Ranchitos	56.9	57.9	1.0	5	no
Point San Pedro from Mooring to end	69.7	69.8	0.1	1.5	no
Redwood Highway from Smith Ranch to Freitas	63.9	63.9	0.0	3	no
Smith Ranch from US-101 NB Ramps to Silvera	65.5	65.5	0.0	1.5	no
Woodland from Lindaro to Irwin	58.1	59.4	1.3	5	no
Woodland from Irwin to Bellam	61.3	62.6	1.3	3	no

Source: Based on FHWA's traffic noise prediction model methodology using roadway volumes, vehicle mix, time of day splits, and number of lanes provided by Fehr & Peers, 2020 (see Appendix H, Noise Data, of this Draft EIR).

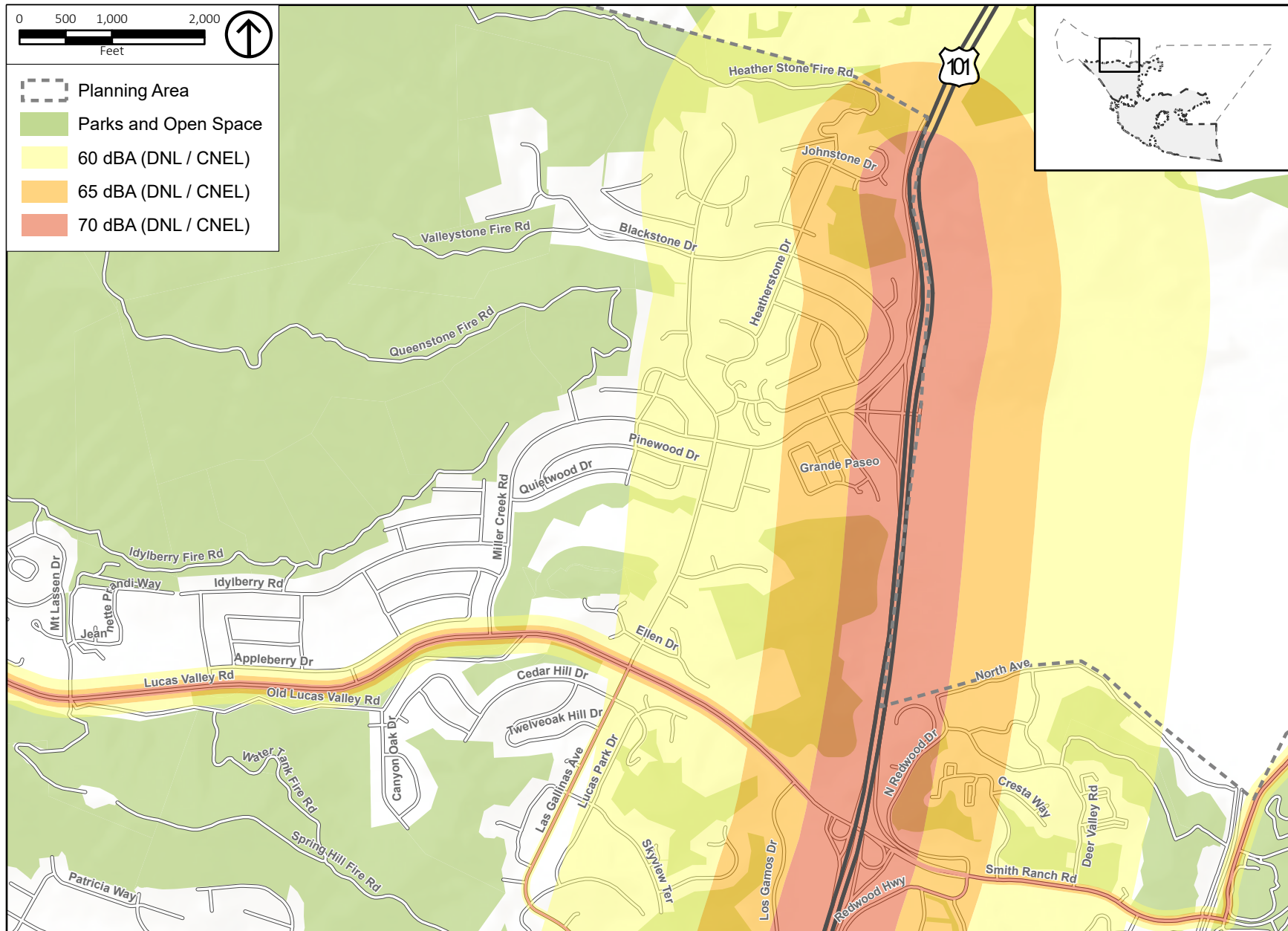
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-12
 2040 Traffic Noise Contours-Planning Area

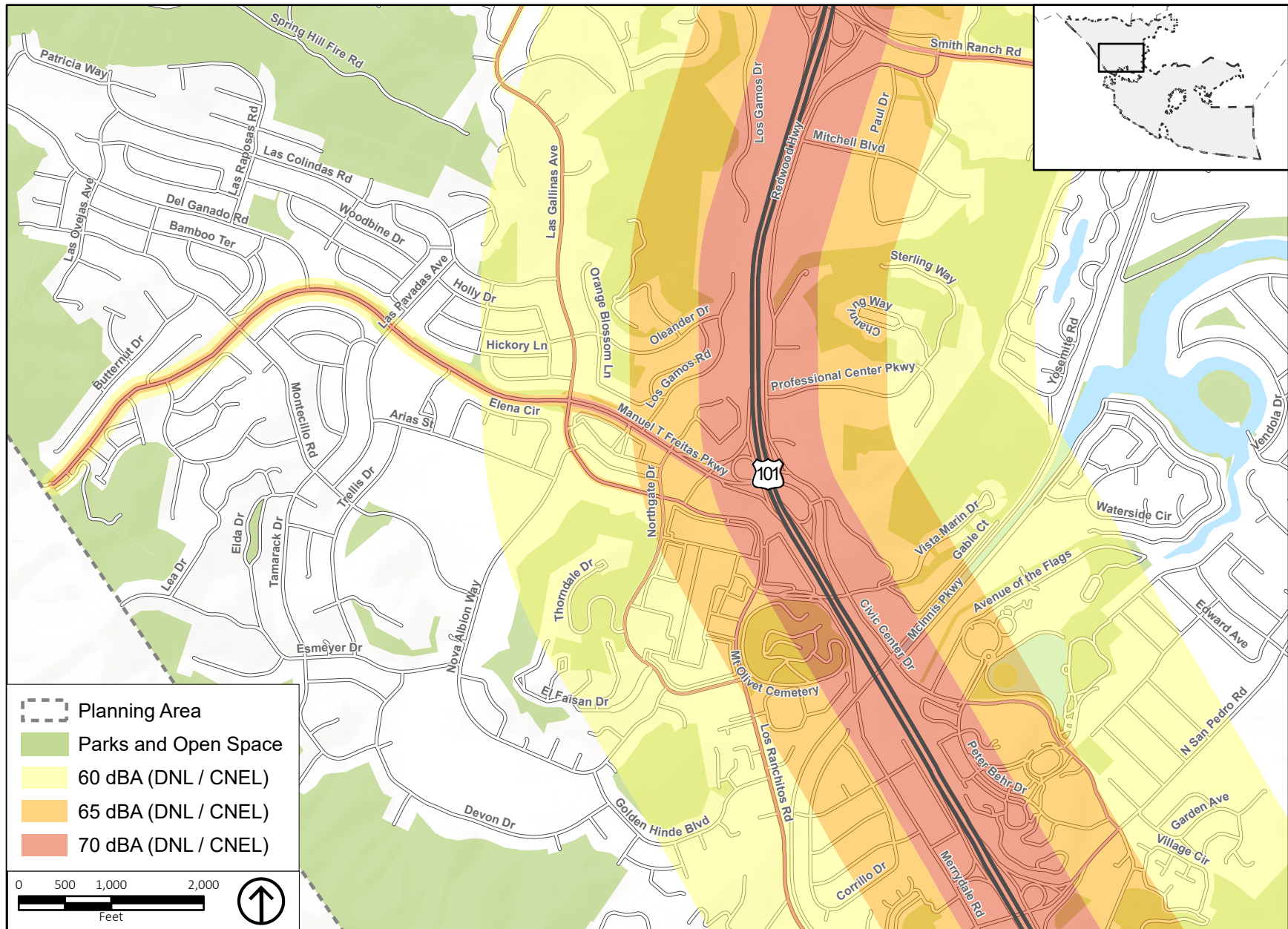
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-13
 2040 Traffic Noise Contours-North

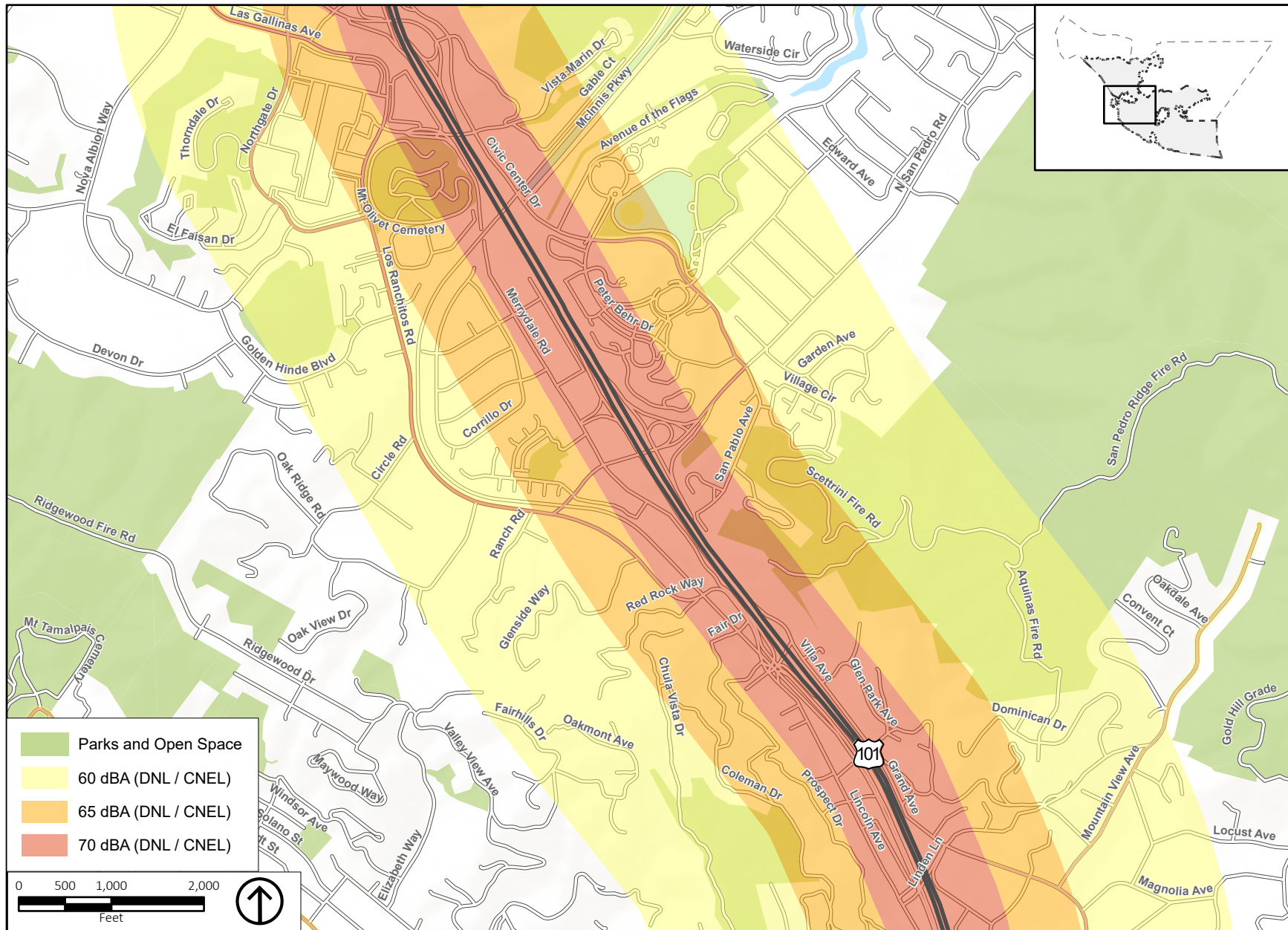
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-14
 2040 Traffic Noise Contours-Northwest

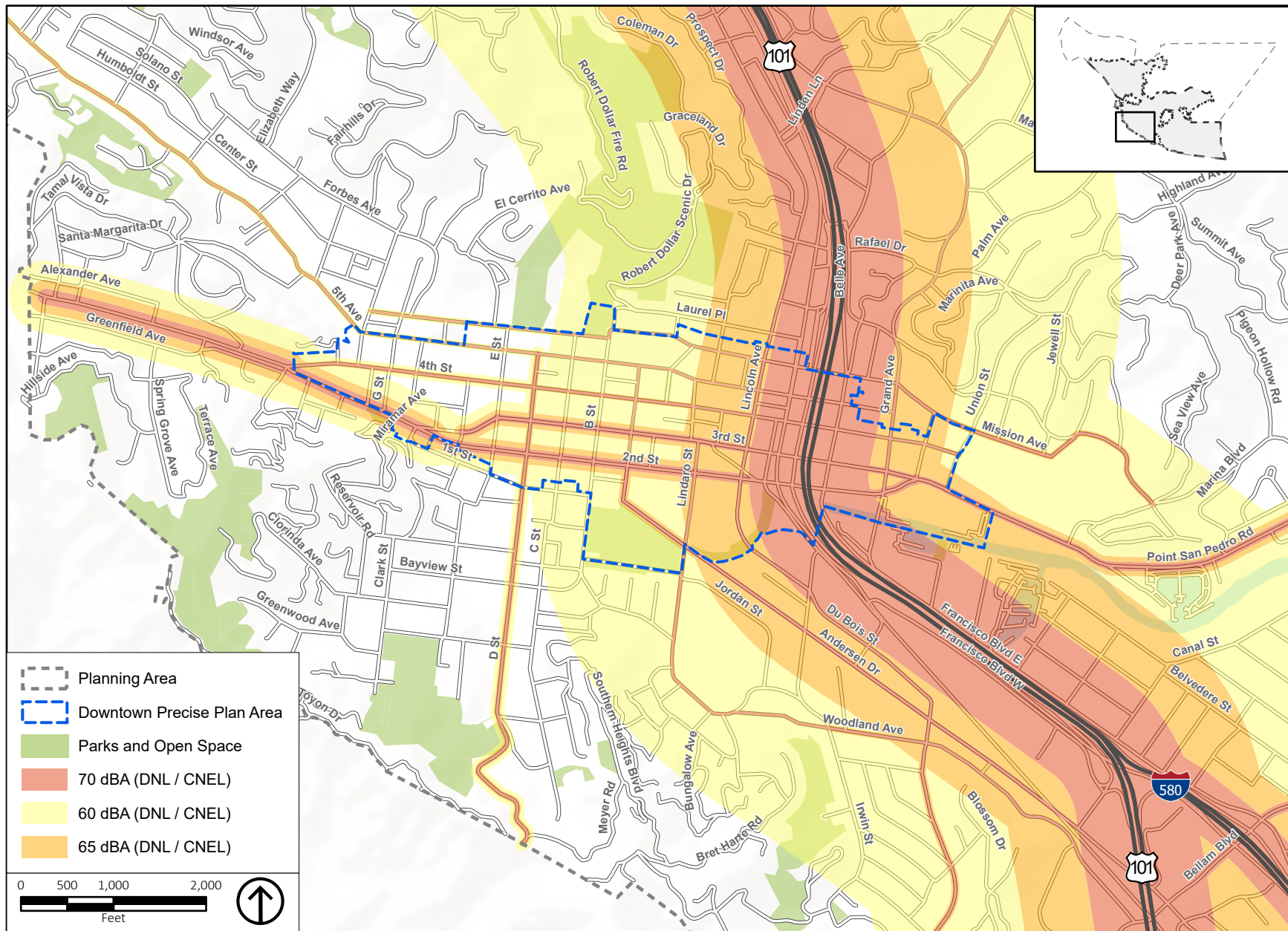
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-15
2040 Traffic Noise Contours-Central

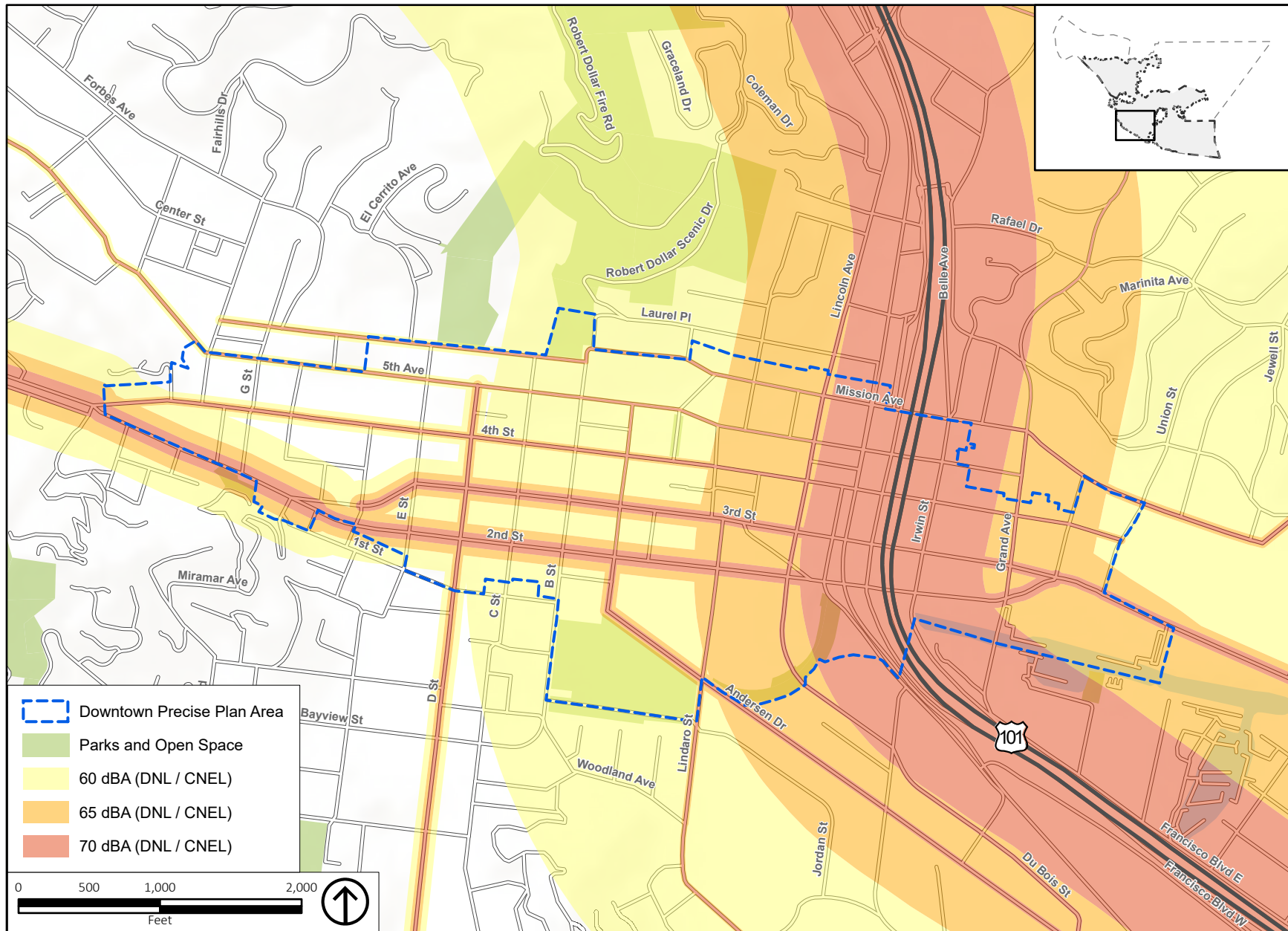
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-16
 2040 Traffic Noise Contours-Southwest

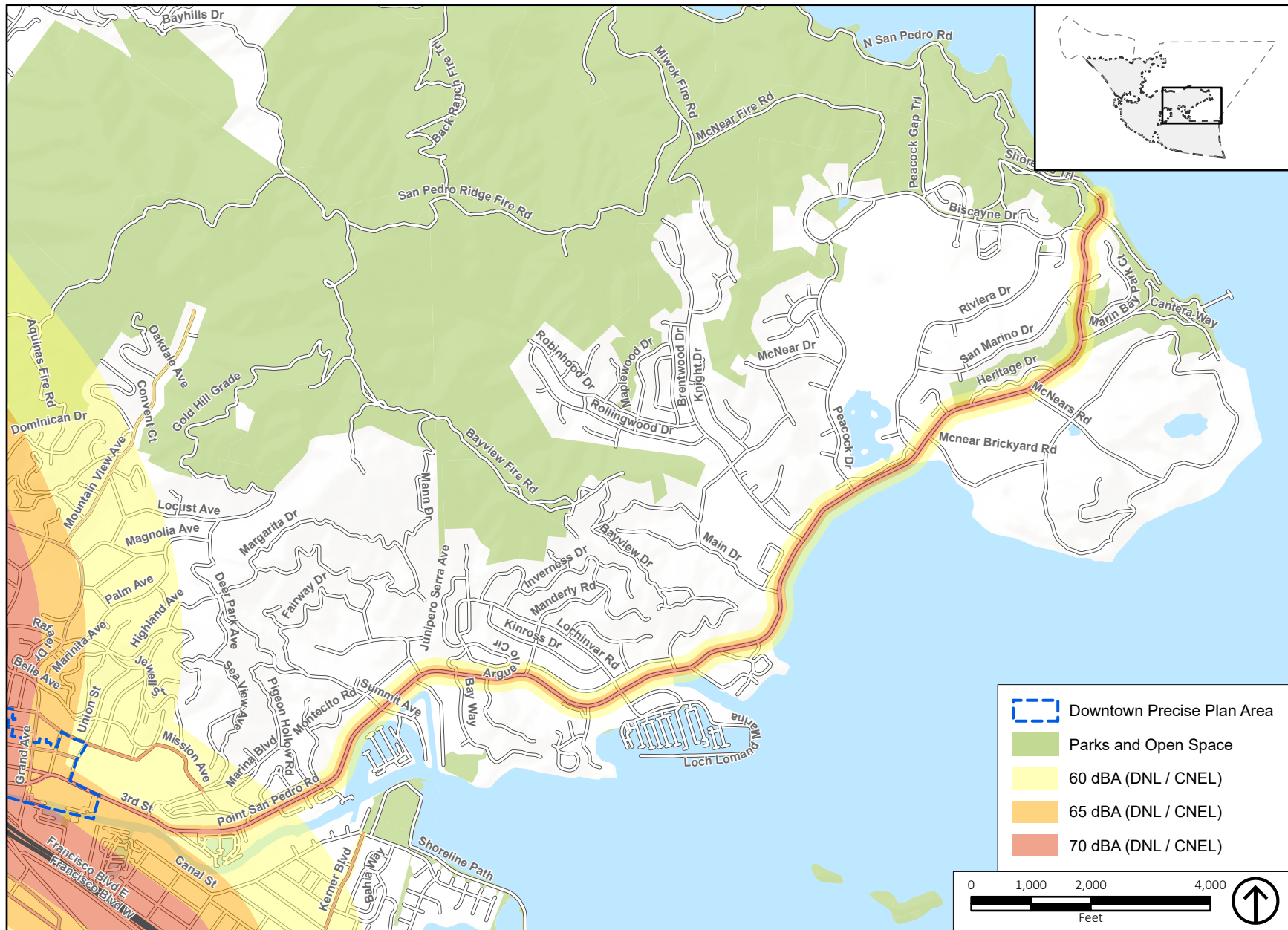
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-17
 2040 Traffic Noise Contours -Downtown

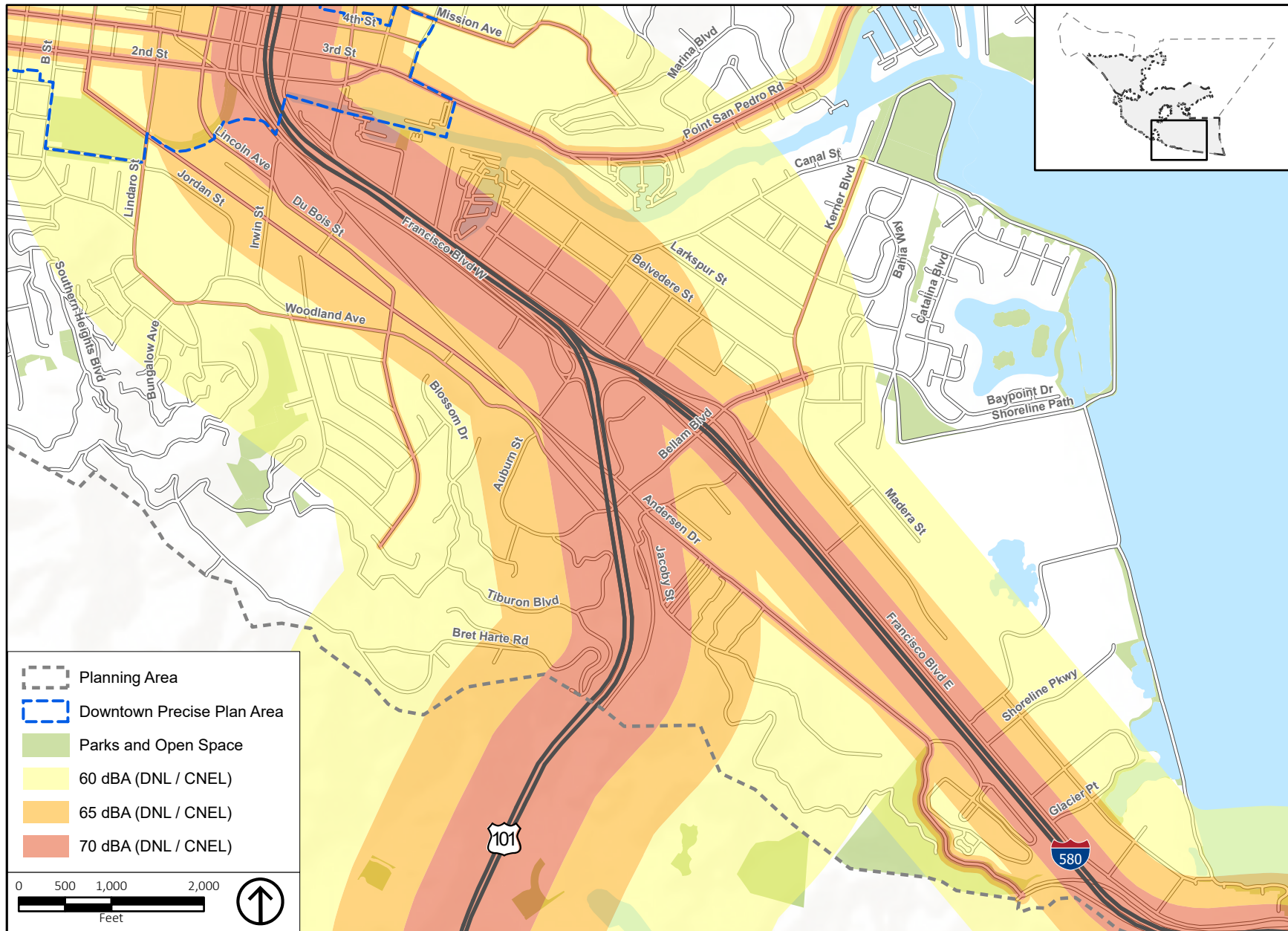
NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-18
 2040 Traffic Noise Contours-East

NOISE AND VIBRATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.13-19
 2040 Traffic Noise Contours-Southeast

NOISE AND VIBRATION

The proposed Noise (N) Element contains a goal, policies, and a program that require local planning and development decisions to consider noise-related impacts from transportation. The following General Plan 2040 goal, policies, and programs would further minimize potential adverse noise-related impacts from traffic:

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.2: Maintaining Acceptable Levels of Noise.** Use the following performance standards to maintain an acceptable noise environment in San Rafael:
 - New development shall not increase noise levels by more than 3 dB Ldn in a residential area, or by more than 5 dB Ldn in a non-residential area.
 - New development shall not cause noise levels to increase above the “normally acceptable” levels shown in Table N-1.
 - For larger projects, the noise levels in (a) and (b) should include any noise that would be generated by additional traffic associated with the new development.
 - Projects that exceed the thresholds above may be permitted if an acoustical study determines that there are mitigating circumstances (such as higher existing noise levels) and nearby uses will not be adversely affected.
- **Program N-1.3C: Noise Barriers.** Where appropriate, use absorptive noise barriers to reduce noise levels from ground transportation and industrial noise sources. A barrier should provide at least L_{dn} 5 dB of noise reduction to achieve a noticeable change in noise levels.
- **Policy N-1.4: Sound Walls.** Discourage the use of sound walls when other effective noise reduction measures are available. Vegetation, berms, and the mitigation measures in Policy N-1.3 are the preferred methods of absorbing sound along roads, rail, and other transportation features. Where there are no other feasible options (for example, along many sections of US Highway 101), the City will review and comment on sound wall design. Any sound walls should be aesthetically pleasing, regularly maintained, and designed to minimize the potential displacement of sound.
- **Policy N-1.6: Traffic Noise.** Minimize traffic noise through land use policies, law enforcement, street design and improvements, and site planning and landscaping.
- **Program N-1.6A: Interagency Coordination.** Work with Caltrans, Marin County, the Transportation Authority of Marin, and other agencies to achieve noise reduction along freeways and major arterials in San Rafael. This shall include noise mitigation measures in any redesign plan for the I-580/US 101 interchange.
- **Program N-1.6B: California Vehicle Code.** Enforce applicable sections of the California Vehicle Code relating to noise.
- **Program N-1.6C: Paving and Transit Improvements.** Pursue cost-effective paving technologies to minimize traffic noise and support the use of quieter buses and other mass transit vehicles. Noise reduction should be considered an important benefit as the City and its transit service providers transition to electric vehicles.

NOISE AND VIBRATION

Rail Noise

Due to the establishment of a Quiet Zone in Marin County, noise from the SMART rail is not substantial much beyond the rail right-of-way. Train operators are not required to sound their horn at grade crossings due to the Quiet Zone. However, the train operator may still sound their horn in the case of emergencies at their discretion. Ambient noise monitoring at the long-term monitoring location LT-2 indicates that the 60 L_{dn} noise contour from SMART rail activity does not extend beyond 50 feet from the railroad centerline. Furthermore, the proposed Noise (N) Element contains a goal, policy, and program that require local planning and development decisions to consider noise-related impacts from rail. The following General Plan 2040 goal, policy, and program would further minimize potential adverse noise-related impacts from trains.

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.8: Train Noise.** Work with Sonoma Marin Area Rail Transit (SMART) to minimize noise and vibration associated with train service and to reduce the potential for impacts on nearby residences.
 - **Program N-1.8A: Quiet Zones.** Maintain the Marin County designated “Quiet Zone” along the rail line. The Zone ensures that train horns are not sounded except when trains are leaving the station, or if there is an emergency.

Stationary Source Noise

Stationary sources of noises may occur on all types of land uses. Residential uses would generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses would generate noise from HVAC systems, loading docks, and other sources. Industrial uses may generate noise from HVAC systems, loading docks, and possibly machinery. Noise generated by residential or commercial uses is generally short and intermittent. Industrial uses may generate noise on a more continual basis. Nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-throughs, swimming pool pumps, school playgrounds, athletic and music events, and public parks are other common noise sources. Stationary noise sources are controlled by SRMC Chapter 8.13, Noise. Furthermore, the proposed Noise (N), Land Use (LU), Parks, Recreations and Open Space (PROS), and Equity, Diversity, and Inclusion (EDI) Elements contain goals, policies, and programs that require local planning and development decisions to consider noise-related impacts from stationary sources. The following General Plan 2040 goals, policies, and programs would further minimize potential adverse noise-related impacts from stationary sources.

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.3: Reducing Noise Through Planning and Design.** Use a range of design, construction, site planning, and operational measures to reduce potential noise impacts.
 - **Program N-1.3A: Site Planning.** Where appropriate, require site planning methods that minimize potential noise impacts. By taking advantage of terrain and site dimensions, it may be possible to arrange buildings, parking, and other uses to reduce and possibly eliminate noise conflicts. Site planning techniques include:
 - Maximizing the distance between potential noise sources and the receiver.

NOISE AND VIBRATION

- Placing non-sensitive uses such as parking lots, maintenance facilities, and utility areas between the source and receiver.
- Using non-sensitive uses such as garages to shield noise sensitive areas.
- Orienting buildings to shield outdoor spaces from noise sources.
- Incorporating landscaping and berms to absorb sound.
- **Program N-1.3B: Architectural Design.** Where appropriate, reduce the potential for noise conflicts through the location of noise-sensitive spaces. Bedrooms, for example, should be placed away from freeways. Mechanical and motorized equipment (such as air conditioning units) should be located away from noise-sensitive rooms. Interior courtyards with water features can mask ambient noise and provide more comfortable outdoor spaces.
- **Program N-1.3C: Noise Barriers.** Where appropriate, use absorptive noise barriers to reduce noise levels from ground transportation and industrial noise sources. A barrier should provide at least L_{dn} 5 dB of noise reduction to achieve a noticeable change in noise levels.
- **Policy N-1.9: Maintaining Peace and Quiet.** Minimize noise conflicts resulting from everyday activities such as construction, sirens, yard equipment, business operations, night-time sporting events, and domestic activities.

In addition, the General Plan 2040 includes programs that support a reduced noise environment, such as Programs LU-2.7A, PROS-1.13B, and EDI-2.5A.

Land Use Compatibility

As a result of the Supreme Court decision regarding the assessment of the environment's impacts on projects (*California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal. 4th 369 (No. S 213478), December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. As a result, while the noise from existing sources is taken into account as part of the baseline, the direct effects of exterior noise from nearby noise sources relative to land use compatibility of a future project as a result of General Plan buildout is typically no longer a required topic for impact evaluation under CEQA. Generally, no determination of significance is required with the exception of certain school projects, projects affected by airport noise, and projects that would exacerbate existing conditions (i.e., projects that would have a significant operational impact). As required by General Plan 2040 Policy N-1.1, the noise and land use compatibility standards would be applied in land use decisions, including maintaining the maximum noise standards for outdoor and common use areas, as specified in General Plan 2040 Program N-1.1A. At the discretion of the San Rafael Building Division, requirements may include, but not necessarily be limited to, acoustical studies that show noise reduction features, acoustical design in new construction, and other methods that provide compliance with the California Building Code (adopted in SRMC Chapter 12.12, California Building Code) and City provisions for acceptable indoor and outdoor noise levels.

Significance without Mitigation: Less than significant.

NOISE AND VIBRATION

Downtown Precise Plan: Operational Noise

As previously stated, roughly half of the anticipated potential future development by 2040 is expected to occur within the boundaries of the Downtown Precise Plan Area. As with the previous discussion for potential future development in other parts of the city, the operation of future projects in the Downtown Precise Plan Area would be required to comply with the General Plan goals, policies, and programs that would minimize operational noise impacts associated with traffic, trains, stationary uses, and land use compatibility. Future development in the Downtown Precise Plan Area would also be required to comply with the California Building Code (adopted in SRMC Title 12, Building Regulations) and City provisions for acceptable indoor and outdoor noise levels. Therefore, impacts from development in the Downtown Precise Plan Area are likewise *less than significant*.

Significance without Mitigation: Less than significant.

NOISE-2 Implementation of the proposed project could result in generation of excessive groundborne vibration or groundborne noise levels.

General Plan 2040: Construction Vibration

Construction of future projects within the EIR Study Area could generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibration that spreads through the ground and diminishes with distance from the source. The effect on buildings in the vicinity of a construction site varies depending on soil type, ground strata, and the type of materials the buildings constructed from. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can cause architectural damage but can annoy people in buildings close to the construction site. Table 4.13-9 lists typical vibration levels for construction equipment in terms of Peak Particle Velocity (PPV), which as previously described is the peak rate of speed at which soil particles move due to ground vibration. PPV is measured in inches per second or in/sec.

TABLE 4.13-9 VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Approximate PPV Vibration Level at 25 Feet (inches per second)
Pile Driver, Impact (Upper Range)	1.518
Pile Driver, Impact (Typical)	0.644
Pile Driver, Sonic (Upper Range)	0.734
Pile Driver, Sonic (Typical)	0.170
Vibratory Roller	0.210
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Notes: Peak Particle Velocity (PPV) is the peak rate of speed at which soil particles move (e.g., inches per second or in/sec) due to ground vibration.
Source: Federal Transit Administration, 2018.

NOISE AND VIBRATION

As shown in Table 4.13-9, vibration generated by construction equipment has the potential to be substantial, since it has the potential to exceed the FTA criteria for architectural damage (e.g., 0.12 in/sec PPV for fragile or historical resources, 0.20 in/sec PPV for non-engineered timber and masonry buildings, and 0.30 in/sec PPV for engineered concrete and masonry).

The proposed Noise (N) Element contains a goal, policy, and program that would require local planning and development decisions to consider vibration-related impacts. The following General Plan 2040 goal, policy, and program would minimize potential adverse noise-related impacts from construction vibration.

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.11: Vibration.** Ensure that the potential for vibration is addressed when transportation, construction, and non-residential projects are proposed, and that measures are taken to mitigate potential impacts.
 - **Program N-1.11A: Vibration-Related Conditions of Approval.** Adopt standard conditions of approval to reduce the potential for vibration-related construction impacts for development projects near sensitive uses such as housing and schools. Vibration impacts shall be considered as part of project level environmental evaluation and approval for individual future projects.

While General Plan Program N-1.11A requires the City to adopt standard conditions of approval to reduce the potential of vibration related construction impacts near sensitive receptors, it does not include performance standards because the City has no adopted thresholds for vibration impacts. As described in Section 4.13.2.2, Federal Transit Administration Vibration Limits, establishes vibration limits from construction activities in order for impacts to be less than significant on a project-by-project basis. Therefore, without modifications to Program N-1.11A impacts are considered *potentially significant*.

Impact NOISE-2a: Construction activities associated with potential future development could generate excessive short-term vibration levels during project construction.

Mitigation Measure NOISE-2a: To ensure receptors, both buildings and people, that are sensitive to vibration from construction noise are not exposed to unacceptable vibration levels from discretionary development projects that are subject to CEQA the City shall revise General Plan Program N-1.11A (Vibration-Related Conditions of Approval) to support Policy N-1.11 (Vibration) be implemented as part of the project approval process. Revisions to Program N-1.11A are shown in double-underlined text:

- **Modified Program N-1.11A: Construction Vibration-Related Conditions of Approval.** Adopt standard conditions of approval in San Rafael Municipal Code Chapter 8.13, Noise, that require the Federal Transit Administration (FTA) criteria for acceptable levels of groundborne vibration for various types of buildings be applied to reduce the potential for vibration-related construction impacts for development projects near sensitive uses such as older or historically significant buildings and structures, housing, and schools. If vibration levels exceed the FTA limits, the condition of approval shall identify alternative uses, such as drilling piles instead of pile driving and static rollers instead of vibratory rollers. Construction vibration impacts shall be considered as part of project level environmental evaluation and approval for individual future projects.

NOISE AND VIBRATION

Significance with Mitigation: Less than significant.

Downtown Precise Plan: Construction Vibration

As discussed in Chapter 4.5, Cultural Resources, of this Draft EIR, the Downtown Precise Plan Area has a 200-year legacy of being the cultural hub of Marin County and includes most of the historic buildings in the city. Because roughly half of the anticipated potential future development by 2040 is expected to occur within the boundaries of the Downtown Precise Plan Area, there is the potential for future projects to cause adverse impacts to buildings or structures that are identified as being extremely susceptible to vibration damage during the construction phase. The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations to reduce vibration from construction; therefore, the impacts and mitigation described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. As with the previous discussion for potential future development in other parts of the city, future projects in the Downtown Precise Plan Area would be required to comply with the General Plan goal, policy, and program in the Noise Element that would require local planning and development decisions to consider vibration-related impacts and with the short-term vibration condition of approval to reduce vibration impacts to sensitive buildings and structures during construction following the adoption of the condition of approval as required by Mitigation Measure NOISE-2a. Therefore, impacts from potential future development in the Downtown Precise Plan Area would be likewise *less than significant* with implementation of Mitigation Measure NOISE-2a.

Significance with Mitigation: Less than significant.

General Plan 2040: Operational Vibration

Commercial and industrial operations in the EIR Study Area would generate varying degrees of ground vibration, depending on the operational procedures and equipment. Such equipment-generated vibrations would spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the vibration source varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. As discussed above, the 2014 Draft EIR for SMART found that residences located more than 40 feet from the railroad centerline (outside the rail right-of-way) would not experience perceptible vibration.⁶

Like construction vibration, the City does not have any adopted standards for operational vibration. As described in Section 4.13.2.2, Federal Transit Administration Vibration Limits, establishes vibration limits from operational activities in order for impacts to be less than significant on a project-by-project basis. For vibration annoyance from operational sources, the FTA recommends the following criteria for frequent events: 65 VdB for highly sensitive uses with vibration-sensitive equipment (e.g., microscopes in hospitals and research facilities) and 72 VdB for residences. Therefore, without a Program to address vibration from operation impacts are considered *potentially significant*.

⁶ Sonoma-Marin Area Rail Transit, 2014, *Downtown San Rafael to Larkspur Extension Environmental Assessment*.

NOISE AND VIBRATION

Impact NOISE-2b: Operational activities associated with potential future development could generate excessive long-term vibration levels.

Mitigation Measure NOISE-2b: To ensure receptors that are sensitive to operational vibration from commercial or industrial uses are not exposed to unacceptable vibration levels from discretionary development projects that are subject to CEQA the City shall, shall adopt the following General Plan Program to support Policy N-1.11 (Vibration) be implemented as part of the project approval process:

- **New Program:** Adopt standard conditions of approval in San Rafael Municipal Code Chapter 8.13, Noise, that require the Federal Transit Administration (FTA) criteria for acceptable levels of groundborne vibration from commercial or industrial uses to reduce long-term vibration impacts at existing or potential future sensitive uses such as uses with vibration-sensitive equipment (e.g., microscopes in hospitals and research facilities) or residences. Operational vibration impacts shall be considered as part of project level environmental evaluation and approval for individual future projects.

Significance with Mitigation: Less than significant.

Downtown Precise Plan: Operational Vibration

Like construction impacts, the impacts from future projects in the Downtown Precise Plan Area could result in vibration-related impacts during operation to the numerous historic buildings located in this area of which some could be identified as being extremely susceptible to vibration damage. As with development in other parts of the city, future projects in the Downtown Precise Plan Area would be required to comply with the General Plan goal, policy, and program in the Noise Element that requires local planning and development decisions to consider vibration-related impacts as well as with and with the long-term vibration condition of approval to reduce vibration impacts to sensitive buildings and structures during operation following the adoption of the condition of approval as required by Mitigation Measure NOISE-2b. Therefore, long-term vibration impacts from the operation of potential future development in the Downtown Precise Plan Area are likewise *less than significant* with implementation of Mitigation Measure NOISE-2b.

Significance with Mitigation: Less than significant.

NOISE-3	Implementation of the proposed project could expose people residing or working within two miles of a private airstrip or airport to excessive noise levels.
----------------	--

General Plan 2040

As discussed in Section 4.13.1.5 under “Aircraft Noise,” the San Rafael Airport is a private airstrip with minimal air traffic. As shown on Figure 4.13-10, airport noise contours do not extend much beyond the

NOISE AND VIBRATION

runway, and airport noise does not significantly affect nearby sensitive receptors (i.e., all residences are outside of the 55 and 60 dBA L_{dn} noise contours).

The proposed Noise (N) Element contains one goal and policy that would require local planning and development decisions to consider noise-related impacts from the San Rafael Airport. The following General Plan 2040 goal and policy would minimize potential adverse noise-related impacts from the airport.

Goal N-1: Acceptable Noise Levels. Protect the public from excessive, unnecessary, and unreasonable noise.

- **Policy N-1.7: Aviation-Related Noise.** To the extent allowed by federal and state law, ensure that the noise impacts of any changes in facilities or operations are considered when granting or modifying use permits at the San Rafael Airport in North San Rafael and the heliport in East San Rafael.

Because the proposed General Plan 2040 would not cause a direct increase in flights and all residences are outside of the 55 and 60 dBA L_{dn} noise contours, impacts from future potential projects in the EIR Study Area would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Like potential future development in other parts of the city, potential future development in the Downtown Precise Plan Area is outside of the 55 and 60 dBA L_{dn} noise contours, and impacts from potential future projects in this area would likewise be *less than significant*.

NOISE-4 Implementation of the proposed project could result in a cumulatively considerable impact to noise impacts.

The analysis of the proposed project, discussed above, addresses cumulative impacts with regard to noise, groundborne noise, and vibration. Although multiple simultaneous nearby noise sources may, in combination, result in higher overall noise levels, this effect is captured and accounted for by the ambient noise level metrics that form the basis of the thresholds of significance for noise analysis. Any measurement of sound or ambient noise, whether for the purpose of evaluating land use compatibility, establishing compliance with exterior and interior noise standards, or determining point-source violations of a noise ordinance, necessarily will incorporate noise from all other nearby perceptible sources.

Additionally, although noise attenuation is influenced by a variety of topographical, meteorological, and other factors, noise levels decrease rapidly with distance, and vibration impacts decrease even more rapidly. Therefore, site-level cumulative noise or vibration impacts across city boundaries occur only infrequently. The city of San Rafael shares borders with other incorporated and unincorporated communities and similarly urbanized areas, which makes cross-border cumulative noise and vibration impacts possible. Nevertheless, given the Noise Element policies and SRMC requirements discussed above, it is unlikely that operations-related noise would, in combination with noise sources from adjacent

NOISE AND VIBRATION

cities, result in cumulative noise impacts. Additionally, because any noise measurements taken in conjunction with Noise Element policies or SRMC requirements would necessarily account for noises received from outside the boundaries of the city of San Rafael, the ongoing implementation of these policies and regulations under the proposed project would serve to prevent site-based cumulative noise impacts. Furthermore, impacts related to construction and operational noise were found to be less than significant with implementation of Mitigation Measure NOISE-1, NOISE-2a and NOISE-2b.

Similarly, the noise contours and traffic-related noise levels developed for the proposed project include and account for regional travel patterns as they affect traffic levels in San Rafael. Noise contours were based upon both existing and projected future traffic volumes that incorporate cumulative regional effects and trends. Existing noise contours were derived from traffic volumes based on counts of current traffic, and these traffic counts inherently include cumulative traffic, as generated by regional trips. With regard to future noise, projected noise contours were determined using projected 2040 traffic volumes; these data account for growth in San Rafael under the proposed project as well as anticipated regional growth. The future noise modeling that served as the foundation for the overall project analysis was therefore based on future, cumulative conditions. Additionally, the proposed Mobility (M) Element, which would be adopted as part of the proposed project, contains goals, policies, and programs that would require local planning and development decisions to consider reductions in vehicle trips by providing for a circulation system that accommodates alternative modes of transportation. Additionally, the proposed project includes an update to the City's Zoning Ordinance for the Downtown Precise Plan Area that would promote travel patterns oriented to pedestrian, transit, and bicycle use; thus further reducing noise from motorized transportation sources.

Impacts NOISE-1 through NOISE-3 therefore encompass and address cumulative noise impacts from implementation of the proposed project. As discussed under Impact NOISE-1, NOISE-2a, and NOISE-2b, with the uniform application of pertinent policies and programs of the General Plan, as well as all mitigation measures, the proposed project would not result in a cumulatively considerable impact related to noise and vibration and cumulative impacts would be *less than significant*.

Significance with Mitigation: Less than significant.

NOISE AND VIBRATION

This page intentionally left blank.

4.14 POPULATION AND HOUSING

This chapter describes existing population and housing characteristics within the Environmental Impact Report (EIR) Study Area and evaluates the potential environmental consequences of potential future development that could occur by adopting and implementing the proposed project. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of potential impacts and cumulative impacts from implementation of the proposed project.

4.14.1 ENVIRONMENTAL SETTING

4.14.1.1 REGULATORY FRAMEWORK

State Regulations

California Housing Element Law

California Housing Element Law¹ includes provisions related to the requirements for housing elements of local government General Plans. Among these requirements, some of the necessary parts include an assessment of housing needs and an inventory of resources and constraints relevant to the meeting of these needs. Additionally, in order to assure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goals, this section of the Government Code calls for local jurisdictions to plan for and allow the construction of a share of the region's projected housing needs, known as the Regional Housing Needs Allocation (RHNA). The City of San Rafael's 2015–2023 Housing Element Update was adopted in January 2015.

Regional Regulations

Plan Bay Area

As discussed in Chapter 4, Environmental Analysis, of this Draft EIR, *Plan Bay Area* is the regional transportation plan/sustainable community strategy for the nine-county Bay Area region. *Plan Bay Area* lays out a development scenario for the nine-county Bay Area that works to align transportation and land use planning in order to reduce vehicle miles traveled through modified land use patterns, as mandated by the Sustainable Communities and Climate Protection Act (Senate Bill 375). The current *Plan Bay Area* projects growth and development patterns through 2040 and is currently being updated to extend to 2050.

While *Plan Bay Area* 2040 distributes future growth across the Bay Area region in order to meet its GHG emissions reduction, housing, and other performance targets, it is not intended to override local land use control. Cities and counties are ultimately responsible for the manner in which their local communities continue to be built out. For this reason, cities and counties are not required to revise their land use

¹ Government Code Section 65580-65589.8.

POPULATION AND HOUSING

policies and regulations, including their general plans, to be consistent with the regional transportation plan or an alternative planning strategy.

As described in Chapter 4, Environmental Analysis, *Plan Bay Area* designates Priority Development Areas (PDAs) and Transit Priority Areas (TPAs) throughout the region. PDAs are areas along transportation corridors which are served by public transit that allow opportunities for development of transit-oriented, infill development within existing communities that are expected to host the majority of future development. TPAs are similar in that they are formed within one-half mile around a major transit stop such as a transit center or rail line. Overall, over two-thirds of all regional growth by 2040 is allocated to PDAs and TPAs. As shown on Figure 4-1, the EIR Study Area has three PDAs. The PDAs include the North San Rafael PDA, Southeast San Rafael/Canal PDA, and Downtown San Rafael SMART Station PDA and TPA.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to population and housing are primarily in the Land Use (LU) Element, Neighborhoods (N) Element, and Housing (H) Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended or substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Policy Amendments, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact under Section 4.14.3, Impact Discussion, later in this chapter.

San Rafael Municipal Code

Besides the General Plan, the City of San Rafael Municipal Code (SRMC) is the primary tool that regulates physical development in San Rafael. The SRMC contains all ordinances for the city and identifies land use categories, site development regulations, and other general provisions that ensure consistency between the General Plan and proposed development projects. The SRMC is organized by title, chapter, and section.

Title 14 of the SRMC sets forth the City's Zoning Ordinance, the primary purpose of which is to "promote and protect the public health, safety, peace, comfort and general welfare" of the City of San Rafael, with specific purposes listed under:

- **Section 14.01.030, Purposes.** The Zoning Ordinance is the mechanism used to implement the land use goals, policies, and programs of the General Plan and to regulate all land use within the city. The Zoning Ordinance describes zoning designations and contains the zoning map and development standards for the zoning designations.
- **Chapter 14.04, Residential Districts.** This chapter serves to protect and provide a variety of housing opportunities and types, and to promote residential development compatible with environmental constraints and nearby development.

POPULATION AND HOUSING

- **Chapter 14.05, Commercial and Office Districts.** This chapter lists the specific purposes of the Commercial and Office Districts. It includes several districts in the Downtown Precise Plan that allow for residential mixed-use development.

4.14.1.2 EXISTING CONDITIONS

This section describes the existing population and housing conditions in San Rafael, as well as Marin County as a whole, to provide context for the analysis of the proposed project in this EIR.

Population

San Rafael is the largest city in Marin County and has experienced the fastest rate of population growth in the county since 1960. The population in the EIR Study Area reached 75,751 by 2020, including roughly 60,000 people in the city limits and 15,000 in the unincorporated area. Historically, growth in San Rafael has fluctuated significantly, increasing by 90 percent in the 1960s during a period of rapid growth and development, compared to relatively static growth of less than 3 percent from 2000 to 2010. Comparatively, the overall population of Marin County grew from 252,409 in 2010 to 262,240 in 2019, which represents a growth rate of 4 percent. The second largest city in Marin County is Novato, with 54,115 residents. The remaining nine cities in Marin County vary in size, ranging between 2,000 and 15,000 people.²

Housing

In 2020, the EIR Study Area had 29,529 housing units with a 5.1 percent vacancy rate.³ Of the occupied housing units, 52 percent are owner occupied and 48 percent are renter occupied. Marin County's vacancy rate and housing tenure is higher than San Rafael's—7.2 percent, with 63 percent owner occupied units and 37 percent renter occupied units.⁴

Approximately 46 percent of San Rafael's homes are detached single-family homes while 10 percent are attached. Multi-family homes make up 42 percent of housing units in the city, and mobile homes make up 2 percent. These housing unit types are different from the countywide breakdown, which is 61 percent detached single-family homes, 10 percent attached single-family homes, 27 percent multifamily, and 2 percent mobile homes.

Employment

The city of San Rafael accounts for over one-third of the total jobs in Marin County. Major employment sectors in the city include education, health and social services, and research and development.

² State of California, Department of Finance, *Report E-5, Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2019, with 2010 Benchmark*, Table 2: City/County Population and Housing Estimates.

³ State of California, Department of Finance, *Report E-5, Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2019, with 2010 Benchmark*, Table 2: City/County Population and Housing Estimates.

⁴ State of California, Department of Finance, *Report E-5, Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2019, with 2010 Benchmark*, Table 2: City/County Population and Housing Estimates

POPULATION AND HOUSING

Compared to the county, San Rafael has a higher concentration in jobs in the public administration, transportation, warehousing, and utilities sectors. In 2020, San Rafael has approximately 44,200 jobs, an increase of 1.8 percent from 2010. By comparison, Marin County has approximately 124,700 jobs in 2020, of which approximately 80,500 jobs are outside of San Rafael.⁵

4.14.1.3 GROWTH PROJECTIONS

The *Plan Bay Area* includes growth projections to 2040 at 10-year benchmark intervals. Projections are calculated using several sources, including assessments of historical growth, population estimates released by the State Department of Finance, and General Plan buildout projections established by local jurisdictions. As shown in Table 4.14-1, the *Plan Bay Area* projections anticipate that San Rafael's population would increase with a growth rate of 16 percent between 2010 and 2040. The growth projections anticipate the number of housing units to increase by 9 percent, with jobs projected to increase by 13 percent. Total jobs in Marin County are projected to increase by 11 percent over the same time period. Jobs in San Rafael are expected to increase to approximately 42 percent of the county total. However, the forecasts shown in Table 4.14-1 were created with a 2010 baseline, and therefore some of the growth anticipated has already occurred.

TABLE 4.14-1 PLAN BAY AREA REGIONAL PROJECTIONS FOR SAN RAFAEL AND MARIN COUNTY

	2010	2020	2030	2040	Change 2010–2040	
					Number	Percent
San Rafael City Limit						
Total Population	57,850	60,060	64,220	66,880	9,030	16%
Housing Units ^a	23,735	24,035	25,320	25,870	2,135	9%
Total Jobs	43,430	47,835	48,650	49,050	5,620	13%
Marin County						
Total Population	252,920	265,875	274,530	282,670	29,750	12%
Housing Units ^a	111,200	112,540	114,030	115,470	4,270	4%
Total Jobs	121,785	129,900	133,480	134,960	13,175	11%

Notes:

^a Includes both multifamily and single-family dwelling units.

Source: *Plan Bay Area* 2040 Projections, <http://projections.planbayarea.org/>, 2020.

⁵ California Economic Development Department, 2020, Marin County Profile.

POPULATION AND HOUSING

Priority Development Areas

As previously stated, overall, over two-thirds of all regional growth by 2040 is allocated to PDAs and TPAs.⁶ As described in Chapter 4, Environmental Analysis, and shown on Figure 4-4, the Downtown San Rafael SMART Station PDA and TPA is partially located in the Downtown Precise Plan Area. ABAG indicates that this PDA is expected to absorb about 40 percent of the city’s household growth in the next 20 years, although General Plan 2040 is anticipating an even higher capture rate.⁷ As shown in Table 4.14-2, the total population in this PDA is expected to increase by 49 percent while housing units and jobs are anticipated to increase by 46 percent and 10 percent, respectively.

TABLE 4.14-2 PLAN BAY AREA REGIONAL PROJECTIONS FOR DOWNTOWN SAN RAFAEL SMART STATION PDA

	Change 2010 to 2040			
	2010	2040	Number	Percent
Total Population	4,390	6,550	2,160	49%
Housing Units ^a	1,785	2,600	815	46%
Total Jobs	9,100	10,000	900	10%

Notes:

^a. Includes multifamily and single-family dwelling units.

^b. Assumes 2.46 persons per household in 2010 and 2.56 persons per household in 2040.

Source: *Plan Bay Area* 2040 Projections, <http://projections.planbayarea.org/>, 2020.

Since the adoption of *Plan Bay Area* 2040 and its associated growth projections, two new PDAs were designated in the EIR Study Area. As shown on Figure 4-2 and Figure 4-3 in Chapter 4, Environmental Analysis, these PDAs are located in northern and southeastern San Rafael. They are described as follows:

- **Northgate PDA.** This is the northernmost PDA in the Terra Linda neighborhood of San Rafael. The Northgate PDA includes the Northgate Mall, Northgate I Centre, Northgate III, and the Las Gallinas office and gas station areas.
- **Southeast San Rafael/Canal PDA.** This is the southernmost PDA in San Rafael and includes the southeast part of the city, including the Canal neighborhood.

The new designations mean that the Northgate and the Southeast San Rafael/Canal PDAs will be included in *Plan Bay Area* 2050 and will therefore be eligible to apply for MTC funding to conduct focused land use planning and policy development in the designated areas. No direct development or land use changes which would result in direct development are proposed as part of General Plan 2040. Further, because these PDAs were designated after the adoption of *Plan Bay Area* 2040, there were no growth projections available at the time the proposed project was being conducted. However, because *Plan Bay Area* anticipates the majority of growth in the Bay Area will occur in PDAs, both these PDA areas are anticipated

⁶ Bay Area Air Quality Management District, 2017, Final 2017 *Clean Air Plan*, Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area, https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en, accessed March 18, 2019.

⁷ Metropolitan Transportation Commission and Association of Bay Area Governments, 2017, *Plan Bay Area* 2040 Plan.

POPULATION AND HOUSING

to experience growth through the proposed project’s 2040 horizon year. Population projections for the Northgate PDA and the Southeast San Rafael/ Canal PDA are anticipated to become available in 2021.

These PDA designations were sought in response to requests received from neighborhood representatives to pursue a deeper dive planning effort for these two areas. These representatives have requested that the General Plan 2040 incorporate programs that would commit to pursuing funding and development of a Specific, Precise or Neighborhood Plan for the Canal neighborhood and North San Rafael. In addition, community members have indicated that funding and developing a Specific/Precise Plan for their respective areas should be identified as a high priority, short-term program in the General Plan 2040. The General Plan 2040 Neighborhood Element will incorporate these programs.

Regional Housing Needs Allocation

As the San Francisco Bay Area’s regional agency, MTC/ABAG calculates the RHNA for jurisdictions in Marin County, including San Rafael. Table 4.14-2 shows the RHNA for the current planning period, which is the number of housing units the city of San Rafael would need to accommodate by 2023. As shown in Table 4.14-2, the housing unit allocations are categorized by household size and income. The household income categories are as follows:

- Very Low Income: Households making less than 50 percent of the area median income.
- Low Income: Households making between 50 and 80 percent of the area median income.
- Moderate Income: Households making between 80 and 120 percent of the area median income.
- Above Moderate Income: Households making more than 120 percent the area median income.

Household median income is calculated based on household size. In 2014 the median income for a single-person household was \$72,100. The median income for a family of three in 2014 was \$92,700, and the median income for a family of six in 2014 was \$119, 500.

TABLE 4.14-3 SAN RAFAEL REGIONAL HOUSING NEEDS ALLOCATION

RHNA Planning Period	Dwelling Units by Income Category				Total
	Very Low Income	Low Income	Moderate Income	Above Moderate Income	
2015 to 2023	240 ^a	148	181	438	1007

Notes:

^a. 120 of these are designated for “Extremely Low Income”

Source: City of San Rafael 2015-2023 Housing Element Update.

4.14.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project would result in significant population and housing impacts if it would:

1. Induce substantial unplanned population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

POPULATION AND HOUSING

2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.
3. Result in cumulative impact related to population and housing.

4.14.3 IMPACT DISCUSSION

POP-1 **Implementation of the proposed project could induce substantial unplanned population growth either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**

General Plan 2040

As described in Chapter 3, Project Description, of the Draft EIR, the proposed General Plan 2040 is a high-level policy document that will replace the existing General Plan 2020 as the city's overarching policy document that defines a vision for future change and sets the "ground rules" for growth. The proposed General Plan 2040 considers growth over a 20-year period but does not include specific development proposals. The General Plan is the policy document that projects the amount of reasonably foreseeable growth given past growth trends and the ability of existing services and infrastructure to support future growth. Potential future development in the city is projected to occur primarily in TPAs and PDAs on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized, and/or in close proximity to existing residential and residential-serving development, and in areas with close proximity to public transportation. Given that future growth would occur in areas currently served by public services and infrastructure, implementation of the proposed General Plan 2040 would require less investment in infrastructure than if development was to occur on "greenfield" sites. Therefore, the proposed General Plan 2040 would not induce substantial, unplanned population growth directly or indirectly in any particular location but instead includes policy guidance for expected incremental growth through 2040.

The EIR Study Area has a population of approximately 75,751 with 29,529 housing units as of 2020. The proposed General Plan 2040 estimates an overall increase of 4,460 housing units and 8,910 residents in the EIR Study Area by 2040. This equates to a 15 percent increase in housing units and a 12 percent increase in total population over the 20-year horizon of the proposed General Plan. However, approximately 20 percent of the total 4,460 housing units anticipated by 2040 are units already accounted for in the City's development pipeline, including projects that are under review or approved. Approximately 23 percent of this residential growth would come from the city's 2015-2023 RHNA allocation of 1,007 units, which is growth dictated by the California Housing Law and not by the City. Moreover, the city's preliminary RHNA for 2023-2031 is nearly 3,000 units, indicating the need to plan for development that exceeds the *Plan Bay Area* 2040 housing forecasts. As shown in Table 4.14-2, regional projections for San Rafael anticipate a 9 percent increase in housing units and an 16 percent increase in population, and development potential under the proposed General Plan 2040 would result in a 15 percent increase in housing units and a 12 percent increase in total population. Therefore, implementation of the proposed General Plan 2040 would slightly exceed current regional projections for

POPULATION AND HOUSING

housing by 6 percent based on these factors alone. By comparison, total population is anticipated to be 4 percent below regional projections due to differing household sizes. Potential future development would primarily occur as infill development in designated PDAs and TPAs, which is consistent with the infill focus of *Plan Bay Area*. Therefore, implementation of General Plan 2040 itself would not introduce a substantial number of unplanned population in the EIR Study Area and is instead the overriding policy document that plans for such growth. Furthermore, the revised growth projections from General Plan 2040 will be integrated into the next round of regional growth projections. At the time the proposed General Plan 2040 was being drafted, *Plan Bay Area* projections through 2050 were being updated but the data were unavailable.

As determined in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, there are no existing infrastructure deficiencies identified in the EIR Study Area, and no future deficiencies are likely to occur as a result of the growth anticipated in the proposed General Plan 2040. Further, Chapter 4.15, Public Services and Recreation, of this Draft EIR determined that population growth as a result of implementation of the proposed General Plan 2040 would not result in a public service deficiency or necessitate the construction of new emergency service facilities. All potential future development would be required to comply with any required site-specific infrastructure improvements and to pay any project-specific impact fees. Therefore, implementation of the proposed General Plan 2040 would not induce substantial unplanned population growth and would not necessitate the construction of additional infrastructure, and the impact is *less-than-significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

A total of 49 percent of the housing units and population growth by 2040 is expected in the Downtown Precise Plan Area, including an estimated 2,200 housing units and 3,570 residents. Existing development includes 1,571 housing units and 2,315 residents within the Downtown Precise Plan Area. As discussed above, growth in the EIR Study Area was projected in *Plan Bay Area* and includes the growth in the Downtown Precise Plan Area. While half the anticipated growth in the EIR Study area is anticipated in the Downtown Precise Plan Area, the Downtown Precise Plan is almost entirely within the Downtown San Rafael PDA and TPA which, as described, are areas of the city that are served by local and regional public transportation. As shown in Table 4.14-2, *Plan Bay Area* projected growth of 815 housing units and 2,160 residents in the Downtown San Rafael SMART Station PDA alone, which exceeds the growth allowed in the proposed Downtown Precise Plan. However, as identified, areas designated a PDA or a TPA by *Plan Bay Area* are expected to absorb the majority of future residential development in the Bay Area due to their proximity to public transportation and such growth in the Downtown Precise Plan Area would not be entirely unexpected or unplanned. Development in the PDA is consistent with the regional planning objectives established for the Bay Area. Further, this additional growth would come incrementally over a period of approximately 20 years and a policy framework is in place to ensure adequate planning occurs to accommodate it.

Therefore, implementation of the proposed Downtown Precise Plan would not induce substantial unplanned population growth in the Downtown Precise Plan Area, and same as the General Plan 2040, impacts would be *less than significant*.

POPULATION AND HOUSING

Significance without Mitigation: Less than significant.

POP-2 **Implementation of the proposed project could displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

General Plan 2040

Implementation of the proposed General Plan 2040 would result in an increase of 4,460 housing units in the EIR Study Area over a 20-year horizon. As identified in Impact Discussion POP-1, approximately 20 percent of the total 4,460 housing units anticipated by 2040 are units already accounted for in the City's development pipeline because they have been approved or are under project review. Potential future development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing residential and residential-serving development, and would therefore not necessitate future infrastructure improvements. Because potential future development of housing units could occur through redevelopment activities, it is possible that construction activities could displace an unknown amount of existing residents or housing. Further, it is possible that potential future nonresidential development could displace existing residential development through conversions or redevelopment.

The proposed General Plan 2040 includes the Equity, Diversity, and Inclusivity (EDI) Element and the Housing (H) Element, both of which contain goals, policies, and programs addressing residential displacement in the EIR Study Area. The following goals, policies, and programs would reduce the amount of displacement that could occur in the EIR Study Area:

Goal EDI-3: Housing Stability. Improve housing stability for all San Rafael residents, particularly those with low or very low incomes.

- **Policy EDI-3.1: Preventing Displacement.** Prevent the displacement of lower income residents from their homes due to rising costs, evictions without cause, and other economic factors that make it difficult for people to stay in San Rafael.
 - **Program EDI-3.1A: Anti-Displacement Strategies.** Evaluate anti-displacement strategies in future plans or programs that could result in the direct removal of affordable housing units, the displacement of tenants, or economic hardships due to rapid rent increases
 - **Program EDI-3.1B: Renter Protection Measures.** Continue to explore and promote measures to protect San Rafael renters and facilitate positive communication between landlords and tenants.

Goal H-2: A Diverse Housing Supply. It is the goal of San Rafael to have an adequate housing supply and mix that matches the needs of people of all ages, income levels, and special requirements.

- **Policy H-7: Protection of the Existing Housing Stock.** Continue to protect existing housing from conversion to nonresidential uses. Ensure that affordable housing provided through government subsidy programs, incentives, and deed restrictions remains affordable over the required time period, and intervene when possible to help preserve such housing.

POPULATION AND HOUSING

- **Program H-7B: Preserving Existing Rental Housing Affordable to Low Income Households At Risk of Conversion.** Eight assisted rental projects in San Rafael (totaling 291 units) are technically at-risk of conversion to market rate prior to 2025. However, all eight projects are owned and managed by non-profit organizations with a public purpose to maintain affordable housing for low income and special needs populations. The majority of these developments receive Federal and State funding, rather than local funding, and therefore are not subject to the City's rent and income monitoring requirements. The City will however monitor each project's potential affordability expiration, and contact the non-profit owners within one year of the expiration date to address any future loss of funding which may put these units at risk.
- **Program H-7C: Preserving Existing Rental Housing Affordable to Low Income Households through Ongoing Affordability Restrictions.** The City of San Rafael and the former Redevelopment Agency is responsible for the annual monitoring of over 1,400 units in forty one publicly and privately owned rental developments. In addition, City policies have resulted in the development of 115 affordable ownership units. All of these rental and ownership units have long term affordability covenants.
- **Program H-7D: BMR Resale Regulations.** Continue to require resale controls on ownership Below Market Rate (BMR) units to assure that units remain affordable to very low, low, and moderate-income households. Continue to monitor database with Marin Housing.
- **Program H-7E: Retention of Mobilehomes and Preservation of Existing Mobilehome Sites.** Retain where possible this type of housing, which includes the 400-home Contempo Marin and the 30-home B-Bar-A mobilehome park, and its affordability by continuing to implement the Mobilehome Rent Stabilization Ordinance. Mobilehomes typically provide lower cost housing by the nature of their size and design.

Potential future development as a result of implementation of the proposed General Plan 2040 is anticipated to increase density and utilization of infill or underutilized sites in existing urban areas in the EIR Study Area. Therefore, redevelopment could potentially result in temporary displacement of people. However, displacement in the EIR Study Area would only be considered substantial in cases where major development such as a freeway or a large-scale redevelopment would result in the displacement of large amounts of existing housing. While the proposed General Plan 2040 does focus on infill development which may occur as redevelopment, the proposed General Plan does not include any large-scale development that would be considered to result in substantial displacement of existing housing. Further, redevelopment in the EIR Study Area would occur on sites that are vacant and/or underutilized, and small levels of displacement that may occur would be addressed through compliance with proposed goals, policies, and programs. Therefore, any potential displacement of persons in the EIR Study Area would not be substantial in number, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As described in Chapter 3, Project Description, of this Draft EIR, approximately half of the development anticipated in the EIR Study Area by 2040 would occur in the Downtown Precise Plan Area. Because the Downtown Precise Plan Area is urban and largely built out, it is anticipated that this increase in housing units would occur primarily through redevelopment or infill development on vacant and/or underutilized

POPULATION AND HOUSING

sites. While potential future development in the Downtown Precise Plan Area could result in the temporary displacement of persons on a project site, the proposed Downtown Precise Plan would not result in large-scale redevelopment projects that would cause substantial displacement. Similar to the proposed General Plan 2040, short-term displacement that may occur in the Downtown Precise Plan Area would be addressed through compliance with proposed goals, policies, and programs, and therefore impacts would be *less than significant*. Moreover, Chapter 7 of the Downtown Precise Plan is an “anti-displacement strategy” that includes specific measures to minimize displacement and provide new housing opportunities for persons living in Downtown San Rafael.

Significance without Mitigation: Less than significant.

POP-3	Implementation of the proposed project could result in a cumulatively considerable impact to population and housing.
--------------	---

The context for the cumulative population and housing impacts would be potential future development under the proposed project combined with development on lands adjacent to the city. As described in Impact Discussions POP-1 and POP-2, implementation of the proposed project would not induce a substantial amount of unplanned population growth or growth for which inadequate planning has occurred, or displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. The proposed and existing General Plan goals, policies, and programs, and implementing Zoning Ordinance would provide adequate planning to accommodate the proposed new increase in growth in the study area. Therefore, the proposed project would not result in a cumulatively considerable impact to mineral resources and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

POPULATION AND HOUSING

This page intentionally left blank.

PUBLIC SERVICES AND RECREATION

4.15 PUBLIC SERVICES AND RECREATION

This chapter describes existing public services, parks, and recreation within the Environmental Impact Report (EIR) Study Area and evaluates the potential environmental consequences of potential future development that could occur by adopting and implementing the proposed project. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of potential impacts and cumulative impacts.

4.15.1 FIRE PROTECTION SERVICES

4.15.1.1 ENVIRONMENTAL SETTING

This section describes regulations, resources, facilities, equipment, response times, and budget for fire protection services. The analysis in this section is based on the *Community Services Background Report: San Rafael General Plan 2040* prepared by the San Rafael Community Development Department in February 2020. Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and Deputy Fire Chief Robert Sinnott.

Regulatory Framework

State Regulations

California Government Code

Section 65302 of the California Government Code requires General Plans to include a Safety Element, which must include an assessment of wildland and urban fire hazards. The Safety and Resilience Element of the existing General Plan 2020 and the proposed General Plan 2040 satisfies this requirement.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of California's wildlands. The Office of the State Fire Marshal supports CAL FIRE's mission to protect life and property through fire prevention engineering programs, law and code enforcement, and education.

California Building Code

The State of California provides a minimum standard for building design through Title 24 of the California Code of Regulations (CCR), commonly referred to as the California Building Code (CBC). The CBC is in Part 2 of Title 24. The CBC is updated every three years. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local City building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of sprinklers in all high-rise buildings and other facilities; the establishment of fire resistance standards for fire doors, building materials, and particular types of

PUBLIC SERVICES AND RECREATION

construction in high fire hazard severity zones; requirements for smoke-detection systems and exiting requirements; and the clearance of debris.

California Fire Code

The California Fire Code incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. The California Fire Code is the official fire code for the State of California (State) and all political subdivisions. It is found in Title 24 of the CCR, Part 9, and, like the CBC, it is revised and published every three years by the California Building Standards Commission. Also like the CBC, the California Fire Code is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions.

The California Fire Code is a model code that regulates minimum fire safety regulations for new and existing buildings, facilities, storage, and processes, including emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Typical fire safety requirements include installation of sprinklers in all high-rise buildings; the establishment of fire-resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

Unified Hazardous Waste and Hazardous Materials Management Program

The routine management of hazardous materials in California is administered under the Unified Hazardous Waste and Hazardous Materials Management Program (Unified Program). San Rafael's hazardous materials programs are administered and enforced under the Unified Program. The California Environmental Protection Agency has granted the City's responsibilities to the Marin County Department of Public Works, Waste Management Division, including implementation and enforcement of hazardous material regulations under the Unified Program as a Certified Unified Program Agency.

Local Regulations

Marin County Code of Ordinances

The Marin County Code of Ordinances (MCCO) is organized by title, chapter, and section. It contains all ordinances for the County. Most provisions relating to fire protection services are included in Title 16, Fire, which establishes the jurisdiction of the Marin County Fire Department (MCFD). Services of the MCFD include response to all types of fires and other emergencies in County unincorporated areas, fire prevention, investigation, emergency medical services, and management of the wildland-urban interface, including areas within the EIR Study Area. Title 16, Fire, of the MCCO includes the following two chapters related to adoption and amendments to adopted codes:

- **Chapter 16.16:** Adoption of California Fire Code and International Fire Code, which adopts prescriptions regulating governing conditions hazardous to life and property from fire or explosion. This includes the 2019 Fire Code, which consists of portions of the 2018 International Fire Code as amended by the California Building Standards Commission.

PUBLIC SERVICES AND RECREATION

- **Chapter 16.17:** Urban-Wildlife Interface Code, which adopts the 2003 edition of the International Urban-Wildland Interface Code. This code governs the mitigation of wildfire hazards to life and property from the intrusion of fire from wildland exposures.

MCCO Title 19, Marin County Building Code, adopts the 2019 CBC and the 2018 International Building Code to promote healthy, safe, and sustainable communities. Title 19 includes building regulations related to the fire resistance of buildings.

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to fire protection are primarily in the Housing, Economic Vitality, Circulation, and Safety and Resilience Elements. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of updated goals, policies, and programs is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.15.1.4, Impact Discussion.

San Rafael Municipal Code

The San Rafael Municipal Code (SRMC) includes various directives pertaining to fire protection. The SRMC is organized by title, chapter, and section. Most provisions related to fire protection are included in Title 4, Fire. Title 4 adopts the 2016 California Fire Code and the 2015 International Fire Code for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion, those certain codes which contain building standards and fire safety standards. A number of local amendments to the California Fire Code have been adopted in the SRMC, including requirements for properties in the wildland-urban interface, vegetation clearance standards, prohibitions on parking on private access ways, requirements for visible address numbers on all buildings, and requirements for hydrant upgrades. The SRFD typically calculates required fire flow in accordance with Uniform Fire Code and Insurance Services Office guidelines. Peak-load requirements vary based on building construction, size, type and location, and may be modified by the addition of fire alarm or sprinkler systems.

Essential Public Safety Facilities Strategic Plan

The *San Rafael Essential Public Safety Facilities Strategic Plan* (EPSFSP), adopted by the City Council in July 2015, provides guidance on future replacement, or the seismic upgrading, of the City's essential facilities, including fire stations, to ensure that the essential facilities within the city are capable of serving the citizens in the event of an emergency. The EPSFSP includes suggested improvements, estimates of costs, design and construction schedules, and identifies a range of funds for the implementation of the EPSFSP. The EPSFSP outlines several major projects recommended for either replacement or renovation, which have largely been completed or are under construction. The EPSFSP is a tool in prioritizing and informing the capital development decisions funded through the Measure E sales tax initiative. New and upgraded facilities as a result of the EPSFSP are described in Section 4.15.1.2, Existing Conditions.

PUBLIC SERVICES AND RECREATION

4.15.1.2 EXISTING CONDITIONS

The analysis in this section is based on the *Community Services Background Report: San Rafael General Plan 2040* prepared by the San Rafael Community Development Department in February 2020.

Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and Deputy Fire Chief Robert Sinnott.

Service

Fire services in the EIR Study Area are provided jointly by the SRFD, MCFD, and CAL FIRE. The SRFD provides fire protection within the city limits, as well as primary fire protection to the unincorporated neighborhoods of Country Club, Bayside Acres, Los Ranchitos, the small area adjacent to the Mount Tamalpais Cemetery in Sun Valley, California Park, and Santa Venetia. SRFD additionally serves as the primary fire department for the Marinwood Community Services District, in addition to providing paramedic services to unincorporated areas within the EIR Study Area via a joint powers agreement with the County of Marin. Fire departments across Marin County have joint powers agreements and standard mutual aid agreements with one another to increase aid during fire emergencies across the county. San Rafael Fire provides initial fire attack and medical rescue service for China Camp State Park, which is in the eastern portion of the EIR Study Area. MCFD responds to major incidents in the State Park and takes control upon response.¹

Refer to Chapter 4.18, *Wildfire*, of this Draft EIR for detailed information on fire hazard severity zones, the wildland-urban interface, and wildfire prevention within the EIR Study Area.

Staffing and Responsibility

Preventing and extinguishing structural fires, protecting life and property safety, and reducing fire losses is an essential part of SRFD's mission. The SRFD employs a total of 69 uniformed emergency personnel, in addition to one fire chief, two administrative staff, one emergency manager, one household hazardous waste coordinator, and four part-time inspectors. The SRFD includes a Fire Prevention Bureau that issues fire permits for construction, operations, and inspections, as well as manages the City's Vegetation Management Program, which was designed in cooperation with local businesses and homeowners to ensure vegetation is adequately cleared to reduce fire risks throughout the EIR Study Area. The SRFD Fire Marshal works closely with the City's Code Enforcement Officer and inspectors to ensure all structures meet California Fire Code standards. The SRFD also provides fire response and rescue services for both urban and wildland fires within the county.

Water Supply

The City's development review process requires consultation with the Marin Municipal Water District (MMWD) to ensure adequate water supply necessary for a fire emergency. The City maintains local hydrants while the MMWD is responsible for fire flow. SRFD typically calculates required fire flow in accordance with Uniform Fire Code and Insurance Services Office guidelines. Peak load requirements vary

¹ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

based on building construction, size, type, and location, and may be modified by the addition of fire alarm or sprinkler systems. Fire flow requirements are met in most of the EIR Study Area; deficient areas are identified by the MMWD Engineering Department, ranked along with others in the service area, and scheduled for upgrade based on need and funding availability.²

Hazardous Materials Services

As described in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, San Rafael's hazardous materials programs are administered and enforced under the Unified Program. The California Environmental Protection Agency has granted San Rafael's hazardous materials responsibilities to the Marin County Department of Public Works Waste Management Division, which includes implementation and enforcement of hazardous material regulations under the Unified Program as a Certified Unified Program Agency.

The SRFD holds responsibility for monitoring the storage and use of hazardous materials, including inspections of businesses. SRFD issues permits for hazardous materials use and requires a written Hazardous Materials Management Plan as part of each development permitting process. Each Hazardous Materials Management Plan must demonstrate the safe storage and handling of hazardous materials during both construction and operation of a development project.

The Marin Household Hazardous Waste Facility (MHHWF), located at 565 Jacoby Street in San Rafael, provides a hazardous material drop-off location for all residents that reside in, and all businesses located in, Marin County. The MHHWF is jointly operated by the SRFD and Zero Waste Marin. Through this partnership, San Rafael and Zero Waste Marin manage the MHHWF program for every city in the county except Novato.

Paramedic Services

In San Rafael, every SRFD firefighter is a certified Emergency Medical Technician. The number has increased over time, in response to population growth and increased demand and at this time there is no deficiency in paramedic services. Currently, 62 of the 69 uniformed SRFD uniformed firefighting staff are Paramedic certified and the remaining seven are certified Emergency Medical Technicians. Each ambulance has two paramedics, and each engine or ladder truck has at least one paramedic on duty at all times. Thus, on each medical call at least three paramedics are on scene (an engine or ladder plus an ambulance).³

Emergency Preparedness

The City's Emergency Services Coordinator is responsible for managing the City's *Local Hazard Mitigation Plan* (LHMP) and enforcing the Marin County *Emergency Operations Plan* (EOP), described in further detail in Chapter 4.9, Hazards and Hazardous Materials, and in Chapter 4.18, Wildfire, of this Draft EIR. While the LHMP is administered at the local level, the EOP was developed and is administered at a

² Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

³ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

countywide level by the Marin County Office of Emergency Services, with the City's Emergency Services Coordinator serving as the local point of contact.

Call Volume

During calendar year 2019, the SRFD responded to 27 residential structure fires and 27 non-residential structure fires. The SRFD also responded to 22 vehicle fires, 16 outdoor property fires, 16 wildland fires, and 28 dumpster/rubbish fires. In the EIR Study Area, there were a total of 10,980 calls for service, including 7,048 for rescue, emergency medical services (EMS), ambulances, and similar services. There were also 664 false alarms, 39 mutual-aid responses, 185 hazardous response incidents, and 2,885 other miscellaneous incidents (e.g., animal rescue, smoke).

The national Insurance Services Office (ISO) provides a rating system to evaluate fire protection services in over 39,000 fire protection areas in the United States. The ratings are used in the insurance industry to calculate premiums for homes and business properties. The ratings range from 1 to 10, and the SRFD is rated Class 1, representing superior fire protection.⁴ The SRFD currently conforms to the response time goal to be on scene within 5 to 7 minutes following a call for service, 90 percent of the time, established by the National Fire Protection Association Standard 1710.⁵ New equipment and vehicles are periodically acquired to meet these standards, replace aging equipment, and obtain new technology.

Equipment and Facilities

As shown on Figure 4.15-1 and listed in Table 4.15-1, San Rafael has six existing fire stations, many of which have undergone major rehabilitation or have been fully replaced in recent years due to aging buildings and insufficient space. This work has been carried out under the EPSFSP. By 2020, the City had completed construction on three of the six SRFD projects outlined in the EPSFSP, including rebuilding of the Station 52 training center just outside the eastern boundary of the Downtown Precise Plan Area; completion of the new Station 57 adjacent to the Marin County Civic Center; and completion of Station 51, the City's Public Safety Center located in the Downtown Precise Plan Area. Station 54 located in the Canal Neighborhood and Station 55 located on the eastern portion of the city limits along Point San Pedro Road are scheduled for seismic and operational upgrades. Station 56 located in the Terra Linda neighborhood in northern San Rafael was constructed in 1996 and requires minor seismic, accessibility, and operational improvements, which are planned as part of the EPSFSP if funds remain after the completion of the Station 54 and Station 55 enhancements.

⁴ <https://www.isomitigation.com/ppc/program-works/>, assessed on 10/29/2020.

⁵ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

TABLE 4.15-1 FIRE STATIONS IN SAN RAFAEL

Station Number	Address	Year Constructed or Renovated
Station 51 (Public Safety Center)	1375 Fifth Avenue	2020
Station 52 (Training Center)	52 Union Street	2019
Station 54	46 Castro Avenue	1964
Station 55	955 Point San Pedro Road	1966
Station 56	650 Del Ganado Road	1996
Station 57	3530 Civic Center Drive	2019

Note: The City of San Rafael also staffs the Marinwood Fire Station (Station 58) at 777 Miller Creek Road
Source: City of San Rafael Fire Department, 2020, <https://www.cityofsanrafael.org/fire-stations/>.

The SRFD administrative facilities are located within the Marin County office building, located at 1600 Los Gamos Drive in San Rafael. The building also houses the County Fire and Sheriff’s offices, including the Regional Dispatch Center, which includes the SRFD.

Budget

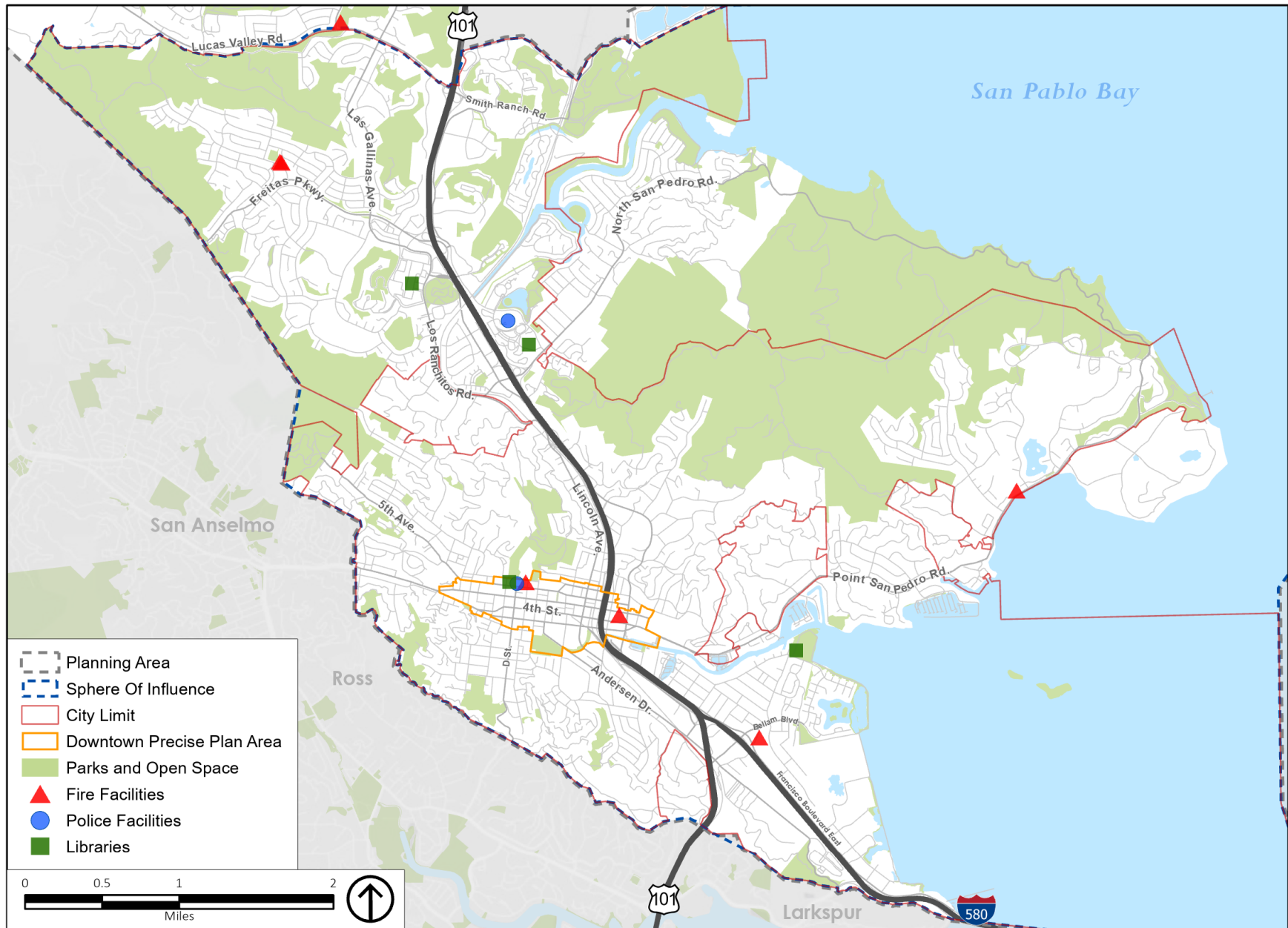
The San Rafael Municipal General Fund supports essential City services, including fire protection and hazardous materials management. In fiscal year 2019 to 2020, fire services accounted for roughly 24 percent of the City’s Municipal General Fund expenditures, which included funding for employee salaries, purchasing of fire suppression equipment, and various other basic funding needs.⁶ The City does not collect development impact fees for public safety facilities but does require developer improvements such as road widening and hydrants.

An annual \$75.00 fire-flow parcel tax was approved by voters in 1996 to raise funds to improve fire flow and ensure the integrity of the water transmission system. In 2012, this fee was extended through 2031, allowing for the replacement of inadequate pipes as well as seismic improvements.

The City established the Essential Facilities Capital Projects Fund under Measure E, which was passed by voters in San Rafael in November 2013, to fund and implement the EPSFSP. This accounts for all major capital improvements to public safety facilities. The approval of Measure E in November 2013 extended an existing 0.5 percent transactions and use tax and added 0.25 percent sales tax for an additional 20 years. The new tax went into effect in April 2014. In anticipation of the additional revenue, the City Council directed staff in February 2014 to set aside the revenues from the added 0.25 percent tax to begin addressing the City’s aging essential facilities, including critical improvements to public safety. Measure E revenues have raised approximately \$3.7 million per fiscal year, which has been the source of funding for each essential facility upgrade since Measure E passed in 2013.

⁶ City of San Rafael, 2019, Comprehensive Annual Financial Report for the Fiscal Year Ending June 30, 2019, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/11/2019-Comprehensive-Financial-Audit-Report.pdf>, accessed on March 25, 2020.

PUBLIC SERVICES AND RECREATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.15-1
Public Services and Facilities Locations

PUBLIC SERVICES AND RECREATION

4.15.1.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project would have a significant impact related to fire protection services if it would:

1. Result in substantial adverse physical impacts associated with the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.
2. Result in significant cumulative impacts with respect to fire protection services.

4.15.1.4 IMPACT DISCUSSION

PS-1	Implementation of the proposed project could result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.
-------------	--

General Plan 2040

Potential future development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. Such locations are currently served by the SRFD and potential future development or redevelopment in the EIR Study Area is not anticipated to expand SRFD's service area, which could increase response times or disrupt other performance objectives.

Buildout of the proposed General Plan 2040 is projected to occur over a 20-year horizon. An increase in demand for fire protection services would be incremental and is in line with anticipated population growth, which would also occur without adoption of the proposed General Plan 2040. All potential future development would be accommodated as needed by the SRFD, MCFD, and CAL FIRE, with response from other city and county jurisdictions under joint powers agreements, as needed. Because potential future development would occur in existing urban areas serviced by the SRFD, and because implementation of the proposed General Plan 2040 would occur over time and not all at once, the SRFD is expected to be able to maintain a Class 1 ISO rating despite the anticipated growth.

As described in Section 4.15.1.2, Existing Conditions, the City of San Rafael has been actively renovating existing and/or constructing new SRFD facilities, as outlined in the adopted EPSFSP. The EPSFSP identified deficiencies in public service facilities in the EIR Study Area and created a blueprint for the upgrading of those facilities to meet increased demand as the population increases. At the time this Draft EIR was drafted, three of the six facility upgrades identified in the EPSFSP had been completed, including the renovation of the Station 52 training center, the construction of the new Station 57, and the construction of the Station 51 Public Safety Center. The remaining three facilities included in the EPSFSP are existing

PUBLIC SERVICES AND RECREATION

facilities that are identified as requiring seismic safety and other renovations, which will increase the service life of the buildings. If applicable, renovation activities as part of these projects would undergo review under CEQA prior to construction. Further, no construction of additional facilities is proposed as part of the General Plan 2040. Therefore, the existing fire facilities in the EIR Study Area, including the planned renovations of existing facilities, are adequate to meet the needs of the growing population and implementation of the proposed General Plan 2040 would not result in the need for new or physically altered fire protection facilities.

According to the SRFD, existing equipment and staffing levels would be adequate to accommodate growth anticipated under the proposed General Plan 2040 aside from the need for additional ambulance vehicles to meet an increase in emergency medical services demand. This is based on call trends that continue to show an increase in medical calls compared to others. Additionally, the Department continues to research an expansion of the ambulance program to include both advanced life support (ALS) paramedic ambulances and basic life support (BLS) ambulances staffed with emergency medical technicians (EMT's). This would increase the availability of the ALS ambulances for more critical emergencies. Procurement of additional ambulance vehicles and other vehicles and equipment would occur as needed through the City's annual budgeting process, which financially supports the procurement of needed equipment.⁷

The proposed Community Services and Infrastructure (CSI) Element contains goals, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on public service facilities. The following goals, policies, and programs would serve to reduce impacts to public service facilities and services in the EIR Study Area:

Goal CSI-3: Exceptional Public Safety Services. Provide and maintain exceptional fire, public safety, and paramedic services.

- **Policy CSI-3.1: Investment in Public Safety Services.** Maintain cost-effective police, fire protection, and paramedic facilities, equipment, and services. Manage increases in costs through effective preventative measures, such as fire prevention and community policing.
 - **Program CSI-3.1B: Capital Facilities.** Complete improvements to essential public safety facilities made possible by voter-approved measures. Conduct periodic evaluations of facility and technology needs in the future to ensure that the Police and Fire Departments are equipped to respond to emergencies and deliver quality services.
 - **Program CSI-3.1D: Vehicle and Equipment Maintenance.** Maintain and upgrade vehicles and equipment as necessary.
- **Policy CSI-3.2: Mitigating Development Impacts.** Engage the Police and Fire Departments in the review of proposed development and building applications to ensure that public safety, fire prevention, and emergency access and response needs are considered and effectively addressed.
 - **Program CSI-3.2B: Emergency Response Time.** Use the development review process to identify appropriate measures to reduce fire hazards and ensure adequate emergency response capacity.

⁷ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

- **Policy CSI-3.6: Mutual Aid.** Maintain mutual aid agreements for police and fire service with other jurisdictions and community service districts to ensure that the capacity exists to adequately respond to local emergencies.

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.1: Capital Investment.** Provide for ongoing, preventative maintenance of infrastructure and timely replacement, repair, and upgrading of City equipment.
 - **Program CSI-4.1A: Capital Improvement Programming.** Maintain and regularly update a multi-year Capital Improvement Plan (CIP) covering City owned and operated infrastructure and public facilities. Seek the input of other local service providers (MMWD, LGVSD, etc.) when preparing the City's CIP and encourage these agencies to seek City input as they prepare their own CIPs.

Additionally, potential future development that may occur due to implementation of the proposed General Plan 2040 would be required to comply with Title 24 of the CCR and the City's Fire Code per SRMC Title 4, Fire Code. Compliance with the State's Title 24 and the City's Title 4 would ensure any new development proposed in the EIR Study Area meets the most current building and fire codes, thereby increasing safety of the buildings, and reducing the likelihood of a fire emergency, subsequently reducing demand on SRFD fire services.

The addition of the City's Public Safety Center and the recent reconstruction of Station 52 and the construction of the new Station 57, as well as the planned rehabilitation of Station 54 and Station 55, ensure that SRFD facilities are adequate to serve the anticipated buildout of the proposed General Plan 2040. Further, required compliance with State and local regulations for fire protection services, compliance with goals, policies, and programs, and the required fire department staff review of proposed development plans, would reduce any adverse impacts that potential future development could have on SRFD facilities. Additionally, SRFD has confirmed that facilities, staff, and equipment would be adequate to accommodate anticipated future growth. Additional ambulance coverage or a modification to the existing ambulance deployment program would continue to be researched by the SRFD, but no additional fire stations are planned at this time.⁸

In summary, because no new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives are required, impacts to the SRFD from the adoption and implementation of the proposed General Plan 2040, impacts are *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Like potential future development in the remainder of the city, potential future development in the Downtown Precise Plan Area would occur on a limited number of vacant parcels and in the form of

⁸ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. The newly completed Public Safety Center Station 51, which includes fire facilities, is located in the northern portion of the Downtown Precise Plan Area, and would provide immediate response to calls from the Downtown Precise Plan Area. The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to fire protection services. The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to fire protection services; therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, implementation of the Downtown Precise Plan would also be *less than significant*.

Significance without Mitigation: Less than significant.

PS-2	Implementation of the proposed project could result in a cumulatively considerable impact to fire protection services.
-------------	---

As described in Section 4.15.1.2, Existing Conditions, the SRFD and other fire departments in Marin County provide services to each other as needed through joint powers agreements, automatic aid agreements, and mutual aid agreements.⁹ As described in Impact Discussion PS-1, the SRFD, MCFD, and CAL FIRE, along with other county jurisdictions under the joint powers agreement, would be able to adequately serve future growth under the proposed project by existing and proposed staff, equipment, and facilities. In the event that the SRFD requires new equipment or staffing, the funds for such improvements would be provided through the annual budget process and would rely on the General Fund and other funding opportunities, such as State and federal grants.¹⁰ As described in Impact Discussion PS-1, implementation of the proposed project would not create a need for new or physically altered facilities for the SRFD to provide fire protection services in the EIR Study Area. Compliance with State and local regulations, such as the proposed General Plan 2040 goals, policies, and programs listed in Impact Discussion PS-1, would ensure that fire protection services continue to adequately serve the EIR Study Area. Additionally, potential future development that may occur within and adjacent to the EIR Study Area would occur incrementally over the General Plan's 20-year buildout horizon, and therefore is not anticipated to substantially increase the population, thereby reducing the ability for fire districts and departments within the county to adequately serve residents. Further, because the proposed project is program level, and because potential future development would be required to undergo project review at the time of project application, each potential future development would be assessed for impacts to fire protection services. Therefore, the proposed project would not result in a cumulatively considerable impact to fire protection services and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

⁹ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

¹⁰ Robert Sinnott, the Deputy Fire Chief of the San Rafael Fire Department (SRFD), November 2020.

PUBLIC SERVICES AND RECREATION

4.15.2 POLICE SERVICES

4.15.2.1 ENVIRONMENTAL SETTING

This section describes regulations, resources, facilities, equipment, response times, and budget for police protection services. Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and Police Captain Glen McElderry, Chief Diana Bishop, Support Services Supervisor Charles Taylor, and Police Captain Dave Starnes, on January 30, 2020.

Regulatory Framework

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to police protection are primarily in the Safety and Resilience Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of updated goals, policies, and programs is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact in Section 4.15.2.4, Impact Discussion.

4.15.2.2 EXISTING CONDITIONS

The analysis in this section is based on the *Community Services Background Report: San Rafael General Plan 2040* prepared by the San Rafael Community Development Department in February 2020. Information was provided through a meeting and correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and San Rafael Police Department personnel, including Police Chief Diana Bishop, Captain Dave Starnes, Police Support Services Supervisor Charles Taylor, and Administrative Services Captain Glenn McElderry.

Service

Law enforcement services in the EIR Study Area are provided by the San Rafael Police Department (SRPD), the Marin County Sheriff's Office, and the California Highway Patrol. The SRPD has primary responsibility for areas within the City limits. The Marin County Sheriff's Office provides services to unincorporated neighborhoods within the EIR Study Area and the California Highway Patrol provides traffic enforcement in the unincorporated areas and on State and local freeways, including U.S. Highway 101 (US-101) and Interstate 580 (I-580) in the EIR Study Area. Mutual-aid agreements between these agencies allow for joint responses to major incidents.

PUBLIC SERVICES AND RECREATION

Staffing

The national staffing average for cities with populations comparable to San Rafael is 16.1 sworn personnel per 10,000 residents and 20.7 total personnel per 10,000 residents.¹¹ SRPD has a total of 66 full-time sworn officers and 25 full-time non-sworn personnel, for a total staff of 91 persons.¹² This equates to 11.0 sworn officers per 10,000 residents¹³ and 15.2 total personnel per 10,000 residents,¹⁴ which is below the national staffing average for cities with populations of comparable size.

Department Organization

The SRPD is organized into two divisions, the Operations Division and Administrative Services Division. The Operations Division includes patrols, park rangers, downtown foot beats, and traffic enforcement. The Administrative Services Division includes records, dispatch personnel, training, crime prevention, community engagement, and detective units. Some police services are provided with field patrols on a geographic (or “beat”) basis and other functions are organized on a citywide basis. Citywide services include crime prevention, investigations, community engagement, and traffic patrols.

Operations Division

The SRPD Operations Division provides uniformed police services 24 hours a day, including four patrol teams led by a single sergeant and supervised by two lieutenants, consisting of eight officers each. Two canine units and their partners are included on the teams. The patrols primarily engage in emergency response, crime suppression, traffic enforcement, and preliminary criminal investigation. A Special Operations Unit handles the Downtown Precise Plan Area, open space and marine areas, and street crimes. This unit includes the Downtown Footbeat team, the Ranger/Marine Program, the Street Crimes Unit, and Traffic Enforcement.

Administration Division

The SRPD Administration Division is responsible for recruitment, employment testing, background investigations, volunteers, the chaplain program, internal investigations, workers compensation claims, facility management, cost recovery, and crime analysis. Specific functions performed by the Administration Division include the Training Unit, the Criminal Investigations Unit, the Records Unit, the Dispatch Unit, the Property and Evidence Unit, and the Community Engagement Unit.

Call Volume

In 2019, SRPD received 21,735 calls to 9-1-1 and 76,874 administrative calls. This equates to an average of 1,035 calls to 9-1-1 a month or about 60 per day. In total, the SRPD receives between 800 and 1,000 calls a month. The SRPD received a total of 38,877 calls for service in 2019, which was a 0.2 percent decrease

¹¹ Governing, 2020, Police Employment, Officers Per Capita Rates for U.S. Cities, <https://www.governing.com/gov-data/safety-justice/police-officers-per-capita-rates-employment-for-city-departments.html>, accessed October 30, 2020.

¹² Diana Bishop, the Police Chief of the San Rafael Police Department (SRPD), November 2020.

¹³ 59,800 current residents/10,000 = 5.98; 66 full-time sworn officers/5.98 = 11 full-time sworn officers to 10,000 residents.

¹⁴ 59,800 current residents/10,000 = 5.98; 91 total staff/5.98= 15.21 total staff to 10,000 residents.

PUBLIC SERVICES AND RECREATION

from 2018. As described in Section 4.15.1.2, Existing Conditions, for the Fire Protection Services, emergency calls are also responded to by the SRFD.

Equipment and Facilities

The SRPD headquarters is located at the newly completed Public Safety Center in the Downtown Precise Plan Area and the SRPD has two small field offices located in northern San Rafael and at the Albert Boro Community Center. The Public Safety Center is located across the street from the San Rafael City Hall and incorporates facility upgrades, including a temporary holding facility designed to separate detainees from civilian staff and expanded storage, evidence, crime lab, classroom, dispatch, and communication facilities. While the new Public Safety Center has been designed to meet the long-term needs of the SRPD, there is an ongoing need for training, new equipment and technology (including drones and automated license plate reader cameras), and resources to support crime prevention, response capacity, and investigations.¹⁵

Budget

The SRPD is funded by the City's Municipal General Fund, which supports essential City services such as police and fire protection, building and street maintenance, libraries, recreation, and parks and open space maintenance. Additional expenses are paid for by the Public Safety Fund, which is established for special police services and intended to be self-funding.¹⁶ SRPD facilities, such as the new Public Safety Center project, are funded by Measure E funds, a 20-year sales tax extension, and increase approved by San Rafael voters in 2013.

4.15.2.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to police protection services if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection services.
2. Result in significant cumulative impacts with respect to police protection services.

¹⁵ Glen McElderry, the Police Captain of the San Rafael Police Department (SRPD), November 2020.

¹⁶ City of San Rafael, 2019, Comprehensive Annual Financial Report for the Fiscal Year Ending June 30, 2019, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/11/2019-Comprehensive-Financial-Audit-Report.pdf>, accessed on March 25, 2020.

PUBLIC SERVICES AND RECREATION

4.15.2.4 IMPACT DISCUSSION

PS-3	Implementation of the proposed project could result in the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.
-------------	---

General Plan 2040

Potential future development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. Such locations are currently served by the SRPD and potential future development or redevelopment in the EIR Study Area is not anticipated to expand SRPD's service area, which could increase response times or disrupt other performance objectives.

As described in Section 4.15.2.2, Existing Conditions, the new Public Safety Center was constructed to house several essential City facilities and includes a new police headquarters to replace the prior headquarters on the first floor of City Hall, which was inadequate to meet the needs of the SRPD. The Public Safety Center provides a facility that is adequate for both current and future needs of the SRPD. While, as discussed in Section 4.15.2.2, Existing Conditions, there is an ongoing need for training; new equipment and technology; and resources to support crime prevention, response capacity, and investigations, the current facilities are adequate to maintain acceptable service ratios, response times, or other performance objectives.

Buildout of the proposed General Plan 2040 is projected to occur over a 20-year horizon. While an increase in demand for police protection services would be gradual and is in line with incremental population growth, which would occur with or without adoption of the proposed General Plan 2040, the SRPD identified that their staffing level has substantially decreased since 2008–2009,¹⁷ and an increase in population would result in a need for increased staffing.¹⁸ As previously described, the SRPD staffing ratios for sworn officers to 10,000 residents and total staff to 10,000 residents is below the national staffing average (national average: 16.1 sworn personnel per 10,000 residents and 20.7 total personnel per 10,000 residents, compared to SRPD: 11 sworn officers per 10,000 residents¹⁹ and 15.2 total personnel per 10,000 residents).²⁰

As previously described, the SRPD is funded by the City's Municipal Fund and the Public Safety Fund, which potential future development would support through the payment of taxes and development fees, amongst other fees. Future development in San Rafael would be required to pay taxes and development

¹⁷ Diana Bishop, the Police Chief of the San Rafael Police Department (SRPD), November 2020.

¹⁸ Glen McElderry, the Police Captain of the San Rafael Police Department (SRPD), November 2020.

¹⁹ $75,751 \text{ current residents} / 10,000 = 7.5751$; $66 \text{ full-time sworn officers} / 7.5751 = 8.7 \text{ full-time sworn officers to } 10,000 \text{ residents}$.

²⁰ $75,751 \text{ current residents} / 10,000 = 7.5751$; $91 \text{ total staff} / 7.5751 = 12 \text{ total staff to } 10,000 \text{ residents}$.

PUBLIC SERVICES AND RECREATION

fees, amongst other fees, that would contribute to the Municipal Fund and Public Safety Fund to support the SRPD. Like the SRFD, procurement of additional police equipment would occur as needed through the City's annual budgeting process, which financially supports the procurement of needed equipment.

The proposed Community Services and Infrastructure (CSI) Element contains goals, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on public service facilities. In addition to the goals, policies, and programs listed in Impact Discussion PS-1, the following policy and programs would serve to reduce impacts specific to SRPD facilities and services in the EIR Study Area:

Goal CSI-3: Exceptional Public Safety Services. Provide and maintain exceptional fire, public safety, and paramedic services.

- **Policy CSI-3.1: Investment in Public Safety Services.** Maintain cost-effective police, fire protection, and paramedic facilities, equipment, and services. Manage increases in costs through effective preventative measures, such as fire prevention and community policing.
 - **Program CSI-3.1A: Police Department Strategic Plan.** Develop a Strategic Plan for police services to evaluate trends, establish goals, prioritize future actions, determine budget needs, and align services with other City departments. The Plan should include a proactive response to issues related to social justice and compassionate law enforcement. Engage the community, including local businesses, in this process.
 - **Program CSI-3.2A: Crime Prevention through Environmental Design.** Design new public and private development to achieve “eyes on the street,” including site planning, lighting, landscaping, and architectural design features that reduce the potential for crime.
- **Policy CSI-3.4: Quality of Life Programming.** Maintain programs to proactively address quality of life issues, such as peace disturbances, loitering, littering, and vandalism. Focus on personal contact with residents and businesses and build positive relationships with all segments of the community.

Consequently, compliance with local regulations, coupled with increased revenue to be generated by new development for investment in police staff and equipment, would enable continuation of current operating procedures. Because no new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives are required, impacts to the SRPD from the adoption and implementation of the proposed General Plan 2040, impacts are *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Like potential future development in the remainder of the city, potential future development in the Downtown Precise Plan Area would occur on a limited number of vacant parcels and in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing residential and residential-serving development. The SRPD provides police protection services in the entirety of the Downtown Precise Plan Area. The newly completed Public Safety Center is in the northern portion of the Downtown Precise Plan Area and houses the SRPD headquarters. The proposed

PUBLIC SERVICES AND RECREATION

Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to police protection services. All potential future development would be required to comply with the proposed General Plan 2040 goals, policies, and programs listed above and would be required to comply with the same State and local regulations listed in Section 4.15.2.2. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PS-4 Implementation of the proposed project could result in a cumulatively considerable impact to police services.

The geographic context for cumulative police service impacts would occur from potential future development within the EIR Study Area and adjoining jurisdictions. The 2040 General Plan does not include specific development projects, as it serves as a guide for future development in the City. Future development projects are currently and will continue to be assessed for impacts to police protection services.

It is unlikely that approval of the General Plan and certification of the EIR would immediately increase the degree or incidence of need for police protection services because anticipated growth under the proposed project is projected to occur incrementally throughout the 20-year buildout horizon. Additionally, compliance with the proposed General Plan 2040 goals, policies, and programs listed under Impact Discussion PS-3 would reduce the impact that potential future development could have on SRPD, the Marin County Sheriff Department, and the California Highway Patrol. Additionally, development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing residential and residential-serving development and which are covered by existing police services. Therefore, the proposed project would not result in a cumulatively considerable impact to police protection services and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

4.15.3 SCHOOLS

4.15.3.1 ENVIRONMENTAL SETTING

Regulatory Framework

State Regulations

California Government Code, Section 65995(b), and Education Code Section 17620

Senate Bill (SB) 50 amended California Government Code Section 65995, which contains limitations on Education Code Section 17620, the statute that authorizes school districts to assess development fees

PUBLIC SERVICES AND RECREATION

within school district boundaries. Government Code Section 65995(b)(3) requires the maximum square footage assessment for development to be increased every two years, according to inflation adjustments. According to California Government Code Section 65995(3)(h), the payment of statutory fees is “deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization...on the provision of adequate school facilities.” The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Senate Bill 50

SB 50 (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The current maximum allowable fee is \$3.79 per square foot for residential development and \$0.61 per square foot for commercial and industrial development. In setting the fees, school districts must prepare nexus studies to demonstrate a reasonable connection between new development and the need for school improvements. The fees may only be used to finance the construction or modernization of school facilities. The fee application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

Mitigation Fee Act (California Government Code 66000-66008)

Assembly Bill (AB) 1600, the Mitigation Fee Act, requires a local agency establishing, increasing, or imposing an impact fee as a condition of development to identify the purpose of the fee and the use to which the fee is to be put.²¹ The agency must also demonstrate a reasonable relationship between the fee and the purpose for which it is charged, and between the fee and the type of development project on which it is to be levied. This act became enforceable on January 1, 1989.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to schools are primarily in the Land Use, Neighborhoods, Parks and Recreation, Economic Vitality, and Governance Elements. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of updated goals, policies, and programs is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their

²¹ California Legislative Information, California Law, Code Section Group, Government Code Sections 66000-66008, https://leginfo.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=5.&article= accessed on April 8, 2020.

PUBLIC SERVICES AND RECREATION

effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.15.3.4, Impact Discussion.

4.15.3.2 EXISTING CONDITIONS

The analysis in this section is based on the *Community Services Background Report: San Rafael General Plan 2040*, prepared by the San Rafael Community Development Department in February 2020.

Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and school district representatives, including Daniel Zaich, Senior Director of Capital Facilities at San Rafael City Schools, and Becky Rosales, Superintendent at Miller Creek School District (MCSD).

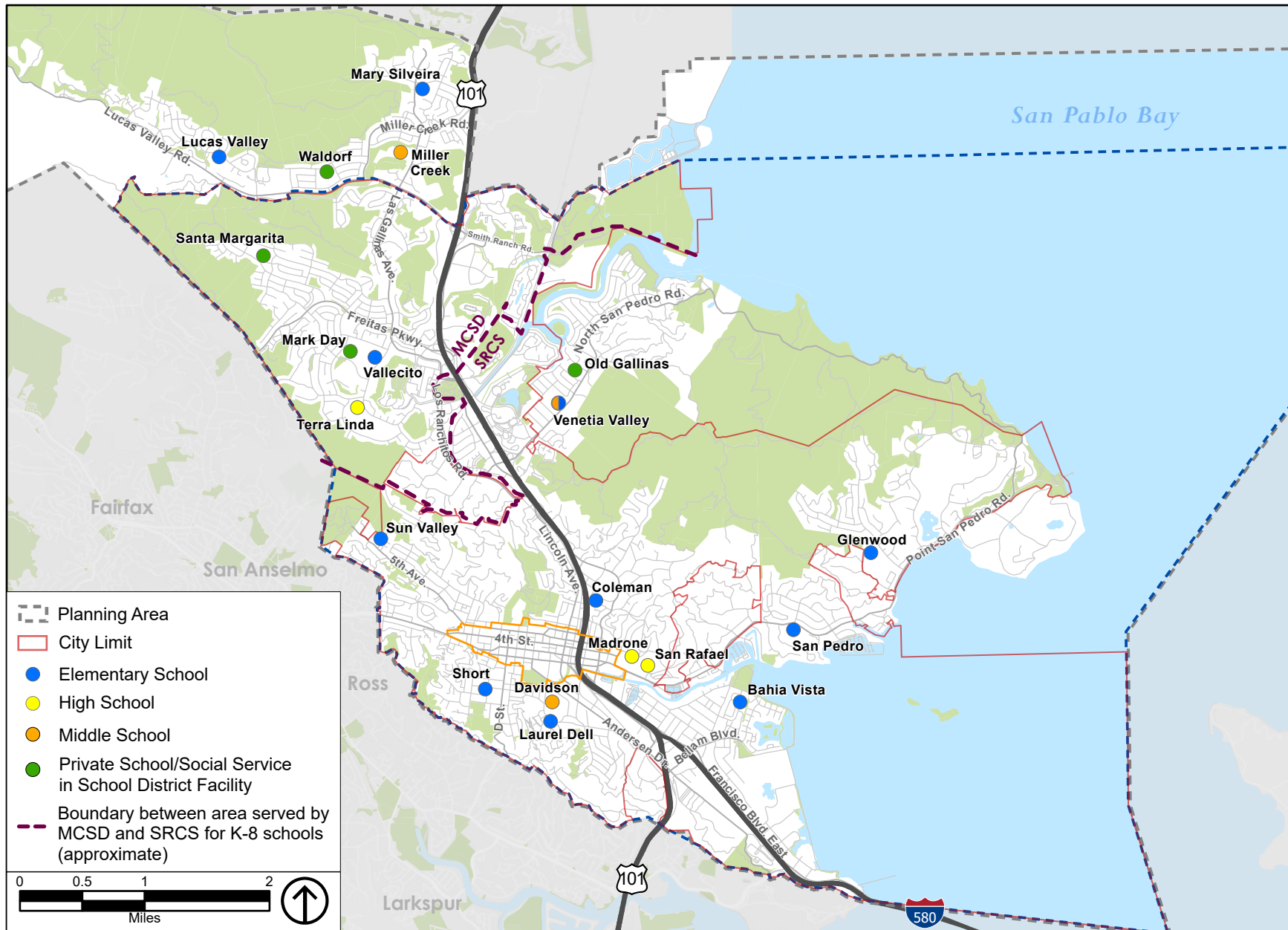
Overview

The EIR Study Area is served the San Rafael City Elementary School District, the San Rafael City High School District, and the MCSD, shown on Figure 4.15-2. The Downtown Precise Plan Area is served by the San Rafael City Schools (SRCS) districts. Under the San Rafael City Charter, SRCS includes a separate elementary school district and high school district, which accounts for two of the three school districts in the EIR Study Area. The SRCS elementary school district covers the southern portion of the EIR Study Area, while the SRCS high school district covers the entire EIR Study Area. Both districts also encompass portions of unincorporated Marin County.²² Both the SRCS elementary and high school districts are governed by the same five-member Board of Trustees. The MCSD serves elementary and middle school students in the northern part of the EIR Study Area, including the unincorporated neighborhoods of Los Ranchitos, Lucas Valley, and Marinwood. Students graduating from MCSD middle schools populate high schools operated by SRCS.

The names, locations, and grades of each school in the three school districts are shown in Table 4.15-2. The 11 kindergarten through eighth-grade properties within the SRCS district include a cumulative total of 462,892 square feet of building space on about 75 acres of land. SRCS additionally owns two closed school campuses. One of the two closed campuses has been repurposed as a children's center and the other remains unoccupied. The three high schools operated by SRCS include a total of 487,783 square feet of building space on about 60 acres of land. Two of the high schools, San Rafael High School and Madrone Continuation School, share a campus to the east of the Downtown Precise Plan Area boundary. The SRCS corporation yard and maintenance building are also located on this campus. Terra Linda High School in northern San Rafael also houses the SRCS administrative offices. The MCSD office is in northern San Rafael, on a former elementary school site. Total enrollment for the 2018 to 2019 school year was 4,614 students for the SRCS elementary and middle schools, 2,640 students for the SRCS high schools, and 1,982 students for the MCSD elementary and middle schools. The total number of kindergarten level through twelfth-grade public school students in the EIR Study Area for the 2018 to 2019 school year was 9,236 students. These figures exclude students attending private schools.

²² The SRCS Elementary School District also serves unincorporated neighborhoods, including Santa Venetia, Country Club, and Bayside Acres. It also serves San Quentin Village and a small portion of Larkspur. The High School District serves these areas and also serves Terra Linda, Marinwood, and other parts of northern San Rafael.

PUBLIC SERVICES AND RECREATION



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.15-2
 School District Boundaries and Locations of Schools

PUBLIC SERVICES AND RECREATION

TABLE 4.15-2 SAN RAFAEL SCHOOL DISTRICTS AND SCHOOLS

School Name	Location	Grade
<i>San Rafael City Schools</i>		
Bahia Vista Elementary School	125 Bahia Vista Way	K-5
Coleman Elementary School	800 Belle Avenue	K-5
Glenwood Elementary School	25 W Castlewood Drive	K-5
Laurel Dell Elementary School	225 Woodland Avenue	K-5
San Pedro Elementary School	498 Point San Pedro Road	K-5
Short Elementary School	35 Marin Street	K-5
Sun Valley Elementary School	75 Happy Lane	K-5
Davidson Middle School	280 Woodland Avenue	6-8
Venetia Valley School	177 N San Pedro Road	K-8
San Rafael High School	153 3 rd Street	9-12
Madrone Continuation School	185 Mission Avenue	9-12
Terra Linda High School	320 Nova Albion Way	9-12
<i>Miller Creek School District</i>		
Vallecito Elementary School	50 Nova Albion Way	K-5
Mary Silveira Elementary School	375 Blackstone Drive	K-5
Lucas Valley Elementary School	1175 Idylberry Road	K-5
Miller Creek Middle School	2255 Las Gallinas Avenue	6-8
Waldorf School ^a	755 Idylberry Road	K-8
Mark Day School ^a	39 Trellis Drive	K-8
Santa Margarita School ^b	1055 Las Ovejas Avenue	K-8
<i>Privately Owned Schools (partial list)</i>		
Montessori Terra Linda School	610 Del Ganado Road	K-6
Saint Isabella School	1 Trinity Way	K-8
Saint Raphael School	1100 Fifth Street	K-8
Gate Academy	1 St. Vincents Drive	K-8
Marin Montessori Junior High	1 St. Vincents Drive	6-8
Marin Academy	1600 Mission Avenue	9-12
Brandeis Marin	180 North San Pedro Road	K-8

Notes:

a. This school is owned by the Miller Creek School District but is operated privately.

b. This school is a Children’s Center owned by Miller Creek School District but is operated privately.

Source: City of San Rafael, 2020.

Enrollment Trends

Table 4.15-3 shows enrollment trends at SRCS elementary and high schools, and at MCSD schools between 2014 and 2019, which indicates enrollment has been stable at the elementary and middle school level and has gradually increased at the high school level. The number of students in the SRCS and MCSD elementary schools declined by less than one percent over the five-year period, while the number of high school students increased by 11.63 percent.

PUBLIC SERVICES AND RECREATION

TABLE 4.15-3 SCHOOL ENROLLMENT BY DISTRICT, 2014 TO 2019

School Year	SRCS- Elementary and Middle School	SRCS- High School	MCS D
2014 to 2015	4,635	2,365	1,999
2015 to 2016	4,749	2,420	1,989
2016 to 2017	4,758	2,519	1,982
2017 to 2018	4,730	2,648	1,984
2018 to 2019	4,614	2,640	1,982
<i>Percent Change</i>	<i>-0.45 percent</i>	<i>+11.63 percent</i>	<i>-0.85 percent</i>

Source: California Department of Education Data Quest, 2020.

Facility Improvements and Funding

Facility conditions in both SRCS and MCS D schools were assessed through two plans, the *SRCS Master Facilities Plan*, and the *MCS D Facilities Master Plan*, prepared in 2014. The two facility plans evaluated the condition of each school facility, identified needs for replacement and modernization, as well as for administrative and operational space, common spaces, and space for students with special needs. Additional goals in sustainability, technology, efficiency, and equity were evaluated. An important objective of the two facility plans was to establish parity among schools and recognize that some schools may be in greater need of additional amenities and new facilities than others. The two facility plans provided the foundation for voter-approved bond measures that are now facilitating capital improvements in all three districts. The plans identified a number of ways to meet these costs, including local general obligation bonds, proceeds from State bonds, grants, developer fees, and other sources.

San Rafael City Schools

The *SRCS Master Facilities Plan* found that SRCS has the capacity for 4,755 students in 187 standard classrooms serving grades kindergarten through eighth grade and 2,244 students in 96 classrooms serving grades 9 through 12. Based on 2018 to 2019 school year enrollment numbers shown in Table 4.15-3, the elementary and middle schools are operating at slightly below capacity, while the high schools are operating above capacity. The *SRCS Master Facilities Plan* explored different options for balancing enrollment and expanding campuses to avoid overcrowding. Such options include reopening closed campuses, expanding existing schools, and shifting students between campuses.

In November 2015, SRCS placed measures on the San Rafael ballot to raise bond money needed to meet the needs identified by the *SRCS Master Facilities Plan*. Voters subsequently approved Measures A and B, which approved the funding. Measure A included \$108 million for updates to the SRCS elementary and middle schools, while Measure B included \$161 million for the SRCS high schools. Among the funded projects are new high school science labs, updated core academic facilities, new classrooms, dedicated art and music spaces, and upgraded technology infrastructure. As of January 2020, most of these projects have been completed, with the remainder expected to be finished by early 2021. A description of each school facility, including completed or overdue modernization, is provided in the *Community Services Background Report: San Rafael General Plan 2040*.

PUBLIC SERVICES AND RECREATION

Miller Creek School District

The *MCS D Facilities Master Plan* includes an assessment of Mary Silveira, Vallecito, and Lucas Valley Elementary Schools, as well as Miller Creek Middle School. The *MCS D Facilities Master Plan* identifies the needs for each campus, and for MCS D as a whole. Districtwide needs include replacement clock, bell, intercom, and alarm systems, aging utility services, and outdated data networks and technology. Modernization programs in the early 2000s alleviated these deficiencies to some extent, but additional work was deemed necessary in the *MCS D Facilities Master Plan*. MCS D also has a large number of portable classrooms due to insufficient space.

In 2014, MCS D placed measures on the San Rafael ballot to raise bond money needed to meet the needs identified by the *MCS D Facilities Master Plan*. Voters subsequently approved Measure C to approve the funding. The measure authorized \$30 million in general obligation bonds to address deficiencies identified in the *MCS D Facilities Master Plan*. Funds have been used to update aging classrooms technology, update middle school science classrooms, upgrade electrical wiring, improve campus safety and security, and generally upgrade campus and classroom facilities. A description of each school facility, including completed or overdue modernization, is provided in the *Community Services Background Report: San Rafael General Plan 2040*.

Student Generation Factors

Student generation rates (or “yields”) are used by school districts to estimate the probable number of students in a “typical” single-family or multi-family home. This data is used to estimate the expected impact of new housing units on school enrollment, which in turn helps inform facility planning and fee collection. The rates are typically based on data for student yields from existing homes in each district or based on State standards. As shown in Table 4.15-4, multi-family housing in San Rafael yields nearly twice the number of students per unit as single-family housing. The number of students per dwelling unit in San Rafael averages roughly 0.3 students per unit, compared to a 0.7 statewide yield.

TABLE 4.15-4 STUDENT GENERATION FACTORS FOR SAN RAFAEL CITY SCHOOLS

	Single-Family Units (students per new unit)	Multi-family Units (students per new unit)
SRCS Elementary Schools (K–5)	0.1069	0.2273
SRCS Middle Schools (6–8)	0.0453	0.0980
SRCS High School (9–12)	0.0769	0.1108
Total	0.2291	0.4361

Source. City of San Rafael, 2020.

School Impact Fees

SRCS and MCS D collect development impact fees based on forecasts calculated with projected increments of residential growth within the EIR Study Area. Fees are collected for new residential units and for residential additions of 500 square feet or more, commercial and industrial development, as well as development of new hotels.

PUBLIC SERVICES AND RECREATION

The fees collected by SRCS are split into elementary school fees and high school fees. As of 2018, the elementary and middle school fees for both SRCS and MCSD were \$2.62 per square foot for residential development and \$0.42 per square foot for commercial and industrial development. The SRCS development impact fee is reduced to \$0.245 per square foot for hotels and motels, and \$0.14 per square foot for self-storage. The high school fees are \$1.17 per square foot for residential development, \$0.19 per square foot for commercial and industrial development, \$0.124 per square foot for hotels and motels, and \$0.06 per square foot for self-storage.

The actual cost of constructing facilities to serve new students exceeds the amount that would be generated by these fees. Other funding sources, such as local bond measures and State grants, are often sought to cover capital costs. Moreover, student enrollment is dynamic and depends on many factors besides new construction. This is particularly true in San Rafael, where enrollment declined dramatically in the 1980s, even as housing construction was robust. Enrollment has increased since 2010, largely due to an increase in household sizes and not because of new construction.

Fee Justification Study

In a 2018 Fee Justification Study, SRCS applied the student generation rates shown in Table 4.15-4 to ABAG/MTC projected increments of growth between 2018 and 2040. The intention behind the Fee Justification Study is to project student enrollment increases to ensure adequate funding is secured to accommodate that increase. The Fee Justification Study for the SRCS high school district identified the potential for 2,350 new residential units citywide, including 966 single-family units and 1,384 multifamily units, which resulted in a projection of 227 new high school students.

For kindergarten through eighth grade students, SRCS identified the potential for 660 single-family and 946 multi-family units. The number of units is lower than the high school forecasts because K through 8 students in a portion of the city are served by the MCSD. The projections indicated 286 kindergarten through fifth grade students and 123 students in grades six through eight at SRCS schools. Applying the same multipliers to the portion of San Rafael in the MCSD yields 132 kindergarten through fifth-grade students and 62 students in grades six through eight in the MCSD.

4.15.3.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to public school services if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives for public school services.
2. Result significant cumulative impacts with respect to public school services.

PUBLIC SERVICES AND RECREATION

4.15.3.4 IMPACT DISCUSSION

PS-5 Implementation of the proposed project could result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives.

General Plan 2040

This section reviews the need for existing school facilities to accommodate any increases in public school enrollment due to implementation of the proposed General Plan 2040. However, the California State Legislature, under SB 50, has determined that payment of school impact fees shall be deemed sufficient to provide full and complete school facilities mitigation. All potential future developments proposed as a result of implementation of the proposed General Plan 2040 would be required to pay school impact fees adopted by each school district. Based on SB 50, this requirement would fully mitigate the impacts of the proposed General Plan 2040 on school facilities.

San Rafael City Schools

Implementation of the proposed General Plan 2040 is projected to generate approximately 4,460 housing units in the EIR Study Area. This could potentially result in an increase of 1,014 students in elementary schools and 437 students in middle schools, using the generation factors outlined in Table 4.15-4.²³ However, both SRCS and MCSD serve elementary and middle school students in the EIR Study Area, and they would subsequently split the share of this student increase. As shown in Table 4.15-3, School Enrollment by District 2014 to 2019, there are a total of 6,596 students in elementary and middle school in the EIR Study Area. Of these students, 30 percent are within the MCSD, while 70 percent are in SRCS.²⁴ Therefore, using the same proportional distribution, as well as the approximate distribution of development opportunities in the city, SRCS' share of the additional students would be 710 elementary students and 306 middle school students. High school students are expected to increase by approximately 243 students.

With student enrollment in the elementary and middle schools nearing capacity and student enrollment in high schools exceeding capacity, the additional students would exacerbate the overall capacity pressure of existing SRCS facilities. To accommodate new students, the SRCS would need to either expand existing facilities or construct new schools. Such expansions and considerations for upgrading existing facilities has partly occurred, and continues to occur, as identified in the *SRCS Master Facilities Plan*, described in Section 4.15.3.2, Existing Conditions. The *SRCS Master Facilities Plan* explores different options for balancing enrollment and expanding campuses to avoid overcrowding. Such options include reopening

²³ Using student generation factors from Table 4.15-3, calculated as follows: (Elementary Schools- 0.2273 x 4,460 = 1,014); (Middle Schools- 0.0980 x 4,460 = 437); (High Schools- 0.1108 x 4,460 = 243).

²⁴ Calculated by adding the 4,614 elementary and middle school students in SRCS and the 1,982 elementary and middle school students in the MCSD, and then dividing the number of MCSD students by the total number of students (4,614 + 1,982 = 6,596 total students); ((1,982/6,596) x 100 = 30 percent).

PUBLIC SERVICES AND RECREATION

closed campuses, expanding existing schools, and shifting students between campuses. Most of the improvements are likely to occur on existing sites. The SRCS would continue to collect development impact fees throughout implementation of the proposed General Plan 2040, meaning potential future development would incrementally pay for any needed facility upgrades and expansions, which would mitigate the impacts from the proposed General Plan 2040 per SB 50. Furthermore, Measures A and B have allowed many of the existing schools in the SRCS system to expand or modernize as needed, introducing additional capacity for students to each school. Because potential future development from the proposed General Plan 2040, and subsequent population increases would occur incrementally, SRCS schools would have capacity to serve additional students. Therefore, the impact to SRCS would be *less than significant*.

Miller Creek School District

As described above, implementation of the proposed General Plan 2040 could potentially result in an increase of approximately 304 elementary school students and 131 middle school students in the MCSD by 2040.²⁵ As student enrollment in the MCSD is nearing capacity, these additional students would create a capacity deficiency for the district. Similar to SRCS, the MCSD adopted the *MCSD Facilities Master Plan* in 2014 and had a bond measure (Measure C) approved by voters in 2014 to provide \$30 million in general obligation bonds to address deficiencies identified in the *MCSD Facilities Master Plan*. Funds have been used to update aging classrooms and instructional technology; provide updated middle school science classrooms; upgrade electrical wiring, improve campus safety and security; and repair, construct, acquire, and equip classrooms, sites, and facilities. Similar to SRCS, new development projects pay development impact fees, subsequently relieving capacity issues, which is considered mitigation under SB 50. In addition, environmental impacts from construction of the new facilities would be evaluated by the district. Therefore, impacts resulting from the 2040 General Plan to the MCSD would be *less than significant*. Furthermore, the proposed Land Use (LU) Element and the proposed Community Services and Infrastructure (CSI) Element contain goals, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on school facilities. The following goals, policies, and programs would serve to reduce impacts to school facilities in the EIR Study Area:

Goal LU-1: Well-Managed Growth. Grow and change in a way that serves community needs, improves fiscal stability, and enhances the quality of life.

- **Policy LU-1.16: School Site Reuse or Redevelopment.** In the event a school site is made available for reuse, work with the School District and surrounding community to determine the desired uses. Given the public ownership of the land, uses that provide a public benefit should receive priority. This includes affordable housing, childcare facilities, neighborhood parkland, and facilities that accommodate public and quasi-public uses, such as adult day care, education, recreation, arts and cultural programs.

²⁵ MCSD did not provide student generation factors. For the purposes of this EIR evaluation, student generation factors provided by SRCS in Table 4.15-3 are being applied, calculated as follows: (Elementary Schools- 0.2273 x 2,200 = 500.6); (Middle Schools- 0.0980x 2,200 = 215.60).

PUBLIC SERVICES AND RECREATION

- **Program LU-1.16A: Zoning for School Sites.** Continue to implement school site reuse and redevelopment through zoning regulations and the development review process.

Goal CSI-1: Educational Excellence. Promote excellent schools and high-quality, equitable education.

- **Policy CSI-1.5: Campus Land Use and Transportation Issues.** Work with San Rafael City Schools, the Miller Creek School District, local private schools, and neighborhood organizations to address traffic, parking, and land use issues on and around school campuses.
 - **Program CSI-1.5A: School Construction Projects.** Coordinate with school personnel on campus construction, modernization, and improvement projects.
 - **Program CSI-1.5B: Long-Range Planning and Development Review.** Collaborate with schools on long range planning and development review, including collection of appropriate fees, enrollment projections, and planning for future improvements.

With the required payment of developer impact fees for new development pursuant to SB 50 and the implementation of the proposed General Plan 2040 goals, policies, and programs that support school facilities in the EIR Study Area, impacts to the SRCS and MCSD would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The Downtown Precise Plan Area is an existing urban area in the city of San Rafael where roughly half of the anticipated development by 2040 is expected to occur. Buildout of the Downtown Precise Plan is expected to result in an increase of approximately 2,200 residential units and 3,570 residents by 2040. If SRCS multipliers are applied to these unit counts, the population increase would result in an increase of 716 students to SRCS elementary and middle schools and 244 students to the SRCS high schools.²⁶ The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to school services. All potential future development would be required to comply with the proposed General Plan 2040 goals, policies, and programs listed herein and pay developer impact fees for new development pursuant to SB 50. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PS-6 Implementation of the proposed project could result in a cumulatively considerable impact to school services.

As discussed in Section 4.15.3.2, Existing Conditions, and in Impact Discussion PS-5, a majority of schools in the EIR Study Area are close to or exceeding capacity, and additional student enrollment due to the

²⁶ Using student generation factors from Table 4.15-3, calculated as follows: (Elementary Schools- 0.2273 x 2,200 = 500); (Middle Schools- 0.0980 x 2,200= 216); (High Schools- 0.1108 x 2,200 = 244).

PUBLIC SERVICES AND RECREATION

implementation of the proposed project would exacerbate the capacity issue. However, according to the *SRCS Master Facilities Plan* and the *MCSD Facilities Master Plan*, existing schools are slated to be expanded or renovated if they have not already been in the past several years. These projects would be funded by bond measures discussed in Impact Discussion PS-5 and development impact fees from potential future development, which would mitigate the current and future capacity issues per SB 50. Therefore, the proposed project would not result in a cumulatively considerable impact to school facilities and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

4.15.4 LIBRARIES

4.15.4.1 ENVIRONMENTAL SETTING

Regulatory Framework

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to libraries are primarily in the Neighborhoods and Culture and Arts Elements. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of updated goals, policies, and programs is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.15.4.4, Impact Discussion.

4.15.4.2 EXISTING CONDITIONS

The analysis in this section is based on the *Community Services Background Report: San Rafael General Plan 2040* prepared by the San Rafael Community Development Department in February 2020. Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and library representatives, including Susan Andrade-Wax, Director of Library and Recreation, and Henry Bankhead, Interim Library Director.

Services

San Rafael's public library system is operated by the City's Library and Recreation Department. The main branch is located adjacent to City Hall in the Downtown Precise Plan Area. There are two satellite branches, the Pickleweed branch located at the Albert Boro Community Center in eastern San Rafael and the Northgate Mall branch located at Northgate Mall in northern San Rafael. The libraries are managed by the City's Library and Recreation Department, which is also responsible for recreation programming, childcare, and arts services. In addition to the City Library system, the County of Marin operates the Civic Center Branch Library at the Marin County Civic Center Building in the EIR Study Area. All seven

PUBLIC SERVICES AND RECREATION

independent public libraries, the Marin County Free Library, as well as the College of Marin and Dominican University, are connected through membership in the MARINet library consortium. The MARINet consortium operates an integrated online library system. The MARINet system provides for the shared use and delivery of all physical library materials as well as some shared e-resources and high-bandwidth network connectivity for the public library members. Each local library pays to be a member of MARINet based on their physical holdings, library budget, and circulation of materials, as defined in the MARINet Joint Powers Agreement (JPA).

Facilities

In 2017, the City completed a comprehensive evaluation of its library facilities and developed a vision for improvement. The process included extensive community input and a comparison of San Rafael's libraries relative to similarly sized San Francisco Bay Area cities. San Rafael has just 0.30 square feet of library space per resident, which is below cities such as South San Francisco, which has 0.64 square feet per resident, Alameda, which has 0.68 square feet per resident, Mountain View, which has 0.77 square feet per resident, and Palo Alto, which has 1.35 square feet per resident. Based on recommended national standards of roughly 0.7 square feet per capita, San Rafael would need an additional 50,000 square feet of library space.

Existing library facilities in San Rafael total approximately 20,000 square feet. The original Downtown Library opened in 1909 as a 5,160-square-foot facility, and later expanded to the current 14,800 square feet by 1976. The Pickleweed branch occupies 2,185 square feet, which primarily serves residents of the Canal neighborhood in eastern San Rafael. The Terra Linda branch was established in northern San Rafael in 2018 as a "pop-up" facility that occupies 3,000 square feet inside the Northgate Mall.

A 2017 assessment of library conditions concluded that, while the Northgate Mall branch is currently meeting the needs of the northern San Rafael communities, both the main branch in the Downtown Precise Plan Area and the Pickleweed branch in eastern San Rafael are deficient in meeting the needs of the City and adjacent neighborhoods.²⁷ The 2018–2019 San Rafael Public Library Facilities Planning Study looked at cost options for improving library facilities in Central San Rafael, North San Rafael, and an expansion of the Pickleweed branch in East San Rafael. A second study in 2019, the Existing Facilities Report, assessed the existing main branch for code compliance and the cost of essential improvements for meeting long-range needs.²⁸ These alternatives are discussed further under Impact Discussion PS-7.

Funding

The City's Municipal General Fund supports essential City services such as police and fire protection, building and street maintenance, libraries, recreation, and parks and open space maintenance. Current

²⁷ City of San Rafael, July 2019, San Rafael Public Library Facilities Planning Project Existing Facilities Report, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/09/Existing-Facilities-Report.pdf>, accessed on December 2, 2020.

²⁸ Noll and Tam Architects, August 2019, San Rafael Public Library Facilities Planning Study, City of San Rafael, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/09/SRPL-Facilities-Planning-Study-August-2019.pdf>, accessed on April 7, 2020.

PUBLIC SERVICES AND RECREATION

services for the MARINet online library system, which links Marin County libraries, are paid for separately by each individual member's annual fee. Additionally, a library special parcel Tax Measure was instituted in 2010 and extended in 2017 to supplement library services. The parcel tax is intended to be used "to maintain library hours, equipment, materials, and services for children, teens, and adults."

4.15.4.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to library services if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for library services.
2. Result in significant cumulative impacts with respect to library services.

4.15.4.4 IMPACT DISCUSSION

PS-7 Implementation of the proposed project could result in the need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives.

General Plan 2040

Implementation of the proposed General Plan 2040 is anticipated to add an additional 8,910 residents to the EIR Study Area by 2040, which would subsequently increase the demand for library services. An overall increase in residents is expected to occur with or without implementation of the proposed General Plan 2040. Service growth under the proposed General Plan 2040 would occur incrementally throughout the 20-year horizon; therefore, potential impacts resulting from increased demand for library services would not occur immediately or at once. However, existing City library facilities have been identified as insufficient to meet existing populations, and a population increase would exacerbate this deficiency.

As discussed in Section 4.15.4.2, Existing Conditions, a 2019 Library Assessment was completed to identify possible solutions to expanding library facilities in the city. Alternative locations were proposed and assessed for each library branch, as well as the estimated funding cost each would require.²⁹

The three options for relocating the main branch include expansion of the current facility adjacent to City Hall, a new facility at Boyd Park, or a renovated joint community center and library at Albert Park. All these sites are centrally located and relatively easy to access by a variety of travel modes. The expansion and

²⁹ Noll and Tam Architects, August 2019, *San Rafael Public Library Facilities Planning Study*, City of San Rafael, <https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/09/SRPL-Facilities-Planning-Study-August-2019.pdf>, accessed on April 7, 2020.

PUBLIC SERVICES AND RECREATION

remodel of the existing facility would result in a 27,000-square-foot facility at a cost of \$34 million. The Boyd Park option would result in a 20,000-square-foot facility for \$23 million and would require the demolition of the existing tennis courts and the construction of underground parking. The Albert Park option, which was recommended by staff, would result in a 26,000-square-foot facility (plus another 17,700 square feet of renovated community center space) and would cost \$43 million. This location has been determined to have the greatest potential to benefit the community and would enable “economies of scale” due to its co-location with the community center and recreation program space.

The three options for the Northgate Mall branch would include a permanent location at Northgate Mall, the MCS D administrative offices site, or the Terra Linda Community Center. The latter two options would likely require construction of a new building, whereas the former would repurpose existing space within Northgate Mall. The Northgate Mall option has been identified as the preferred option, as a permanent library of up to 11,000 square feet could be constructed within the mall by repurposing existing retail space for significantly less than the estimated \$1 million to \$5 million cost of complete refurbishment.

Improvements to the Pickleweed branch could occur by expanding the existing Albert Boro Community Center by approximately 5,000 square feet, creating a new 7,000-square-foot library. The expanded facility would include program space for children, teens, and senior activities. An additional 36 parking spaces would be provided. The cost of this option was estimated to be \$7.4 million. A more cost-effective option included repurposing space in the existing Albert Boro Community Center for shared library and recreation use. This second alternative would be more affordable and would preserve a barbecue and picnic area in Pickleweed Park that would otherwise be displaced by the expanded building.

In addition to facility upgrades, improvements are needed to expand the diversity in collection formats and new technologies. As described previously, both the City’s Municipal General Fund and a special annual parcel tax dedicated to public library services and facilities, equipment, and technology improvements would pay for these improvements.

The proposed Community Services and Infrastructure (CSI) Element contains a goal, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on library facilities. The following goals, policies, and programs would serve to ensure adequate library facilities in the EIR Study Area:

Goal CSI-2: Modern, Welcoming Libraries that Meet Community Needs. Enhance library services and facilities to meet the informational and recreational needs of the community.

- **Policy CSI-2.1: Library Facilities.** Improve library facilities to meet current and future needs and recognize the changing role of libraries in community life.
 - **Program CSI-2.1A: New Main Library.** Fund, develop, and construct a new Main Library designed to provide adequate space for collection materials, City programs, public meeting rooms and technology, seating for visitors, and services for special user groups such as children and teens. Develop adaptive reuse plans for the historic Carnegie Library as part of library planning.
- **Policy CSI-2.2: Branch Libraries.** Expand community-based library services in East and North San Rafael to ensure that library services are accessible to everyone in the community.

PUBLIC SERVICES AND RECREATION

- **Program CSI-2.2A: Pickleweed and Northgate Libraries.** Modernize and expand the Pickleweed and Northgate Libraries so they are adequately equipped to deliver the services needed in the surrounding communities.
- **Program CSI-2.2B: School Libraries.** Consider partnerships with the school district to make high school libraries available to the public.

In summary, the existing library system does not have adequate capacity to accommodate growth over the 20-year horizon of the proposed General Plan 2040 and the expansion of existing library facilities or the construction of new facilities would be required. Potential future development in the city, like existing development, would pay the required parcel taxes and other taxes that go to the General Fund and the special library fund to offset impacts to library services. New facilities that may be proposed over the lifetime of the proposed General Plan 2040 would be required to conduct their own individual environmental review, which would analyze each facility's impact on the physical environment. The estimated timing or location of such facilities, or the exact nature of these facilities are not known, so project-specific environmental impacts that would occur from their construction and operation cannot be determined at this time. However, such impacts would be project-specific, and would require permitting and review in accordance with CEQA, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible. In addition, proposed General Plan 2040 Program CSI-2.1A: New Main Library, requires the City to fund, develop, and construct a new Main Library designed to provide adequate space for collection materials, City programs, public meeting rooms and technology, seating for visitors, and services for special user groups such as children and teens, as well as to develop adaptive reuse plans for the historic Carnegie Library as part of library planning. This EIR is a programmatic document and does not evaluate the environmental impacts of future project-specific development. Therefore, the impact is *less than significant*.

Significant with Mitigation: Less than Significant.

Downtown Precise Plan

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to library services. All potential future development would be required to pay parcel taxes as with development in the remainder of the City, which would offset their fair share of impact to the library system. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the proposed General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PS-8 Implementation of the proposed project could result in a cumulatively considerable impact to libraries.

The geographic context for the cumulative library impacts would occur from potential future development under the proposed project, combined with impacts of development on lands adjacent to the city.

PUBLIC SERVICES AND RECREATION

A significant cumulative environmental impact would result if this cumulative growth would exceed the ability of San Rafael libraries to adequately serve the EIR Study Area, thereby requiring construction of new facilities or modification of existing facilities. As described in Impact Discussion PS-7, existing facilities are already not meeting the demands of the city and the payment of taxes as well as the implementation of proposed General Plan 2040 Program CSI-2.1A: New Main Library, would ensure adequate library services over the course of the General Plan buildout. Therefore, the proposed project would not result in a cumulatively considerable impact to library services and cumulative impacts would be *less than significant*.

Significance with Mitigation: Less than significant.

4.15.5 PARKS AND RECREATION

4.15.5.1 ENVIRONMENTAL SETTING

Regulatory Framework

State Regulations

The Quimby Act

The Quimby Act of 1975 authorizes cities and counties to pass ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act sets a standard park space to population ratio of 3 acres of park space per 1,000 persons. Cities with an existing ratio of higher than three acres per 1,000 persons can set a standard of up to 5 acres per 1,000 persons for new development.³⁰ The calculation of a city's park space to population ratio is based on a comparison of the population count of the last federal census to the amount of city-owned parkland. A 1982 amendment (AB 1600) requires agencies to clearly show a reasonable relationship between the public need for a recreation facility or park land, and the type of development project upon which the fee is imposed.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to parks and recreation are primarily in the Parks and Recreation Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended, substantially changed, or new policies would be added. A comprehensive list of updated goals, policies, and programs is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.15.5.2, Impact Discussion.

³⁰ California Government Code Section 66477, California Department of Parks and Recreation website, *Quimby Act 101: An Abbreviated Overview*, <http://www.parks.ca.gov/pages/795/files/quimby101.pdf>, accessed on December 7, 2015.

PUBLIC SERVICES AND RECREATION

San Rafael Municipal Code

The SRMC, organized by title, chapter, and section, includes a provision related to parks and recreation in Title 15, Subdivisions. Specifically, Section 15.09, Park Dedication and In-Lieu Fees, of the SRMC dictates the method by which the City may require that new subdivisions include dedicated parkland, and by which the subdivider can opt to pay parkland in-lieu fees in place of dedicating a portion of their project to parkland. At the time of approval of the tentative map for a residential subdivision, the approving body shall determine the land required for dedication, or the amount of in-lieu fees to be paid. The park land dedication or in-lieu fee that is required to meet the provisions of this chapter is imposed as a condition of approval on the tentative map. At the time of final map or parcel map approval for recordation, the subdivider shall dedicate land, pay a fee in lieu thereof, or a combination of both, at the option of the city, for neighborhood and community park or recreational purposes at the time and according to the standards and formula. In-lieu fee amounts are determined prior to project approval and are generally equal to the value of the land and improvements, which would have been required for dedication. The value of the land shall be determined in accordance with the provisions of fair-market value per buildable parkland acre, decided by a licensed appraiser. The City's current parkland dedication requirement under this ordinance is 3 acres per 1,000 residents.

4.15.5.2 EXISTING CONDITIONS

The analysis in this section is based on the *Parks and Recreation Existing Conditions* report, prepared by the San Rafael Community Development Department in December 2019. Information was provided through correspondence between Barry Miller, San Rafael General Plan 2040 Project Manager, and Susan Andrade-Wax, Director of Library and Recreation.

The City of San Rafael Library and Recreation Department is one of several park service providers in the EIR Study Area. Other service providers include the County of Marin's Open Space District, the California Department of Parks and Recreation, the Marinwood Community Services District, SRCS, and MCSD. Public park services are supplemented by private facilities such as swim and racquet clubs, the Young Men's Christian Association (YMCA) and Osher Marin Jewish Community Center (Osher JCC), private golf courses, and community-run pools and play areas.

Parkland Facilities

Open space and parks make up the largest single category of land use in the EIR Study Area. Although both may be considered "parkland," the analysis in this Draft EIR distinguishes "parks" from "open space." Open space refers to space managed for resource conservation, hazard reduction, and scenic value, while parks refer to land that has been improved in such a way to support active recreation. Typical park improvements include sports fields, playgrounds, picnic areas, tennis courts, running tracks, recreation centers, and basketball courts. Larger parks support programmed services, such as classes, swim and tennis lessons, activities for children and seniors, and league sports. Programs and other recreational services are coordinated by the City's Library and Recreation Department.

For a complete list of all parkland in the EIR Study Area, as well as amenities offered at each park, the City has prepared the *Parks and Recreation Existing Conditions Report*, which is available at the City offices and

PUBLIC SERVICES AND RECREATION

online via the City’s website. The City has applied the parkland classifications used by the National Recreation and Park Association (NRPA) in this report and in General Plan 2040. Parkland classifications, as dedicated by the NRPA, include region-serving parks, community parks, neighborhood parks, pocket parks, special-use parks, and public-school facilities.

The EIR Study Area also includes many areas that are classified as passive open space that are operated by the Marin Open Space District, the State of California, and the City of San Rafael. Passive open space generally refers to open space areas that may be used for recreation such as hiking, mountain biking, or horseback riding. Such areas in the EIR Study Area include the Terra Linda Sleepy Hollow Open Space, and Harry Barbier Memorial Park. These locations include such amenities as staging areas, restrooms, and picnic grounds. Parkland by parkland type, as well as the operator and acreage of each parkland, is outlined in Table 4.15-5. The figures in this table are subject to change through the General Plan adoption process.

TABLE 4.15-5 EIR STUDY AREA PARKLAND OPERATORS AND ACREAGES (EXCLUDES DESIGNATED “OPEN SPACE” AREAS)

Parkland Type	Operator	Acreage
Region- Serving Park	County of Marin	92
Region- Serving Park	State of California	30
Community Parks	City of San Rafael	33.81
Community Parks	Marinwood CSD ^a	14.12
Neighborhood Parks	City of San Rafael	46.53
Neighborhood Parks	County of Marin CSA ^b	2.55
Neighborhood Parks	Marinwood CSD	1.22
Neighborhood Parks	Lucas Valley HOA ^c	1.52
Pocket Parks	City of San Rafael	2.27
Pocket Parks	County of Marin	0.72
Pocket Parks	County CSA	0.88
Special Use Parks	City of San Rafael	30.86
Special Use Parks	County of Marin	2.3
Public School Facilities	SRCS	50.56 (* counted at 50%)
Public School Facilities	MCSD	44.07 (* counted at 50%)
Total	—	306.1

Notes:

^a. CSD= Community Services District

^b. CSA= Community Services Area

^c. HOA= Homeowners Association

Note: Only 50% of the acreage shown for schools is counted in the “Total” row, recognizing that this land is only available for general public use on a limited basis.

Source: City of San Rafael, 2020.

Joint-Use Agreements

The City of San Rafael works with SRCS and MCSD to leverage their properties and facilities for public benefit. Many neighborhoods that lack neighborhood parks, or have small parks without sports fields, rely

PUBLIC SERVICES AND RECREATION

on neighborhood schools for their recreational needs. For instance, facilities at high schools such as specialized swimming pools, tennis courts, and gymnasiums can be made available for public use.

SRCS has adopted provisions for the joint use of school facilities, which includes supervised recreational activities, such as sports league activities. The SRCS has a specific set of priorities for community use, including community-based youth programs, community recreational youth sports leagues, public agency adult recreation and activities, non-profit adult recreation, and individual family use for special events. Fees may be collected by SRCS for the use of their facilities.

The MCSD likewise allows joint use of its facilities, with a permitting process to use the facilities. Reservation of school grounds is only permitted after verifying with the school administrator that the space is available, and that the use would not interfere with regular school activities. Fees may be waived for certain groups, such as parent-teacher associations, scout troops, and parent/school clubs. Other groups are charged direct costs.

Private Facilities

Public recreational facilities in San Rafael are supplemented by private facilities. Such facilities include the Dominican University Conlan Center with regulation basketball and volleyball courts, a fitness center, and a swimming pool. Marin Academy in the Downtown Precise Plan Area includes a gymnasium, pool, and athletic fields. The Peacock Gap neighborhood has a private golf course. There are additional swim and racquet clubs throughout the EIR Study Area. Larger residential developments in San Rafael may include recreational facilities, such as swimming pools, community rooms, and tennis courts. These facilities are typically supported by Homeowner Associations or membership fees in owner-occupied developments or are passed along to tenants through rent in apartment communities.

Service Standards

Adequacy of a city's park system is most commonly measured by the number of acres of parkland per 1,000 residents. Most cities strive for a standard of 3 to 5 acres of active open space per 1,000 residents. For the purposes of calculating Quimby Act fees as described in the Regulatory Framework above, calculations typically count areas of parkland within a city's Planning Area, provided they are publicly accessible for community and neighborhood recreation. This includes parkland owned by other agencies, as well as school district properties, which are counted at 50 percent of their actual acreage. Based on 306.1 acres of parkland shown in Table 4.15-5, and the EIR Study Area's current population of 75,751 residents, the parkland ratio is 4.04 acres per 1,000 residents.³¹

Per capita standards generally do not count passive open space areas since they serve a different function than active parkland. If such areas were added to the inventory, the existing ratio in the EIR Study Area would be roughly 50 acres of open space per 1,000 residents, which is nearly five times the national average of 10.1 acres per 1,000 residents, according to the NRPA.

³¹ 75,751 existing residents/1,000 = 75.751; 306.1 acres of existing park/75.751 = 4.04 acres of parkland per 1,000 residents

PUBLIC SERVICES AND RECREATION

Planned Improvements

Planned parkland improvements are identified in the City's three-year capital improvement program. The list of needed improvements is informed by staff and community input, and by the results of a 2018 *Facilities Assessment Study*. Facilities such as play structures require periodic replacement due to wear and tear, while community centers require modernization, Americans with Disabilities Act (ADA) compliance upgrades, and repairs due to heavy use.

Recently completed projects include a new prefabricated restroom at Bret Harte Park, the new Albert Park playground, replacement of the Pickleweed Park playground, replacement of the Victor Jones playground, and interior restrooms at the San Rafael Community Center.

Funding

A variety of funding sources are used to cover parkland capital improvement costs. One such source is Measure A, a countywide 0.25-cent sales tax passed in 2012, managed by the County of Marin. Measure A has a nine-year term and is used to care for existing parks and open spaces, restore and protect farmland, and support regional and community parks. About 15 percent of the Measure A revenue stream is directed to local governments in Marin County.

Some of the City's Municipal General Fund is set aside in a Building Maintenance account, which supports parks, community centers, and other City buildings. The City's budget includes a bedroom tax fund, which includes money for neighborhood park maintenance and development, and a park capital projects fund, which is a repository for funds to be used for capital projects. The City may also apply for grants from the State and other entities. Gas tax revenues provided to the City by the State provide a supplemental funding source, although these funds are primarily intended for transportation projects.

Funding also comes from parkland dedication in-lieu fees, as outlined in Section 15.09 of the SRMC. In-lieu fees are paid on a project-by-project basis when a subdivider of residential property submitting a tentative map elects to pay an in-lieu fee instead of dedicating parkland within a proposed project.

The City also reviews more stable and reliable long-term funding sources for capital projects, including bond financing, grant funding, voter-approved taxes, and alternative funding mechanisms. Alternative mechanisms could include public-private partnerships, such as the unique arrangement between the City and Terrapin Crossroads at Beach Park. The park remains in public ownership, although it was leased to a restaurant/entertainment venue at \$15,000 per year for seven years. However, any improvements made to the premises by Terrapin Crossroads in excess of \$15,000 will be credited to the following year's lease payment. To date, Terrapin Crossroads has implemented over \$100,000 in improvements and ongoing programming for community events, as well as activities such as bocce, volleyball, and a children's play area.

4.15.5.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would have a significant impact to parks and recreation if it would:

PUBLIC SERVICES AND RECREATION

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered parks and recreational facilities, need for new or physically altered parks and recreation facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.
2. Increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated.
3. Result in significant cumulative impacts with respect to parks and recreation.

4.15.5.4 IMPACT DISCUSSION

PS-9 **Implementation of the proposed project could result in the need for new or physically altered park facilities or other recreational facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives.**

General Plan 2040

As discussed in Section 4.15.5.2, Existing Conditions, the EIR Study Area currently provides 4.04 acres of parkland per 1,000 residents, which exceeds its adopted standard of providing 3.0 acres of parkland per 1,000 residents.³² However, implementation of the proposed General Plan 2040 could introduce up to 8,910 new residents, which would increase the demand for parks and recreational facilities.

The proposed Parks, Recreation, and Open Space (PROS) Element contains goals, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on available parkland and the quality of facilities. The following goals, policies, and programs would serve to reduce impacts to such parks, recreation, and open space in the EIR Study Area:

Goal PROS-1: Quality Parks for All to Enjoy. Sustain high quality parks that meet the recreational needs of all those who live and work in San Rafael.

- **Policy PROS-1.1: Park Classification.** Maintain a system of community, neighborhood, pocket, and special use parks. These parks should be complemented by larger region-serving parks and open spaces, and by school recreation areas.
 - **Program PROS-1.1A: Parks and Recreation Master Plan.** Prepare a Parks and Recreation Master Plan, including citywide recommendations for park management, operations, facility development, potential acquisition, and recreation service delivery, as well as recommendations for each City-owned park.
 - **Program PROS 1.1B: Capital Improvement Program.** Use the Capital Improvement Program to identify funding sources and timing of parks and recreation capital projects.

³² 75,751 existing residents/1,000 = 75.751; 306.1 acres of existing park/75.751 = 4.04 acres of parkland per 1,000 residents

PUBLIC SERVICES AND RECREATION

- **Policy PROS-1.2: Per Capita Acreage Standard.** Maintain a citywide standard of 4.0 acres of improved park and recreation land per 1,000 residents.
 - **Program PROS-1.2A: Municipal Code Amendment.** Modify Chapter 15.09 of the Municipal Code to establish a general standard of 4.0 acres of improved parkland per 1,000. Adjust the formulas for dedication of land to reflect this standard.
 - **Program PROS-1.2B: Park In Lieu Fees.** Periodically adjust park in-lieu fees to reflect the prevailing costs of land and facilities. Any increases to existing fees should be developed through a public process in which potential cost impacts on development feasibility are disclosed and measures to offset impacts are considered.
- **Policy PROS 1.3: Distribution of Parks.** Strive for a balanced distribution of neighborhood and community parks across the city. When planning new parks, prioritize areas that lack existing parkland or outdoor space, and have higher needs due to higher housing densities and social and economic conditions.
 - **Program PROS-1.3A: New Parks.** Develop additional parks and playgrounds in areas with unmet needs and in areas experiencing growth. Opportunities to create new parks within new development and on underutilized public land should be pursued.
 - **Program PROS-1.3B: Parks on Former School Sites.** Work with San Rafael City Schools and the Miller Creek School District to identify ways to acquire on-site recreational facilities in the event that school properties are closed, leased, or offered for sale.
- **Policy PROS-1.6: Park Improvements.** Regularly upgrade and modernize San Rafael’s parks to meet the recreational needs of the community and replace aging or deficient facilities.
 - **Program PROS-1.6A: Needs Assessment.** Conduct a needs assessment as part of a Parks and Recreation Master Plan. Recreational facility needs should be periodically reevaluated in response to trends, demographics, and changing conditions
 - **Program PROS-1.6B Park Improvements.** As part of the Parks and Recreation Master Plan, prepare plans to improve neighborhood and community park facilities. Seek funding to implement these plans.
- **Policy PROS-1.7: Athletic Field Design.** Encourage athletic field design which maximizes versatility, cost-efficiency, and the ability to use fields year-round.
 - **Program PROS-1.7A: Field Improvements.** Evaluate local athletic fields as part of a Parks and Recreation Master Plan. Develop design and capital facility recommendations for athletic fields based on the findings.
- **Policy PROS-1.12: Joint Use.** Encourage formal agreements with the School Districts that allow for the joint development, maintenance and use of school facilities for recreational use when schools are not in session. Agreements should also address access to school parking lots for sporting events and other measures to minimize the impacts of joint use on nearby neighborhoods.
 - **Program PROS-1.12A: Joint Use Agreements.** Work with SRCS and MCSD to formalize joint use agreements for parks, playgrounds, sports fields, and other school facilities.
- **Policy PROS-1.13: Recreational Facilities in Development Projects.** Encourage, and where appropriate require, the construction of on-site recreational facilities in multi-family, mixed use, and office projects to supplement the facilities available in City parks.

PUBLIC SERVICES AND RECREATION

- **Program PROS-1.13A: Onsite Recreation Facilities.** Continue to implement zoning regulations that require appropriate recreational facilities for residents in new development.
- **Policy PROS-1.14: Commercial Recreation.** Encourage private sector development of complementary recreational facilities to serve community needs, such as commercial recreation and athletic field facilities, swim clubs, tennis clubs, marinas, and gyms and health clubs.
 - **Program PROS-1.14A: Commercial Recreation.** Consider amending the zoning ordinance to allow a floor area ratio exemption for on-site recreational facilities open to the public.

Policy PROS-1.2 would increase the current parkland standard to 4.0 acres per 1,000 residents. With the projected addition of 8,910 residents by 2040 without adding any new parks, the City's parkland ratio would be 3.61 acres of parkland per 1,000 residents.³³ To achieve the proposed standard, the City would need to add 37 acres of parkland. Program PROS-1.1A, which, amongst other things, would require the City to look at the potential acquisition of parkland as part of the Park and Recreation Master Plan process, and recreation service delivery, as well as recommendations for each City-owned park. Program PROS-1.3A would require the City to develop additional parks and playgrounds in areas with unmet needs and in areas experiencing growth. Program PROS-1.3B would require the City to work with San Rafael City Schools and the Miller Creek School District to identify ways to acquire on-site recreational facilities in the event that school properties are closed, leased, or offered for sale. Implementation of these programs, combined with the ongoing collection of impact fees, would help to ensure that the proposed new service level is achieved and maintained.

While the City is currently above the existing 3.0 acres per 1,000 acres of parkland standard for parkland adopted in the SRMC but below the proposed standard of 4.0 acres per 1,000 acres of parkland specified by Program PROS-1.2A, the City is anticipated to meet the proposed ratio upon buildout of the proposed General Plan 2040 with the implementation of policies and programs requiring park dedication and fees for new development. SRMC Section 15.09, Park Dedication and In-Lieu Fees, would continue to require residential subdivisions to either provide parkland or pay in-lieu fees for the City to dedicate parkland elsewhere. This would result in the incremental addition of parkland if a residential subdivision is proposed in the city.

As indicated above, new residents from development allowed by the proposed General Plan 2040 would increase the demand for recreational facilities, and recreational facility standards would require the construction of new or expanded recreation facilities. The estimated timing or location of such facilities or the exact nature of these facilities are not known, so project-specific environmental impacts that would occur from their construction and operation cannot be determined at this time. However, depending on the type, size, and location of new parks, the construction of new parks would be subject to environmental review and the mitigating policies and mitigation measures described in this EIR to ensure the impacts from the construction would be less than significant. The construction of project-specific parks would require permitting and review in accordance with City standards, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible. This EIR is a programmatic

³³ $(75,751 \text{ existing residents} + 8,910 \text{ new residents} = 84,661 \text{ residents}) / 1,000 = 84.661$; $306.1 \text{ acres of existing park} / 84.661 = 3.61 \text{ acres of parkland per } 1,000 \text{ residents}$.

PUBLIC SERVICES AND RECREATION

document and does not evaluate the environmental impacts of future project-specific development. Therefore, the impact is considered *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to park and recreation services. Parkland in the Downtown Precise Plan Area is accounted for and calculated in the parkland acreage for the entire EIR Study Area. The Downtown Precise Plan could result in the creation of additional pocket parks or open space that would augment the existing inventory. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PS-10	Implementation of the proposed project could increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.
--------------	--

General Plan 2040

As described previously, future development allowed by the proposed General Plan would result in increased population in San Rafael with up to 8,910 new residents, which would increase demands for parks and recreational facilities, and could cause physical deterioration of park facilities. However, the proposed General Plan contains goals, policies, and programs that would support parkland goals, and as described in Section 4.15.4.2, the SRMC establishes parkland dedication and/or fee requirements for new development, helping to ensure that individual park and recreation facilities are not overburdened by use.

As discussed in the Section 4.15.5.2, Existing Conditions, the City of San Rafael has many planned improvements in the pipeline for parks, the majority of which are already funded. These include specific projects to replace aging equipment, repaving, restroom repair, updating of ADA resources, among others.

The proposed Parks, Recreation, and Open Space Element contains goals, policies, and programs that require local planning and development decisions to consider and mitigate impacts that potential future development could have on existing parks and the quality of the facilities. Several proposed goals, policies, and programs, as listed in Impact Discussion PS-9, ensure that parks, recreational facilities, and open space are adequately maintained and protect the public's investment in park and recreation facilities. While potential future development under implementation of the proposed General Plan 2040 would result in an increased population with an increased demand for parks and recreational facilities, buildout would occur incrementally throughout the 20-year horizon, and future development would be subject to

PUBLIC SERVICES AND RECREATION

the proposed General Plan 2040 goals, policies, and programs listed in Impact Discussion PS-9; therefore, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Buildout of the Downtown Precise Plan is expected to result in an increase of approximately 2,200 residential units and 3,570 residents by 2040. Similar to the proposed General Plan 2040, buildout of the proposed Downtown Precise Plan would increase demand on parks and recreational facilities in such a manner that the physical condition of these sites and facilities could be degraded. The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to park and recreation services. Therefore, with the implementation of the proposed General Plan 2040 goals, policies, and programs listed in Impact Discussion PS-9, the proposed buildout in Downtown Precise Plan Area would not increase the use of existing neighborhood and regional parks to the degree that substantial deterioration of park facilities would occur. Accordingly, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PS-11 Implementation of the proposed project could result in a cumulatively considerable impact to parks.

As discussed in Chapter 4, Environmental Analysis, of this Draft EIR, this EIR cumulative impacts are considered in the context of projected growth in the rest of Marin County and the surrounding region, as forecast by *Plan Bay Area 2040*, and contiguous with the service area boundaries of the service providers evaluated in this section, including park and recreation areas provided by the City, the County of Marin's Open Space District and the California Department of Parks and Recreation.

As described under Impact Discussions PS-9 and PS-10, the potential population increase under the proposed project would increase demand for park and recreational facilities. Compliance with the SRMC, proposed General Plan 2040 goals, policies, and programs listed in Impact Discussions PS-9 and PS-10, would ensure that adequate parklands and recreational facilities are provided, maintained, and funded through in-lieu fees, maintenance fees, or parkland dedication in the EIR Study Area. This would mitigate potential impacts that future development would have on park and recreation services in the EIR Study Area. Therefore, the proposed project would not result in a cumulatively considerable impact to park and recreational facilities and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

PUBLIC SERVICES AND RECREATION

This page intentionally left blank.

4.16 TRANSPORTATION

This chapter describes the potential impacts to the transportation system associated with the adoption and implementation of the proposed project. The impact discussion examines the vehicular, transit, bicycle, and pedestrian components of the city’s overall transportation system in the Environmental Impact Report (EIR) Study Area, which includes the Downtown Precise Plan Area.

The proposed General Plan 2040 includes transportation policies related to taking a leadership role in developing regional transportation solutions, sustaining an efficient network that provides mobility and accessibility, reducing greenhouse gas (GHG) emissions and vehicle miles traveled (VMT), supporting high-quality affordable transit, providing safe streets that connect the community, encouraging walking and bicycling as safe ways to travel, and managing parking to meet future needs while supporting the City’s goal of a more sustainable transportation system.

The transportation impact analysis is based on data and information collected in 2019 plus analysis performed to test alternatives and develop the final project description for environmental review. The 2019 data represents baseline conditions for the purpose of the transportation impact analysis. Impacts are determined based on long-term growth from 2019 to 2040.

The COVID-19 pandemic has dramatically changed the demand for travel in the Bay Area since March 2020. The effects of the initial shutdown (March 2020) were a significant decline in VMT and transit ridership, resulting in significant cuts to transit service levels. VMT has increased over time and is approaching pre-pandemic levels, but transit ridership levels have increased at a slower pace. The existing conditions described in this section were based on data collected in spring 2019 prior to the onset of the pandemic. The forecasts for year 2040 conditions are based on regional forecasts prepared by the Association of Bay Area Governments (ABAG) and were not adjusted to reflect any lasting effects of COVID-19 on travel. It is ABAG’s belief at this time that the current pandemic would have an impact on the economy over the next few years but not in the long term.

The VMT analysis in this chapter, a primary California Environmental Quality Act (CEQA) transportation metric, is based on buildout of the proposed project, as modeled using the Transportation Authority of Marin Demand Model (TAMDM). For this effort, the 2015 base year for TAMDM was updated and validated for a new 2019 base year for the City of San Rafael (City) to be consistent with the data collected for this evaluation. This analysis includes a 2040 No Project scenario that is based on the TAMDM horizon year and a 2040 Plus Project scenario that reflects land use changes and transportation improvements consistent with the proposed project.

4.16.1 ENVIRONMENTAL SETTING

4.16.1.1 TERMINOLOGY

The following are definitions for terms used in this chapter.

- **Vehicle Miles Traveled (VMT).** A measure of network use or efficiency that accounts for the number of daily vehicle trips generated times the length or distance of those trips. VMT is generally expressed as

TRANSPORTATION

VMT per capita for a typical weekday. For instance, the 2013 average daily residential VMT per capita for the nine county Bay Area region was 15.3 miles per person per day.¹

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect

4.16.1.2 REGULATORY FRAMEWORK

This section summarizes key federal, state, regional, and local regulations and programs related to GHG emissions resulting from the proposed project.

Federal Regulations

Applicable federal regulations pertaining to transportation are addressed in other chapters of this EIR, including Chapter 4.3, Air Quality, Chapter 4.8, Greenhouse Gas Emissions, and Chapter 4.9, Hazards and Hazardous Materials. The federal Clean Air Act, the Fixing America's Surface Transportation Act, and Americans with Disabilities Act may have some relevance or influence for individual projects or actions as part of potential future projects in the EIR Study Area.

State Regulations

Senate Bill (SB) 743

With the passage of SB 743 (September 2013) and the subsequent adoption of revised CEQA Guidelines in (December 2019, level of service can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA. Level of service is the measure of the average amount of delay experienced by vehicle drivers at an intersection or along a road segment during the most congested time of day, while the new CEQA metric (VMT) measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled. Level of service is a measure of local vehicle congestion at an intersection or on a road segment and VMT is a measure of the total miles of vehicle travel measured at an area-wide or project-level scale. In other words, SB 743 changed the focus of transportation impact analysis in CEQA from measuring quality-of-life impacts to drivers, to measuring the physical impacts on the environment of driving. Land use projects with one or more of the following characteristics would have lesser VMT impacts:

- Higher land use densities
- Mix of project uses
- Support of a citywide jobs-housing balance (i.e., provide housing in a job rich area, or vice versa)
- Proximity to the core of a region
- Proximity to high quality transit service
- Located in highly walkable or bikeable areas

¹ Source: Metropolitan Transportation Commission (MTC) Travel Model One.

TRANSPORTATION

This shift in transportation impact criteria is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation. Specific to SB 743, Section 15064.3(c) of the revised Guidelines states that, "a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide." However, CEQA Section 21099(b)(2) states that, "upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the Guidelines."

Although the Governor's Office of Planning and Research (OPR) provides recommendations for adopting new VMT analysis guidelines, lead agencies have the final say in designing their methodology. Lead agencies must select their preferred method of estimating and forecasting VMT, their preferred significance thresholds for baseline and cumulative conditions, and the mitigation strategies they consider feasible. Lead agencies must prove that their selected analysis methodology aligns with SB 743's goals to promote infill development, reduce GHGs, and reduce VMT.

California Complete Streets Act, AB 1358 (States of 2008)

The California Complete Streets Act requires the legislative body of a city or county, upon revision of the circulation element of their general plan (after January 1, 2011), to identify how the jurisdiction will provide for the routine accommodation of all users of the roadway (i.e., complete streets) including motorists, pedestrians, bicyclists, individuals with disabilities, seniors, and users of public transportation. San Rafael's existing General Plan 2020 was previously amended and meets this requirement.

California Department of Transportation

Caltrans is responsible for operating and maintaining the State highway system. In the Project vicinity, US-101 and I-580 fall under Caltrans jurisdiction. Caltrans provides administrative support for transportation programming decisions made by the California Transportation Commission for State funding programs. The State Transportation Improvement Program is a multiyear capital improvement program that sets priorities and funds transportation projects envisioned in long-range transportation plans.

Transportation Impact Study Guide

The TISG replaces the Guide for the *Preparation of Traffic Impact Studies* for use with local development projects and went into effect July 1, 2020. The TISG was prepared by Caltrans to provide guidance to lead agencies regarding Caltrans review of a land use project or plan's transportation analysis using a VMT metric. This guidance is not binding and is intended to be a reference and informational document.

Deputy Directive DD-64-R1 – Complete Streets – Integrating the Transportation System

Caltrans provides for the needs of travelers of all ages and abilities in all programming, planning, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans views all transportation improvements as opportunities to improve safety, access, and mobility for all

TRANSPORTATION

travelers in California and recognizes bicycles, pedestrians, and transit modes as integral elements of the transportation system.

Caltrans develops multimodal projects in balance with community goals, plans, and values. Implicit in these objectives is addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding. Bicycle, pedestrian, and transit travel is facilitated by creating “complete streets,” beginning early in the system planning process and continuing through project delivery and maintenance and operations.

California Public Utilities Commission

The California Public Utilities Commission sets guidelines for interactions between railroad facilities and ground transportation facilities. This includes location and type of crossing guards, design of railroad crossings, and other design criteria in and around railroad facilities. The guidelines come in the form of general orders.

General Order NO. 75-D – Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings in the State of California.

The general order provides regulations that govern the standards for warning devices for at-grade highway-rail crossings for motor vehicles, pedestrians, and/or bicycles. All warning devices shall be in substantial conformance with the applicable Standards, Guidance and Options set forth in the Manual on Uniform Traffic Control Devices adopted by Caltrans.

Regional Plans and Regulations

Plan Bay Area

As discussed in Chapter 4, Environmental Analysis, of this Draft EIR, *Plan Bay Area* is the Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS), as mandated by the Sustainable Communities and Climate Protection Act (Senate Bill 375). *Plan Bay Area* lays out a development scenario for the nine-county Bay Area that works to align transportation and land use planning in order to reduce VMT through modified land use patterns. The current *Plan Bay Area* projects growth and development patterns through 2040 and is currently being updated to extend to 2050.

As described in Chapter 4, Environmental Analysis, part of the implementing framework for *Plan Bay Area*, local governments have identified Priority Development Areas (PDAs) and Transit Priority Areas (TPAs) to focus growth. PDAs are areas along transportation corridors which are served by public transit that allow opportunities for development of transit-oriented, infill development within existing communities that are expected to host the majority of future development. TPAs are similar in that they are formed within one-half mile around a major transit stop such as a transit center or rail line. Overall, over two-thirds of all regional growth by 2040 is allocated to PDAs and TPAs. As shown on Figure 4-1, the EIR Study Area has three PDAs and three TPAs. The PDAs include the North San Rafael PDA, Civic Center Smart Station TPA, Southeast San Rafael / Canal PDA, Downtown San Rafael SMART Station PDA and TPA, and a very small

portion of the Larkspur TPA. General Plan 2040 is anticipating that these areas will absorb most of the City's future growth.

Bay Area Clean Air Plan

As described in Chapter 4.3, Air Quality, of this Draft EIR, the Bay Area Air Quality Management District (BAAQMD) adopted the 2017 *Clean Air Plan: Spare the Air, Cool the Climate* (Clean Air Plan) on April 19, 2017. The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the state's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a postcarbon year 2050 that encompasses the following:

- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, toxic air contaminants, and GHG from a full range of emission sources. These control measures cover eight sectors that contribute to GHG emissions, including transportation. The control strategy includes the following relevant priorities related to the transportation sector:

- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
- Increase efficiency of the energy and transportation systems.
- Reduce demand for vehicle travel and high-carbon goods and services.
- Electrify the transportation and building sectors.

Bay Area Commuter Benefits Program

Under Air District Regulation 14, Model Source Emissions Reduction Measures, Rule 1, Bay Area Commuter Benefits Program, employers with 50 or more full-time employees within the BAAQMD are required to register and offer commuter benefits to employees. In partnership with the BAAQMD and the MTC, the rule's purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area's traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit options including a pre-tax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to transportation are primarily in the Circulation Element. As part of the proposed project, this Element is being retitled the Mobility Element and its policies and programs are being comprehensively updated. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and

TRANSPORTATION

potential to result in an adverse physical impact later in this chapter under Section 4.8.4, Impact Discussion.

San Rafael Municipal Code

The San Rafael Municipal Code (SRMC) includes various directives pertaining to transportation. The SRMC is organized by title, chapter, and section. Most provisions related to transportation impacts are in Title 5, Traffic Regulations, Title 11, Public Works, and Title 14, Zoning.

- **Chapter 5.52, Restricted Use of Certain Streets.** This chapter designates truck routes in the city.
- **Chapter 5.81, Trip Reduction and Travel Demand Requirements.** Requires the City to implement a trip reduction and travel demand ordinance (Ordinance 1657 Section 1 (part), 1994).
- **Chapter 11.04, Encroachments in the Public Right-of-Way.** Requires any persons encroaching in the public right-of-way that involves temporary closures for construction or other purposes to obtain a permit that describes how traffic will be safely managed during the closure.
- **Chapter 14.18, Parking Standards.** Requires the provision of off-street parking as specified by land use type and specifies parking design parameters.

San Rafael Bicycle and Pedestrian Master Plan

The San Rafael *Bicycle and Pedestrian Master Plan* (BPMP), updated in 2018, has a goal of connecting the entire city of San Rafael through a continuous biking and walking transportation network. The BPMP inventories existing active transportation infrastructure and identifies constraints, including gaps in pathways, neighborhoods lacking pathways, and safety issues. The BPMP then provides and ranks priorities for the active transportation network and identifies projects and programs that can help the City achieve its goal of having continuous biking and walking pathways.

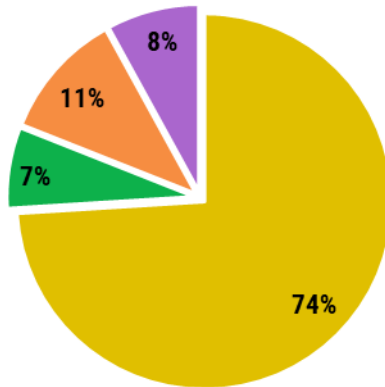
San Rafael Climate Action Plan

As discussed in Chapter 4.8, Greenhouse Gas Emissions, of this Draft EIR, the current San Rafael Climate Change Action Plan (2019 CCAP) focuses on mitigation measures aiming to reduce GHG emissions and establishes targets similar to the State's GHG emission goals, to reduce emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. Actions provided in the 2019 CCAP to meet the City's reduction targets involve initiatives focused on low carbon transportation, amongst others. Low carbon transportation actions would provide 38 percent of the total GHG reductions, with that reduction allocated as follows:

- Zero Emission Vehicles: 83%
- Bicycling: 5%
- Walking: 2%
- Safe Routes to School: 1%
- Public Transit: 3%
- Employee Trip Reduction: 3%
- Parking Requirements: <1%
- Traffic System Management and Vehicle Idling: 3%
- Electric Landscape Equipment: <1%

4.16.1.3 EXISTING CONDITIONS

Based on the 2013–2017 American Community Survey, most residents in San Rafael, Marin County, and the State of California commute by automobile (drive alone or in carpool) to get to work. The share of commuters driving to work is slightly higher in San Rafael (about 74 percent) compared to Marin County (about 73 percent) and lower than California (about 84 percent). Public transportation accounted for the next highest share (about 11 percent). In San Rafael, more residents use public transportation to get to work compared to Marin County (about 10 percent) and California (about 5 percent). Walking and biking



accounted for seven percent of the mode share in San Rafael. In San Rafael, more residents walk or bike to work compared to Marin County (about six percent) and California (about five percent). About eight percent of San Rafael residents worked from home at the time this data was collected. Chart 1 displays the method of travel to work for residents of San Rafael.

■ Drive (Alone and Carpool) ■ Walk/Bike ■ Public Transit ■ Work from Home

Chart 1: Method of Travel to Work

Source: American Community Survey, 2013-2017.

Marin County travel data collected for the Transportation Authority of Marin (TAM) indicate that the average daily trip length² for San Rafael, according to the TAM data, is 8.2 miles, slightly higher than the overall county average of 8.1 miles and 19 percent higher than the Bay Area average of 6.9 miles.

The TAM travel data also shows that a large share of Marin County workers reside outside Marin County and thus have long commutes, a reflection of the high cost of housing. About 35 percent of the approximately 125,000 employees who work in Marin County live outside the county, with the highest share of imported workers coming from Sonoma, Contra Costa, and San Francisco counties.

Street System

The City’s street system (totaling about 172 miles)³ serves as the primary channel for all modes of travel. Roadways are organized using a hierarchical system, whereby individual roadways are classified by their intended function within the overall roadway network. These classifications – highways, arterials, and

² Average daily trip length represents the average trip length for a single trip as opposed to VMT, which represents the distance traveled by one or more trips.

³ *California Public Road Data*, California Department of Transportation, Released November 2019.

TRANSPORTATION

collectors – define the desired functional and operational characteristics of a roadway, such as traffic volume capacity and level of service. Figure 4.16-1 presents the location of important roadways within the City of San Rafael.

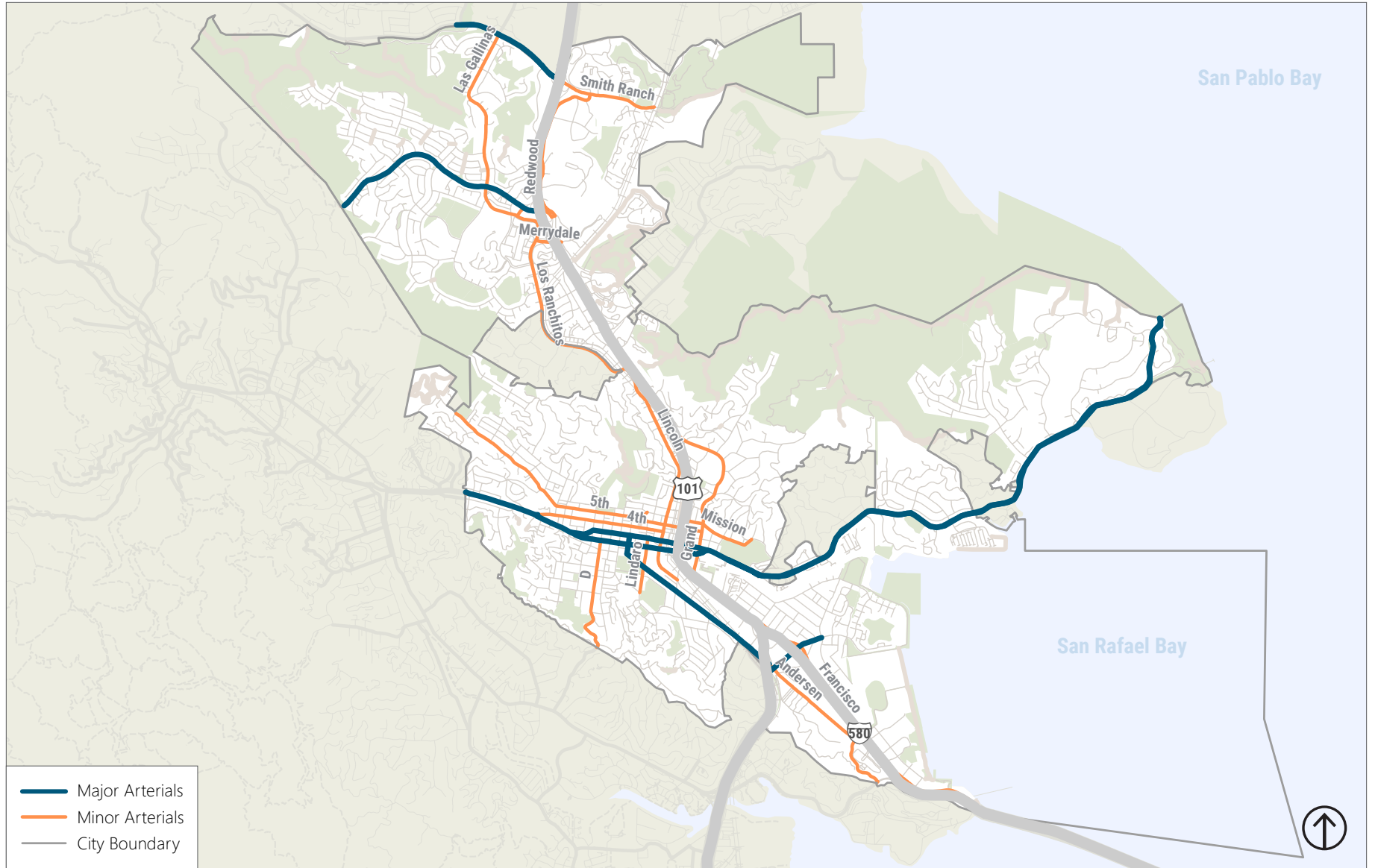
United States Highway 101 (US-101) and Interstate 580 (I-580) provide regional access in, to, and out of the city of San Rafael. Both highways are owned, operated, and maintained by Caltrans. US-101 is a major north-south highway that runs through the states of California, Oregon and Washington. US-101 has four lanes in each direction in San Rafael and carries approximately 202,000 vehicles per day. I-580 is a freeway that extends from San Rafael east across the San Francisco Bay, via the Richmond-San Rafael Bridge, and through the East Bay to its eastern terminus at I-5 east of Livermore. I-580 has two lanes in each direction through San Rafael and carries about 77,000 vehicles per day just east of US-101.

Congestion levels on US-101 as well as at the junction of US-101/I-580 can cause freeway traffic to detour onto city streets during peak travel periods or when incidents occur on the freeway. This can increase congestion levels on parallel city street such as Las Gallinas Avenue, Los Ranchitos Road, Lincoln Avenue, Grand Avenue, Andersen Drive, Francisco Boulevard East, and Francisco Boulevard West. As there is not currently a direct connector between northbound US-101 and eastbound I-580, freeway traffic along this route must use local city streets including the Bellam Boulevard interchange. The Transportation Authority of Marin (TAM) in collaboration with Caltrans and the cities of San Rafael and Larkspur has recently launched a study to plan and design a grade-separated connector between northbound US-101 and eastbound I-580 (US-101/I-580 connector project). The US-101/I-580 connector project will provide a direct ramp connection that avoids local streets. A number of alternative alignments are being considered for the new ramp, each with varying environmental impacts and costs. The US 101/I-580 connector project includes bicycle and pedestrian improvements along Bellam Boulevard, and new transit connections. The US-101/I-580 connector project is being coordinated with efforts to reduce bottlenecks on the eastbound I-580 approach to the Richmond-San Rafael Bridge. A third eastbound lane was opened on the Richmond-San Rafael Bridge in 2018 for afternoon commuters. The US-101/I-580 connector project includes a new lane on eastbound I-580 from the new US-101 ramp to the existing on-ramp at Sir Francis Drake Boulevard.

The location and layout of development within the City of San Rafael have resulted in a primarily east-west roadway network. Major east-west roadways include Lucas Valley Road, Manuel T. Freitas Parkway, Second Street, Third Street, Bellam Boulevard, and Andersen Drive. Lincoln Avenue, Point San Pedro/N. San Pedro Roads, and D Street are other important facilities that provide cross-town access.

The Downtown Precise Plan Area is served by an extensive system of regional and local streets. Within Downtown San Rafael, the roadway network is a grid-based network of lettered north-south streets and numbered east-west streets. Many of the core Downtown blocks are 360 feet by 360 feet with roadway widths ranging from about 40 to 52 feet. The Downtown Precise Plan Area contains 53 signalized intersections and one rapid rectangular flashing beacon (RRFB) at the Fifth Avenue/Cottage Avenue intersection to facilitate safe pedestrian crossings. The Downtown Precise Plan Area roadways serve a variety of users, including people traveling by foot, bike, bus, and vehicle, as well as delivery trucks serving Downtown Businesses and residences. The multimodal roadway network proves to be a dynamic environment for users of all types.

TRANSPORTATION



Source: Fehr & Peers, 2020.

Figure 4.16-1
Existing Street System

TRANSPORTATION

The following streets and portions thereof in or adjacent to The Downtown Precise Plan Area are designated as truck routes: Francisco Boulevard, Jordan Street, Lincoln Avenue from the north line of Third Street to its intersection with Irwin Street, San Pedro Road, Second Street, Third Street, DuBois Street from Irwin Street to Woodland Avenue, Fourth Street from its westerly terminus to Second Street, Irwin Street from Third Street to Woodland Avenue, Lindaro Street from Third Street to Jordan Street, Lovell Avenue from Irwin Street to Jordan Street, and Woodland Avenue from its easterly terminus to Irwin Street.

Existing Road Segment Data

To provide a baseline for the transportation analysis, traffic counts were collected at 41 roadway segments within the city during a weekday in May 2019. The roadway counts were collected for 24 hours. During the counts, weather conditions were generally dry, no unusual traffic patterns were observed, and the San Rafael City Schools were in full session. Figure 4.16-2 displays the observed daily traffic volumes for the 41 study roadway segments.

Existing Vehicle Miles Traveled

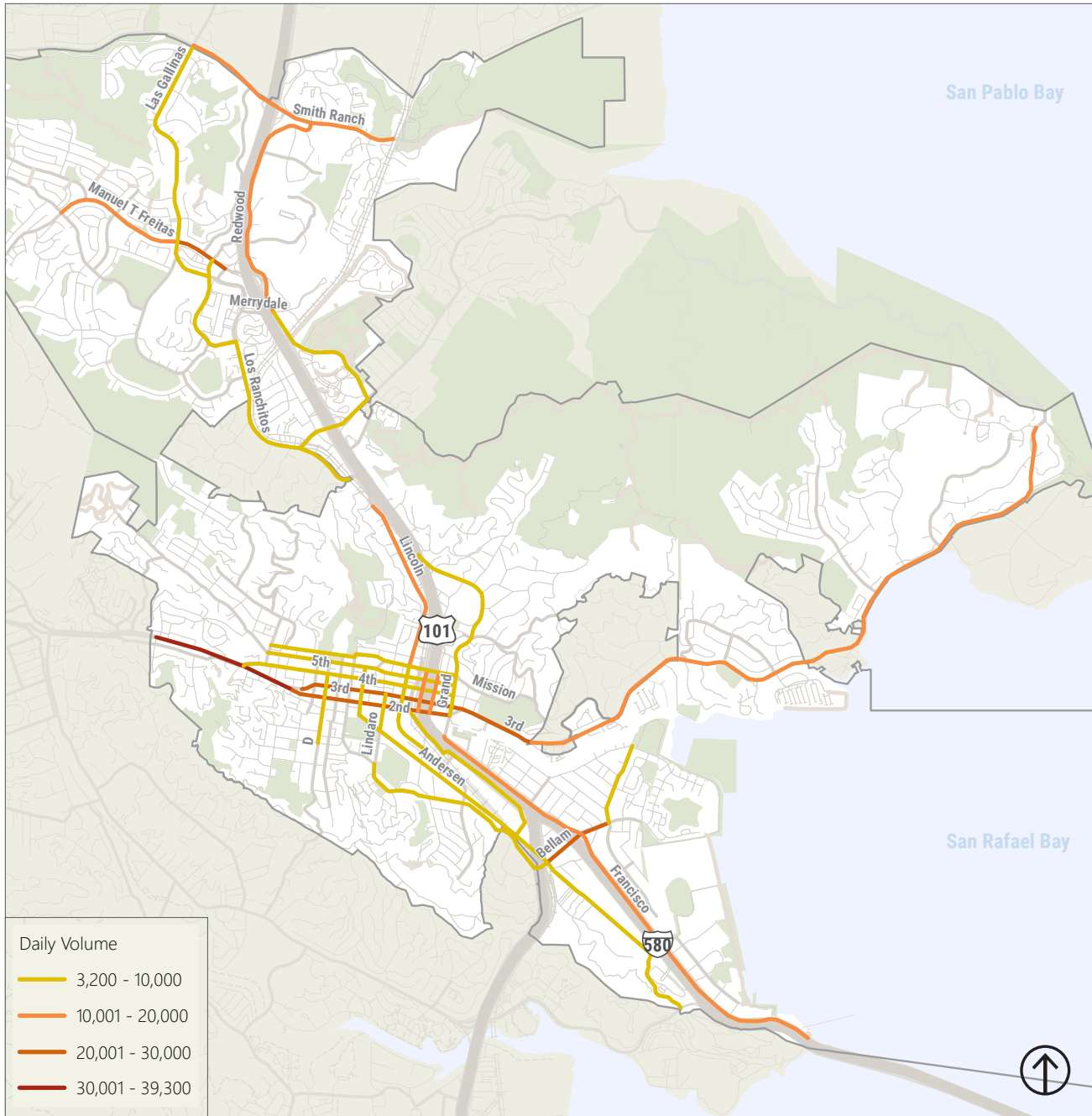
VMT is a measure of traffic flow, determined by multiplying the number of automobile trips within a given geography by the average trip length. Unlike level of service, which is a measure of automobile delay, VMT is a measure of automobile travel and the resulting emissions. For the purposes of this EIR, VMT is estimated for a typical weekday. The efficacy of this measure is a result of several factors:

- VMT is relatively easy to measure by counting traffic on roadways at different locations. It is one of the few measures of transportation performance that has been consistently and comprehensively monitored and documented over time, primarily for the purpose of estimating air quality and GHG emissions.
- VMT bears a direct relationship to vehicle emissions, although this relationship is becoming more complex as vehicular technologies evolve. State and federal policies pertaining to vehicle efficiency and formulation of vehicle fuels suggest that on a per capita basis, emissions for most pollutants and GHG emissions will decline relative to today. However, even with emission reductions due to fuel and vehicle technology changes, future reductions in VMT per capita will result in lower air quality and GHG emissions.
- VMT can be influenced by policy in a number of different ways. Land use projects that are close to high quality transit service, located in highly walkable or bikeable areas, have higher densities, include a mix of project uses, support a better citywide jobs-housing balance (i.e., provide housing in a job rich area, or vice versa), and/or are close the core of the city (shorter trip distances to services) would generate less VMT than projects that do not have these characteristics.

Pedestrian Facilities

Sidewalks exist on most roadways within the city of San Rafael. Portions of Downtown San Rafael, particularly along Fourth Street and Fifth Avenue from Lincoln Avenue to the West End, are walkable, pedestrian-friendly streets.

TRANSPORTATION



Source: Fehr & Peers, 2020.

Figure 4.16-2
Existing Road Segment Average Daily Volumes

TRANSPORTATION

Most signalized intersections have standard crosswalk treatments, which consist of two 12-inch-wide white stripes that delineate the sides of the pedestrian walking area. Several intersections have high-visibility crosswalks that are marked using the continental pattern of crosswalk striping, which consists of a series of wide strips parallel to the curb for the length of the crossing. This includes intersections around the Transit Center/SMART station, along Fourth Street in the West End, on Second Street, Grand Avenue, Fifth Avenue, and Mission Avenue.

Within some areas, especially in older areas of San Rafael, sidewalks are nonexistent or discontinuous. Narrow sidewalks, sidewalks with traffic signals or utility poles centered in the sidewalks, and sidewalks that do not have wheelchair ramps prevent some users from accessing the existing sidewalks. Additionally, portions of sidewalk are used by both pedestrians and bicyclists due to the limited bicycle network. Overgrown vegetation and illegal parking can also inhibit access to sidewalks in some areas.

Streets that have higher traffic volumes, vehicle speeds, greater vehicle turning volumes, and/or attached sidewalks without a buffer present a less comfortable pedestrian environment. Examples of these streets include Second Street, Third Street, Hetherton Street, Irwin Street, Andersen Drive, Francisco Boulevard West, and Francisco Boulevard East.

The BPMP identified pedestrian network gaps and difficult crossing locations (i.e., crossing length, pedestrian visibility, signal timing, lack of curb ramps, etc.) based on public comments. These locations include intersections near the Transit Center (Hetherton Street, Irwin Street, Second Street, and Mission Avenue), along Grand Avenue, and at several locations in the West End.

San Rafael had the second highest frequency of pedestrian collisions of 104 comparably sized cities in California, based on 2016 rankings by the state Office of Traffic Safety. According to data analyzed for the BPMP, 1 in 10 collisions in San Rafael involves a pedestrian, and 65 percent of pedestrian-involved collisions in San Rafael occurred in the Downtown Precise Plan Area.

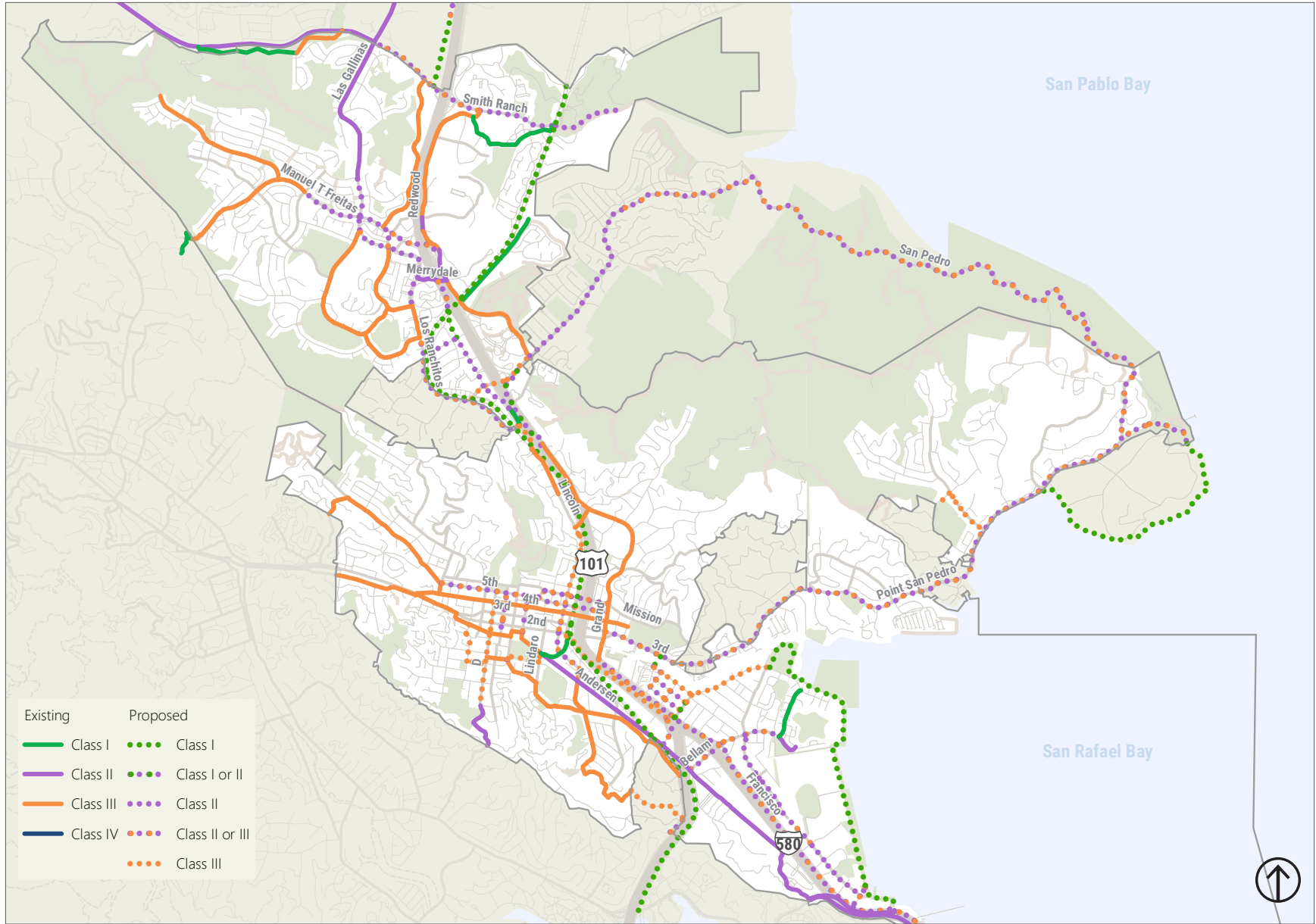
Bicycle Facilities

Caltrans recognizes four classifications of bicycle facilities.

- **Class I.** Commonly referred to as a bike path or bikeway, is a facility separated from automobile traffic for the exclusive use of bicyclists.
- **Class II.** Commonly referred to as bike lanes, are dedicated facilities for bicyclists immediately adjacent to automobile traffic.
- **Class III.** Commonly referred to as bike routes, are on-street routes where bicyclists and automobiles share the road.
- **Class IV.** Commonly referred to as cycle tracks or protected bike lanes, are facilities that combine elements of Class I and Class II facilities to offer an exclusive bicycle route immediately adjacent to a roadway similar to a Class II facility, but provides a physical separation from traffic with raised curb, plastic delineators, or parked automobiles.

Figure 4.16-3 displays the locations of existing and proposed bicycle facilities within the City of San Rafael, as designated in the BPMP.

TRANSPORTATION



Source: Fehr & Peers, 2020.

Figure 4.16-3
 Existing Bicycle Facilities

TRANSPORTATION

The City of San Rafael has a limited number of Class I (paths) or Class II (dedicated on-street lanes) facilities in the existing bicycle network. Most existing facilities are designated as Class III where bicyclists and automobiles share a travel lane. There are no existing Class IV (cycle track) facilities. Of the 172 road miles in the City, about 8 percent or 13.4 of these road miles have space dedicated for the use of bicycles. The City also has 9.27 miles of multi-use path and 18.05 miles of bicycle routes.

Outside of the Downtown Precise Plan Area, primary bicycle facilities include a Class I facility parallel to the SMART rail line that connects the northern portions of San Rafael with the Downtown Precise Plan Area; several Class II facilities, including along Las Gallinas Avenue, Lucas Valley Road, Los Ranchitos Road, Northgate Drive, and Manuel T. Freitas Parkway; and Class III facilities along several local roadways, including Los Gamos Drive, Civic Center Drive, and Point San Pedro Road. There are no existing Class IV facilities within the City of San Rafael.

Through the Downtown Precise Plan Area, bicycle facilities are limited to Class III shared routes on Fourth Street, Fifth Avenue, D Street, and Grand Avenue. Bicycle access to and from the Downtown area is limited due to a combination of topographic challenges and limited bicycle infrastructure. The primary bicycle routes to and from the Downtown Precise Plan Area are described below.

- **To/from the north:** North-south bicycle routes are provided by a Class I path adjacent to the SMART rail line and a Class III route along Grand Avenue. There are no alternate north-south bicycle routes due to the hills and lack of roadways and paths north of the Downtown Precise Plan Area.
- **To/from the west:** An east-west bicycle route is provided via a Class III shared facility on Greenfield Avenue. Greenfield Avenue runs parallel to Second Street, the major arterial providing access into San Rafael from San Anselmo.
- **To/from the south:** North-south bicycle access to/from the south of the Downtown Precise Plan Area is provided by a Class II lane on Andersen Avenue or a Class III shared route on D Street. Andersen Avenue provides access to the major north-south regional bikeway via the Cal Park Tunnel. D Street is the only roadway that continues over Wolfe Grade into Larkspur and Greenbrae. The hilly terrain of Wolfe Grade is used by road cyclists who often share the lane with auto traffic in both directions.
- **To/from the east:** A combination of Class II lanes and Class III shared route facilities are provided on Point San Pedro Road, which becomes Third Street just east of the Downtown Precise Plan Area. This route is the only major east-west bicycle route connecting to downtown. There are some bicycle facility gaps between Point San Pedro Road, Third Street and Downtown Precise Plan Area, primarily due to the demand for multiple lanes along the same route to provide auto access to and from US-101 and lack of sufficient space for dedicated bicycle facilities along those major auto routes.

According to data analyzed for the BPMP, 1 in 10 collisions in San Rafael involves a bicyclist. The City of San Rafael has the eighth highest frequency of bicycle collisions of 104 comparably sized cities in California, based on 2016 rankings by the state Office of Traffic Safety. For bicycle collisions involving cyclists younger than 15, San Rafael ranks in the top 10 of the 104 comparably sized cities. The highest collision density occurs on roadways adjacent to the Transit Center/SMART Station/Highway 101 area and within the core of the Downtown Precise Plan Area.

Public Transit

The City of San Rafael's transit network includes rail service, regional bus service, and local bus service. Figure 4.16-4 displays the City of San Rafael's existing transit facilities and network. Transit service within San Rafael is concentrated in the Downtown Precise Plan Area.

Rail Service

Sonoma-Marin Area Rail Transit (SMART) provides passenger rail service in Marin and Sonoma counties. SMART's initial 43 miles of rail corridor includes 10 stations, from the Downtown Precise Plan Area to the Sonoma County Airport. Each two-car SMART train has spaces for up to 24 bikes. SMART stations also have bike storage including bike racks and secured bike lockers. SMART also provides rail transit service that is accessible to passengers with disabilities. SMART offers a 31-Day Pass for unlimited rides for 31-consecutive days from the date of first use. The 31-Day Pass is available through Clipper and costs \$200 for adults and \$100 for seniors, youth, and persons with disabilities. SMART's Eco Passes are unlimited, flat rate passes available only to employers, colleges or institutions to load onto Clipper cards for their employees, students, or members. Eco Passes qualify as an employer-sponsored transit benefit, which means employees can use pretax wages to purchase them. Passes are available in four, six, or twelve month increments. One-way fares can be purchased either through Clipper or a SMART eTickets app. One-way fares range from \$3.50 to \$11.50 depending on trip distance, with 50 percent discounts provided for seniors, youth, and persons with disabilities.

SMART served about 723,000 passengers during its first year of operations beginning on August 25, 2017. Twenty-nine (29) percent of all passengers boarded at the San Rafael Downtown Station, which equates to about 700 daily passenger boardings on weekdays. Since 2017, the Transportation Authority of Marin (TAM) and Lyft have offered a \$5 discount for all "Lyft Line" rides to and from SMART stations in Marin County. The program is designed to support access to and from Marin's SMART stations and encourage carpooling options to reduce congestion and pollution. TAM has also partnered with Whistlestop to ensure this service is available to all users, including providing rides with wheelchair accessible vehicles.

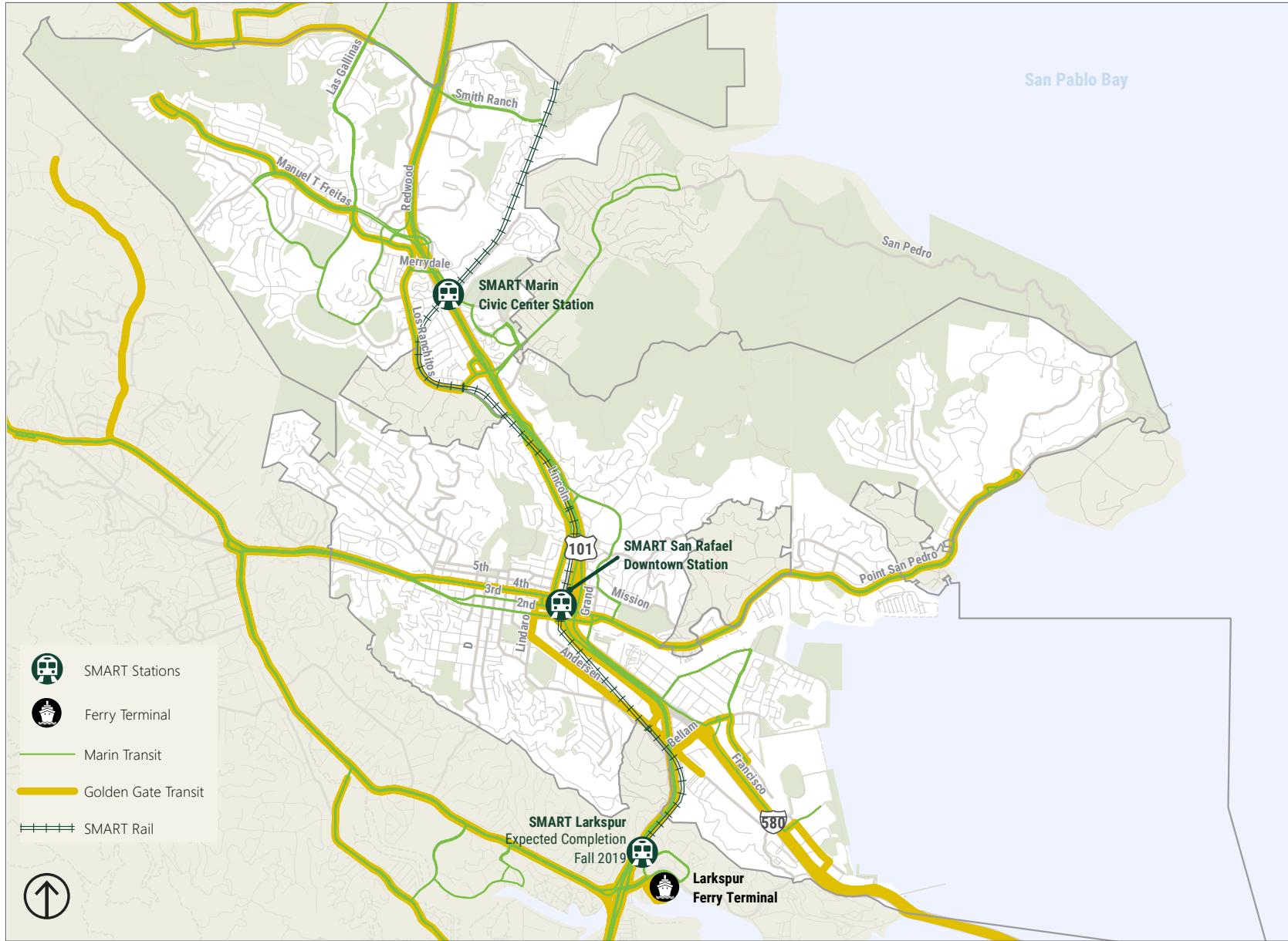
A southern extension of SMART rail to the Larkspur Ferry Terminal opened in 2019. The station is located north of Sir Francis Drake Boulevard and west of Larkspur Landing Circle.

Regional Bus Service

The Golden Gate Bridge and Highway Transportation District (GGBHTD) directly operates two fixed-route transit services: Golden Gate Transit regional bus service and Golden Gate Ferry. Regional bus service began in 1972 and is provided on 26 fixed routes. These routes fall into three categories:

- **Basic** routes provide daily service throughout the day and evening between San Francisco, Marin, Sonoma, and Contra Costa counties.
- **Commuter** routes provide weekday service primarily during morning and afternoon peak periods between San Francisco, Marin, and Sonoma Counties.
- **Commuter Shuttle** routes provide weekday service primarily during morning and afternoon peak periods and are designed to supplement other GGBHTD services.

TRANSPORTATION



Source: Fehr & Peers, 2020.

Figure 4.16-4
Existing Transit Facilities and Network

TRANSPORTATION

Basic routes that stop at the San Rafael Transit Center include routes 30 (San Rafael to San Francisco), 40 and 40X (San Rafael to El Cerrito, as well as El Cerrito BART Station), 70 (Novato to SF) and 101 (Santa Rosa to San Francisco). Commute routes that stop at the San Rafael Transit Center include routes 27 (San Anselmo to San Francisco) and 44 (Lucas Valley to San Francisco).

Local Bus Service

Marin Transit provides a total of 29 fixed routes, including nine local routes, six community shuttle routes, eleven supplemental school routes, two rural fixed routes, and one Muir Woods shuttle service within Marin County. Marin Transit also offers Connect, an on-demand service available within Northern San Rafael. Marin Transit bus and shuttle services carried over 3.2 million passenger trips in 2017.

Marin Transit owns 95 vehicles including 32 paratransit vehicles, 18 hybrid diesel-electric buses, 12 community shuttles, ten Muir Wood shuttle vehicles, ten articulated vehicles, nine Stagecoach vehicles, two battery electric (zero emission) buses, and two supplemental school vehicles. Marin Transit acquired the two battery electric buses, which can seat 32 passengers, in September 2018. Staff are evaluating performance, reliability, cost, and scalability.

Marin Transit offers a 31-Day Pass for unlimited rides for 31-consecutive days from the date of first use. The 31-Day Pass costs \$80 for adults and \$40 for seniors, youth, and persons with disabilities. A 7-Day Pass costs \$20 for adults and \$10 for seniors, youth, and persons with disabilities. A 1-Day Pass costs \$5 for adults and \$2.50 for seniors, youth, and persons with disabilities. A one-way cash fare costs \$2 for adults and \$1 for seniors, youth, and persons with disabilities.

Marin Transit offers a six month or annual Youth Pass through participating Marin County schools. With the pass, registered Marin County students and youth ages 18 and under ride on local routes in Marin without paying any additional fare. The Youth Pass costs \$175 per six-month period or \$325 for a year.

Local transit routes that stop at the San Rafael Transit Center include nine fixed route, four community shuttle, and one West Marin Stagecoach route. Fixed routes 22, 23, 23X, and West Marin Stagecoach route 68 connect the San Rafael Transit Center to destinations to the west via Fourth Street and Red Hill Avenue. Fixed route 23, 23X, 29, 35, and 36 connect the San Rafael Transit Center with the Canal Neighborhood to the southeast. Fixed route 35 and Community Shuttle route 257 connect the San Rafael Transit Center with destinations to the north via Lincoln Avenue. Marin Transit Community Shuttle routes 233 and 257 connect the San Rafael Transit Center to destinations to the north via Grand Avenue.

Transit Centers

Downtown San Rafael SMART Station

The Downtown San Rafael SMART Station is bounded by Fourth Street, Third Street, and Tamalpais Avenue. It is located just north of the San Rafael Transit Center located between Third Street and Second Street. The Downtown San Rafael SMART Station serves more boardings than any other station along the SMART line. For current SMART riders using a Clipper card, free shuttle service to the Larkspur Ferry Terminal is available.

TRANSPORTATION

Civic Center SMART Station

The Civic Center SMART station is bounded by Civic Center Drive and Merrydale Road and located underneath US-101. It is located just west of the Marin County Civic Center. This station is less utilized than the San Rafael SMART Station with only six percent of total boardings along the SMART line.

San Rafael Transit Center

The San Rafael Transit Center serves as the regional transit hub for Marin County. It connects rail service, bus service, airporter service, and taxi service. Transfers are provided to San Francisco, Sonoma and Contra Costa counties.

The current 17-bay transit center serves 9,000 boardings and alightings on over 500 buses on a typical weekday. Nearly half of the trips made by weekday riders have origins or destinations within the Downtown Precise Plan Area. Just over half are transferring between buses or between bus and rail at the transit center. With 16 bus bays occupied during peak times, the San Rafael Transit Center is currently operating at or beyond its capacity.

A multi-year process to develop a relocated transit center for San Rafael has been underway since early 2018. The current transit center is affected by the extension of Sonoma Marin Area Rail Transit (SMART) system to Larkspur. Five alternative station concepts were developed initially as part of the planning process. The planning process subsequently narrowed the number of station concepts to three alternatives that are being evaluated in the environmental review. Golden Gate Transit is leading the relocation analysis, environmental clearance, and preliminary design process. The environmental impact study for the relocated transit center is anticipated to be complete in mid-2022, allowing for the selection of a preferred alternative. This environmental assessment assumes a relocated transit center in close proximity to the existing transit center will be operational by 2040.

Mobility Services and Programs

Shared Mobility Options

According to the Shared-Use Mobility Center, shared mobility is defined as transportation services and resources that are shared among users, either concurrently or one after another. The services are grouped into five different shared mobility typologies:

- Bikesharing/Scooter-sharing
- Carsharing
- Ridesharing/Ridehailing
- Public Transit
- Microtransit (e.g., shared scooters)/Shuttles

Bikesharing, scooter-sharing, or microtransit services are not currently provided in San Rafael. They are, however, provided in many other Bay Area cities. SMART received an \$800,000 grant from the Metropolitan Transportation Commission (MTC) to fund a pilot for bikeshare stations at SMART stations. The bikeshare bikes will provide SMART riders with an alternative for the “last mile” of their journey

TRANSPORTATION

beginning in 2021. A minimum of 300 GPS-enabled e-bikes will initially be allocated at designated SMART stations.

Carsharing and ridesharing/ridehailing activities are generally concentrated in the Downtown Precise Plan Area. Limited carsharing options are provided by several ZipCar spaces near the San Rafael Transit Center.

Traditional ridesharing includes carpooling, vanpooling, and real-time matching of drivers and passengers through mobile apps in which the passenger pays a share of the trip cost. Ridehailing providers such as Uber and Lyft use online platforms to connect passengers with drivers who use personal, non-commercial, vehicles. UberPOOL and Lyft Line are ridesharing options that allow drivers to carry multiple passengers who split the cost of a trip.

Taxis and limos are regulated for-hire vehicles. Numerous companies provide these services in San Rafael.

Safe Route to School (SR2S) Program

The Transportation Authority of Marin (TAM) administers a Safe Routes to School (SR2S) Program⁴, which works to relieve traffic congestion around schools by promoting alternatives to commuting to school, such as walking, biking, taking the bus and carpooling. In addition, the program helps improve safety, promote a healthy lifestyle for youth and enhance the sense of community in neighborhoods. It does this through classroom education, special events, infrastructure improvements, a crossing guard program, and other strategies.

To address the unique needs of each school district, a Task Force is formed to bring together SR2S staff, parent leaders, elected officials and staff from the local jurisdiction, traffic engineers, school district representatives, law enforcement personnel and neighborhood leaders.

The TAM SR2S program has been in operation since 2000 and involves 58 schools and more than 26,500 students in Marin County.

Transportation Demand Management

SRMC Chapter 5.81 details the City's Trip Reduction Ordinance, including trip reduction and travel demand requirements. The trip reduction requirements are imposed upon employers within the City with more than 100 employees at an individual work site. The ordinance requires these employers to disseminate trip reduction information regarding alternative modes of travel (e.g., carpools, vanpools, transit, bicycling, telecommuting, flexible work hours, etc.), conduct an annual employee trip survey that shall be submitted to the City, and designate an employee transportation coordinator to be responsible for administering the requirements of the Trip Reduction Ordinance. Should another agency (such as the BAAQMD) impose more stringent requirements on employers with the City, then any employer within the city that meets those requirements is deemed in compliance with this ordinance.

⁴ <https://www.tam.ca.gov/projects-programs/safe-routes-to-school/>

TRANSPORTATION

Transportation Safety

The 2018 Marin Travel Safety Plan⁵ was a collaborative effort between unincorporated Marin County and all 11 incorporated cities and towns. The purpose was to provide a systemic safety analysis for motorists, motorcyclists, bicyclists, and pedestrians on non-state arterial and collector roadways. The Marin Travel Safety Plan was funded through a Systemic Safety Program grant provided by Caltrans. The intent was to provide a proactive collision analysis, identify high risk locations and collision patterns, develop a list of systemic low-cost and longer-term countermeasures, and help secure funding to address key safety issues.

During the five-year period in which crashes were evaluated, 35 percent of all crashes in the county occurred in the City of San Rafael, higher than the city's 23 percent share of the total county population. Notable collision profiles in San Rafael include high rates of pedestrian collisions involving seniors or youth under 15, bicycle collisions involving youth under 15, speed related collisions, and driving under the influence with drivers under the age of 21. In these categories, the City of San Rafael has consistently ranked among the top 10 cities in victims killed and injured, among 105 California cities with similar-sized populations, according to the California Office of Traffic Safety.

The 2018 Marin Travel Safety Plan identified safety countermeasures for 20 corridors and 8 intersections in the City of San Rafael. Marin County received \$2.8 million in Highway Safety Improvement Program grant funds from Caltrans in the most recent funding cycle to implement safety countermeasures identified in the plan at 51 signalized intersections in unincorporated Marin County and within 11 incorporated cities.

Transportation Network Disruptions

This section provides a description of transportation network disruptions that may result from natural hazards including wildfires and flooding from sea level rise. The natural hazards described in this section are discussed elsewhere in this EIR and the following provides context for how the natural hazard relates to the transportation network.

Wildfires

As described in Chapter 4.18, Wildfire, the wildland-urban interface (WUI) is defined as any area where structures and other human development meet or intermingle with wildland vegetation.⁶ Many San Rafael neighborhoods along the periphery of urban development are located within the WUI (see Figure 4.18-2). Access to these neighborhoods is commonly limited to one or two locations due to topographic features. These access constraints can impede evacuation during uncontrolled wildfire events.

⁵ Marin Travel Safety Plan, 2018.

<https://www.marincounty.org/userdata/dpw/Marin%20County%20Travel%20Safety%20Plan%20-%20Final%20Report.pdf>, accessed November 2020.

⁶ Cal California Office of Emergency Services. 2018. California State Hazard Mitigation Plan.

TRANSPORTATION

San Rafael Wildfire Prevention and Protection Action Plan—conditionally approved in March 2019 and formally adopted in August 2020 following review by a steering committee—provides a series of prescriptions, programs, and ordinance updates to make the city more fire and disaster resistant. Action 32 of the Wildfire Prevention and Protection Action Plan states that the City shall “review Countywide evacuation plans and expand existing plans to address San Rafael’s unique needs, neighborhoods and resources, including possible water evacuations.” This effort would establish additional transportation network redundancies and potentially reduce the burden on a single egress artery during an emergency.

Flooding

As discussed in Chapter 4.10, Hydrology, of this Draft EIR, San Rafael is subject to flooding of which the effects of sea level rise are expected to exacerbate these flood risks for San Rafael in the coming decades. Most shoreline damage from sea level rise will occur as a result of coastal storms in combination with higher sea levels, which can temporarily raise sea levels by an additional two feet. The key factors that contribute to coastal flooding include high tides, storm surge, high waves, and high runoff rates from rivers and creeks.⁷ The projected sea level rise for the year 2050 (the approximate time horizon of the General Plan) and 2100 with and without the 100-year storm surge, for the city is shown on Figures 4.10-4 through 4.10-7, and a focused look at the Downtown Precise Plan Area for these scenarios is shown on Figures 4.8-10 through 4.8-13. As shown, the effects of sea level rise without additional flooding caused by storm surge would inundate significant portions of Francisco Boulevard East and Andersen Drive east of Bellam Boulevard, in addition to isolated portions of roadways within the Canal District. Alternatively, a scenario with sea level rise plus additional flooding from a storm surge would inundate most roadways north of I-580, including those within the Canal District, as well as significant portions of Point San Pedro Road (Peacock Gap and Marin Yacht Club areas), North San Pedro Road (China Camp area), Andersen Drive, Irwin Street, Lindaro Street, and most roadways in the Downtown Precise Plan Area east of A Street.

4.16.2 METHODOLOGY

This transportation evaluation was prepared in accordance with the requirements of CEQA to determine if significant transportation impacts are likely to occur in conjunction with future development that would be accommodated by the proposed project.

Analysis Scenarios

The transportation modeling and analysis was conducted for the following scenarios.

- **Existing Conditions.** The existing setting is based on traffic counts collected in the spring of 2019. This scenario serves as the baseline or point of comparison for environmental impact significance determinations related to the 2040 General Plan scenario.

⁷ San Francisco Bay Conservation and Development Commission, 2011, *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*.

TRANSPORTATION

- **2040 No Project.** This scenario assumes conditions with 2040 land use forecasts and transportation infrastructure assumptions for the City of San Rafael based on Plan Bay Area 2040 as developed by MTC.
- **2040 General Plan.** This scenario assumes conditions with 2040 land use forecasts and transportation infrastructure assumptions for the City of San Rafael based on the proposed 2040 General Plan policies including the preferred land use plan.

2040 No Project Transportation System

The following roadway improvements or transportation programs, as provided by Transportation Authority of Marin (TAM) staff, are incorporated in the 2040 No Project scenario.

- **Minor Highway Improvements.** Highway interchange improvements, Bellam Boulevard improvements, bicycle/pedestrian crossings, and auxiliary lanes
- **Minor Roadway Projects.** 3rd and 2nd Street improvements, Highway Safety Improvement Program projects, and sea level rise improvements
- **Minor Transit Improvements.** Fleet expansion/facilities, Access to Transit, and Transit Service Expansion, New Bicycle & Pedestrian Facilities, North South Greenway Projects, SMART Multi Use Path, Cross Marin Bikeway, 2nd to Anderson Path, Grand Avenue, East Francisco Boulevard, Approaches to Richmond San Rafael Bridge, Safe Pathways Projects, Small Safety Projects, and Safe Route to Transit Projects
- **Management Systems.** Ramp Metering Phase 1 & 2, and Innovative Technology
- **Safety and Security.** Safe Routes to School Program and Crossing Guard Program
- **Travel Demand Management.** TDM Program, Alternative Fuels Program, and Traveler Information Programs
- **Multimodal Streetscape Improvements.** Local Road Improvements

2040 General Plan Transportation System

The roadway improvements and programs shown in Table 4.16-1 are included in the 2040 General Plan scenario.

TABLE 4.16-1 MAJOR PLANNED MOBILITY IMPROVEMENTS, 2020-2040

1. Interchange Projects (*)

Includes modifications to interchanges for capacity, safety, access, and improved circulation.

1A **US-101/Freitas Parkway Interchange West.** Reconfigure the US-101 off-ramp / Freitas Parkway (Del Presidio) and Northgate Rd/ Freitas Parkway intersection to address safety, circulation, and capacity issues. Improvements would be coordinated with ongoing development plans and Northgate PDA Specific Plan/ Precise Plan process where appropriate.

1B **US-101/ Freitas Parkway Interchange East.** Reconfigure the US-101 NB off-ramp/Civic Center Drive intersection to address safety, circulation, and capacity issues. Improvements would be coordinated with ongoing development plans and Northgate PDA, and future planning process where appropriate.

1C **Smith Ranch Road/Lucas Valley Road Multimodal Improvements at US-101.** Road widening and additional lane capacity from Los Gamos to Redwood Highway. Improve pedestrian and bicycle access across the US-101 underpass by reconstructing the bridge to provide dedicated bicycle facilities and wider pedestrian sidewalks.

2. Downtown Area Improvements

TRANSPORTATION

TABLE 4.16-1 MAJOR PLANNED MOBILITY IMPROVEMENTS, 2020-2040

Includes multimodal improvements identified by the Downtown Precise Plan. Projects and improvements may include projects from other adopted City plans but are intended to achieve the vision, goals and objectives of the Downtown Plan. Also includes first/last mile improvements for SMART Station/Transit Center area (pedestrian, bicycle, lighting, wayfinding).

	Downtown roadway and intersection improvements (traffic signals, roundabouts, pedestrian/bicycle, ADA, and/or turn lane modifications) and improvements to gateway streets to Downtown, including:
2A	<ul style="list-style-type: none"> ▪ Downtown San Rafael Remaining One-Way Street Conversions, per Downtown Precise Plan ▪ New Signal at Fifth/H St ▪ New Signal at First/C St ▪ New Signal at First/D St ▪ New Signal at Fourth/Union St ▪ New Signal or Roundabout at Mission/Court St
2B	US-101/ Downtown San Rafael Interchange. Improvements to Irwin St, Hetherton Ave, 2nd St, and 3rd St in the vicinity of the NB off-ramp and SB on-ramp.
2C	Fourth Street (West End) Intersection Realignment. Re-align Fourth Street/Second Street/Marquard Avenue intersection.
2D	Second Street Multimodal Improvements. Improve Second Street corridor operations while addressing pedestrian and bicycle safety at crossing locations, and widen sidewalks and remove parking where feasible
2E	Fourth Street Multimodal Improvements. Improve pedestrian and bicycle connections while maintaining high quality transit route along 4th Street. Improvements include converting parking to loading, widening sidewalks, and improving the bus and bike experience. Also Includes 4 th Street signal and ADA upgrades.

3. Active Transportation Projects

Includes multimodal improvements and programs with a focus on pedestrian and bicycle improvements identified in the Bicycle and Pedestrian Master Plan.

3A Includes various projects identified in the 2018 BPMP, consistent with the priorities expressed in that Plan.

4. Complete Streets and Corridors ()**

Corridor level improvements including reconstruction of sidewalks, streets, pavement, signing, striping, and crossing improvements, with the objective of improving peak hour traffic flows and accommodating modes other than just motorized vehicles.

4A	Lincoln Avenue Peak Period Lanes/Parking Restrictions. Extend the existing PM peak period parking restrictions, to allow for two lanes in each direction during both AM and PM peak periods, from Hammondale Court/SB US-101 ramps to Mission Ave. Provide additional parking in corridor. Include ADA upgrades, crossing improvements, and other multimodal improvements/accommodations
4B	Northgate Area Intersection and Complete Streets Improvements. Includes Las Gallinas/Northgate and Las Gallinas/Del Presidio intersections. Also includes improvements to Las Gallinas Avenue and Los Ranchitos Road, Northgate Drive, and Del Presidio Blvd, and continued development of North San Rafael Promenade. Additional improvements to be identified through future PDA planning process.
4C	Francisco Boulevard East Corridor Improvements. Increase capacity from Bellam to Grand Avenue bridge and install signal, ADA, and pedestrian improvements at Harbor St. Additional improvements to be identified through future PDA planning process.

5. Intersection Improvements ()**

Intersection improvements including traffic signals, intersection realignments/reconfigurations, and other major changes to spot locations that are outside the Downtown Precise Plan area.

5A	Fourth Street (Miracle Mile) Intersection Improvement. Improve performance of Fourth Street signal at Ross Valley Dr and Santa Margarita Dr, including ADA upgrades.
5B	Lincoln/DuBois/Irwin. Consider new signal, roundabout, or other intersection improvement to improve safety and traffic flow; right-of-way required.

6. Smart Infrastructure (Technology)

Traffic signal and communication infrastructure upgrades, including monitoring equipment, fiber optic/communication systems, and other technology enhancements to facilitate smart management of transportation system.

6A	Intersection Technology. Traffic signal equipment, cameras, modems, wireless, Bluetooth, automated data collection, etc.
6B	Corridor Communication System. Fiber optic cable and conduit along major arterials and central City system upgrades.

Notes:

(*) Excludes northbound US-101 to eastbound I-580 connector, as this is a regional transportation improvement sponsored by TAM.

(**) Additional improvements may be identified through anticipated future plans to be prepared for the North San Rafael Town Center PDA and Southeast San Rafael PDA.

TRANSPORTATION

VMT Forecasts

This section describes the methodology for VMT forecasts developed for this transportation assessment and as supporting data for other assessments in the CEQA document including the GHG assessment. The CEQA Guidelines Section 15064.3(b)(4) establish that the lead agency has discretion to choose the most appropriate methodology to evaluate a project’s VMT, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project’s VMT and may revise those estimates to reflect professional judgment based on substantial evidence.

The VMT forecasts generated for this CEQA assessment were produced using the Transportation Authority of Marin Demand Model (TAMDM). For this CEQA assessment, the 2015 base year for TAMDM was updated and validated for a new 2019 base year for the City of San Rafael to be consistent with the data collected for this evaluation. This analysis includes a 2040 No Project scenario that is based on the TAMDM horizon year and a 2040 Plus Project scenario that reflects land use changes and transportation improvements consistent with the proposed General Plan 2040 and Downtown Precise Plan. The 2019 base year model developed for the San Rafael General Plan was validated based on model confidence thresholds defined in the California Transportation Commission 2017 RTP guidelines. The model validation measures in the RTP guidelines were met for all 53 study road segments in the City of San Rafael as shown in Table 4.16-2 below.

TABLE 4.16-2 2017 CALIFORNIA REGIONAL TRANSPORTATION PLAN GUIDELINES MODEL VALIDATION RESULTS

Validation Measure	AM Peak Period (4-Hour)	PM Peak Period (4-Hour)	Daily	Threshold
Volume-to-Count Ratio (Sum of all Location) ¹ =	1.01	1.01	0.97	None Specified ²
Percent of Links within Caltrans Deviation Allowance ¹ =	87.8%	92.7%	78.0%	At Least 75%
Percent Root Mean Square Error (RMSE) ¹ =	32.1%	34.6%	31.3%	Below 40%
Correlation Coefficient ¹ =	0.90	0.89	0.91	At Least 0.88
Number of Links/Validation Locations =	53	53	53	

Notes:

^a Static Validation Criteria and Thresholds, *2017 California Regional Transportation Plan Guidelines*, California Transportation Commission.

^b Although no specific threshold is specified, a threshold of “within 10%” of the sum of all locations was applied.

The VMT estimates were produced using the updated 2019 TAMDM model for all 1,400 analysis zones within Marin County as well as for the entire Bay Area. Consistent with recommendations in the OPR’s *Technical Advisory on Evaluating Transportation Impacts in CEQA*, three different VMT quantification methodologies were developed in conjunction with development of TAMDM to produce measures of VMT to provide a range of VMT quantification options depending on the type of project being evaluated.

- Total VMT-Daily VMT of all vehicle trips, vehicle types, and trip purposes for all project land uses. This metric is typically used for evaluation of area plans and transportation projects. This metric may also be provided on a per service population (i.e., sum of residents and employees) basis.

- Partial Home VMT Per Resident-Daily VMT by light-duty vehicles for all trips that begin or end at a residential land use, divided by residents. This metric is used for evaluation of residential land uses.
- Partial Work VMT Per Employee-Daily VMT by light-duty vehicles for work trips (that is, trips that have one end at a workplace and one end at a residence), divided by employees. This metric is used for evaluation of office or other employment land uses.

4.16.3 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant transportation impact if it would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.
5. Result in cumulative impacts related to wildfire.

4.16.3.1 CITY OF SAN RAFAEL SIGNIFICANCE CRITERIA

This section describes the specific criteria that will be applied to determine project impacts related to conflicting with applicable plans addressing the circulation system or being inconsistent with CEQA Guideline Section 15064.3(b).

Vehicle Miles Traveled

The San Rafael City Council approved the above CEQA VMT thresholds of significance on July 6, 2020, to implement SB 743 and subsequent changes to CEQA Guidelines. The VMT thresholds are consistent with guidance provided by OPR⁸ for evaluating transportation impacts in CEQA. For residential uses, OPR provides the option of using either regional VMT per resident or citywide VMT per resident as the CEQA threshold. The City Council selected the regional VMT per resident baseline as the threshold for residential uses because the 2019 citywide Home VMT Per Resident baseline value is lower than the 2019 regional Home VMT Per Resident value as measured using the new Marin County travel model developed by TAM, and using the regional baseline value would align the CEQA threshold with the City's policy objectives of supporting new housing in the Downtown Precise Plan Area and Downtown San Rafael SMART Station PDA and TPA, as well as the City's other PDAs and TPAs including the North San Rafael PDA,

⁸ *Technical Advisory on Evaluating Transportation Impacts in CEQA*, OPR, April 2018.

TRANSPORTATION

Civic Center Smart Station TPA, and Southeast San Rafael / Canal PDA. As described throughout this EIR, the General Plan 2040 is anticipating that these areas will absorb most of the City's future growth.

VMT impacts would be significant if:

- Total VMT Per Service Population exceeds 15 percent below average baseline rate for full nine-county Bay Area
- Home VMT Per Resident exceeds 15 percent below average baseline rate for full nine-county Bay Area
- Work VMT Per Employee exceeds 15 percent below average baseline rate for full nine-county Bay Area

Bicycle/Pedestrian

Bicycle/pedestrian impacts would be significant if the proposed project:

- Caused a substantial inconvenience or substantial reduction in quality of service for users of existing bicycle or pedestrian travel facilities
- Substantially reduced bicycle or pedestrian access
- Substantially reduced safety for bicyclists or pedestrians

Transit

Transit impacts would be significant if the proposed project:

- Increased substantial growth or concentration of population beyond the capacity of existing or planned public transit facilities
- Increased demand for public transit service to such a degree that accepted service standards are not maintained
- Reduced availability of public transit to users, or interfered with existing transit users

4.16.4 IMPACT DISCUSSION

TRAN-1	Implementation of the proposed project could generate an increase in Vehicle Mile Traveled that may have a significant impact on the environment.
---------------	--

General Plan 2040

Land Use VMT Impact

The California Air Resources Board recognizes that reducing VMT is a key objective to meeting California's GHG emission reduction goals. The San Rafael 2019 CCAP indicates that 62 percent of GHG emissions in the city of San Rafael in 2016 came from vehicle trips generated by San Rafael residents and businesses (i.e., the transportation sector). Future potential development and the planned expansion of the roadway system under the proposed General Plan 2040 would contribute to an increase in VMT in the EIR Study Area.

TRANSPORTATION

Table 4.16-3 provides a comparison of the change in VMT and VMT efficiency metrics (i.e., per service population, per capita, or per employee) for the EIR Study Area between the CEQA baseline year (2019) and the General Plan horizon year (2040) conditions. Forecasts for the four scenarios Total VMT, Total VMT Per Service Population, Home VMT per resident, and Work VMT Per Employee are shown in Table 4.16-3. The final row in Table 4.16-3 shows the percent change when comparing the VMT in 2040 to the corresponding average baseline (2019) rates for the nine-county Bay Area Region for the baseline year (2019), as recommended by OPR for CEQA transportation assessments. The citywide VMT presented in Table 4.16-3 includes VMT for the entire sphere of influence area including the Downtown Precise Plan Area. The VMT forecasts for the proposed General Plan 2040 were extracted from an updated version of the TAM travel demand model with planned General Plan land use growth.

TABLE 4.16-3 DAILY VEHICLE MILES TRAVELED (VMT) FOR CITY OF SAN RAFAEL (INCLUDING SPHERE OF INFLUENCE AREA)

SCENARIO	Total VMT	Total VMT Per Service Population	Home VMT Per Resident	Work VMT Per Employee
Baseline (2019)	3,614,000	30.1	12.2	18.1
2040 No Project	3,812,000	29.5	11.4	17.5
2040 General Plan	3,738,000	28.5	11.3	16.9
REGIONAL BASELINE				
Bay Area Region (2019)	313,500,000	27.2	13.4	16.9
PERCENT CHANGE – San Rafael 2040 VMT Rates Compared to Baseline Rate for Bay Area Region				
2040 General Plan		+3.2%	-15.7%	+0.3%

Notes:

^a Service Population = San Rafael residents plus employees.

As shown in Table 4.16-3, the Total VMT Per Service Population for the City of San Rafael (including the SOI area) is forecast to decline from baseline to 2040 conditions with the proposed General Plan 2040, but would be 3.2 percent above the corresponding average baseline (2019) rate for the full nine-county Bay Area. The VMT threshold established by the City Council in July 2020, consistent with OPR guidance, calls for a reduction by 2040 of 15 percent below the baseline regional average. As such, while the proposed General Plan 2040 results in a reduction in VMT Per Service Population by 2040, the VMT threshold of 15 percent below the current regional average would not be met.

As recommended by OPR, partial VMT data was also developed for vehicle trips generated by housing (Home VMT) and employment uses (Work VMT) and are also evaluated against the 15 percent VMT reduction threshold.

As shown in Table 4.16-3, Home VMT Per Resident in San Rafael is forecast to decline from baseline to 2040 conditions with the proposed General Plan 2040 and would be 15.7 percent below the corresponding average baseline (2019) rate for the full nine-county Bay Area. As such, residential development proposed with the proposed General Plan 2040 would meet the VMT threshold for Home VMT. Most residential growth, under the proposed General Plan 2040, would be multi-family units in the Downtown Precise Plan Area with access to the SMART rail station and the San Rafael Transportation Center that is served by 19 Marin Transit and Golden Gate Transit bus routes. Residential units in the Downtown Precise Plan Area would be within walking distance of jobs, retail uses, and services. As such,

TRANSPORTATION

the VMT generated by these units would be substantially lower than the overall VMT for current residential units in San Rafael and contribute to meeting VMT reduction goals for residential uses in San Rafael. As such, the project impact on Home VMT Per Resident is considered *less than significant*.

Work VMT Per Employee in San Rafael is forecast to decline from baseline to 2040 conditions with the proposed General Plan 2040 but would be 0.3 percent above the corresponding average baseline (2019) rate for the full nine-county Bay Area, which does not meet the threshold of reducing Work VMT Per Employee to 15 percent below the regional average. As such, while the proposed General Plan 2040 results in a reduction in Work VMT Per Employee by 2040, the VMT threshold for employment uses would not be met.

General Plan 2040 Policies

Growth within the EIR Study Area would contribute to VMT impacts and the proposed General Plan 2040 includes goals, policies, and programs to reduce VMT.

As described in Chapter 4.8, Greenhouse Gas Emissions, of this Draft EIR, the proposed General Plan 2040 includes over 200 goals, policies, and programs to contribute to reducing GHG Emissions, but does not include quantified VMT reduction programs. However, because the transportation sector is the largest source of GHG emissions (62 percent), many of the GHG policies in General Plan 2040 would also result in VMT reductions as a means of reducing GHG emissions.

GHG emission and related policies that would reduce VMT in General Plan 2020 are in the Land Use (LU) Element; Conservation and Climate Change (C) Element; Mobility (M) Element; Community Services and Infrastructure (CSI) Element; Housing (H) Element; Economic Vitality (EV) Element; Equity, Diversity, and Inclusion (EDI) Element; and Parks, Recreation, and Open Space (PROS) Element. (See Chapter 4.8, Greenhouse Gas Emissions).

The following list of General Plan goals, policies and programs from the Mobility (M) Element would directly and indirectly result in the reduction of VMT by incentivizing alternate modes of transportation, creating safe environments for pedestrians and bicyclists, and establishing parking spaces for more sustainable modes of travel. contain goals, policies, and programs that require local planning and development decisions to reduce GHG emissions.

Goal M-1: Regional Leadership in Mobility. Take a leadership role in developing regional transportation solutions.

- **Policy M-1.1: Regional Transportation Planning.** Actively coordinate with other jurisdictions, agencies, and service providers to improve the local and regional transportation system and advocate for the City's interests. Work cooperatively to improve transit and paratransit services, achieve needed highway improvements, and improve the regional bicycle and pedestrian networks.
- **Policy M-2.3: Cost-Benefit Considerations.** Consider the relative costs and benefits of transportation improvement projects, including the amount and source of funding, the potential number of people who will benefit, the expected impact on vehicle miles traveled and climate goals, the cost and time impacts on all travelers, the social and equity impacts, the effects on the environment and public safety, and similar factors.

TRANSPORTATION

- **Program M-2.3A: Cost-Benefit Analysis.** Conduct cost-benefit analyses as part of the design process for proposed transportation projects, including the criteria listed above and other factors that may be relevant.
- **Program M-2.4B: Reducing Vehicle Idling.** Support transportation network improvements to reduce vehicle idling, including synchronized signal timing.

Goal M-3: Cleaner Transportation. Coordinate transportation, land use, community design, and economic development decisions in a way that reduces greenhouse gas emissions, air and water pollution, noise, and other environmental impacts related to transportation.

- **Policy M-3.1: VMT Reduction Standard.** Achieve State-mandated reductions in Vehicle Miles Traveled by requiring development and transportation projects to meet specific VMT metrics. In the event a proposed project does not meet these metrics, require measures to reduce the additional VMT associated with the project, consistent with thresholds approved by the City Council.
 - **Program M-3.1A: VMT Analysis Guidelines.** Develop local guidelines for calculating the projected VMT associated with future development projects and transportation improvements. The guidelines also should cover administration, screening criteria, and appropriate Transportation Demand Management measures and monitoring procedures. All VMT metrics should be reassessed at least once every four years and revised as needed to reflect changing conditions.
- **Policy M-3.2: Using VMT in Environmental Review.** Require an analysis of projected Vehicle Miles Traveled (VMT) as part of the environmental review process for projects with the potential to significantly increase VMT. As appropriate, this shall include transportation projects and land use/policy plans as well as proposed development projects.
 - **Program M-3.2C: Mitigation Measures for VMT Impacts.** Develop and implement mitigation measures that can be applied to projects with potentially significant VMT impacts in order to reduce those impacts to less than significant levels.
- **Policy M-3.3: Transportation Demand Management.** Encourage, and where appropriate require, transportation demand measures that reduce VMT and peak period travel demand. These measures include, but are not limited to, transit passes and flextime, work schedules, pedestrian and bicycle improvements, ridesharing, and changes to project design to reduce trip lengths and encourage cleaner modes of travel.
 - **Program M-3.3A: Develop TDM Program Guidelines.** Develop TDM Program Guidelines – or work in partnership with other local governments to develop Guidelines-- than can be used to mitigate potential VMT increases in new development and encourage reductions in existing development.
- **Policy M-3.7: Design Features that Support Transit.** For projects located in or near transit hubs such as Downtown San Rafael, incorporate design features that facilitate walking, cycling, and easy access to transit.
- **Policy M-3.8: Land Use and VMT.** Encourage higher-density employment and residential uses near major transit hubs such as Downtown San Rafael, recognizing the potential for VMT reduction in areas where there are attractive alternatives to driving, concentrations of complementary activities, and opportunities for shorter trips between different uses.

TRANSPORTATION

Goal M-7: Well-Managed Parking. Manage parking in a way that meets resident, business, and visitor needs while supporting the City's goal of a more sustainable transportation system.

- **Policy M-7.6: Off-Street Parking Standards.** Maintain off-street parking standards that adequately respond to demand, minimize adverse effects on neighborhoods, and sustain local businesses.
 - **Program M-7.6A: Adjustments to Parking Standards.** Periodically adjust off-street parking requirements to respond to data on parking needs, and trends in vehicle design, car ownership, and travel behavior.
 - **Program M-7.6B: Parking Reductions.** Allow reduced parking subject to findings that a project will have lower vehicle ownership rates (for example, for senior housing or housing adjacent to a SMART station).
- **Policy M-7.8: Parking for Alternative Modes of Transportation.** Designate parking spaces to incentivize and encourage carpooling, electric vehicles, and other more sustainable modes of travel.

The City considered the OPR guidance when developing the policy direction of the General Plan 2040. The City recognizes that VMT reductions may be achieved through the implementation of individual projects in the future and has included General Plan Policy M-3.1, which requires future development and transportation projects to meet specific VMT metrics. City Council action in July 2020 identified a 15 percent reduction in the applicable VMT efficiency metric from baseline conditions as the current VMT threshold, consistent with OPR guidance.

By implementing the policies described above, the proposed project would result in a transportation system that allows greater utilization of the roadway system, which would minimize the need to expand existing capacity, so that the City can focus on building complete streets, improving walking and biking as viable travel options, and making transit more effective. These goals are directly related to the City's desires to improve community health, create livable neighborhoods, reduce air pollution, and reduce greenhouse gas emissions. A key part of these changes is a shift in CEQA from automobile level-of-service standards to VMT embedded in Policy M-3.1, which will require new development projects to reduce VMT.

New land use plans or development projects must demonstrate that VMT produced by the proposed project meets the applicable VMT reduction threshold. Table 4.16-4 describes candidate VMT reduction strategies, informed by VMT reduction measures identified in the California Air Pollution Control Officers Association's 2010 *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, that individual projects can use to achieve additional reductions beyond those incorporated in the proposed project. Table 4.16-4 focuses on strategies for employment uses, as most residential development projects would be presumed to result in a less-than-significant VMT impact based on the data and analysis described above.

TRANSPORTATION

TABLE 4.16-4 VMT REDUCTION MEASURES

CATEGORY	DESCRIPTION OF VMT REDUCTION MEASURE
Land Use/Location	Land use-related measures such as project land use mix, density, location, and efficiency related to other housing and jobs; and diversity of uses within the project. Also includes access and proximity to destinations, transit stations, and active transportation infrastructure.
Site Measures	Establishing or connecting to a pedestrian/bike network; traffic calming within and in proximity to the project; car sharing programs; shuttle programs.
Transit System Improvement Measures	Improvements to the transit system including expansion, service frequency, types of transit, access to stations, station safety and quality, parking (park-and-ride) and bike access (to transit itself and parking), last-mile connections. (Can be achieved through Travel Demand Management program measures.)
Commute Trip Reduction Measures	Transit fare subsidies, parking cash-outs, paid parking, alternative work schedules/telecommute, education/training of alternatives, rideshare programs, shuttle programs, bike share programs, end of trip facilities. (Can be achieved through Travel Demand Management program measures.)
In-Lieu Fee	A fee is levied that is used to provide non-vehicular transportation services that connect project residents to areas of employment or vice versa. This service may be provided by the project applicant in cooperation with major employers.

Source: Fehr & Peers 2020

While implementation of these goals, policies and programs in the proposed General Plan 2040 would support VMT reduction, and as shown in Table 4.16-3, the forecast VMT reduction in Total VMT Per Service Population or Work VMT Per Employee by 2040 for the proposed General Plan 2040 would be 5 to 7 percent respectively below 2019 baseline conditions and 3 percent below 2040 No Project conditions, buildout under the proposed General Plan 2040 would not be 15 percent below the corresponding average baseline rates for the full nine-county Bay Area. As such, the project impact on Total VMT Per Service Population and Work VMT Per Employee is considered *potentially significant*.

Impact TRAN-1a: Implementation of the proposed project would result in a significant land use VMT impact for Total VMT and Work VMT due to forecast land use growth through 2040, based on a comparison of the VMT rate increment for Total VMT Per Service Population and Work VMT Per Employee to the corresponding average baseline rates for the full nine-county Bay Area.

Mitigation Measure TRAN-1a: To reduce vehicle miles traveled the City shall modify Program M-3.3A (TDM Program Guidelines) to support achievement of the VMT reduction Standard:

- Modified Program 3-3A: Update Trip Reduction Ordinance.** The City of San Rafael shall modify the Trip Reduction Ordinance (TRO) to reflect General Plan 2040 Policy M-3.1 and focus on VMT reduction measures. The amended TRO shall include the City’s VMT reduction thresholds, VMT reduction measures and program guidelines, and a VMT trip reduction monitoring process. The TRO shall be updated a minimum of every five years to reflect changes in baseline VMT values, VMT thresholds, VMT reduction measures, and the monitoring process. The modified TRO shall reflect the process and methodology for conducting the VMT analysis for development projects as described in the City’s Transportation Analysis (TA) Guidelines.

Significance with Mitigation: Significant and unavoidable. While impacts would be less than significant for citywide Home VMT Per Resident for residential use without mitigation, impacts with mitigation for citywide Total VMT Per Service Population and for Partial Work VMT per employees for

TRANSPORTATION

employment uses are considered significant and unavoidable. This is because even with the proposed General Plan 2040 policy measures and application of the relevant VMT mitigation measures, the City of San Rafael may not achieve the overall VMT threshold reduction level as the effectiveness of VMT reductions strategies is not certain. Disruptive changes to transportation such as transportation network companies (i.e., Uber, Lyft), increased delivery services (Amazon, UPS, FedEx, food, etc.), and autonomous vehicles may increase VMT beyond forecast levels. This program-level land use VMT impact for both Total VMT and Partial Work VMT, does not preclude the finding of less-than-significant impacts for subsequent development projects that achieve applicable VMT thresholds of significance. However, due to the programmatic nature of the proposed project, no additional mitigation measures are available, and the impact is considered *significant and unavoidable*.

Road Network VMT Impact

Table 4.16-1 lists the major planned mobility improvements that would be implemented between 2020 and 2040 as listed in General Plan 2040 Policy M-2.7. These improvements include road widening projects that would add approximately 3.8 new lane miles to the existing road system. Building new roadways or adding lanes to existing roadways that increase roadway capacity in congested areas increase network wide VMT by a nearly equivalent proportion within about 10 years. This increase in VMT is called long-term “induced vehicle travel.” The magnitude of induced vehicle travel is measured as the elasticity of VMT with respect to lane miles. The National Center for Sustainable Transportation (NCST) recently developed a tool to estimate induced VMT. The 3.8 new lanes miles of added roadway capacity that would be implemented with the proposed project would induce approximately 15.2 million additional VMT per year, or about 50,500 VMT on a daily basis.

The induced vehicle travel effect due to roadway system expansion is not fully accounted for in travel demand models, so for purposes of this evaluation the induced VMT is considered separately from the VMT shown in Table 4.16-3. In general, travel demand models lack sensitivity to how roadway capacity expansion affects travel speeds that then influence long-term vehicle trip generation and land use growth allocations. As such, the Roadway Network VMT impact would be separate from the Land Use VMT impact described in Impact Discussion TRAN-1a. The project impact on VMT due to road network expansion is considered *potentially significant* in regard to meeting the VMT threshold.

Impact TRAN-1b: Implementation of the proposed project would result in a significant road network VMT impact due to the planned capacity of the roadway system.

Mitigation Measure TRAN-1b: Implement Mitigation Measure TRAN-1a.

Significance with Mitigation: Significant and Unavoidable. Even with the implementation of General Plan policies and application of Mitigation Measure TRAN-1a, because the effectiveness of VMT reduction strategies is not certain, the City of San Rafael may not achieve the overall VMT threshold reduction level. Disruptive changes to transportation such as transportation network companies (i.e., Uber, Lyft), increased delivery services (Amazon, UPS, FedEx, food, etc.), and autonomous vehicles may increase VMT beyond forecast levels. This program-level impact does not preclude the finding of less-than-significant impacts for subsequent development projects that achieve applicable VMT thresholds of significance. However, due to the programmatic nature of the proposed project, no

TRANSPORTATION

additional mitigation measures are available, and the impact is considered *significant and unavoidable*.

Downtown Precise Plan

The Downtown Precise Plan Area is an existing urban area where roughly half of the anticipated development by 2040 is expected to occur. Potential future development would occur on a limited number of vacant parcels and in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. Approximately half of the Downtown Precise Plan Area is located in a PDA and TPA, which are designated in areas that are in close proximity to major transit stops or terminals. One primary goal of the *Plan Bay Area* PDA and TPA designations is to encourage transit-oriented development which would in turn reduce VMT.

Table 4.16-5 provides a comparison of the change in VMT and VMT efficiency metrics (i.e., per service population, per capita, or per employee) in the Downtown Precise Plan Area between the CEQA baseline (2019) and the General Plan horizon year (2040) conditions. Forecasts for Total VMT, Total VMT Per Service Population, Home VMT Per Resident, and Work VMT Per Employee are provided. The final row shows the percent change when comparing the three VMT rates for the Downtown Precise Plan Area to the corresponding average baseline rates for the full nine-county Bay Area.

As shown in the Table 4.16-4, the forecast VMT reduction in Total VMT Per Service Population by 2040 for the Downtown Precise Plan Area would be 12 percent below 2019 baseline conditions and nine percent below 2040 No Project conditions but would not be 15 percent below the average (2019) baseline rate for the full nine-county Bay Area. As such, while Total VMT Per Service Population for the Downtown Precise Plan Area is forecast to decline by 2040, due to the effects of added residential and employment uses that would reduce current Total VMT per service population, the VMT threshold of 15 percent below the current regional average would not be met.

TABLE 4.16-4 DAILY VEHICLE MILES TRAVELED (VMT) FOR DOWNTOWN SAN RAFAEL

SCENARIO	Total VMT	Total VMT Per Service Population	Home VMT Per Resident	Work VMT Per Employee
Baseline (2019)	1,129,000	39.7	13.7	16.6
2040 No Project	1,243,000	38.8	9.7	16.3
2040 General Plan Preferred Alternative	1,227,000	35.1	9.7	16.2
REGIONAL BASELINE				
Bay Area Region (2019)	313,500,000	27.2	13.4	16.9
PERCENT CHANGE – San Rafael 2040 VMT Rates Compared to Baseline Rate for Bay Area Region				
Downtown San Rafael - 2040 General Plan Preferred Alternative		+28.7%	-28.2%	-3.8%

Notes:

a. Service Population = San Rafael residents plus employees.

TRANSPORTATION

As recommended by OPR, partial VMT data was developed for VMT generated by housing (Home VMT) and employment uses (Work VMT) in the Downtown Precise Plan Area and are also evaluated against the VMT reduction target of 15 percent.

Home VMT Per Resident in the Downtown Precise Plan Area is forecast to decline from baseline (2019) to 2040 conditions and would be 28.2 percent below the corresponding average baseline rate for the full nine-county Bay Area. As such, residential development in the Downtown Precise Plan Area would meet the VMT threshold for Home VMT.

Work VMT Per Employee in San Rafael is forecast to decline from baseline to 2040 conditions but would be 3.8 percent below the corresponding average baseline (2019) rate for the full nine-county Bay Area. As such, while the combination of existing and new employment uses in the Downtown Precise Plan Area would result in a reduction in Work VMT Per Employee by 2040, the VMT threshold for employment uses would not be met. As the Work VMT Per Employee is lower in 2040 with the proposed General Plan than with the 2040 No Project condition or the 2019 baseline, this indicates that adding employees to the Downtown Precise Plan Area as proposed has a beneficial impact on reducing VMT levels. However, it is not enough to achieve the 15 percent threshold.

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations to reduce VMT; therefore, the impacts and mitigation described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *significant and unavoidable with mitigation*.

TRAN-2 Implementation of the proposed project could result in potential conflicts with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

General Plan 2040

Future potential development under the proposed General Plan 2040 would contribute to and increase use of bicycle and pedestrian facilities in the EIR Study Area. The purpose of the City's adopted BPMP is to improve safety, act on community needs, and improve mobility options for San Rafael residents, workers and visitors. The BPMP provides a prioritized list of 124 projects within each of 7 designated geographic areas. The top three priority projects are identified for each geographic area.

General Plan 2040 Policies

While growth within the EIR Study Area would contribute to and increase use of bicycle and pedestrian facilities, the proposed Mobility (M) Element includes goals, policies, and programs that require local planning and development decisions to consider impacts to bicycle and pedestrian facilities. The following General Plan goals, policies, and programs would directly and indirectly result in improving the bicycle and pedestrian network and supporting programs such as Safe Routes to School to increase bicycle and pedestrian travel.

TRANSPORTATION

Goal M-1: Regional Leadership in Mobility. Take a leadership role in developing regional transportation solutions.

- **Policy M-1.1: Regional Transportation Planning.** Actively coordinate with other jurisdictions, agencies, and service providers to improve the local and regional transportation system and advocate for the City’s interests. Work cooperatively to improve transit and paratransit services, achieve needed highway improvements, and improve the regional bicycle and pedestrian networks.
 - **Program M-1.1A: Participation in Countywide and Regional Transportation Planning.** Actively participate in the planning activities of the Transportation Authority of Marin, the Metropolitan Transportation Commission, SMART, and other transportation agencies and support implementation of cost-effective regional plans and programs.
 - **Program M-1.1B: Public Information About Transportation.** Provide timely information and opportunities for public input on transportation issues and projects through workshops, neighborhood meetings, social media, staff reports, and other means.
- **Policy M-1.2: Regional Funding.** Support a regional approach to the funding of transit, highway, bicycle, and pedestrian improvements by seeking a broad range of federal, State, and County funds. Use local funds to leverage and match outside funding sources.
 - **Program M-1.2A: Transportation Project Grants.** Work with governmental agencies, non-profits and community groups to secure grants for appropriate transportation projects.

Goal M-5: Safe, Attractive Streets that Connect the Community. Provide a transportation system that minimizes negative impacts on neighborhoods while maximizing access and connectivity in the community.

- **Policy M-5.1: Traffic Calming.** Protect residential areas from the effects of speeding traffic or traffic from outside the neighborhood through appropriate traffic “calming” solutions such as speed humps, bulb-outs, speed limits, stop signs, and chicanes. Traffic calming measures shall not conflict with emergency response capabilities.
- **Policy M-5.5: School-Related Traffic.** Actively encourage public and private schools to reduce congestion caused by commuting students and staff through improved provisions for pick-up and drop-off, parking management, staggered start and end times, and trip reduction.
 - **Program M-5.5A: School Transportation.** Implement measures to improve the safety and enjoyment of students walking, bicycling, or taking the bus to school. Examples include pedestrian crossing enhancements, transit passes or reduced rates for students, locating transit stops near school campuses, supporting increased funding for school buses and crossing guards, and staggering school hours.
- **Policy M-5.6: Truck Impacts.** Manage truck traffic and deliveries in residential areas to avoid conflicts with local auto traffic, pedestrian and bicycle safety, parking, and adjacent uses.
 - **Program M-5.6A: Trucking Routes and Transportation Permits.** Continue to designate specific streets as trucking routes and maintain permit requirements for vehicles that exceed weight limits on non-designated routes.
 - **Program M-5.6B: Quarry Traffic.** Continue, and periodically update, measures to mitigate the impacts of quarry-related truck traffic on Point San Pedro Road.

TRANSPORTATION

Goal M-6: Safe Walking and Cycling. Encourage walking and bicycling as safe, pleasurable, healthful ways to travel.

- **Policy M-6.1: Encouraging Walking and Cycling.** Wherever feasible, encourage walking and cycling as the travel mode of choice for short trips, such as trips to school, parks, transit stops, and neighborhood services. Safe, walkable neighborhoods with pleasant, attractive streets, bike lanes, and sidewalks should be part of San Rafael's identity.
 - **Program M-6.1A: Bicycle and Pedestrian Master Plan Implementation.** Maintain San Rafael's Bicycle and Pedestrian Master Plan (BPMP) and update the Plan as required to ensure eligibility for grant funding. The BPMP should be a guide for investment in pedestrian and bicycle infrastructure, and for programs to make walking and cycling a safer, more convenient way to travel.
 - **Program M-6.1B: Station Area Plans.** Implement the pedestrian and bicycle improvements in the 2012 Downtown Station Area Plan and the 2012 Civic Center Station Area Plan.
 - **Program M-6.1C: Canal Community Based Transportation Plan (CBTP).** Update the CBTP for the Canal neighborhood, including provisions to improve walking and cycling within the Canal and East San Rafael communities, and better connect the Canal area to Downtown, the waterfront, and the rest of the community.
 - **Program M-6.1D: Funding.** Seek grant funding for implementation of the BPMP and other plans proposing bicycle and pedestrian improvements.
- **Policy M-6.2: Pedestrian and Bicycle Safety.** Identify, prioritize, and implement pedestrian and bicycle safety improvements in order to reduce collisions and injuries, and eliminate fatalities.
 - **Program M-6.2A: Implementation of Safety Measures.** Implement pedestrian and bicycle safety measures as described in the 2018 BPMP, including ADA compliant curb ramps, curb extensions in business districts, median refuge islands, active warning beacons, painted bike "boxes" at intersections, and signal phasing adjustments in areas with high bicycle volumes.
 - **Program M-6.2B: Vision Zero.** Consistent with the BPMP, support a "Vision Zero" approach to safety among pedestrians and cyclists, with the goal of eliminating severe injuries and fatalities.
 - **Program M-6.2C: Enforcement.** Conduct enforcement activities to improve compliance with traffic safety laws, especially around intersections with frequent collisions.
 - **Program M-6.2D: Safe Routes Programs.** Work collaboratively with local schools to implement Safe Routes to School programs. Explore similar programs to promote safe routes to parks, work, services, and transit, as well as safe routes for seniors.
- **Policy M-6.3: Connectivity.** Develop pedestrian and bicycle networks that connect residents and visitors to major activity and shopping centers, existing and planned transit, and schools. Work to close gaps between existing facilities. Funding and prioritization for projects should consider relative costs and benefits, including such factors as safety, number of potential users, and impacts on parking.
 - **Program M-6.3A: Implementation of Pathway Improvements.** Implement the major pedestrian and bicycle pathway, intersection, and lane improvements included in adopted City plans, including:
 - Restoration of pedestrian paths, stairways, and rights-of-way, particularly in the "inner ring" neighborhoods around Downtown
 - An east-west bikeway across Downtown San Rafael

TRANSPORTATION

- A north-south greenway and separated bicycle-pedestrian facilities along West Tamalpais Avenue
- Improved crossings of the San Rafael Canal, including a potential new crossing east of Grand Avenue
- Additional Class I, II, and IV lanes, as identified in the BPMP
- Improved signage, pavement markings and sidewalk widening
- Closing gaps in the Bay Trail
- Bike lane improvements to Point San Pedro Road (Cross-Marin Bikeway)
- Pedestrian/ bicycle “promenades” along the San Rafael Canal and in North San Rafael (Civic Center Station to Terra Linda Community Center), including Freitas Parkway and North San Pedro Road
- Potential pedestrian crossing over 101 (in association with the I-580/101 reconstruction) and east-west pedestrian improvements under the 101 viaduct through Downtown.
- **Program M-6.3B: Improvements in the Unincorporated Area.** Integrate the recommendations of the Unincorporated Marin County Bicycle and Pedestrian Master Plan to create a seamlessly connected system that allows for easy bicycle travel between City and County neighborhoods. This includes improvements along Miller Creek Road and Las Gallinas Avenue in Marinwood.
- **Program M-6.3C: Bicycle Parking.** Create additional bicycle parking and storage capacity at the SMART stations and in Downtown San Rafael.
- **Program M-6.3D: Electric Bicycles.** Monitor and support the use of electric bicycles and periodically evaluate the need for standards, programs, and facilities that support their use.
- **Policy M-6.4: Urban Trails Network.** Identify, renovate, improve, and maintain an urban trails network to encourage walking and appreciation of historical and new pathways.
 - **Program M-6.4A: Urban Trails Master Plan.** As part of a citywide Trails Master Plan, include an “urban trails” component with maps and descriptions of existing and potential urban trails in San Rafael. Urban trails to be identified include, but are not limited to, historic neighborhood stairways and walkways, Downtown alleyways, park pathways, and creekside paths. Identify potential funding sources for projects identified in the Plan projects and include the projects in the Capital Improvements Program.
- **Policy M-6.5: Pilot Projects.** Support pilot projects that install removable pedestrian and bicycle improvements on a short-term basis to test their effectiveness and public reception before investing in permanent improvements.
- **Policy M-6.6: Coordination.** Work with other jurisdictions, transit agencies, and stakeholders to implement projects that reflect bicycle and pedestrian needs at the local and regional levels.
 - **Program M-6.6A: Bikeshare Program.** Partner with the Transportation Authority of Marin (TAM) in implementation of a bikeshare program in Downtown San Rafael and at the Civic Center station. Consider possible locations for bike sharing “pods” at destinations throughout San Rafael, especially Downtown.
 - **Program M-6.6B: Monitoring.** Maintain data on the effectiveness of pedestrian and bicycle improvements and use this data to adjust programs as needed.
 - **Policy M-6.7: Universal Design.** Design and construct bicycle and pedestrian facilities to serve people of all ages and abilities, including children, seniors, families, and people with limited mobility.

TRANSPORTATION

- **Program M-6.7A: ADA Compliance.** Continue efforts to improve access for those with disabilities, including compliance with Federal and State accessibility requirements.
- **Program M-6.7B: Best Practices.** Continue to construct bicycle and pedestrian facilities according to the most up-to-date local, state, and national best practices and design guidelines.
- **Policy M-6.8: Pedestrian and Bicycle Programming.** Continue programs and activities to encourage walking and cycling.
 - **Program M-6.8A: Public Information.** Maintain public information on pedestrian and bicycle projects, routes, data, and information on the City's website.
 - **Program M-6.8B: Bike to Work Day.** Encourage City employees, other San Rafael workers and residents to participate in Bike to Work Days and similar programs that encourage cycling as a viable commute alternative.
 - **Program M-6.8C: Maintenance of Pedestrian and Bicycle Facilities.** Develop a program for prioritizing and funding the maintenance of existing pedestrian and bicycle facilities based on use, connectivity, and facility conditions.

Implementation of these goals, policies and programs of the proposed General Plan 2040 would improve the bicycle and pedestrian network and support programs to increase bicycle and pedestrian travel. Implementation of General Plan 2040 would not result in conflicts with adopted policies, plans, or programs or otherwise decrease the performance or safety of bicycle or pedestrian facilities and impacts would be *less than significant*.

Significance without Mitigation: Less than Significant.

Downtown Precise Plan

About half of the new residents and employees envisioned by the proposed General Plan 2040 would be located in the Downtown Precise Plan Area, which is this where the greatest increase in demand for bicycle or pedestrian travel would occur. More than half of the Downtown Precise Plan Area is located in a *Plan Bay Area* PDA and TPA, which are designated in areas that are in close proximity to major transit stops or terminals. One primary goal of the *Plan Bay Area* PDA and TPA designations is to encourage transit-oriented development and multi-modal connectivity including pedestrian-friendly design and improved accessibility for all people.

The proposed Downtown Precise Plan lays out a future transportation vision for the downtown in which the network proves improved access, both internal to downtown and to surrounding areas, improves the interaction of transportation modes, and supports an appropriate amount of parking at the appropriate price levels. The future network would accommodate more trips using multiple travel modes. The proposed Downtown Precise Plan recommends a series of improvements based on a Pedestrian Priority Network and Bicycle Priority Network for the downtown.

While the proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to bicycle and pedestrian facilities, with implementation of the Pedestrian Priority Network and Bicycle Priority Network for the downtown and compliance with and implementation of the proposed General Plan 2040 goals, polices, and programs, the impacts described for the proposed

TRANSPORTATION

General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

TRAN-3 Implementation of the proposed project could result in potential conflicts with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

General Plan 2040

Future potential development under the proposed General Plan 2040 would contribute to and increase use of transit in the EIR Study Area. The City’s 2019 CCAP includes actions or measures meant to reduce GHG emissions by 40 percent below 1990 levels by 2030. Since 62 percent of GHG emissions originate from the transportation sector, the largest share of reductions from local mitigation measures in San Rafael would occur from transportation-related measures including supporting and promoting the increased use of public transit.

General Plan 2040 Policies

While growth within the EIR Study Area would contribute to and increase use of transit, the proposed Mobility (M) Element contains goals, policies and programs that require local planning and development decisions to consider impacts to transit. The following General Plan goals, policies and programs would directly and indirectly result in improving the transit network and supporting an increase in transit use.

Goal M-1: Regional Leadership in Mobility. Take a leadership role in developing regional transportation solutions.

- **Policy M-1.1: Regional Transportation Planning.** Actively coordinate with other jurisdictions, agencies, and service providers to improve the local and regional transportation system and advocate for the City’s interests. Work cooperatively to improve transit and paratransit services, achieve needed highway improvements, and improve the regional bicycle and pedestrian networks.
 - **Program M-1.1A: Participation in Countywide and Regional Transportation Planning.** Actively participate in the planning activities of the Transportation Authority of Marin, the Metropolitan Transportation Commission, SMART, and other transportation agencies and support implementation of cost-effective regional plans and programs.
 - **Program M-1.1B: Public Information About Transportation.** Provide timely information and opportunities for public input on transportation issues and projects through workshops, neighborhood meetings, social media, staff reports, and other means.
- **Policy M-1.2: Regional Funding.** Support a regional approach to the funding of transit, highway, bicycle, and pedestrian improvements by seeking a broad range of federal, State, and County funds. Use local funds to leverage and match outside funding sources.

TRANSPORTATION

- **Program M-1.2A: Transportation Project Grants.** Work with governmental agencies, non-profits and community groups to secure grants for appropriate transportation projects.

Goal M-3: Cleaner Transportation. Coordinate transportation, land use, community design, and economic development decisions in a way that reduces greenhouse gas emissions, air and water pollution, noise, and other environmental impacts related to transportation.

- **Policy M-3.7: Design Features that Support Transit.** For projects located in or near transit hubs such as Downtown San Rafael, incorporate design features that facilitate walking, cycling, and easy access to transit.

Goal M-4: High-Quality Affordable Transit. Support accessible, reliable, cost-effective transit services that provide a convenient, affordable, efficient alternative to driving.

- **Policy M-4.1: Sustaining Public Transportation.** Support a level of transit service frequency and routing that promotes transit usage, avoids overcrowding, and makes transit an attractive alternative to driving.
 - **Program M-4.1A: Transit Advocacy.** Support State, County, and regional efforts to sustain and expand Marin County's transit network. Work with neighborhoods, employers, transit providers, transportation planning agencies and funding agencies to improve and expand transit and paratransit services.
 - **Program M-4.1B: Evaluating Transit Needs.** Support efforts to track, forecast, survey, and respond to changing transit and paratransit needs in order to meet the requirements of specific population groups. Advocate for meaningful public participation in meetings and discussions with transit providers and ensure that the needs of those in the community who are transit-dependent are well represented. Encourage the use of performance measures and regular reporting by transit agencies to ensure services are being delivered as efficiently as possible.
 - **Program M-4.1C: Partnerships.** Encourage partnerships between local transit service providers to avoid redundancy, maximize coverage and efficiency, and improve transfers between transit systems.
 - **Program M-4.1D: Transit for Tourism.** Support efforts to provide effective transit options for visitors to West Marin and other County tourist destinations, in order to reduce regional traffic flow through San Rafael.
 - **Program M-4.1E: Transit Information.** Encourage the development and dissemination of information to facilitate transit use. This includes real-time, multi-lingual information on bus arrivals, departures, transfers, and routes. In addition, the City should include information on transit access on notices of City meetings and provide links to transit websites from its own website
 - **Program M-4.1F: Public Health.** Work with transit service providers to effectively respond to service and design challenges associated with rider safety during and after public health emergencies.
- **Policy M-4.2: Regional Transit Options.** Encourage expansion of regional transit connecting Marin with adjacent counties, including basic and express bus service, rail, and ferry service.

TRANSPORTATION

- **Policy M-4.6: Paratransit Options.** Encourage expansion of paratransit and flexible route services as needed to serve specialized populations including seniors, students, and persons with disabilities.
 - **Program M-4.6A: Other Local Transit.** Support Dial-A-Ride, taxi, and transportation network company (TNC) services serving San Rafael.
 - **Program M-4.6B: Paratransit Service.** Support continued Whistlestop Wheels service and expanded regional paratransit services where needed.
- **Policy M-4.7: Intermodal Transit Hubs.** Support efforts to develop intermodal transit hubs in Downtown and North San Rafael to provide safe, convenient connections for all travelers. Such hubs should include secure bicycle parking, EV charging stations, and efficient drop-off and pick-up areas and create a positive experience for those arriving in San Rafael.
 - **Program M-4.7A: Transit Center Relocation.** Complete the relocation process for the San Rafael Transit Center. Design of the facility should consider the effects on local street congestion and the safety of those walking or bicycling to and from the facility. Continue to work with transit service providers to coordinate schedules, transfers, and routing in a manner that is convenient for San Rafael travelers.
 - **Program M-4.7B: First Mile/ Last Mile Trips.** Work with TAM, transit agencies, neighborhood groups, and the local business community to improve options for “first mile/ last mile” trips connecting regional transit hubs to nearby destinations.
 - **Program M-4.7C: Implementation of Other Plans.** Implement the recommendations of the Downtown Precise Plan, the Downtown Station Area Plan, and the Civic Center Station Area Plan for coordination of transit services and improvement of connections between travel modes.

Implementation of these goals, policies and programs of the proposed General Plan 2040 would improve the transit network and support programs to increase travel by transit. Implementation of General Plan 2040 would not result in conflicts with adopted policies, plans, or programs or otherwise decrease the performance or safety of transit facilities or services and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

About half of the new residents and employees envisioned by the General Plan would be located in Downtown San Rafael. More than half of the Downtown Precise Plan Area is located in a *Plan Bay Area* PDA and TPA, which are designated in areas that are in close proximity to major transit stops or terminals. One primary goal of the *Plan Bay Area* PDA and TPA designations is to encourage transit-oriented development and multi-modal connectivity including pedestrian-friendly design and improved accessibility for all people. Therefore, while the proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to transit, potential future development that occurs as a result of the Downtown Precise Plan would be designed to increase transit access and safety as well as maximize the use of existing transit services. Furthermore, the multimodal street network illustrated in the Downtown Precise Plan would serve any of the locations being considered for a new San Rafael Transit Center. Accordingly, compliance with and implementation of the proposed General Plan 2040 goals, polices, and programs would ensure that the impacts described for the proposed General Plan

TRANSPORTATION

2040 would also apply in the Downtown Precise Plan Area and, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

TRAN-4 Implementation of the proposed project could substantially increase hazards due to a design feature that may have a significant impact on the environment.

General Plan 2040

Future potential development under the proposed General Plan 2040 would modify the existing transportation network to accommodate existing and future users that could change existing travel patterns or traveler expectations. The City requires the modification of existing public facilities or the construction of new facilities comply with the applicable design standards contained in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual, which have been developed to minimize the potential for conflicts or collisions.

General Plan 2040 Policies

While growth within the EIR Study Area would result in changes to the existing transportation network, the proposed Mobility (M) Element contains goals, policies and programs that require local planning and development decisions to consider impacts to transit. The following General Plan goals, policies and programs would support the design of a transportation system that is safe for all modes of travel. The following describes the goals, policies and programs that directly and indirectly result in improving the transportation network.

Goal M-2: Improved Transportation Efficiency and Access. Sustain an efficient, cost-effective transportation network that continuously improves mobility and accessibility for all users.

- **Policy M-2.2: Safety.** Design a transportation system that is safe and serves people using all modes of travel. Higher levels of congestion may be accepted at particular intersections if necessary to ensure the safety of all travelers, including pedestrians, bicycles, motorists, and transit users.
 - **Program M-2.2A: Collision Data.** Collect and analyze data on traffic collisions and use such data to inform decisions about capital improvements, enforcement, and traffic safety programs.
 - **Program M-2.2B: Street Pattern and Traffic Flow.** Support efforts by the City Traffic Engineer to configure or re-configure street patterns to improve traffic flow and turning movements while prioritizing safety.

Goal M-5: Safe, Attractive Streets that Connect the Community. Provide a transportation system that minimizes negative impacts on neighborhoods while maximizing access and connectivity in the community.

- **Policy M-5.5: School-Related Traffic.** Actively encourage public and private schools to reduce congestion caused by commuting students and staff through improved provisions for pick-up and drop-off, parking management, staggered start and end times, and trip reduction.

TRANSPORTATION

- **Program M-5.5A: School Transportation.** Implement measures to improve the safety and enjoyment of students walking, bicycling, or taking the bus to school. Examples include pedestrian crossing enhancements, transit passes or reduced rates for students, locating transit stops near school campuses, supporting increased funding for school buses and crossing guards, and staggering school hours.
- **Policy M-5.6: Truck Impacts.** Manage truck traffic and deliveries in residential areas to avoid conflicts with local auto traffic, pedestrian and bicycle safety, parking, and adjacent uses.
 - **Program M-5.6A: Trucking Routes and Transportation Permits.** Continue to designate specific streets as trucking routes and maintain permit requirements for vehicles that exceed weight limits on non-designated routes.
 - **Program M-5.6B: Quarry Traffic.** Continue, and periodically update, measures to mitigate the impacts of quarry-related truck traffic on Point San Pedro Road.

Implementation of these goals, policies and programs would promote the design of improvements to the transportation network that are safe for all modes of travel. As described above, the City of San Rafael also requires the modification of existing public facilities or the construction of new facilities comply with the applicable design standards contained in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual, which have been developed to minimize the potential for conflicts or collisions. This standard practice would minimize this impact. Implementation of General Plan 2040 would not result in conflicts with adopted policies, plans, or programs or otherwise increase hazards due to a design feature that may have a significant impact on the environment and impacts would be *less than significant*.

Significance without Mitigation: Less than Significant.

Downtown Precise Plan

The design of transportation improvements in the Downtown Precise Plan Area would be governed by the above General Plan 2040 policies and aforementioned design standards followed by the Department of Public Works in the development of improvement plans. As such, implementation of the Downtown Precise Plan would not result in conflicts with adopted policies, plans, or programs or otherwise increase hazards due to a design feature that may have a significant impact on the environment.

Significance without Mitigation: Less than significant.

TRAN-5	Implementation of the proposed project could result in inadequate emergency access that may have a significant impact on the environment.
---------------	--

General Plan 2040

Future potential development under the proposed General Plan 2040 would alter land use patterns and increase travel demand on the transportation network that may influence emergency access.

General Plan 2040 Policies

While growth within the EIR Study Area would result in changes to land use and the existing transportation network, the proposed Mobility (M) Element contains goals, policies and programs that require local planning and development decisions to consider improvements to transportation efficiency, mobility, and access including developing and updating emergency response plans. The following describes the goals, policies and programs that directly and indirectly result in providing emergency access.

Goal M-2: Improved Transportation Efficiency and Access. Sustain an efficient, cost-effective transportation network that continuously improves mobility and accessibility for all users.

- **Policy M-2.8: Emergency Access.** Identify alternate ingress and egress routes (and modes of travel) for areas with the potential to be cut off during a flood, earthquake, wildfire, or similar disaster.
 - **Program M-2.8A: Highway Closures.** Develop and update contingency plans for highway closures as part of the City’s disaster preparedness and emergency response plans.
- **Policy M-2.9: Narrow Streets.** In new subdivisions, allow narrower streets to reduce travel speeds and accommodate multiple modes of travel, while still providing for emergency and service access.

Goal M-5: Safe, Attractive Streets that Connect the Community. Provide a transportation system that minimizes negative impacts on neighborhoods while maximizing access and connectivity in the community.

- **Policy M-5.3: Connected Neighborhoods.** Identify opportunities to better connect San Rafael neighborhoods to one another and to improve access to local destinations such as schools, shopping, and workplaces. Consider such connections as part of emergency response and evacuation planning.
 - **Program M-5.3A: East San Rafael Improvements.** Consider the potential for new or relocated roads in East San Rafael that would relieve local street congestion, increase efficiency, and improve access between the north and south sides of Interstate 580.

Implementation of these goals, policies and programs of the proposed General Plan 2040, as well as goals, policies, and programs in the Safety and Resilience Element, would address emergency access by considering new access routes for limited access neighborhoods, developing and updating emergency response plans, and incorporating emergency access considerations in the design of future street improvements. Implementation of General Plan 2040 would not result in inadequate emergency access that may have a significant impact on the environment and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Downtown San Rafael is served by the Public Safety Center (Station 51) at Fifth Avenue and D Street that houses San Rafael fire, police, and emergency services as well as Fire Station 52 located at Union Street and 4th Street. The transportation network in the Downtown Precise Plan Area is a grid configuration that provides several alternative east-west and north-south streets for emergency access routes.

TRANSPORTATION

Together, the new Public Safety Center and Fire Station 52 provide emergency services and access to both the west and east sides of US-101 and adjacent SMART rail line where peak hour congestion on weekdays is most concentrated. The potential future development in the Downtown Precise Plan Area would be infill development and because approximately half of the Downtown Precise Plan Area is located in a PDA and TPA, which are designated in areas that are in close proximity to major transit stops or terminals, development in this area would support transit-oriented development which would in turn reduce VMT and reduce roadway congestion. As described throughout this impact discussion, the proposed General Plan 2040 includes numerous goals, polices, and programs to reduce automobile use and VMT. As such, implementation of the Downtown Precise Plan would not result in inadequate emergency access that may have a significant impact on the environment. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

TRAN-6	Implementation of the proposed project could result in a cumulatively considerable impact to citywide VMT.
---------------	---

Future potential development under the proposed General Plan 2040 would contribute to an increase in VMT in the EIR Study Area as shown in Table 4.16-3. Buildout of the proposed General Plan 2040 is assumed over a 20-year project horizon. Implementation of the proposed General Plan 2040 by the horizon year of 2040 would result in a net increase of 8,910 people and 4,115 employees in the EIR Study Area. Development that would be accommodated by the proposed General Plan 2040 would generate a net increase of Total VMT at project buildout. As discussed under Impact TRAN-1, implementation of the proposed project would result in a decrease in citywide VMT per service population and Work VMT Per Employee in horizon year 2040 from existing baseline but would not be 15 percent below the baseline nine-county regional average. The home VMT per resident, a measure of VMT for residential uses, would be 15 percent below the baseline nine-county regional average. Therefore, the impact on VMT would be cumulatively considerable. Mitigation Measure TRAN-1a would apply.

Impact TRAN-6: Implementation of the proposed project would cumulatively contribute to regional VMT.

Mitigation Measure TRANS-6: Implement Mitigation Measure TRAN-1a.

Significance with Mitigation: Significant and unavoidable. Even with the General Plan policy measures and application of Mitigation Measure TRAN-1a, the City of San Rafael will not achieve the VMT rate reductions specified in Policy M-3.1 and the effectiveness of VMT reduction strategies is not certain. Disruptive changes to transportation such as transportation network companies (i.e., Uber, Lyft), increased delivery services (Amazon, UPS, FedEx, food, etc.), and autonomous vehicles may increase VMT beyond forecast levels. As such, the cumulative impact on VMT with mitigation is considered *significant and unavoidable*.

UTILITIES AND SERVICE SYSTEMS

4.17 UTILITIES AND SERVICE SYSTEMS

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project related to utilities. Specifically, water supply, wastewater, stormwater, and solid waste are each addressed in separate subsections of this chapter. Utilities associated with energy use, energy providers, and the energy infrastructure are addressed in Chapter 4.6, Energy, of this Draft Environmental Impact Report (EIR). A summary of the relevant regulatory framework and existing conditions is followed by a discussion of project impacts and cumulative impacts.

4.17.1 WATER

4.17.1.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Federal Safe Drinking Water Act

The Safe Drinking Water Act, the principal federal law intended to ensure safe drinking water to the public, was enacted in 1974 and has been amended several times since then. It authorizes the United States Environmental Protection Agency (USEPA) to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and human-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State Water Resources Control Board (SWRCB) conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

America's Water Infrastructure Act of 2018

America's Water Infrastructure Act was signed into law on October 23, 2018, and authorizes federal funding for water infrastructure projects; expands water storage capabilities; assists local communities in complying with the Safe Drinking Water Act and Clean Water Act (CWA); reduces flooding risks for rural, western, and coastal communities; and addresses significant water infrastructure needs in tribal communities.¹ Additionally, the act requires that drinking water systems that serve more than 3,300 people develop or update risk assessments and emergency response plans. Risk assessments and emergency response plans must be certified by the USEPA within the deadline specified by America's Water Infrastructure Act.

¹ John Barasso, October 10, 2018, *Congress Passes America's Water Infrastructure Act*, <https://www.barrasso.senate.gov/public/index.cfm/2018/10/congress-passes-america-s-water-infrastructure-act>.

UTILITIES AND SERVICE SYSTEMS

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act (Water Code sections 13000 et seq.) passed in California in 1969 and was amended in 2013. It is the basic water quality control law for California. Under this act, the SWRCB has authority over state water rights and water quality policy. The act divided the state into nine regional basins, each under the jurisdiction of a Regional Water Quality Control Board (RWQCB) to oversee water quality on a day-to-day basis at the local and regional levels. RWQCBs engage in various water quality functions in their respective regions and regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. The EIR Study Area is overseen by the San Francisco Bay RWQCB (Region 2).

Urban Water Management Planning Act (Senate Bills 610 and 221)

The California Urban Water Management Planning Act and Section 10620 of the Water Code require that all urban water suppliers in California that provide water to more than 3,000 customers or supply more than 3,000 acre-feet per year (afy)² to prepare and adopt an urban water management plan (UWMP) and update it every five years. The act is intended to support efficient use of urban water supplies. The act requires the UWMP to compare water supply and demand over the next 20 years for normal years, single dry years, and multiple dry years and to determine current and potential recycled water uses. Senate Bill (SB) 610 and SB 221 were enacted to 1) ensure better coordination between local water supply and land use decisions and 2) confirm that there is an adequate water supply for new development. Both statutes require city and county decision makers to review detailed information regarding water availability prior to the approval of large development projects. SB 610 requires the preparation of a Water Supply Assessment (WSA) for certain types of projects subject to the California Environmental Quality Act (CEQA). Projects that are required to prepare a WSA are:

- Residential development consisting of more than 500 dwelling units.
- Shopping center or business establishment employing more than 1,000 people or having more than 500,000 square feet of floor area.
- Commercial office building employing more than 1,000 people or having more than 250,000 square feet of floor space.
- Hotel or motel, or both, having more than 500 rooms.
- Industrial, manufacturing, or processing plant, or industrial park employing more than 1,000 people, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- Mixed-use project that includes one or more of the projects specified above.
- Project that requires an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

SB 221 requires written verification that there is sufficient water supply available for new residential subdivisions that include more than 500 dwelling units. The water supplier must provide written verification that sufficient water is available before construction begins.

² One acre-foot is the amount of water required to cover 1 acre of ground (43,560 square feet) to a depth of 1 foot.

UTILITIES AND SERVICE SYSTEMS

Water Conservation Act of 2009 (Senate Bill X7-7)

The Water Conservation Act of 2009 (SB X7-7) requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water use by 20 percent by 2020, with an interim goal of a 10 percent reduction in per capita water use by 2015. Effective in 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for State water grants or loans. SB X7-7 requires that urban water retail suppliers determine baseline water use and set reduction targets according to specified standards. It also requires that agricultural water suppliers prepare plans and implement efficient water management practices.

2018 Water Conservation Legislation (Senate Bill 606 and Assembly Bill 1668)

In 2018, the California Legislature enacted two policy bills to establish long-term improvements in water conservation and drought planning to adapt to climate change and longer and more intense droughts in California. The Department of Water Resources (DWR) and the SWRCB will develop new standards for:

- Indoor residential water use
- Outdoor residential water use
- Commercial, industrial, and institutional (CII) water use for landscape irrigation with dedicated meters
- Water loss

Urban water suppliers will be required to stay within annual water budgets, based on their standards for their service areas, and to calculate and report their urban water use objectives in an annual water use report. For example, the bills define a daily standard for indoor residential use of 55 gallons per person until 2025, when it decreases to 52.5 gallons and further decreases to 50 gallons by 2030. The legislation also includes changes to UWMP preparation requirements.

Water Conservation in Landscaping Act of 2006

The Water Conservation in Landscaping Act (AB 1881) required the State Department of Water Resources to update the State of California's Model Water Efficient Landscape Ordinance (MWELo) by 2009. Under AB 1881, cities and counties were required to adopt the MWELo by January 31, 2010, or to adopt a different ordinance that is at least as effective in conserving water as the MWELo.

The MWELo was revised in July 2015 via Executive Order B-29-15 to address the ongoing drought and to build resiliency for future droughts. The 2015 revisions to the MWELo increased water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, on-site stormwater capture, and by limiting the portion of landscapes that can be covered in turf.

The City of San Rafael adopts the Marin Municipal Water District (MMWD) Ordinance (Water Conservation), as specified in Section 14.16.370, Water-Efficient Landscape, of the San Rafael Municipal Code (SRMC). The City defers to MMWD to enforce the ordinance and review the required landscape and irrigation plans for applicable projects. New construction projects with an aggregate landscape area of 500 square feet or greater are subject to the MMWD landscape plan requirements. In addition, rehabilitated landscape projects with an aggregate landscape area of 1,000 square feet or greater are also covered under this ordinance. The MMWD landscape plan review process requires submittal of the maximum

UTILITIES AND SERVICE SYSTEMS

applied water allowance and estimated total water use worksheets as well as grading plans, landscape planting plans, and irrigation design plans.

California Building Code: CALGreen

The California Building Standards Commission adopted the nation's first green building standards in July 2008, the California Green Building Standards Code (California Code of Regulations [CCR], Part 11, Title 24), also known as CALGreen. CALGreen applies to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure in California, unless otherwise indicated in the Code. CALGreen establishes planning and design standards for sustainable site development, including water conservation measures and requirements that new buildings reduce water consumption by 20 percent below a specified baseline. CALGreen is updated every three years to allow for consideration and possible incorporation of new efficiency technologies and methods. The mandatory provisions of CALGreen became effective January 1, 2011, and the latest version, the 2019 California Green Building Standards Code, became effective on January 1, 2020. The building efficiency standards are enforced through the local building permit process. The City has regularly adopted each new CALGreen update under the SRMC Title 12, Building Regulations, Chapter 12.100, Adopted Codes, and Chapter 12.235, California Green Building Construction Standards Code Amendment.

California Plumbing Code

The latest version of the California Plumbing Code (CCR, Part 5, Title 24) was issued in 2019 and is updated on a three-year cycle. It includes new standards for plumbing fixtures, new provisions for storm drain systems, and design criteria for potable and recycled water systems. The City adopts the California Plumbing Code and latest updates under SRMC Chapter 12.16, California Plumbing Code.

Recycled Water Regulations

Two State agencies have primary responsibility for regulating the application and use of recycled water: the California Department of Public Health and the SWRCB. Planning and implementing water recycling projects entail numerous interactions with these regulatory agencies prior to project approval. The California Department of Public Health establishes the statewide effluent bacteriological and treatment reliability standards for recycled water uses in CCR, Title 22, Division 4, Environmental Health. Title 22 establishes standards for each general type of use based on the potential for human contact with recycled water. The SWRCB is responsible for establishing and enforcing requirements for the application and use of recycled water within California. Permits are required from the SWRCB for a water recycling operation. As part of the permit application process, applicants are required to demonstrate that the proposed recycled water operation will not exceed the ground and surface water quality objectives in the basin management plan and that the operation is compliant with Title 22 requirements.³

³ Further information is available at the following link:
http://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/statutes_regulations.shtml, accessed on March 11, 2019.

UTILITIES AND SERVICE SYSTEMS

California Health and Safety Code

A portion of the California Health and Safety Code is dedicated to water issues, including testing and maintenance of backflow prevention devices, coloring of pipes carrying recycled water, and programs addressing cross-connection control by water users.

California Water Code

The California Water Code contains many statutes surrounding various water-related issues, including water shortage emergencies, on-site wastewater treatment systems, potable water reuse, greywater systems, appropriation of water, water rights, and the establishment of California water districts.

Mandatory Water Conservation

Following the declaration of a state of emergency on July 15, 2014, due to drought conditions, the SWRCB adopted Resolution No. 2014-0038 for emergency regulation of Statewide water conservation efforts. These regulations, which went into effect on August 1, 2014, were intended to reduce outdoor urban water use and have all California households voluntarily reduce their water consumption by 20 percent. Water companies with 3,000 or more service connections were required to report monthly water consumption to the SWRCB. The SWRCB readopted the regulations several times, until Governor Brown issued Executive Order B-40-17 in April 2017, ending the drought emergency and directing the SWRCB to rescind portions of its existing drought emergency water conservation regulations but maintaining the portions of the regulations that prohibit wasteful water use practices until permanent requirements are in place. The wasteful water use practices that are still in effect include: (1) the application of potable water to outdoor landscapes in a manner that causes excess runoff, (2) the use of a hose to wash a motor vehicle except where the hose is equipped with a shut-off nozzle, (3) the application of potable water to driveways and sidewalks, (4) the use of potable water in nonrecirculating ornamental fountains, and (5) the application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall. Also, urban water suppliers are still required to submit monthly water monitoring reports to the SWRCB.

Regional Regulations

2015 MMWD Urban Water Management Plan

In compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, the MMWD adopted its current 2015 UWMP in June 2016. All urban water suppliers are required to prepare, adopt, and file a UWMP with DWR every five years. The 2015 UWMP describes water demands, water supply sources, and supply reliability for its service area in five-year increments for average years, single dry years, and multiple dry years. The UWMP also provides water supply contingency planning in case of shortage emergencies, demand management measures to increase water use efficiency, and current and planned water conservation efforts.

UTILITIES AND SERVICE SYSTEMS

Marin Municipal Water District Water Resources Plan

The MMWD prepared the 2040 *Water Resources Plan* to evaluate resiliency and the ability to meet future water demands, considering both chronic events (such as prolonged drought and climate change impacts on water supply) and acute events (such as earthquakes, water quality events, wildfires, etc.). The plan identifies 40 resiliency options to meet demands in times of potential supply shortages caused by variable hydrological conditions or system disruption.⁴

Marin Municipal Water District Code

The MMWD Code includes various regulations to manage water infrastructure and services within the EIR Study Area. Most provisions related to water services are found in Title 11, Water Service Rules and Regulations, and Title 13, Water Service Conditions and Water Conservation Measures, as follows:

- **Title 11, Water Service Rules and Regulations.** This section details the adopted rules and regulations that establish uniform practices governing water service and to define the obligations of the MMWD to consumers and the obligations of consumers to the MMWD. Title 11 includes requirements governing the application for water service, installation of new service connections, cross-connections, water main extensions, and fire taps. Title 11 also includes service charges and connection fees. Consumers are advised to obtain information from MMWD on the availability of water, water facilities to provide service, pressure conditions, and other pertinent data before undertaking any development or construction.
- **Title 13, Chapter 13.02, Water Conservation and Dry Year Water Use Reduction Program.** This chapter provides a water conservation plan to minimize the effect of a water shortage on MMWD's consumers and to adopt provisions that will significantly reduce the consumption of water during an extended dry weather period (drought).
- **Title 13, Chapter 13.03, Water Budgets and Related Conservation Measures.** This chapter specifies the terms and conditions under which water budgets will be required and when consumers will be required to retrofit water fixtures with low flow or ultra-low flow fixtures to reduce the per capita consumption of water by MMWD's customers.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to water infrastructure and services are primarily in the Land Use, Infrastructure, and Air and Water Quality Elements. As part of the proposed project, some existing General Plan policies would be amended or substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable

⁴ Marin Municipal Water District, March 2017. *Water Resources Plan 2040*, <https://www.marinwater.org/DocumentCenter/View/5095/Final-Water-Resources-Plan-2040?bidId=>.

UTILITIES AND SERVICE SYSTEMS

goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.17.1.3, Impact Discussion.

San Rafael Municipal Code

The SRMC includes various directives to ensure the efficient use of water in San Rafael. The SRMC is organized by title, chapter, and section. Most provisions related to water supply and conservation are found in Title 9, Health and Sanitation, Title 12, Building Regulations, Title 14, Zoning, Title 15, Subdivisions, and Title 18, Protection of Flood Hazard Areas, as follows:

- **Chapter 9.24, Well Standards.** The purpose of this chapter is to protect groundwater and surface water by establishing standards regulating the construction, placement, reconstruction and destruction of water wells, water supply sources, test holes, cathodic protection wells and monitoring wells. In addition, Section 9.24.070, Prohibition, states that no permit shall be issued for a well or water well on a parcel of land serving more than one lot if the parcel is located within the service area of a public water district or private water company.
- **Chapter 12.235, California Green Building Construction Standards Code Amendments.** Section 12.235.020, Amendments, describes the deletions and amendments to the adopted 2019 CALGreen Building Code Standards as described in Section 12.100.010, Adopted Codes.
- **Chapter 14.16, Site and Use Regulations.** Section 14.16.370, Water-Efficient Landscape, includes the water-efficient landscape ordinance. The purpose of this section is to adopt by reference the MMWD Ordinance (Water Conservation), as adopted and periodically amended. For projects that are subject to the water-efficient landscape requirements, the City defers to MMWD to administer the provisions of this chapter, which include:
 - The application and monitoring of a "maximum applied water allowance," that is established for applicable projects.
 - The review of required landscape and irrigation plans, specifications and supportive documents prepared for applicable projects for compliance with water-efficient landscape restrictions, including limitations on the type and amount of landscape materials and plant species.
 - The review, inspection and approval of landscape and irrigation that is installed for applicable projects to ensure compliance with the approved landscape and irrigation plans and specifications.
 - The post-installation monitoring of water usage for irrigation by applicable projects.
- **Chapter 15.06, Utilities and Services.** Section 15.06.020, Utilities and Services, states no subdivision of land into two or more lots or parcels for the purpose of development shall be approved by the City unless it is determined that domestic water service for all new lots or parcels shall be provided by the MMWD.
- **Chapter 18.50, Provisions for Flood Hazard Reduction.** Section 18.50.020, Standards for Utilities, states that all new and replacement water supply and sanitary sewage systems within the 100-year floodplain shall be designed to minimize or eliminate (1) the infiltration of flood waters into the systems and (2) the discharge from the systems into flood waters. Also, on-site waste disposal systems shall be located to avoid impairment or contamination that could occur during flooding.

UTILITIES AND SERVICE SYSTEMS

Climate Change Action Plan 2030

The San Rafael Climate Change Action Plan (CCAP) 2030 was issued in April 2019 and includes a variety of strategies to reduce greenhouse gas emissions from both existing and future development in San Rafael.⁵ The CCAP focuses on mitigation efforts such as renewable energy, low-carbon transportation, composting, and water conservation. San Rafael has responded to the need to conserve water by reducing its per capita water use by about 28 percent in the last ten years. Residents and businesses are installing low-flow fixtures (showerheads, faucets, and toilets); planting native, drought-tolerant species; and replacing lawns with low-water-use gardens. The CCAP has the following goals for community and municipal water use:

- **WC-C1: Community Water Use.** Reduce indoor and outdoor water use in residential and commercial buildings and landscaping.
 - Work with MMWD and other organizations to promote water conservation programs and incentives.
 - Educate residents and businesses about local and State laws requiring retrofit of noncompliant plumbing fixtures during remodeling and at resale.
 - Ensure all projects requiring building permits, plan check, or design review comply with State and MMWD regulations.
 - Encourage the installation of greywater and rainwater collection systems and the use of recycled water where available through ordinance or engagement campaigns.
- **WC-M1: Municipal Water Use.** Reduce indoor and outdoor water use in municipal facilities and operations.
 - Replace high water use plants and inefficient irrigation systems with water-efficient landscaping.
 - Investigate synthetic turf that uses organic infill for ball fields and parks to reduce water, herbicide use, and maintenance costs, while increasing field use throughout the year.
 - Replace inefficient plumbing fixtures with high-efficiency fixtures.
 - Use recycled water as available and practicable.

Existing Conditions

Water Supply Sources

The MMWD serves roughly 190,000 customers within approximately 147 square miles along the eastern corridor of Marin County from the Golden Gate Bridge northward. MMWD serves ten incorporated cities and towns, including San Rafael, Mill Valley, Fairfax, San Anselmo, Ross, Larkspur, Corte Madera, Tiburon, Belvedere, and Sausalito. Approximately 27 percent of MMWD's customer meters are in San Rafael.⁶ The MMWD's water supplies presently come from a combination of local surface water supplies, imported water from the Sonoma County Water Agency (SCWA), and recycled water.⁷

⁵ City of San Rafael, 2019. *Climate Change Action Plan 2030*. Dated April 23, 2019.

⁶ Marin Municipal Water District, May 31, 2019, Email correspondence with Lucy Croy, Senior Engineer.

⁷ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

UTILITIES AND SERVICE SYSTEMS

Groundwater

There are two groundwater basins identified in DWR Bulletin 118 that are at least partially within the EIR Study Area: San Rafael Valley and Novato Valley Basins. However, existing groundwater resources in the EIR Study Area are very limited due to a lack of substantial underlying groundwater aquifers and poor groundwater quality. Because of these limitations, the MMWD does not use groundwater as a supply source. In addition, SRMC Section 9.24.070, Prohibition, prohibits the use of well water for more than one residential lot if the well is in the MMWD's service area.

The DWR's Sustainable Groundwater Management program uses a scoring system of eight components to evaluate the need for more sustainable groundwater policies and programs in a basin. The scoring components include the population in the basin; the rate of current and projected growth of the populations in the basin; the number of public supply wells that draw from the basin; the total number of wells that draw from the basin; the irrigated acreage within the basin; the degree to which persons in the basin rely on groundwater as their primary source of water; any documented impacts on groundwater in the basin; and any other information determined to be relevant by DWR.⁸ Based on this prioritization method, the two groundwater basins in the EIR Study Area are categorized as very low priority basins.⁹

Groundwater use within MMWD's service area is limited to small, domestic private groundwater wells. The MMWD has studied the potential for municipal groundwater use since the 1970s, and the results of these studies have shown that the potential for municipal groundwater use within the boundaries of the MMWD service area is very limited due to limited production capabilities, water quality constraints, and potential water rights issues. As a result of these studies, groundwater is not currently used or planned to be used as a municipal water supply source by MMWD, though private groundwater wells are used in the EIR Study Area.¹⁰

Surface Water

The MMWD's primary water supply is local surface water from a network of seven local, rain-fed reservoirs. Five of the seven MMWD reservoirs (Alpine, Bon Tempe, Kent, Lagunitas, and Phoenix Lake) are on the north slope of Mt. Tamalpais. The remaining two MMWD reservoirs (Nicasio and Soulagule) are outside the MMWD's service area in western Marin County. The total reservoir storage operated by the MMWD is 25.9 billion gallons (79,566 afy).¹¹ Characteristics of the MMWD's reservoir system are summarized in Table 4.17-1.

⁸ Department of Water Resources, 2018. *2018 SGMA Basin Prioritization Process and Results*. Dated May 2018.

⁹ Department of Water Resources, 2020. *SGMA Basin Prioritization Dashboard*. Accessed at <https://gis.water.ca.gov/app/bp-dashboard/final/> on July 29, 2020.

¹⁰ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

¹¹ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

UTILITIES AND SERVICE SYSTEMS

TABLE 4.17-1 MARIN MUNICIPAL WATER DISTRICT SURFACE WATER RESERVOIR SYSTEM

Reservoir Name	Year Constructed	Storage Capacity (Acre-Feet)
Lake Lagunitas	1873	350
Phoenix Lake	1905	411
Bon Tempe Reservoir	1948	4,017
Alpine Lake	1918, 1924, and 1941	3,069; 4,600; and 8,891
Kent Lake	1953 and 1982	16,050 and 32,895
Nicasio Reservoir	1960	29,000
Soulajule Reservoir	1980	10,572
Total Existing Reservoir Storage:		79,566

Notes: One acre-foot is the amount of water required to cover 1 acre of ground (43,560 square feet) to a depth of 1 foot.
Source: Marin Municipal Water District, 2016, *Urban Water Management Plan, 2015 Update*.

Surface water from Kent Lake, Bon Tempe Lake, Alpine Lake, Phoenix Lake, and Lagunitas Lake is aerated seasonally to maintain adequate dissolved oxygen concentrations. From the reservoirs, the water is conveyed to either the Bon Tempe Treatment Plant near Ross or the San Geronimo Treatment Plant in Woodacre.¹² According to the 2015 UWMP, MMWD estimates the reasonable available amount of its surface water sources is 141,970 afy. The reasonably available volume is a historical average of water available to the MMWD based on beginning year reservoir storage, estimated inflow runoff, and imported water from SCWA.¹³

Purchased Water

Since 1975, the MMWD has contracted with SCWA for a supplemental supply of water, primarily from the Russian River. The agreement for water supply allows the MMWD to take deliveries of up to 14,300 afy. Projections are consistent with SCWA's UWMP. The agreement will remain in force through June 30, 2025, and includes a renewal provision that will extend the agreement through June 30, 2040. In addition to contractual delivery limits, Russian River water deliveries to the MMWD are subject to available pipeline capacity in facilities owned by SCWA and the North Marin Water District. Approximately 7,000 afy were delivered to MMWD in 2015, and this amount is assumed to increase to 10,000 afy in 2040.¹⁴ Water imported from SCWA is naturally filtered in the deep sand and gravel below the riverbed and requires no further clarification. This water enters the MMWD's system at the Ignacio Water Quality and Pumping Station, where water quality is monitored continually and adjusted as needed.¹⁵

¹² Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

¹³ Marin Municipal Water District, May 31, 2019, Email correspondence with Lucy Croy, Senior Engineer.

¹⁴ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

¹⁵ Marin Municipal Water District, June 2016, *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

UTILITIES AND SERVICE SYSTEMS

Water Supply Infrastructure

The MMWD’s water supply pipelines range from 0.75-inch pipes connecting customers’ water meters to a 42-inch transmission main. The pipes are constructed of cast iron, polyvinyl chloride, and asbestos cement, depending on the date and location of installation. MMWD implements an ongoing Pipeline Replacement Program to replace pipelines that have reached the end of their useful life. Water distribution pipelines within the EIR Study Area range from 1- to 30-inch-diameter pipes.

As described in Table 4.17-2, the MMWD’s potable water distribution system includes approximately 886 miles of water mains, 94 pump stations, and 127 treated water storage tanks with a total storage capacity of 81.9 million gallons (mg). To treat the MMWD water supply, the MMWD operates three water treatment plants, including the Bon Tempe Treatment Plant, the San Geronimo Treatment Plant, and the Ignacio Treatment Facility.¹⁶ The San Geronimo and Bon Tempe Plants, with maximum capacities of 35 million gallons per day (mgd) and 20 mgd, respectively, treat water from the MMWD reservoirs. The Ignacio Pump Station, with a maximum capacity of 16 mgd, performs chemical treatment in a “polishing” operation on water received from SCWA via the North Marin Intertie Pipeline.¹⁷ Together, these facilities have a combined design capacity of 71 mgd. Although maximum treatment rates have reached 58 mgd, the average daily maximum rate is approximately 25 mgd. In 2015, the total production of the three plants averaged 20.4 mgd.¹⁸ The MMWD’s potable water distribution system is shown on Figure 4.17-1.

TABLE 4.17-2 SUMMARY OF POTABLE WATER FACILITIES

Facility	Value
Miles of Pipeline	886
Number of storage tanks	127
Total tank storage capacity	81.9 mg
Number of pump stations	94
Number of potable water treatment plants	3
Maximum daily treatment capacity (designed)	71 mgd
Maximum daily treatment capacity (observed)	58 mgd
Average daily treatment plant production	20 mgd

Notes: mg = million gallons, mgd= million gallons per day
Source: Marin Municipal Water District, 2016, *Urban Water Management Plan, 2015 Update*.

¹⁶ Marin Municipal Water District, June 2016 *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

¹⁷ Marin Municipal Water District, June 20, 2017. Final Proposed Fiscal Year 2017/18 and 2018/19 Operating and Capital Budget. <https://www.marinwater.org/DocumentCenter/View/4723/Final-Proposed-Operating-and-Capital-Budget-for-Fiscal-Years-2017-18-and-2018-19?bidId=>.

¹⁸ Marin Municipal Water District, June 2016. *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

UTILITIES AND SERVICE SYSTEMS

The MMWD UWMP does not specify the water demand for each city or town within its service area. However, correspondence with MMWD engineers indicates that approximately 27 percent of the MMWD customer meters are in San Rafael.¹⁹

Recycled Water

MMWD's recycled water system consists of 27 miles of pipeline, three storage tanks with a total capacity of 1.9 mg, and four pump stations. MMWD delivers about 520 afy through 342 service connections in north San Rafael. The MMWD produces recycled water by treating secondary effluent from the Las Gallinas Valley Sanitary District (LGVSD).²⁰ The Las Gallinas Reclamation Plant, located in San Rafael, has a current maximum capacity of 2 mgd. The Las Gallinas Reclamation Plant performs tertiary treatment of wastewater effluent and produces recycled water used for irrigation, toilet flushing, and other nondrinking purposes.^{21,22} The locations of the recycled water pipelines are shown on Figure 4-17.1, including the northern portion of San Rafael and the Terra Linda and Santa Venetia communities. The Downtown Precise Plan Area currently does not have a recycled water distribution system. There are five wastewater treatment plants (WWTP) within the EIR Study Area that collectively treat roughly 17,000 afy of wastewater. Of this amount, just over 2,000 afy are recycled for nonpotable purposes such as landscape irrigation.²³

Marin Municipal Water District Water Supply and Demand

According to the 2015 MMWD UWMP, single- and multi-family residential homes make up 75 percent of MMWD's total water demand for its service area. Commercial, institutional, and landscape uses represent 13 percent, 6 percent, and 6 percent of the remaining water demand, respectively. The service area has a relatively low growth rate. The 2040 population is projected to be approximately 210,000, which is an increase from 190,000 in 2015. The Association of Bay Area Governments projects a continued slow growth rate of about 0.46 percent per year for the 25-year period. The 2015 demand for potable and recycled water in the MMWD service area was 38,866 afy, which is projected to increase to approximately 42,109 afy by 2040. Water losses and passive conservation measures are included in the water demand. Passive conservative measures are those that do not depend on financial assistance or educational programs, but result from the natural replacement of existing plumbing fixtures with water-efficient models and the installation of water-efficient fixtures in new buildings and retrofits, as required under the CALGreen standards.

¹⁹ Marin Municipal Water District, 2019. Email correspondence between Lucy Croy, P.E., Senior Engineering – Planning, MMWD and Steve Bush, P.E., Senior Engineer, PlaceWorks dated May 31, 2019.

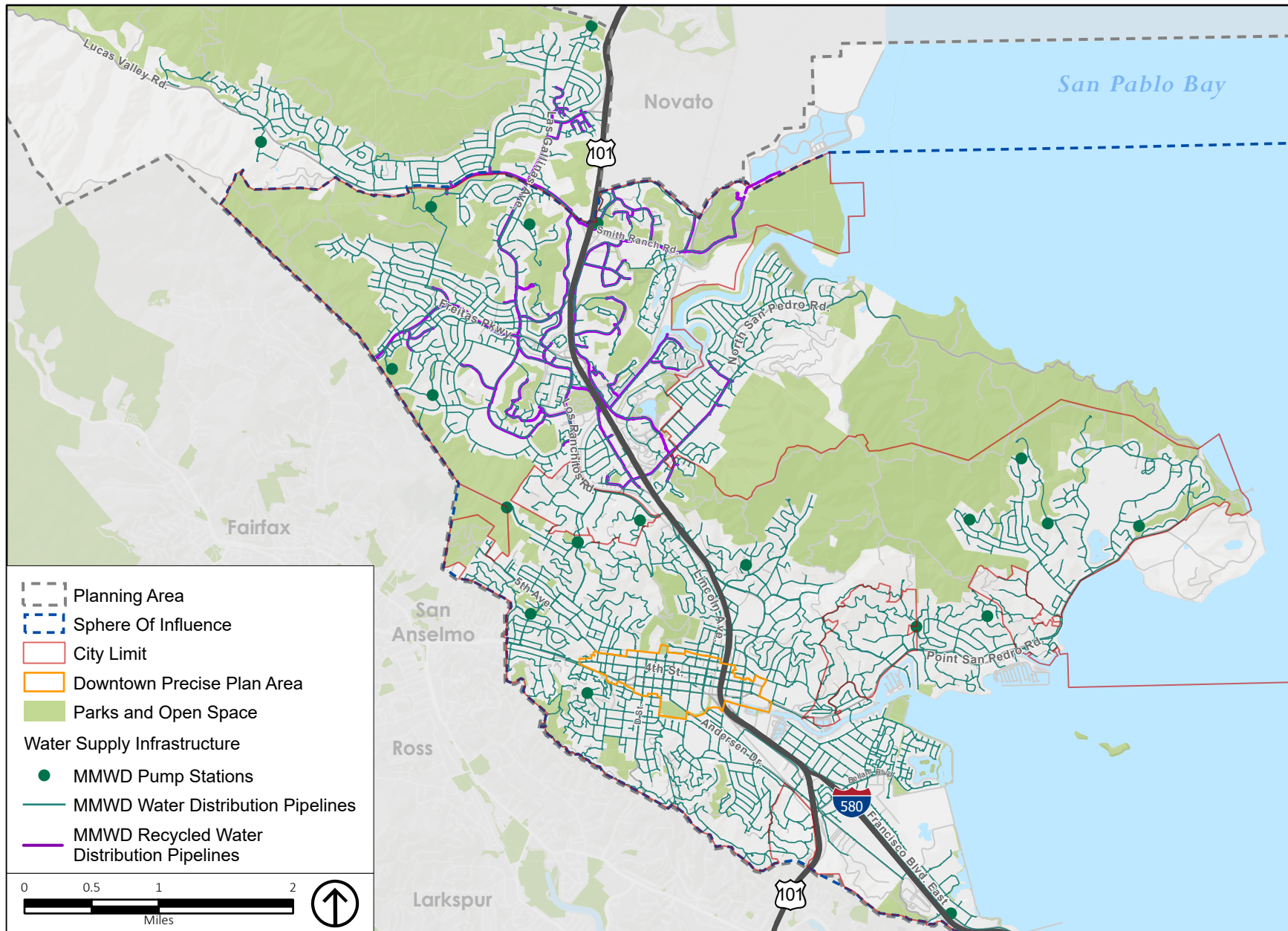
²⁰ Marin Municipal Water District, June 2016 *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

²¹ Marin Municipal Water District, June 20, 2017, *Final Proposed Fiscal Year 2017/18 and 2018/19 Operating and Capital Budget*. <https://www.marinwater.org/DocumentCenter/View/4723/Final-Proposed-Operating-and-Capital-Budget-for-Fiscal-Years-2017-18-and-2018-19?bidId=>.

²² Marin Municipal Water District, *Recycled Water*, <https://www.marinwater.org/326/Recycled-Water>, accessed on March 15, 2019.

²³ Marin Municipal Water District, June 20, 2017, *Final Proposed Fiscal Year 2017/18 and 2018/19 Operating and Capital Budget*. <https://www.marinwater.org/DocumentCenter/View/4723/Final-Proposed-Operating-and-Capital-Budget-for-Fiscal-Years-2017-18-and-2018-19?bidId=>.

UTILITIES AND SERVICE SYSTEMS



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.17-1

Marin Municipal Water District Supply Infrastructure

UTILITIES AND SERVICE SYSTEMS

Table 4.17-3 provides the projected water demand and water supply comparisons for the MMWD service area for normal, single-dry, and multiple-dry years.

TABLE 4.17-3 PROJECTED NORMAL, DRY, AND MULTIPLE-DRY SUPPLY AND DEMAND COMPARISONS (AFY)

	2020	2025	2030	2035	2040
Normal Year					
Supply Totals	151,254	152,714	152,794	152,794	152,794
Demand Totals	41,940	41,797	41,685	41,835	42,109
<i>Difference</i>	<i>111,019</i>	<i>110,917</i>	<i>111,109</i>	<i>110,959</i>	<i>110,685</i>
Dry Year					
Supply Totals	60,442	60,442	60,442	60,442	60,442
Demand Totals	41,940	41,797	41,685	41,835	42,109
<i>Difference</i>	<i>18,502</i>	<i>18,645</i>	<i>18,757</i>	<i>18,607</i>	<i>18,333</i>
Multiple Dry Year ^a					
First Year					
Supply Totals	123,407	123,407	123,407	123,407	123,407
Demand Totals	41,940	41,797	41,685	41,835	42,109
<i>Difference</i>	<i>81,467</i>	<i>81,610</i>	<i>81,722</i>	<i>81,572</i>	<i>81,298</i>
Second Year					
Supply Totals	76,300	76,300	76,300	76,300	76,300
Demand Totals	41,940	41,797	41,685	41,835	42,109
<i>Difference</i>	<i>34,360</i>	<i>34,503</i>	<i>34,615</i>	<i>34,465</i>	<i>34,191</i>
Third Year					
Supply Totals	60,442	60,442	60,442	60,442	60,442
Demand Totals	41,940	41,797	41,685	41,835	42,109
<i>Difference</i>	<i>18,502</i>	<i>18,645</i>	<i>18,757</i>	<i>18,607</i>	<i>18,333</i>

^a Estimated multiple-dry-year supplies reflect additional storage resulting from raising Kent Reservoir in 1982 and renegotiating SCWA agreements. Source: Marin Municipal Water District, 2016, Urban Water Management Plan, 2015 Update.

The projections in Table 4.17-3 are conservative because they do not account for future active conservation measures that result from MMWD's conservation program. This approach, while conservative, safeguards against potential future shortages by projecting the highest level of demand. Therefore, any potential shortages at this demand could be alleviated by active conservation measures.²⁴

SB X7-7 requires urban water suppliers to report in the UWMP a baseline water use calculation and specific water use targets to meet the 2020 goal of 20 percent water use reduction. All water suppliers are required to submit the SB X7-7 Verification Form to DWR, which is typically an appendix of the UWMP. The MMWD's 2020 water use target is 124 gallons per capita per day (gpcd), and its interim (2015) target

²⁴ Marin Municipal Water District, June 2016. Urban Water Management Plan, 2015 Update, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

UTILITIES AND SERVICE SYSTEMS

is 137 gpcd. The MMWD is currently meeting both its interim and 2020 water use targets, as the daily per capita water use in 2015 was 110 gpcd, well below both target levels.²⁵

Capital Improvement Program

According to the MMWD, the current water distribution system will be able to handle future growth and development throughout Marin County, including the EIR Study Area.²⁶ However, MMWD has an ongoing capital improvement program (CIP) to replace approximately eight miles of pipelines that have reached the end of their useful life. In the next five years, 4,000 feet of water pipelines beneath Third Street between Irwin Street and Fourth Street are planned for replacement in the Downtown Precise Plan Area. There are also plans to replace the Hind #1 and Hind #2 redwood storage tanks and seismically retrofit the Skyview Terrace and Loch Lomond steel tanks. The Fire Flow Improvement Program also plans to replace 52 miles of fire flow piping, including the pipeline on Fifth Avenue between A street and Grand Avenue, which is mostly within the Downtown Precise Plan Area. Additional water pipeline replacement is planned on Lochinvar Road and Knight Drive in the EIR Study Area.²⁷

4.17.1.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant water supply impacts if it would:

1. Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.
2. Not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
3. Result in significant cumulative impacts related to water supply and facilities.

4.17.1.3 IMPACT DISCUSSION

UTIL-1	Implementation of the proposed project could require or result in the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.
---------------	---

General Plan 2040

Implementation of the proposed project would have a significant impact if it would result in the construction of new water treatment facilities (plants) or the expansion of existing facilities that would

²⁵ Marin Municipal Water District, June 2016. *Urban Water Management Plan, 2015 Update*, <http://marinwater.org/DocumentCenter/View/3828/MMWD-2015-UWMP-Final---Report-Only?bidId=>.

²⁶ Marin Municipal Water District, 2019. Correspondence between Lucy Croy, P.E., Senior Engineer – Planning, MMWD, and Steve Bush, P.E., Senior Engineer, PlaceWorks, dated May 31, 2019.

²⁷ Marin Municipal Water District. June 5 and 10, 2019. Email correspondences with Lucy Croy, Senior Engineer.

UTILITIES AND SERVICE SYSTEMS

have a significant effect on the environment. Under the proposed project, water demand would increase throughout the EIR Study Area due to increases in population.

A general plan is not considered a project under SB 610 that requires preparation of a WSA. Instead, a general plan relies on information prepared by the water supplier in the UWMP to demonstrate that the proposed population increase would not create a water demand that would exceed the supply in normal, dry, and multiple dry years, as discussed in the following paragraphs. Future projects under the General Plan 2040 that meet the criteria under California Water Code Section 10912 would be required to prepare a WSA.

The 2015 MMWD UWMP does not enumerate the water demands for individual cities or towns in its service area. However, the UWMP states that in 2015 the water demand rate was 110 gpcd. This number was obtained by adding together all of the land uses within the service area (e.g., single-family, multifamily, commercial, industrial, institutional and landscape), as well as water losses, fire flows, and water sold to the golf courses and dividing by the total population served. The water demand rate of 110 gpcd is also used in the *City of San Rafael Community Greenhouse Gas Emissions Inventory for the Year 2018*.²⁸ To determine current and future water demands for the EIR Study Area, which includes the Downtown Precise Plan Area, the water demand rate was multiplied by the proposed population increase in the EIR Study Area and the Downtown Precise Plan Area.²⁹ These numbers are conservative, because they do not account for future passive and active water conservation efforts, which will reduce the per capita water demand over time. Table 4.17-4 shows results by the entire EIR Study Area and the water demand for just the Downtown Precise Plan Area.

TABLE 4.17-4 EXISTING AND BUILDOUT WATER DEMAND WITHIN EIR STUDY AREA

Area	Existing Population	Population at Buildout	Population Increase at Buildout	Water Demand Rate (gpcd)	Increase in Water Demand at Buildout (gal/day)	Increase in Water Demand at Buildout (afy)
Total EIR Study Area	75,751	84,661	8,910	110	980,100	1,098
Downtown Precise Plan Area	2,315	5,885	3,570	110	392,700	440

Source: Marin Municipal Water District, 2016. *2015 Urban Water Management Plan*.

Water demand in the EIR Study Area is anticipated to increase by 1,098 afy by 2040. The anticipated increase in water demand in the Downtown Precise Plan Area is estimated to be 440 afy, which is approximately 40 percent of the projected EIR Study Area increase in water demand. As shown previously in Table 4.17-3, in the year 2040, MMWD will have a residual water supply capacity of 110,685 afy for a normal year and 18,333 afy at the end of three multiple dry years. Therefore, MMWD would have sufficient water supply to meet the demand of potential future buildout in the remainder of the EIR Study Area and buildout in the Downtown Precise Plan Area.

²⁸ Marin Climate & Energy Partnership, 2020. *City of San Rafael Community Greenhouse Gas Emissions Inventory for the Year 2018*. Dated April 2020.

²⁹ Marin Climate & Energy Partnership, 2020. *City of San Rafael Community Greenhouse Gas Emissions Inventory for the Year 2018*. Dated April 2020.

UTILITIES AND SERVICE SYSTEMS

The three MMWD water treatment plants (Bon Tempe Treatment Plant, San Geronimo Treatment Plant, and Ignacio Treatment Facility) have a total capacity of 71 mgd, which equates to 79,530 afy. This substantially exceeds the water demand for the MMWD service area of 42,109 afy in 2040. Therefore, no new water facilities or expansion of existing facilities would be required.

New development or redevelopment within the EIR Study Area would be required to implement the water-efficient requirements for new construction in accordance with the SRMC, CALGreen, and the California Plumbing Code. In addition, all new landscapes associated with new development would be required to comply with the water-efficient-landscaping measures specified in the MMWD's Water Conservation Ordinance and the SRMC. Water infrastructure improvements must be designed, constructed, and operated in accordance with the applicable regulations in the MMWD Code. Service charges and connection fees will assist in funding MMWD's CIP, which includes treatment plant seismic and reliability upgrades, ongoing pipeline replacement, replacement and upgrades of aging pump stations, storage tank replacement and upgrades, and improvements to fire flow. These measures ensure that MMWD would have adequate capacity for the proposed increases in water flows within the EIR Study Area with implementation of the proposed General Plan 2040.

In addition, the proposed Community Design and Preservation (CDP), Conservation and Climate Change (C), and Community Services and Infrastructure (CSI) Elements contain goals, policies, and programs that require local planning and development decisions to consider impacts to water supply. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts to water supply:

Goal CDP-3: Attractive Streets and Public Spaces. Create streets, public spaces, and civic buildings that add value to private property, promote environmental sustainability, and contribute to San Rafael's visual quality and identity.

- **Policy CDP-3.4, Landscape Maintenance**, requires that the City prioritize landscape maintenance along the City's most heavily traveled roadways and gateways and that operational practices support the City's commitment to water conservation.
 - **Program CDP-3.4A: Landscape Stewardship.** Encourage partnerships with neighborhoods and civic organizations to maintain and improve the City's landscaped areas.

Goal C-1: Supporting Our Natural Communities. Protect, restore, and enhance San Rafael's environment and natural communities.

- **Policy C-1.15, Landscaping with Appropriate Naturalized Plant Species**, encourages landscaping with native and compatible non-native plant species that are appropriate for the dry summer climate of the Bay Area, with an emphasis on species determined to be drought-resistant.
 - **Program C-1.15A: Education on Desirable Plant Species.** Leverage the educational and website materials on "water-wise" plants developed by the Marin Municipal Water District and fire-prone plants from FireSafe Marin as resources for San Rafael property owners. The City should also create Resilient Landscape Templates (RLTs) that offer suggestions for homeowners to achieve beautiful, fire-resistant, drought tolerant landscaping.

UTILITIES AND SERVICE SYSTEMS

Goal C-3: Clean Water. Improve water quality by reducing pollution from urban runoff and other sources, restoring creeks and natural hydrologic features, and conserving water resources.

- **Policy C-3.8, Water Conservation**, encourages water conservation and increased use of recycled water in businesses, homes, and institutions and requires that local development and building standards include the efficient use of water.
 - **Program C-3.8A: Water Conservation Programs.** Work with Marin Municipal Water District and other organizations to promote water conservation programs and incentives and ensure compliance with state and MMWD regulations, including the provisions of the Urban Water Management Plan (see Policy CSI-4.8 for additional guidance).
 - **Program C-3.8B: Public Education.** Continue and expand programs to educate residents and businesses about the benefits of water conservation and requirements for plumbing fixtures and landscaping.
 - **Program C-3.8C: Reclaimed Water Use.** Support the extension of recycled water distribution infrastructure by Las Gallinas Valley Sanitary and MMWD, along with programs to make the use of recycled water more feasible (see Policy CSI-4.12 for additional guidance).
 - **Program C-3.8D: Graywater and Rainwater.** Encourage the installation of graywater and rainwater collection systems. Explore revisions to building codes that would facilitate such projects where obstacles currently exist.
 - **Program C-3.8E: Reducing Municipal Water Use.** Reduce water use for municipal operations through water-efficient landscaping, maintenance of irrigation equipment, replacement of inefficient plumbing fixtures, and using recycled water where available and practical.
- **Policy C-3.9, Water-Efficient Landscaping**, encourages the use of vegetation and water-efficient landscaping that is naturalized to the San Francisco Bay region and compatible with fire-prevention and climate resilience goals.
 - **Program C-3.9A: Demonstration Gardens.** Maintain the Falkirk demonstration gardens illustrating xeriscaping principles and drought-tolerant plant materials.

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.1, Capital Investment**, requires the City to provide for ongoing, preventative maintenance of infrastructure and timely replacement, repair, and upgrading of City equipment.
 - **Program CSI-4.1A: Capital Improvement Programming.** Maintain and regularly update a multi-year Capital Improvement Plan (CIP) covering City owned and operated infrastructure and public facilities. Seek the input of other local service providers (MMWD, LGVSD, etc.) when preparing the City's CIP and encourage these agencies to seek City input as they prepare their own CIPs.
 - **Program CSI-4.1B: Funding for Maintenance and Capital Costs.** Consider ways to improve the reliability of maintenance funding, such as establishing a reserve fund or voter-approved parcel taxes and special assessments. Identify potential funding sources for unmet and anticipated future capital project needs, such as grants, bond measures, and impact fees.
 - **Program CSI-4.1C: Community-Supported Services.** Consider community-supported (e.g., cooperative) services as an alternative to bring fundamental service upgrades to neighborhoods and managing capital costs.

UTILITIES AND SERVICE SYSTEMS

- **Policy CSI-4.2: Adequacy of City Infrastructure and Services**, requires applicants to demonstrate that their projects can be adequately served by the City’s infrastructure as part of the development review process. All new infrastructure shall be planned and designed to meet the engineering standards of the City and various local service and utility providers.

 - **Program CSI-4.2A: Long-Term Planning.** Continue to use the CIP to analyze and respond to local capital facility needs.
 - **Program CSI-4.2B: Engineering Standards.** Require new development to comply with the subdivision standards in the San Rafael Municipal Code, as well as relevant Marin County and utility district engineering standards. Where feasible, encourage development to reach beyond current standards and collaborate with the community to innovate and define new best practices.
 - **Program CSI-4.2C: Impact Fees.** Continue to collect impact fees and use other funding mechanisms to ensure that new development pays its fair share of providing/ upgrading services associated with that development.

- **Policy CSI-4.8, Potable Water Supply and Delivery**, requires that the City work with MMWD to meet projected water demand, encourage water conservation, and ensure the reliability and safety of the water supply and distribution system.

 - **Program CSI-4.8A: Urban Water Management Plan.** Support MMWD’s efforts to regularly update and implement an Urban Water Management Plan.
 - **Program CSI-4.8B: Water Supplies.** Monitor efforts by the MMWD to implement conservation standards and expand the local water supply to meet long-term needs and potential future drought conditions. If desalination facilities are proposed along the bayfront in the future, ensure adequate review of environmental, design, and economic issues.
 - **Program CSI-4.8C: Water Pressure and Storage.** Work with MMWD to ensure that water pressure and storage remains adequate for fire-fighting, and to implement standards for new development that ensure adequate water flow.

- **Policy CSI-4.12, Recycled Water.** Encourage additional wastewater recycling by the Las Gallinas Valley Sanitary District, initiation of wastewater recycling by the Central Marin Sanitation Agency, additional recycled water distribution by MMWD, and additional use of reclaimed water where supply (“purple pipe”) is available.

 - **Program CSI-4.12A: CMSA Capacity Expansion.** Support implementation of the CMSA/ MMWD Recycled Water Study recommendations, enabling increased use of recycled water and reduced potable water demand.
 - **Program CSI-4.12B: Las Gallinas Expansion Project.** Support completion of the Recycled Water Expansion Project and continued expansion of recycled water capacity.
 - **Program CSI-4.12C: Sewer Line Replacement.** Replace low-lying sewer pipes as needed to reduce saltwater intrusion, thereby reducing the cost of producing reclaimed water.

The 2015 MMWD UWMP indicates that there is a surplus water supply even during multiple dry years and water demand from potential future development from implementation of the proposed General Plan 2040 would not exceed the available supply. Therefore, no new water facilities or expansion of existing facilities would be required. In addition, compliance with the City and MMWD’s regulatory requirements for new construction and water-efficient landscaping and implementation of the General Plan 2040 goals,

UTILITIES AND SERVICE SYSTEMS

policies, and programs listed above would result in *less than significant* impacts with respect to water supply and the need for new and/or expanded water facilities.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As shown above in Table 4-17.4, the estimated water demand for the Downtown Precise Plan Area would be 440 afy at full buildout. This is approximately 1.0 percent of the projected water demand for the MMWD service area in 2040. Since MMWD has a surplus water supply of 110,685 afy for a normal year and 18,333 afy for a single dry year or at the end of three dry years, the water demand for the Downtown Precise Plan Area would not exceed MMWD's water supply.

In addition, MMWD has indicated that the current water distribution system will be able to handle future growth and development throughout Marin County, including the EIR Study Area.³⁰ As part of MMWD's ongoing capital improvement program to improve the water pipeline distribution system, 4,000 feet of water pipelines beneath Third Street between Irwin Street and Fourth Street will be replaced in the next five years. The Fire Flow Improvement Program also plans to replace the pipeline on Fifth Avenue between A street and Grand Avenue, which is mostly within the Downtown Precise Plan Area.³¹

The water demand for the Downtown Precise Plan Area would be only 1.0 percent of MMWD's projected water demand, and there is sufficient supply, even in single- and multiple-dry years. Also, MMWD's water treatment plants currently have the capacity to treat up to 1.9 times the projected water demand in the year 2040, and treatment plant upgrades are planned in the future. Therefore, no new water facilities or expansion of water facilities are necessary, and the impact is *less than significant*.

Significance without Mitigation: Less than significant.

UTIL-2	Implementation of the proposed project could have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
---------------	---

General Plan 2040

As shown on Table 3-6 in Chapter 3, Project Description, of this Draft EIR, the existing (2020) population within the EIR Study Area of 75,751 is projected to grow with implementation of the proposed project to 84,661 in 2040, for a net increase of 8,910 residents. The City's existing employment level of 44,200 jobs is projected to grow to 48,315 by 2040 for a net increase of 4,115 jobs. This results in a net increase of

³⁰ Marin Municipal Water District, 2019. Correspondence between Lucy Croy, P.E., Senior Engineer – Planning, MMWD, and Steve Bush, P.E., Senior Engineer, PlaceWorks, dated May 31, 2019.

³¹ Marin Municipal Water District. June 5 and 10, 2019. Email correspondences with Lucy Croy, Senior Engineer.

UTILITIES AND SERVICE SYSTEMS

13,025 people by 2040, including both residents and employees. This is consistent with the projected population increase for the MMWD service area.³²

As described in Impact Discussion UTIL-1, a water demand of 110 gpcd was used in this evaluation, pursuant to the MMWD 2015 UWMP. This is also consistent with the water demand rate of 110 gpcd in the *City of San Rafael Community Greenhouse Gas Emissions Inventory for the Year 2018*. The water demand rate of 110 gpcd is conservative because it does not consider passive and active conservation measures that will reduce the water demand rate over time. The result is a water demand increase within the EIR Study Area of 1,098 afy by 2040. This projected net increase in water demand at buildout is approximately 2.6 percent of the total water demand within the MMWD service area.

As shown previously in Table 4.17-3, MMWD has a surplus water supply of 110,685 afy for a normal year and 18,333 afy at the end of a single dry year or three dry years. Therefore, MMWD would have sufficient water supply to meet the demand of the EIR Study Area at buildout.

Additionally, potential future development pursuant to the proposed General Plan 2040 would be required to implement the water-efficient requirements specified in the SRMC and MMWD's Water Conservation Ordinance. Any new water infrastructure or improvements must be designed, constructed, and operated in accordance with the applicable regulations in the MMWD Code. In addition, potential future development pursuant to the proposed General Plan 2040 and the City would be required to comply with and implement the General Plan goals, policies, and programs listed in Impact Discussion UTIL-1.

In summary, buildout associated with the proposed General Plan 2040 would not result in a shortage of water supplies from MMWD. In addition, compliance with City and MMWD code requirements for new construction and adherence to the General Plan policies, impacts associated with water supply would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As shown previously in Table 4.17-4, the estimated water demand for the Downtown Precise Plan Area will be 440 afy at full buildout. This is approximately 1.0 percent of the projected water demand for the MMWD service area in 2040. Since MMWD has a surplus water supply of 110,685 afy for a normal year and 18,333 afy for a single dry year or at the end of three dry years, the water demand for the Downtown Precise Plan Area would not exceed MMWD's water supply.

In addition, compliance with and implementation of the City and MMWD's regulatory requirements for new construction and water-efficient landscaping and the proposed General Plan goals, policies, and programs listed in Impact Discussion UTIL-1 would result in *less than significant* impacts with respect to water supply.

³² Marin Municipal Water District, 2016. *Urban Water Management Plan, 2015 Update*. Dated June 2016.

UTILITIES AND SERVICE SYSTEMS

Significance without Mitigation: Less than significant.

UTIL-3 Implementation of the proposed project could result in a cumulatively considerable impact to water service.

This section analyzes potential impacts to water supply that could occur from the proposed project in combination with other reasonably foreseeable projects in the surrounding area. The geographic scope of this cumulative analysis is the MMWD service area, and the analysis is based on MMWD's current UWMP. While the proposed project would contribute to an increased demand for water supply, the increased demand would not exceed the long-term supply under normal years or multiple dry years through 2040. Also, the 2020 UWMP, which is currently being prepared, will account for future development within the county and the resultant increases in demand based on population projections within MMWD's service area. With implementation of SB X7-7 and State, regional, and local water conservation ordinances, all new development would be required to conserve water use and implement water efficiency measures. In addition, pursuant to SB 610 and SB 221, WSAs would be prepared for large development projects prior to approval of each project to ensure adequate water supply for new development.

Overall, cumulative water demands would neither exceed planned levels of supply nor require building new water treatment facilities or expanding existing facilities beyond what is currently planned. In addition, future development would be required to pay connection fees to MMWD, which would offset the costs of system maintenance and capital upgrades to support the new development in the MMWD service area. Together, existing regulations, proposed policies, and other considerations would ensure that the proposed project would not result in a cumulatively considerable impact to water supply and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant

4.17.2 WASTEWATER

4.17.2.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Clean Water Act

The CWA of 1972 regulates the discharge of pollutants into watersheds throughout the nation. It is the primary federal law that governs water pollution and is implemented by the USEPA. Under the CWA, the USEPA sets wastewater standards and makes it unlawful to discharge pollutants from a point source into any navigable waters without obtaining a permit. Point sources include any conveyances, such as pipes and man-made drainage channels, from which pollutants may be discharged.

UTILITIES AND SERVICE SYSTEMS

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established as part of the CWA to regulate municipal and industrial discharges to surface waters of the United States. 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 connections 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. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a wastewater (sewage) treatment plant.

State Regulations

State Water Resources Control Board

On May 2, 2006, the SWRCB adopted Statewide General Waste Discharge Requirements (Order No. 2006-0003) and a monitoring and reporting program (Order No. WQ-2013-0058-EXEC) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipes. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSO). The Waste Discharge Requirements require public agencies that own or operate sanitary sewer systems to develop and implement Sewer System Management Plans (SSMPs) and report all SSOs to the SWRCB's online reporting system. The SWRCB has delegated authority to nine RWQCBs to enforce these requirements within their regions.

The San Francisco Bay RWQCB (Region 2) issues and enforces NPDES permits in the EIR Study Area. NPDES permits allow the RWQCB to regulate where and how waste is disposed, including the discharge volume and effluent limits of waste and the monitoring and reporting responsibilities of the discharger. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance.

Sanitary District Act of 1923

The Sanitary District Act of 1923 (California Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and enables the sanitation districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater.

Local Regulations

Wastewater collection and treatment for the City of San Rafael is provided by three entities: (1) LGVSD, which serves the area north of Puerto Suello Hill and operates the LGVSD WWTP; (2) San Rafael Sanitation District (SRSD), which collects wastewater from the area south of Puerto Suello Hill; and (3) Central Marin Sanitation Agency (CMSA), which receives wastewater from SRSD and operates the CMSA WWTP.

UTILITIES AND SERVICE SYSTEMS

Las Gallinas Valley Sanitary District NPDES Permit

The NPDES permit for LGVSD's WWTP and its wastewater collection system was issued by the San Francisco Bay RWQCB as Order No. R2-2020-0022 (NPDES No. CA0037851), adopted on July 8, 2020. The permit details discharge prohibitions and effluent limitations on the discharge of treated wastewater to Miller Creek, receiving water limitations, and monitoring and reporting requirements. The new permit is scheduled to take effect on September 1, 2020, and expire on August 31, 2025.

Las Gallinas Valley Sanitary District Sewer System Management Plan

The LGVSD's current SSMP is dated May 2020 and was prepared in accordance with State regulations to manage, operate, and maintain all parts of the LGVSD's sanitary sewer collection system. The SSMP was prepared pursuant to the requirements of the SWRCB Order No. 2006-003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and the Monitoring and Reporting Program associated with the statewide order that was amended in July 2013 (SWRCB Order WQ-2013-0058-EXEC). The SSMP describes LGVSD's operations and maintenance program, design and performance standards, emergency response plan, SSO notification, reporting and record keeping, and system evaluation and capacity assurance plan.

Las Gallinas Valley Sanitary District Ordinance Code

The ordinances of LGVSD are compiled, consolidated, and arranged as a comprehensive ordinance code:

- **The Sanitary Code of LGVSD.** This ordinance regulates the use of public and private sewers and drains, the installation and connection of building sewers and drains, and the installation of sewer laterals and public sewers and public sewer main extensions.
- **The Acceptance of Non-Domestic Wastes Ordinance.** This ordinance sets forth uniform requirements for industrial users of LGVSD's system to comply with all applicable state and federal laws, including the CWA, the General Pretreatment Regulations, and the California Water Code. The objective of the ordinance is to prevent the introduction of pollutants into the WWTP that will interfere with its operation or that will pass through the WWTP, inadequately treated, into receiving waters.
- **The Construction and Installation of Sanitary Sewer Facilities in Areas Underlain by Bay Mud Ordinance.** This ordinance regulates the construction and installation of sanitary sewer facilities in areas underlain by bay mud.
- **The Acceptance of Fats, Oils, and Grease Ordinance.** This ordinance develops and implements a program to reduce the discharge of fats, oils, and grease (FOG) from restaurants and other food service establishments to levels that will not cause blockage in sewer lines. The FOG ordinance requires restaurants and other food service establishments to have a grease removal device (grease trap or grease interceptor) in use.
- **The Prohibition of Food Grinders in Commercial Food Service Establishment Ordinance.** This ordinance prohibits the installation of food grinders in new or remodeled commercial food service establishments. For existing commercial food service establishments, food grinders shall be removed.

UTILITIES AND SERVICE SYSTEMS

- **The Sewer Connection Policy.** This policy approves new sewer connections only after it has been determined that adequate line and WWTP capacity exist or will exist at the time the flow is expected to start.³³

San Rafael Sanitation District Sewer System Management Plan

The SRSD's current SSMP is dated October 2015 and was prepared pursuant to SWRCB Order No 2006-0003-DWQ and its amendment. The SSMP describes measures to minimize the frequency of SSOs, implement a FOG control program, and provide adequate capacity to convey peak flows.

The SRSD Board of Directors passes ordinances and resolutions to govern all aspects of the SRSD's collection system. Regulations include the prevention of illicit discharges into the SRSD's sanitary sewer system; the design and construction of new and rehabilitated sewers and connections; SRSD access; limits on FOG and other debris; enforcement of violations; and the installation, testing, and inspection of new and rehabilitated sewers.³⁴

Central Marin Sanitation Agency NPDES Permit

Wastewater discharge requirements for CMSA's WWTP are detailed in Order No. R2-2018-0003 (NPDES No. CA0038628), issued by the San Francisco RWQCB and adopted on January 10, 2018. The permit, which expires on February 28, 2023, includes discharge prohibitions without sufficient dilution, effluent flow limitations, receiving water limitations, reporting requirements, and a pollution minimization program.

Central Marin Sanitation Agency Ordinances

CMSA adopted a FOG ordinance (Ordinance No. 2007-1) to minimize SSOs in the CMSA service area. The FOG ordinance controls the discharge of FOG to the sanitary sewer from commercial food service establishments by establishing requirements for food service establishments to install and maintain grease traps and interceptors. This ordinance was adopted pursuant to provisions of Section 6400 et seq. of the Health and Safety Code of the State of California. CMSA Ordinance No. 2019-1 outlines the fees to be paid for each new sewer connection based on land use or plumbing fixtures. Fees are also assessed for septic and chemical toilet waste haulers, FOG haulers, and industrial waste discharges. CMSA Ordinance No. 2009-2 is aimed at reducing the mercury load to the sanitary sewer system by regulating the discharge of amalgam wastes from dental offices.

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to wastewater infrastructure and services are primarily in the Land Use, Infrastructure, and Air and Water Quality Elements. As part of the proposed project, some existing General Plan policies would be amended or

³³ Las Gallinas Valley Sanitary District, 2019, *Ordinance Code*. <http://www.lgvsd.org/document-library/ordinance-code/>.

³⁴ San Rafael Sanitation District, 2015, *Sewer System Management Plan*.

<https://storage.googleapis.com/proudcity/sanrafaelca/uploads/SRSD-SSMP-Final-2015-public-1.pdf>

UTILITIES AND SERVICE SYSTEMS

substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.17.2.3, Impact Discussion.

San Rafael Municipal Code

The SRMC includes various directives to minimize adverse impacts to water quality in San Rafael. The SRMC is organized by title, chapter, and section. The SRMC includes various directives pertaining to wastewater issues. Most such directives are found in Title 12, Building Regulations, and Title 15, Subdivisions, as follows:

- **Chapter 12.250, California Plumbing Code Amendments.** Section 12.25.010, Amendments, states there are no amendments to the 2019 California Plumbing Code, adopted as described in Section 12.100.010, Adopted Codes.
- **Chapter 12.235, California Green Building Construction Standards Code Amendments.** Section 12.235.020, Amendments, describes the deletions and amendments to the 2019 CALGreen Building Code Standards as described in Section 12.100.010, Adopted Codes.
- **Chapter 15.06, Subdivision Design Standards and Miscellaneous Requirements.** Section 15.06.020, Utilities and Services, states that no subdivision of land into two or more lots or parcels for the purpose of development shall be approved by the City unless it is determined that wastewater and sewage disposal for all new lots or parcels shall be provided by either the SRSD or the LGVSD, depending upon the property location. The creation of an individual on-site septic system intended to serve a new lot or parcel is prohibited.

Existing Conditions

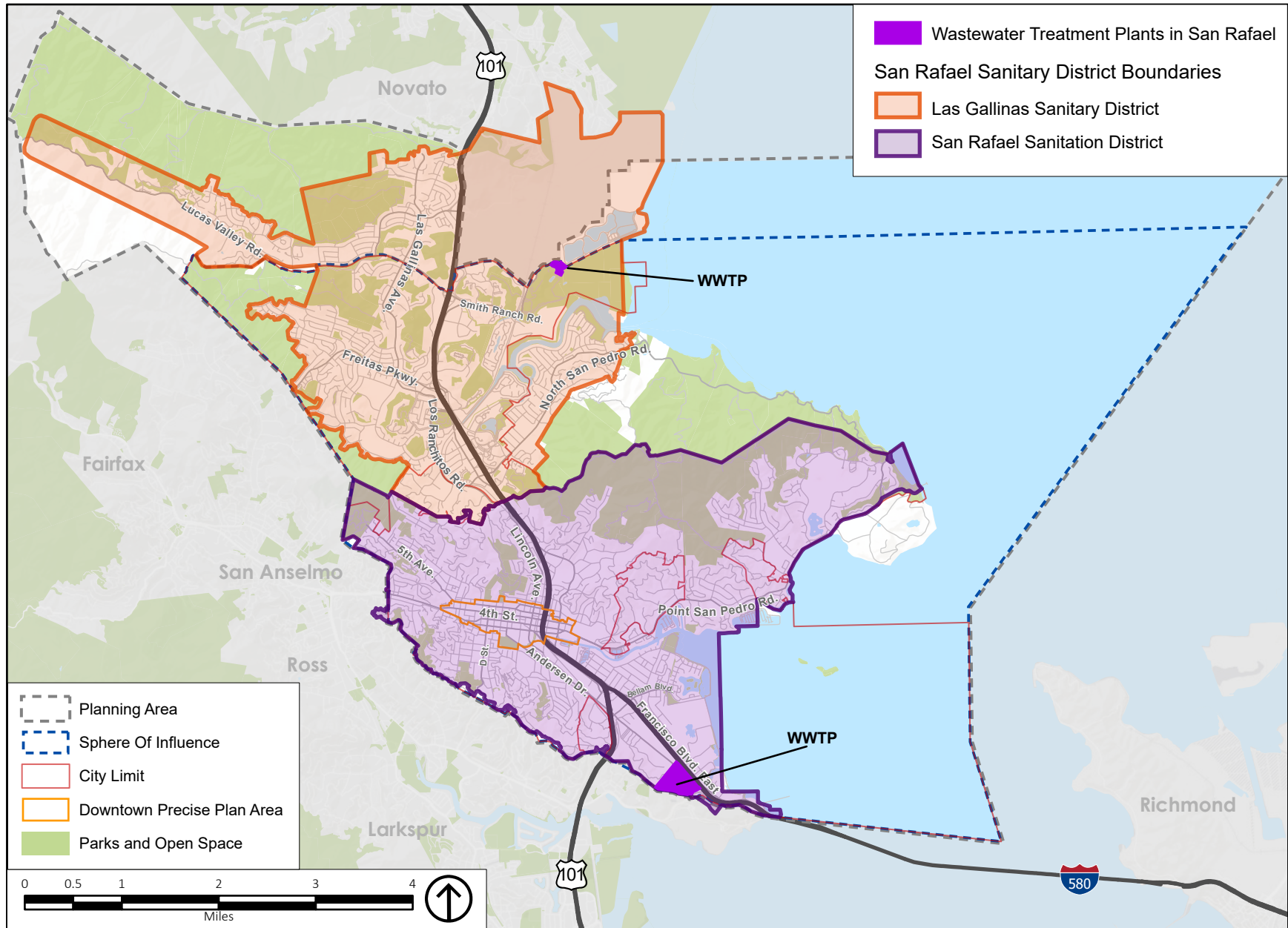
Wastewater Collection

Wastewater collection and treatment for the EIR Study Area is provided by three entities: (1) LGVSD, which serves the area north of Puerto Suello Hill and operates the LGVSD WWTP; (2) SRSD, which collects wastewater from the area south of Puerto Suello Hill; and (3) CMSA, which receives wastewater from SRSD and operates the CMSA WWTP. Figure 4.17-2 shows the service area of SRSD and LGVSD and the locations of the CMSA and LGVSD WWTPs.

Las Gallinas Valley Sanitary District

The LGVSD serves a population of approximately 32,000 persons north of Puerto Suello Hill and neighboring unincorporated areas of Marin County and covers approximately 20 square miles. The LGVSD's collection system consists of 105 miles of gravity sewer pipelines, 6.7 miles of force mains, and 28 pump stations. The LGVSD sewer pipelines in the EIR Study Area range from 6 to 24 inches.

UTILITIES AND SERVICE SYSTEMS



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.17-2
Sanitary Districts and Wastewater Treatment Plant Locations

UTILITIES AND SERVICE SYSTEMS

The LGVSD also operates the LGVSD WWTP.³⁵ The LGVSD operates a preventative maintenance program designed to maintain the integrity of the system, reduce the frequency of SSOs, and reduce infiltration/inflow. The sewer collection pump stations are maintained by the WWTP operators, and the pump stations are inspected two to three times a week. Preventative activities that are performed in the field include flushing, rodding, and video inspections at frequencies designed to prevent or minimize blockages and/or SSOs. Revenue for operation and maintenance activities is derived from sewer rates paid by users of the collection system and treatment plant as well as property tax assessments.

LGVSD has an annual capital improvement program to address infiltration/inflow, capacity, storage, structural, and other potential issues in the collection system. In general, the sewer system functions adequately, even during flooding and wet weather conditions.³⁶ However, three trunk sewers that connect to the WWTP surcharge³⁷ occasionally during extremely high peak wet weather flow conditions following major storm events. These include the Marinwood-Lucas Valley Trunk Sewer between the railroad and the WWTP, the Terra-Linda Trunk Sewer near the Duckett pump station, and the Mulligan Trunk Sewer, which may surcharge when there is a malfunction of the Mulligan pump station. However, a relief sewer was installed in 2019 that should serve as a long-term solution for the Mulligan Trunk Sewer. A summary of proposed capital improvement projects is provided in the latest LGVSD SSMP.³⁸

San Rafael Sanitation District

The SRSD was formed by the County of Marin in 1947 and collects wastewater from the area south of Puerto Suello Hill, the adjacent unincorporated areas, and San Quentin prison. SRSD is one of three service districts of the CMSA. SRSD provides wastewater collection over an area of 12.75 square miles and includes 134 miles of sewer pipelines, 32 wastewater pump stations, and 13 miles of force mains. The wastewater collected by SRSD is conveyed to the CMSA WWTP, located at 1301 Andersen Drive in San Rafael. SRSD sewer pipelines within the EIR Study Area range from 6 to 36 inches and include both gravity lines and pressurized lines (force mains).

The SRSD maintains a sewer pipeline cleaning program, where all gravity sewer pipes are cleaned at least once every three years. Gravity sewer lines with FOG issues or “hot spots” are cleaned more frequently with a hydro flusher. In addition, the SRSD performs annual maintenance on all pump station pumps, emergency generators, pump station wet wells, and force main valves. All pump station valves are exercised quarterly; all air relief valves are inspected and cleaned twice per year; and chemical injection systems are inspected weekly, with samples taken twice weekly. All pump stations are checked three times per week. The SRSD obtains its revenue from connection fees, service fees, and property taxes.³⁹

³⁵ Las Gallinas Valley Sanitary District, 2016, *Sewer System Management Plan*. <http://www.lgvsd.org/wp-content/uploads/LGVSD-SSMP-2016.pdf>.

³⁶ Las Gallinas Valley Sanitary District, 2019. Correspondence between Michael P. Cortez, PE, District Engineer, LGVSD and Steve Bush PE, Senior Engineer, PlaceWorks. Dated July 12, 2019.

³⁷ Sewer surcharge refers to the overloading of the sewer beyond its design capacity due to inflow and infiltration of water. A surcharging sewer often results in sewer overflow at manholes and customers' overflow relief gully

³⁸ Las Gallinas Valley Sanitary District, 2016, *Sewer System Management Plan*. <http://www.lgvsd.org/wp-content/uploads/LGVSD-SSMP-2016.pdf>.

³⁹ San Rafael Sanitation District, 2015. *Sewer System Management Plan*. Dated October 2015. Prepared by Harris.

UTILITIES AND SERVICE SYSTEMS

According to the SRSD, there are currently no deficiencies in capacity for the SRSD sewer system.⁴⁰ The SRSD performed a capacity assessment for four key trunk sewer lines to determine potential capacity issues in 2010. The recommended projects from the Capacity Assessment Report have been completed or will be completed by the end of 2020.⁴¹

Wastewater Treatment

Las Gallinas Valley Sanitary District Wastewater Treatment Plant

LGVSD owns and operates the LGVSD WWTP at 300 Smith Ranch Road in San Rafael (see Figure 4.17-2). It provides secondary treatment of domestic wastewater collected from the northern portion of the EIR Study Area and unincorporated portions of Marin County. The LGVSD WWTP uses a two-stage biofiltration process followed by ammonia removal and filtration. Prior to discharge, the treated sewage is chlorinated to kill bacteria and then dechlorinated to remove the chlorine toxicity to organisms in the receiving water bodies. Solids are processed through a sludge thickener, anaerobic digesters, and sludge lagoons. The methane gas produced by the digesters is processed in a cogeneration unit to produce electricity and waste heat.

During extreme wet weather events, the LGVSD WWTP initiates an operational strategy called blending to manage high flow rates. All wastewater undergoes primary treatment, which consists of screening, grit removal, and chemical removal of solids by settling. Most of the wastewater then continues to secondary treatment; however, a portion of the flow is routed around (i.e., bypasses) secondary treatment to protect the biological processes during high flow rates and then recombines with the main flow prior to disinfection. During the wet season, the facility discharges excess treated effluent to Miller Creek, which flows into San Pablo Bay. During the dry season, the LGVSD WWTP stores the effluent on-site in storage ponds and sends a portion of the treated effluent to the MMWD Las Gallinas Valley Water Recycling Facility.⁴²

The NPDES permit for the LGVSD WWTP was issued by the San Francisco Bay RWQCB as Order No. R2-2020-0022 (NPDES No. CA0037851), adopted on July 8, 2020. This order establishes a maximum average dry weather effluent flow of 2.92 mgd. Blended secondary-treated wastewater discharges are approved under the bypass conditions of the NPDES permit when the peak wet weather influent flow volume exceeds the reliable process capacity of the secondary treatment units of 8 mgd. This number will be increased to 18 mgd upon completion of the LGVSD WWTP upgrade.

The LGVSD WWTP can reliably treat up to 8 mgd with full secondary treatment, although with completion of the LGVSD WWTP upgrade in 2021, the LGVSD WWTP will be able to increase its wet weather treatment capacity to 18 mgd. The average dry weather flow for the past few years is 2.36 mgd, and the

⁴⁰ San Rafael Sanitation District, 2019. Correspondence between Doris Toy, Sanitation District Manager, and Steve Bush, PE, Senior Engineer, PlaceWorks. Dated May 31, 2019.

⁴¹ San Rafael Sanitation District, 2015. *Sewer System Management Plan*. Dated October 2015. Prepared by Harris.

⁴² San Francisco Bay Regional Water Control Board, May 13, 2015., *Order No. R2-2015-0021*.

https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2015/R2-2015-0021.pdf.

UTILITIES AND SERVICE SYSTEMS

peak wet weather flow is around 22 to 24 mgd.⁴³ Any additional flows are diverted around the secondary treatment units and blended with secondary-treated effluent. After disinfection, the blended flow is dechlorinated prior to discharge.

During dry weather, treated effluent is reclaimed on-site in accordance with Order No. 92-064. The on-site reclamation system consists of two 20-acre storage ponds, a 20-acre freshwater marsh/wildlife pond, and 200 acres of irrigated pasture. The storage ponds dechlorinate the effluent through natural processes. Surplus water remaining in the storage ponds at the end of the reclamation season is returned to the LGVSD WWTP for treatment before discharge to Miller Creek. LGVSD WWTP effluent and water from the storage ponds are also used by MMWD as feedstock in its recycled water plant, which produces disinfected tertiary recycled water during summer for distribution throughout its northern San Rafael service area.⁴⁴

LGVSD is currently in the process of constructing a multiyear, multimillion-dollar LGVSD WWTP upgrade and recycled water treatment plant expansion, which should be completed by the end of 2021. This project was designed based on flow rates and growth projection factors from the City of San Rafael and Marin County's Countywide Plan.⁴⁵

During 2017, LGVSD reached an agreement with MMWD to expand LGVSD's recycled water treatment plant to provide tertiary treated wastewater to be distributed to MMWD's customers. The expansion is expected to be completed by December 2021. LGVSD's recycled water treatment facility, which has been online since September 2012, currently has a capacity of 1.4 mgd but will be expanded to treat 5.4 mgd.⁴⁶

Central Marin Sanitation Agency Wastewater Treatment Plant

The CMSA WWTP is at 1301 Andersen Drive in San Rafael, as shown on Figure 4.17-2. The WWTP has a two-mile outfall through which treated wastewater is discharged into Central San Francisco Bay. The CMSA WWTP serves an area of approximately 43.5 square miles and includes the residents, businesses, and institutions in the city of Larkspur; the towns of Corte Madera, Fairfax, Ross, and San Anselmo; portions of the city of San Rafael south of Puerto Suello Hill; the unincorporated areas of Ross Valley and San Quentin Village; and San Quentin State Prison.

The NPDES permit for the WWTP was issued by the San Francisco Bay RWQCB as Order No. R2-2018-0003 (NPDES No. CA0038628), which became effective in March 2018 and expires in February 2023. This order establishes a maximum average dry weather effluent flow of 10 mgd and a facility design flow of 30 mgd. The WWTP includes preliminary treatment (headworks with screening and grit removal), primary treatment, secondary treatment (biotowers, activated sludge, and secondary clarification), disinfection,

⁴³ Las Gallinas Valley Sanitary District, July 12, 2019, Email correspondence with Michael Cortez, District Engineer.

⁴⁴ San Francisco Bay Regional Water Control Board, May 13, 2015, *ORDER No. R2-2015-0021*.
https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2015/R2-2015-0021.pdf.

⁴⁵ Las Gallinas Valley Sanitary District, 2019. Email correspondence between Michael P. Cortez, PE, District Engineer, LGVSD and Steve Bush PE, Senior Engineer, PlaceWorks. Dated July 12, 2019.

⁴⁶ Las Gallinas Valley Sanitary District, 2016. *Las Gallinas Secondary Treatment and Recycled Water Plant Upgrade Project*. MND – Mitigated Negative Declaration. SCH No. 2016052009.

UTILITIES AND SERVICE SYSTEMS

and dechlorination. Solids handling includes waste-activated sludge thickening, anaerobic digestion, biosolids dewatering, and cogeneration fueled by biogas. During wet weather periods, primary-treated wastewater greater than 30 mgd is routed around the secondary treatment processes and blended with the secondary-treated wastewater prior to disinfection, dichlorination, and discharge to San Francisco Bay via a gravity outfall and/or effluent pump station. Such discharges are approved under the bypass conditions of the NPDES permit if the blended discharge complies with the effluent and receiving water limitations in the order. CMSA discharges blended effluent about 11 times per year.⁴⁷

According to Mr. Jason Dow, General Manager of CMSA, the WWTP typically receives and treats:

- Average dry weather flow of 3.1 mgd
- Average annual flow of 4.95 mgd
- Average wet weather flow of 6.51 mgd
- Peak wet weather flow of 58.5 mgd⁴⁸

The current (2017) *CMSA Facilities Master Plan* focuses on the condition of the facilities and impacts associated with potential regulatory changes, reduction in energy usage and greenhouse gas emissions, operational improvements, and climate change. The *CMSA Facilities Master Plan* identifies 26 projects that are recommended for completion within the next 15 years and identifies facility and/or equipment improvements to address sea level rise and potential regulatory changes.⁴⁹

4.17.2.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant wastewater-related impact if it would:

1. Require or result in the relocation or construction of new or expanded wastewater treatment or facilities, the construction or relocation of which could cause significant environmental effects.
2. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
3. Result in significant cumulative impacts related to wastewater facilities.

UTIL-4	Implementation of the proposed project could require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.
---------------	--

⁴⁷ San Francisco Bay Regional Water Control Board, January 10, 2018, *Order No. R2-2018-0003*.

<https://www.cmsa.us/assets/documents/permits/2018/NPDES%20Order.pdf>

⁴⁸ Central Marin Sanitation Agency, May 21, 2019, Email correspondence with Jason Dow, General Manager.

⁴⁹ Central Marin Sanitation Agency, *Adopted Operating and Capital Budget July 1, 2018 – June 30, 2019*.

<https://www.cmsa.us/assets/documents/budget/FY19%20Budget%20Adopted%202018%2006-12%20WEB.pdf>, accessed on March 19, 2019.

UTILITIES AND SERVICE SYSTEMS

General Plan 2040

Implementation of the proposed project would have a significant impact if it would result in the construction of a new WWTP or the expansion of existing WWTP, the construction of which would have a significant effect on the environment. As discussed below, future demands from the increased population and land use changes from implementation of the proposed General Plan 2040 would not exceed the design or permitted capacity of the LGVSD'S and CSMA'S WWTP that serve the EIR Study Area, which includes the Downtown Precise Plan Area.

Under the proposed project, wastewater discharge would increase throughout the EIR Study Area due to increases in population. The proposed increase in population for the EIR Study Area is 8,910, with an increase of 3,570 within the Downtown Precise Plan Area (see Tables 3-6 and 3-7, respectively, in Chapter 3, Project Description, of this Draft EIR). Based on information provided in the MMWD 2015 UWMP, it was assumed that 70 percent of the water demand is indoor water use. It also was assumed that wastewater discharge would be 90 percent of the indoor water demand. Table 4.17-5 shows the increase in wastewater discharge for the total EIR Study Area and for the Downtown Specific Plan Area alone.

TABLE 4.17-5 INCREASE IN WASTEWATER DISCHARGE AT BUILDOUT IN 2040

Area	Increase in Water Demand at Buildout (gal/day)	Increase in Indoor Water Demand ^a (gal/day)	Increase in Wastewater Discharge ^b (gal/day)	Increase in Wastewater Discharge (mgd)
Total EIR Study Area	980,100	686,070	617,463	0.62
Downtown Precise Plan Area	392,700	274,890	247,401	0.25

Notes:

^a Indoor water demand is estimated at 70 percent of water demand.

^b Wastewater discharge is estimated at 90 percent of indoor water demand.

Source: Marin Municipal Water District, 2016. 2015 Urban Water Management Plan.

Implementation of the proposed project would generate an additional 0.62 mgd within the EIR Study Area. There are two WWTPs that serve the EIR Study Area: the LGVSD WWTP, which treats effluent from the areas north of Puerto Suello Hill, and the CSMA WWTP, which treats effluent from the areas south of Puerto Suello Hill. For this analysis, it is assumed that 35 percent of the effluent generated in the EIR Study Area is transported to LGVSD WWTP, and 65 percent is transported to CSMA WWTP for treatment.

The LGVSD WWTP has a maximum permitted dry weather flow of 2.92 mgd, and the WWTP has averaged a dry weather flow rate of 2.36 mgd for the past few years.⁵⁰ Therefore, the LGVSD WWTP has a surplus capacity of 0.56 mgd during dry weather conditions. For this analysis, it is assumed that 35 percent of the wastewater generated in the EIR Study Area (i.e., 0.22 mgd) is directed to the LGVSD WWTP. There is not expected to be a significant increase in wastewater demand in the LGVSD service area that is outside of the EIR Study Area. Therefore, the LGVSD WWTP can accommodate the increase in wastewater

⁵⁰ Las Gallinas Valley Sanitary District, 2019. Correspondence between Michael Cortez, PE, District Engineer, LGVSD, and Steve Bush, PE, Senior Engineer, PlaceWorks. Dated July 12, 2019.

UTILITIES AND SERVICE SYSTEMS

generation from the EIR Study Area. In addition, the LGVSD WWTP is undergoing an upgrade that should be completed by the end of 2021 and will increase its wet weather treatment capacity to 18 mgd.⁵¹

According to Mr. Jason Dow of CMSA, the CMSA WWTP treats an average of 3.1 mgd during dry weather flows, and the CMSA WWTP has a permitted dry weather effluent flow of 10 mgd. The EIR Study Area is assumed to contribute an additional 0.40 mgd of wastewater at buildout, which represents about 4 percent of the permitted dry weather flow. Therefore, the CMSA WWTP can easily accommodate the wastewater increase from the EIR Study Area during dry weather conditions.

All potential future development would be required to pay a sewer connection fee prior to the issuance of building permits. Any sewer utility infrastructure improvement would be designed, constructed, and operated in accordance with the LGVSD and CMSA ordinance codes and the SRMC. The sewer connection fees and wastewater collection fees are used by LGVSD, SRSD, and CMSA to continually upgrade components of the wastewater collection and transmission systems through their CIP programs. The CIP improvements include collection system capacity upgrades, correction of structural problems, and modifications to pump stations and treatment facilities.

In addition, the proposed Community Services and Infrastructure (CSI) Element contains goals, policies, and programs that require local planning and development decisions to consider impacts to wastewater facilities. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts to these facilities:

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.1, Capital Investment,** requires the City to provide for ongoing, preventative maintenance of infrastructure and timely replacement, repair, and upgrading of City equipment.
 - **Program CSI-4.1A: Capital Improvement Programming.** Maintain and regularly update a multi-year Capital Improvement Plan (CIP) covering City owned and operated infrastructure and public facilities. Seek the input of other local service providers (MMWD, LGVSD, etc.) when preparing the City's CIP and encourage these agencies to seek City input as they prepare their own CIPs.
 - **Program CSI-4.1B: Funding for Maintenance and Capital Costs.** Consider ways to improve the reliability of maintenance funding, such as establishing a reserve fund or voter-approved parcel taxes and special assessments. Identify potential funding sources for unmet and anticipated future capital project needs, such as grants, bond measures, and impact fees.
 - **Program CSI-4.1C: Community-Supported Services.** Consider community-supported (e.g., cooperative) services as an alternative to bring fundamental service upgrades to neighborhoods and managing capital costs.
- **Policy CSI-4.2: Adequacy of City Infrastructure and Services,** requires applicants to demonstrate that their projects can be adequately served by the City's infrastructure as part of the development review

⁵¹ Las Gallinas Valley Sanitary District, 2019. Correspondence between Michael Cortez, PE, District Engineer, LGVSD, and Steve Bush, PE, Senior Engineer, PlaceWorks. Dated July 12, 2019.

UTILITIES AND SERVICE SYSTEMS

process. All new infrastructure shall be planned and designed to meet the engineering standards of the City and various local service and utility providers.

- **Program CSI-4.2A: Long-Term Planning.** Continue to use the CIP to analyze and respond to local capital facility needs.
- **Program CSI-4.2B: Engineering Standards.** Require new development to comply with the subdivision standards in the San Rafael Municipal Code, as well as relevant Marin County and utility district engineering standards. Where feasible, encourage development to reach beyond current standards and collaborate with the community to innovate and define new best practices.
- **Program CSI-4.2C: Impact Fees.** Continue to collect impact fees and use other funding mechanisms to ensure that new development pays its fair share of providing/ upgrading services associated with that development.
- **Policy CSI-4.9, Wastewater Facilities:** Ensure that wastewater collection, treatment and disposal infrastructure is regularly maintained and meets projected needs. Improvements should be programmed to meet state and federal standards, respond to sea level rise and seismic hazards, repair and replace aging or leaking pipes, and protect environmental quality.
 - **Program CSI-4.9A: Coordination of Services.** Support efforts by the Las Gallinas Sanitary District, Central Marin Sanitation Agency and San Rafael Sanitation District to maintain high-quality wastewater collection and treatment facilities.

Potential future development in the EIR Study Area would not require the construction or expansion of a WWTP. Therefore, with adherence to and implementation of the NPDES permits and the City's regulatory requirements as well as the proposed General Plan goals, policies, and programs, impacts associated with WWTP's capacities would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Wastewater from the Downtown Precise Plan Area would be collected by SRSD and transported to the CSMA WWTP. As shown in Table 4.17-5, the estimated wastewater demand for the Downtown Precise Plan Area would be 0.25 mgd at full buildout. This is approximately 2.5 percent of the maximum permitted dry weather flow rate of 10 mgd for the CMSA WWTP. Since the WWTP currently has a surplus wastewater capacity of 6.9 mgd, the wastewater demand for the Downtown Precise Plan Area would not exceed the permitted capacity of CMSA's WWTP or require the construction or expansion of new wastewater facilities. In addition, compliance with and implementation of the City and LGVSD and CSMA's requirements for new sewer connections and the General Plan goals, policies, and programs listed above would result in *less than significant* impacts with respect to WWTPs.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

UTIL-5 Implementation of the proposed project could result in the determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

As described under Impact Discussion UTIL-4, the LGVSD WWTP is permitted by the RWQCB to treat 2.92 mgd during dry weather conditions, and the CSMA WWTP is permitted to treat 10 mgd during dry weather conditions. According to LGVSD and CSMA plant managers, the dry weather flows during recent years have averaged 2.36 mgd and 3.1 mgd, respectively. Therefore, the residual dry weather flow capacity is 0.56 mgd for the LGVSD WWTP and 6.9 mgd for the CSMA WWTP. The LGVSD WWTP is currently undergoing an expansion project and upgrades that will increase its capacity to 18 mgd during wet weather conditions.

Implementation of the proposed project would generate an additional 0.62 mgd within the EIR Study Area. Assuming that 65 percent of the wastewater is directed to the CSMA WWTP and 35 percent of the wastewater is directed to the LGVSD WWTP, the increased wastewater demand would represent about 39 percent of the LGVSD WWTP's excess capacity and about 5.8 percent of the CSMA WWTP's excess capacity. However, the LGVSD WWTP is currently undergoing an upgrade to increase its capacity, and there is not expected to be a significant increase in wastewater demand for the LGVSD service area outside the boundaries of the EIR Study Area. The CSMA WWTP has excess capacity to treat future wastewater demands within its service area.

In addition, new projects and redevelopment projects within the EIR Study Area would be required to comply with CALGreen plumbing codes and implement active and passive water conservation measures. The reduction in water demand would also result in a reduction in the amount of wastewater generated. Also, potential future development pursuant to the proposed General Plan 2040 and Downtown Precise Plan would be required to comply with—and the City would be required to implement—the proposed General Plan goals, policies, and programs listed in Impact Discussion UTIL-4.

With continued compliance with applicable regulations, wastewater generated by the proposed project would not exceed the capacity of the LGVSD and CMSA WWTPs or the permitted capacities specified in the RWQCB's NPDES permits. Also, the proposed General Plan goals, policies, and programs listed in Impact Discussion UTIL-4 would ensure that potential future development would minimize impacts to wastewater collection and treatment capacity. Therefore, the proposed project would not result in a determination by the wastewater treatment providers that they do not have adequate capacity to serve the EIR Study Area's projected demand in addition to their existing and future commitments, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As described in Impact Discussion UTIL-4, the estimated wastewater demand for the Downtown Precise Plan Area would be 0.25 mgd at full buildout. This is approximately 2.5 percent of the maximum

UTILITIES AND SERVICE SYSTEMS

permitted dry weather flow rate of 10 mgd for the CMSA WWTP. Since the WWTP currently has a surplus wastewater capacity of 6.9 mgd, the wastewater demand for the Downtown Precise Plan Area would not exceed the permitted capacity of CMSA's WWTP. Furthermore, the proposed General Plan goals, policies, and programs listed in Impact Discussion UTIL-4 would ensure that new development would minimize impacts to wastewater collection and treatment capacity. Sewer connection fees and wastewater collection fees associated with new development would help fund sewer and wastewater improvement projects. Impacts related to the capacity of the CSMA WWTP would be *less than significant*.

Significance without Mitigation: Less than significant.

UTIL-6 Implementation of the proposed project could result in a cumulatively considerable impact to wastewater service.

This section analyzes potential impacts related to wastewater treatment that could occur from the proposed project in combination with reasonably foreseeable growth within the service areas of SRSD, CMSA, and LGVSD.

Buildout of the EIR Study Area would generate an increase in the volume of wastewater delivered for treatment at the CMSA and LGVSD WWTPs. However, the increase in 2040 represents approximately 39 percent of the excess available treatment capacity of the LGVSD WWTP and approximately 5.8 percent of the excess treatment capacity of the CMSA WWTP. In addition, the LGVSD WWTP is currently undergoing an expansion project to increase its capacity. The total increased wastewater flow represents less than 7.5 percent of the LGVSD WWTP's permitted dry weather flow and approximately 4.0 percent of the CMSA WWTP's permitted dry weather flow. Based on the current excess wastewater treatment capacities of the WWTPs, the current expansion of the LGVSD WWTP, and the projected population growth and water/wastewater demand in the service area, cumulative projected wastewater treatment demand is below the excess capacity of both WWTPs. Because the cumulative demand would not substantially impact the existing or planned capacity of the WWTP systems, which have sufficient capacity for wastewater that would be generated by the proposed project, the construction of new WWTPs would not be necessary.

Also, future development within the service area would be required to comply with all applicable regulations and ordinances issued by LGVSD, SRSD, and CSMA. Wastewater from cumulative projects is assumed in the LGVSD and SRSD SSMPs. The sanitation districts and WWTPs plan for increased demand with future development. Therefore, with continued compliance with applicable regulations, cumulative development combined with the proposed project would not exceed wastewater collection or treatment capacities. Therefore, the proposed project would not result in a cumulatively considerable impact related to wastewater and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

4.17.3 STORMWATER

4.17.3.1 ENVIRONMENTAL SETTING

Regulatory Framework

The regulatory framework for stormwater is described in detail in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR. The regulatory requirements that pertain solely to storm drain systems are repeated below.

Federal Regulations

Federal Clean Water Act

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 a state water quality certification indicating the proposed activity will comply with State water quality standards. Certifications are issued in conjunction with US Army Corps of Engineers (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 grant water quality certification or waive the requirement is delegated by the SWRCB to its nine RWQCBs.

National Pollutant Discharge Elimination System

Under the NPDES program, all facilities that discharge pollutants into waters of the United States are required to obtain an NPDES permit. Requirements for stormwater discharges are also regulated under this program. As previously described, the EIR Study Area lies within the jurisdiction of the San Francisco Bay RWQCB (Region 2). The City is subject to the requirements of the General Permit for Storm Water Discharges for Phase II Small Municipal Separate Storm Sewer Systems (MS4s).

Under Provision E.12 of the NPDES Permit, 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. The goal is to be accomplished primarily through the implementation of low impact development techniques. In addition, projects that create and/or replace one acre or more of impervious surfaces must comply with the hydromodification requirements specified in the E.12 provisions of the Phase II Small MS4 permit. These requirements include implementing site design measures to achieve infiltration, evapotranspiration, and/or harvesting/reuse of the 85th percentile, 24-hour, storm runoff event to the extent feasible and treatment of the remaining runoff with bioretention facilities. The hydromodification provisions also require that post-project runoff does not exceed pre-project runoff for the two-year, 24-hour storm event. The guidance document for implementing Provision E.12 of the NPDES permit is the Bay Area Stormwater Management Agencies Association (BASMAA) Post Construction Manual.

UTILITIES AND SERVICE SYSTEMS

State Regulations

State Water Quality Control Board's Trash Amendment

On April 7, 2015, the SWQCB adopted an amendment to the Water Quality Control Plan for Ocean Waters of California to control trash. In addition, the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California added the section: Part 1, Trash Provisions. Together, they are collectively referred to as “the Trash Amendments.” The purpose of the Trash Amendments is to provide statewide consistency for the RWQCBs in their regulatory approach to protect aquatic life and public health beneficial uses, reduce environmental issues associated with trash in State waters, and focus limited resources on high-trash-generating areas.⁵²

The Trash Amendments apply to all Phase I and II permittees under the NPDES municipal separate storm sewer systems (MS4) permits. Compliance with the Trash Amendment requires municipalities to install certified trash treatment control systems on all catch basins no later than December 2, 2030.⁵³

Regional Regulations

Marin County Flood Control and Water Conservation District

The mission of the Marin County Flood Control and Water Conservation District (MCFCWCD) is to reduce the risk of flooding for the protection of life and property within Marin County. It is responsible for the planning, design, construction, operation, and maintenance of facilities such as stormwater pump stations, detention basins, bypass drains, creeks, ditches, and levees.⁵⁴

Eight zones have been established within the MCFCWCD to address specific flooding problems in watersheds in Marin County. Projects in each zone may include the construction, operation, and maintenance of levees, pumping stations, culverts, and drainage ways, and the cleaning and maintenance of creeks. All major actions within the zones require authorization by the board of supervisors of the MCFCWCD.⁵⁵ One of the eight zones is within the city limits of San Rafael. Zone 6, encompassing the residential area known as the San Rafael Meadows, was created in the 1960s to address frequent flooding in the low-lying area just west of US-101 across from the County Civic Center. It is overseen by a five-member advisory board. In the early 2000s, construction of a new subdivision rerouted stormwater around the community, eliminating a significant source of flooding in the zone. Work within Zone 6 includes an annual vegetation maintenance program along 0.75 mile of Gallinas Creek.

⁵² State Water Resources Control Board, April 7, 2015, *Amendment to the Water Quality Control Plan for the Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, https://www.waterboards.ca.gov/water_issues/programs/trash_control/docs/01_final_sed.pdf.

⁵³ State Water Resources Control Board, January 7, 2019, *Storm Water Program - Trash Implementation Program*, https://www.waterboards.ca.gov/water_issues/programs/stormwater/trash_implementation.html.

⁵⁴ Marin County Flood Control & Water Conservation District, *Flood Protection Introduction*, <https://www.marinwatersheds.org/flood-protection>, accessed on June 6, 2019.

⁵⁵ Marin County Flood Control & Water Conservation District, 2019, *Flood Control*, <https://www.marincounty.org/depts/pw/divisions/creeks-bay-and-flood/flood-control>.

UTILITIES AND SERVICE SYSTEMS

Another zone is located outside of the city limits but within the EIR Study Area. Zone 7, Santa Venetia, was created in 1962 to address creek and tidal flooding within the low-lying unincorporated neighborhood of Santa Venetia. Santa Venetia was one of the first developments in Marin County to be constructed on fill over Bay mud. Due to the low initial elevation of the fill and compression of the underlying Bay mud, the area has subsided and is now below the high tide level. Work in Zone 7 includes regular servicing of 14 pumps at five pump stations, maintenance of five portable pumps, maintenance of 1.9 miles of flood protection levees, maintenance of tide gates and trash racks, and an annual vegetation maintenance program along 0.85 mile of Gallinas Creek.⁵⁶

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to stormwater infrastructure and services are primarily in the Land Use, Infrastructure, and Air and Water Quality Elements. As part of the proposed project, some existing General Plan policies would be amended or substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.17.3.3, Impact Discussion.

San Rafael Municipal Code

The SRMC includes various directives to ensure the safe, efficient management of stormwater in San Rafael. The SRMC is organized by title, chapter, and section. Most provisions related to stormwater are found in Title 9, Health and Sanitation, and Title 15, Subdivisions, as follows:

- **Chapter 9.30, Urban Runoff Pollution Prevention.** The purpose of this chapter is to ensure the future health, safety, and general welfare of the citizens of San Rafael and to protect and enhance watercourses and fish and wildlife habitat by:
 - Minimizing discharges other than stormwater runoff to storm drains or watercourses;
 - Responding to the discharge of spills, preventing and controlling the discharge of spills to storm drains or watercourses, and prohibiting dumping or disposal of materials other than stormwater;
 - Reducing pollutants in stormwater discharges to the maximum extent practicable;
 - Requiring operators of construction sites, new or redeveloped land, and industrial and commercial facilities to install, implement, or maintain appropriate best management practices;
 - Maintaining pre-development stormwater runoff rates and preventing nonpoint source pollution whenever possible, through stormwater management controls and ensuring that these management controls are properly maintained.
- **Chapter 9.40, Regulatory Fee for Clean Stormwater Activities.** This chapter ensures the future health, safety, and general welfare of the citizens of the city by establishing a funding source to provide

⁵⁶ Marin County Flood Control and Water Conservation District, 2020. About the Flood Control Zones. Accessed at <https://www.marinwatersheds.org/flood-protection/flood-control-zones#undefined6> on June 23, 2020.

UTILITIES AND SERVICE SYSTEMS

enforcement of the city's Urban Runoff Pollution Prevention Ordinance, to provide maintenance and repair of the city's stormwater drainage facilities, to provide capital improvements to the city's storm drainage system, and to provide other clean stormwater activities.

- **Chapter 15.06, Subdivision Design Standards and Miscellaneous Requirements.** Section 15.05.110, Grading and Drainage, mandates that all subdivisions be designed and improved to provide proper grading, drainage, and erosion and sediment control. All subdivisions must comply with the provisions of the Uniform Building Code for design of grading and the conveyance of drainage and stormwater runoff and must also comply with best management practices.

Existing Conditions

The City of San Rafael Department of Public Works (DPW) owns and maintains the storm drain system that is located throughout the city. The storm drain system comprises 20 miles of corrugated metal pipes, 84 miles of concrete pipe, and 12 miles of plastic pipe. It has 3,800 drain inlets, 20 major headwalls, and 745 smaller headwalls. DPW also maintains approximately 35 miles of open ditches and culverts and operates 12 stormwater pump stations.⁵⁷ Stormwater pipelines in San Rafael range from 4 to 48 inches in diameter. Stormwater pipes and pumping stations are shown on Figure 4.17-3.

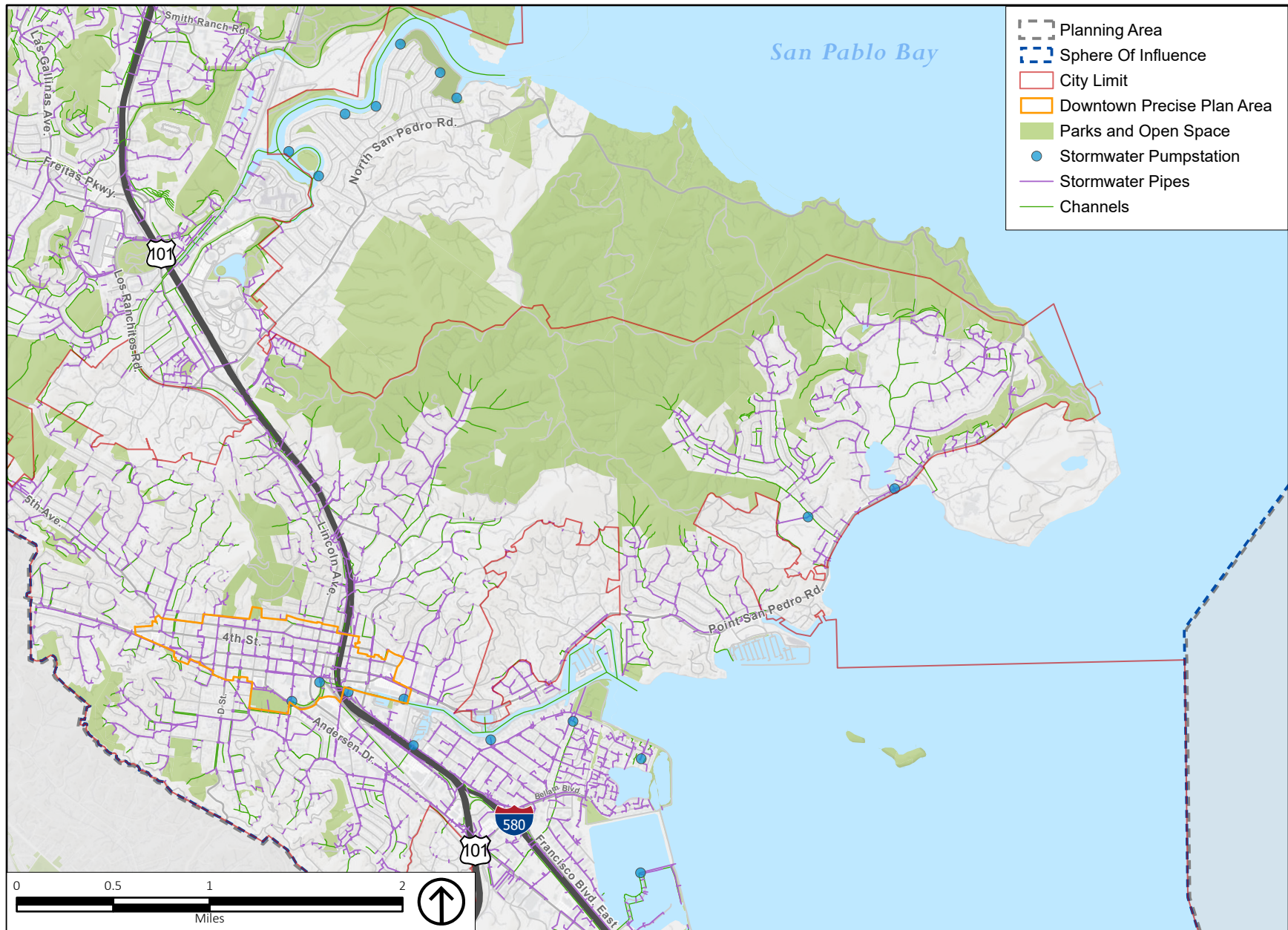
The DPW is responsible for maintaining the storm drains in City easements, and property owners are responsible for storm drains on their properties. Similarly, DPW maintains certain waterways that have easements, and waterways without easements are maintained by private property owners. San Rafael Creek is maintained by the USACE because it is classified a navigable waterway.

The SWRCB, as the implementing agency for the Trash Amendments, mandates that the City must install certified trash treatment control systems on all catch basins no later than December 2, 2030. There currently are some trash devices installed at commercial properties, such as the Northgate Mall, but the City does not maintain these devices.

The MCFCWCD is responsible for the operation and maintenance of storm drains within the EIR Study Area that are outside of the city limits (e.g., the Lucas Valley-Marinwood neighborhood). The MCFCWCD is also responsible for the planning, design, construction, operation, and maintenance of all stormwater pump stations, detention basins, bypass drains, creeks, ditches, and levees in the county. Revenue is collected via taxes and fees paid by property owners in eight flood control zones in Marin County. Two of the flood control zones are in the EIR Study Area.

⁵⁷ City of San Rafael Department of Public Works, 2019. Correspondence between Kevin McCowan, Assistant Public Works Director/City Engineer, DPW, and Steve Bush, PE, Senior Engineer, PlaceWorks. Dated June 10, 2019.

UTILITIES AND SERVICE SYSTEMS



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.17-3
Stormwater Drainage System

UTILITIES AND SERVICE SYSTEMS

Flood Control Zone 6 is entirely within the city limits and is MCFCWCD's smallest flood control zone, covering only 0.16 square mile. Zone 6 occupies a very small portion of the Gallinas Creek Watershed and was created in the 1960s to address frequent flooding in the low-lying neighborhood just west of US-101 across from the County Civic Center.⁵⁸ At that time, the neighborhood was unincorporated county land. However, the area was annexed by the City in 1975, at which point the MCFCWCD transferred easements to the City. The City now owns and maintains the drainage easements. In the early 2000s, construction of a new subdivision, Redwood Village, resulted in the diversion of stormwater around the Corrillo Drive neighborhood, which greatly improved the issues of flooding. In addition, the City DPW recently rehabilitated a set of storm drain pipes at the end of Corrillo Drive.⁵⁹ In the past, there have been issues with flooding of the tracks near the Marin Civic Center SMART station. The easement is not owned by the City or MCFCWCD, but Sonoma-Marín Area Rail Transit has agreed to keep the drainage ditches and culverts under US-101 clear of debris and maintain their capacity on an ongoing basis.

Flood Control Zone 7 is not within the city limits but is within the EIR Study Area. Zone 7, which encompasses the unincorporated neighborhood of Santa Venetia, was created in 1962 to address creek and tidal flooding within the low-lying area. Santa Venetia was one of the first developments in Marin County to be constructed on fill over bay mud and occurred in an era before the County had the authority to regulate or control development. Due to the low initial elevation of the fill and the compressible nature of the underlying bay mud, the area has subsided and is now below the high tide level. MCFCWCD currently operates and maintains five pumping stations within the affected area, maintains 1.9 miles of flood protection levees, maintains tide gates and trash racks, and conducts an annual vegetation maintenance program along 0.85 mile of creek.⁶⁰

Capital Improvement Initiatives

Construction of new stormwater facilities and maintenance of existing facilities are managed through the City's CIP, which is updated on a bi-annual basis. The list of CIP projects and funding priorities change in response to the amount of funds available. Sources of funding include the City's General Fund, Stormwater Fund, State and regional grants, and private donations.⁶¹ The Stormwater Fund receives approximately \$840,000 in annual revenues from the City's Stormwater Activity fee. This covers expenses incurred in the maintenance of the City's storm drainage system and its stormwater pump stations and covers the cost of CIP projects to improve the City's drainage infrastructure, including storm drain pipes, drainage basins, levees, and pump stations. Future CIP projects include repair and replacement of damaged culverts, storm drain replacement/improvements at various locations, a flood warning system at Oleander Drive and Los Gamos Road, pump station reconstruction at San Quentin, and Spinnaker Point

⁵⁸ Marin County Flood Control & Water Conservation District, 2019, *Flood Control Zones*, <http://www.marinwatersheds.org/flood-protection/flood-control-zones#undefined5>, accessed on April 29, 2019.

⁵⁹ Marin County Flood Control & Water Conservation District, 2019. Flood Zone 6 Advisory Board Meeting. Dated March 5, 2019.

⁶⁰ Marin County Flood Control & Water Conservation District, 2019, *Flood Control Zones*, <http://www.marinwatersheds.org/flood-protection/flood-control-zones#undefined5>, accessed on June 2, 2020.

⁶¹ City of San Rafael. April 28, 2017. General Plan 2020 – Infrastructure. <https://www.cityofsanrafael.org/documents/gp-8-infrastructure-element/>

UTILITIES AND SERVICE SYSTEMS

salt marsh remediation. The City is also conducting studies to determine the feasibility of catch basin trash capture devices to comply with the State Trash Amendments and a levee analysis inventory.

The City's latest CIP (FY20/21-22/23) has specified funding to address current storm drain issues within the Downtown Precise Plan Area. This includes preparation of a design study to address flooding at the intersection of Second Street and C Street, which is caused by the settlement of storm drain pipes and the inability to adequately convey water to the downstream portion of the storm drain system. Pipe repairs as well as installation of a new underground drainage system on C Street from Second to First Street will be part of the project.⁶² Another scheduled CIP project is located at the edge of the Downtown Precise Plan boundary at the intersection of First Street and D Street. The project has funding to replace the corrugated metal pipe storm drain on D Street between Frances Street and First Street and improve stormwater flow. Several storm drain pipes at the intersection of D Street and First Street feed into San Rafael Creek. The City's Third Street Rehabilitation Project will also make storm drain improvements along Third Street, where necessary. Within the Downtown Gateway sub-area of the Downtown Precise Plan, an urban flood control wetland project is suggested for consideration south of Second Street and east of Lincoln Avenue near US-101. The proposed urban flood control wetland project would help alleviate local flooding during the rainy season and combat sea-level rise in the future. The proposed urban flood control wetland project would require parcel acquisition along San Rafael Creek and is considered a high-priority project within the Downtown Precise Plan Area. The proposed urban flood control wetland project would widen the confluence of Irwin Creek and San Rafael Creek and create a natural downtown amenity.

4.17.3.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant stormwater related impacts if it would:

1. Require or result in the relocation or construction of new or expanded storm water drainage facilities, the construction or relocation of which could cause significant environmental effects.
2. Result in significant cumulative impacts related to stormwater facilities.

4.17.3.3 IMPACT DISCUSSION

UTIL-7	Implementation of the proposed project could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.
---------------	---

General Plan 2040

Potential future development as part of the proposed General Plan 2040 and the change in land uses could result in an increase in impervious surfaces, which in turn could result in an increase in stormwater

⁶² City of San Rafael, 2020. Capital Improvement Program, FY 20/21-22-23.

UTILITIES AND SERVICE SYSTEMS

runoff, higher peak discharges to drainage channels, and the potential to cause nuisance flooding in areas without adequate drainage facilities. Potential future development sites are in infill areas or already developed areas that are paved, and new development on these sites should not create a substantial increase in impervious surfaces.

In addition, potential future development that involves the disturbance of one acre or more of land would be subject to NPDES construction permit requirements, including preparation of a Storm Water Pollution Prevention Plan, which includes best management practices to limit the discharge of sediment and non-stormwater discharges from the site. Potential future development that involve the creation and/or replacement of 2,500 square feet or more of impervious surfaces would trigger the implementation of source control measures and site design measures to address stormwater runoff, per the BASMAA Post-Construction Manual and the Phase II Small MS4 Permit requirements. In addition, stormwater treatment measures are required to contain site runoff for regulated projects that create or replace 5,000 square feet or more of impervious surface, using specific numeric sizing criteria based on volume and flow rate. Regulated projects would also be required to prepare a stormwater control plan that demonstrates that the regulatory requirements for temporary on-site stormwater runoff retention have been met. This would minimize the amount of stormwater runoff from potential future development in the EIR Study Area.

With the implementation of these provisions for potential future development, there would not be a significant increase in stormwater runoff to the City's storm drain system. The construction of stormwater facilities, implementation of best management practices, and preparation of related plans would serve to minimize any potential impacts.

The City's Public Works Department stated that there currently are no constraints in the storm drain system that would impact the proposed development in the EIR Study Area.⁶³ In addition, revenue from the City's Stormwater Activity fee (SRMC Chapter 9.40, Regulatory Fee for Clean Stormwater Activities) is used to fund storm drain improvements throughout the city, as described in the City's latest CIP. In addition to the storm drain improvements within the Downtown Precise Plan Area that are described in the Capital Improvement Initiatives section, there are current projects in the CIP to (1) replace the damaged CMP culvert located beneath Rotary Manor (on Fifth Avenue just west of Downtown); (2) reconstruct the San Quentin Pump Station; (3) replace the storm drain pipes on Francisco Boulevard East from the Bay Park Center office complex to Grange Way; (4) install a warning system to inform motorists of possible flooding at the intersection of Los Gamos Road and Oleander Drive; and (5) install an underground storm drain system on Woodland Avenue between Eva Street and Picnic Avenue that connects to the open ditch behind Woodland Avenue. The City is also conducting a study to design a storm drain system on Jessup Street between West Street and East Street that would connect to the City's existing system at Second Street and East Street.

In addition, the proposed Community Design and Preservation (CDP), Conservation and Climate Change (C), Safety (S), and Community Services and Infrastructure (CSI) Elements contains goals, policies, and

⁶³ City of San Rafael Public Work Department. May 8, 2019. Interview with Kevin McGowan, Assistant Public Works Director/City Engineer.

UTILITIES AND SERVICE SYSTEMS

programs that require local planning and development decisions to consider impacts related to stormwater and stormwater facilities. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts related to stormwater:

Goal CDP-4: Quality Construction and Design. Encourage quality construction and design that enhances San Rafael’s character and creates places of lasting value.

- **Policy CDP-4.10: Landscape Design.** Encourages privately owned and maintained landscaping that contributes to neighborhood quality, complements building forms and materials, improves stormwater management and drainage, and enhances the streetscape.
 - **Program CDP-4.10A: Zoning Regulations.** Periodically evaluate the landscape provisions in the Zoning Ordinance to respond to climate change, hazards, water availability, shading needs, and other issues. Zoning should support the City’s goal of having a strongly landscaped character.
 - **Program CDP-4.10B: Industrial Landscape Design.** Ensure that landscape guidelines for new industrial and general commercial development provide effective buffering, while also supporting water conservation, water quality, and fire hazard reduction goals.
 - **Program CDP-4.10C: Parking Lot Landscaping Requirements.** Review City standards for parking lot landscaping to ensure that they adequately address visual screening, environmental quality, and climate-related issues. Standards should allow for solar shade structures within parking areas.

Goal C-3: Clean Water. Improve water quality by reducing pollution from urban runoff and other sources, restoring creeks and natural hydrologic features, and conserving water resources.

- **Policy C-3.3: Low Impact Development.** Encourages construction and design methods that retain stormwater on-site and reduce runoff to storm drains and creeks.
 - **Program C-3.3A: Development Review.** Provide guidance to developers, contractors and builders on the use of rain gardens, bioswales, bio-retention facilities, permeable pavers, grass parking lots, and other measures to absorb stormwater and reduce runoff rates and volumes.
 - **Program C-3.3B: Non-Traditional Gardens.** Evaluate best practices in the use of roof gardens, vertical gardens/ green walls, pollinator gardens and other measures that increase the City’s capacity to sequester carbon, plant trees, and enhance environmental quality. Encourage the incorporation of such features in new development.

Goal S-3: Resilience to Flooding and Sea Level Rise. Recognize, plan for, and successfully adapt to the anticipated effects of increased flooding and sea level rise.

- **Policy S-3.8: Storm Drainage Improvements.** Require new development to mitigate potential increases in runoff through a combination of measures, including improvement of local storm drainage facilities. Other measures, such as the use of porous pavement, bioswales, and “green infrastructure” should be encouraged.
 - **Program S-3.8A: Storm Drainage Improvements.** Consistent with Countywide and regional stormwater management programs, require new development with the potential to impact storm drainage facilities to complete hydrologic studies that evaluate storm drainage capacity, identify improvements needed to handle a 100-year storm, and determine the funding needed to complete those improvements.

UTILITIES AND SERVICE SYSTEMS

- **Program S-3.8B: Green Infrastructure Guidelines.** Evaluate potential measures to more sustainably manage stormwater, erosion, and improve water quality associated with urban runoff.

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.1, Capital Investment,** requires the City to provide for ongoing, preventative maintenance of infrastructure and timely replacement, repair, and upgrading of City equipment.
 - **Program CSI-4.1A: Capital Improvement Programming.** Maintain and regularly update a multi-year Capital Improvement Plan (CIP) covering City owned and operated infrastructure and public facilities. Seek the input of other local service providers (MMWD, LGVSD, etc.) when preparing the City's CIP and encourage these agencies to seek City input as they prepare their own CIPs.
 - **Program CSI-4.1B: Funding for Maintenance and Capital Costs.** Consider ways to improve the reliability of maintenance funding, such as establishing a reserve fund or voter-approved parcel taxes and special assessments. Identify potential funding sources for unmet and anticipated future capital project needs, such as grants, bond measures, and impact fees.
 - **Program CSI-4.1C: Community-Supported Services.** Consider community-supported (e.g., cooperative) services as an alternative to bring fundamental service upgrades to neighborhoods and managing capital costs.
- **Policy CSI-4.2: Adequacy of City Infrastructure and Services,** requires applicants to demonstrate that their projects can be adequately served by the City's infrastructure as part of the development review process. All new infrastructure shall be planned and designed to meet the engineering standards of the City and various local service and utility providers.
 - **Program CSI-4.2A: Long-Term Planning.** Continue to use the CIP to analyze and respond to local capital facility needs.
 - **Program CSI-4.2B: Engineering Standards.** Require new development to comply with the subdivision standards in the San Rafael Municipal Code, as well as relevant Marin County and utility district engineering standards. Where feasible, encourage development to reach beyond current standards and collaborate with the community to innovate and define new best practices.
 - **Program CSI-4.2C: Impact Fees.** Continue to collect impact fees and use other funding mechanisms to ensure that new development pays its fair share of providing/ upgrading services associated with that development.
- **Policy CSI-4.10, Storm Drainage Facilities:** Requires the continued monitoring and improving of the storm drainage system, including programs to reduce flooding, improve water quality, remove trash, and respond to climate-related changes. Evaluate the potential for restoration of the natural hydrologic function of creeks and drainageways where possible.
 - **Program CSI-4.10A: Replacement of Aging Facilities.** Pursue the replacement of older or failing drainage facilities such as metal pipes and stormwater pumping stations with more durable and resilient materials, or with new structures and pumps.
 - **Program CSI-4.10B: Silt Removal.** Continue to remove accumulated silt from City maintained drainageways, ponds, and creeks subject to tidal siltation such as Mahon and Irwin Creeks. Sediment from stream flow and deposition should be considered a potential resource.
 - **Program CSI-4.10C: Sustainable Stormwater Management.** Seek funding for projects that restore the natural characteristics and functions of stormwater systems, such as bioswales and conversion

UTILITIES AND SERVICE SYSTEMS

of concrete ditches to natural creeks. Such projects should mitigate the effects of urban runoff, reduce flood hazards, and improve water quality and habitat value.

Compliance with and implementation of these proposed General Plan goals, policies, and programs that ensure adequate infrastructure and the regulatory provisions in the Phase II Small MS4 permit that limit runoff from new development would ensure that the implementation of the proposed General Plan 2040 would not result in significant increases in runoff that contribute to the construction of new storm drain facilities or expansion of existing facilities, the construction of which would cause significant environmental impacts. In addition, the City will continue to repair, rehabilitate, and upgrade the storm drain system through implementation of the CIP program funded through the General Fund and Storm Water Fund, and potential future development would also be required to pay public facilities fees per Chapter 9.40 of the SRMC. Therefore, impacts with respect to stormwater infrastructure would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The storm drain system in the Downtown Precise Plan Area is operated and maintained by the City's Public Works Department. The network of storm drains within the Downtown Precise Plan Area is shown on Figure 4.17-3. As stated above, potential future development within the Downtown Precise Plan Area as well as the rest of the EIR Study Area would be required to implement site design, source control, and treatment control measures that would limit the amount of stormwater runoff that can be discharged from the site, per the E.12 provisions of the Phase II Small MS4 permit. Potential future development that create or replace 5,000 square feet of impervious surface or more are required to route runoff to bioretention or other facilities that are sized in accordance with the BASMAA Post Construction Manual. In addition, new projects that create or replace one acre or more of impervious surfaces will be required to match post-construction runoff rates to pre-development rates for the two-year, 24-hour storm event. This would minimize the amount of stormwater runoff that enters the City's storm drain system.

The City's Public Works Department has stated that there are no current deficiencies in the City's storm drain system that would hinder planned development as part of the proposed Downtown Precise Plan. Also, new development and redevelopment projects would create revenue for the Stormwater Fund that is used for storm drain improvement projects. Several storm drain improvement projects planned for the Downtown Precise Plan Area are discussed in the Capital Improvement Initiatives section. The City will continue to repair, rehabilitate, and upgrade the storm drain system through its CIP. Although there are plans for future replacement of storm drains in the Downtown Precise Plan Area, the construction of new storm drain facilities or the expansion of existing facilities is not required as part of the proposed project, and the impact to storm drain infrastructure would be *less than significant*.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

UTIL-8 Implementation of the proposed project could result in a cumulatively considerable impact to stormwater infrastructure.

The analysis of cumulative storm drainage impacts considers future development within the three major watersheds that encompass the EIR 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 future projects within a similar geographic area. Cumulative impacts could result from incremental changes that contribute to drainage and stormwater infrastructure problems within the watersheds or the city.

Development within the EIR Study Area would require conformance with State and local policies that would reduce hydrology and infrastructure construction impacts to less than significant levels. Any new development in the city would be subject to City policies and ordinances, design guidelines, zoning codes, and other applicable City requirements that reduce impacts related to hydrology and stormwater drainage facilities. More specifically, potential changes related to stormwater flows, drainage, impervious surfaces, and flooding would be minimized by the implementation of stormwater control measures, retention, infiltration, and low-impact-development measures and review by the City's Public Works Department to integrate measures to reduce potential stormwater drainage and flooding impacts.

All cumulative projects in towns and cities within the watershed areas would be subject to similar permit requirements and would be required to comply with various municipal codes and policies and County ordinances, 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 basinwide 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 Phase II Small MS4 Permit applies to all of the surrounding municipalities to manage stormwater systems and be collectively protective of water quality. For these reasons, impacts from future development within the EIR Study Area related to stormwater infrastructure construction are not cumulatively considerable.

In addition, the implementation of goals, policies, and programs of the proposed General Plan 2040 would require coordination with MCFCWCD to minimize potential impacts to hydrology and stormwater infrastructure from other projects within the watersheds. Therefore, the proposed project would not result in a cumulatively considerable impact to hydrology and stormwater infrastructure and cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

4.17.4 SOLID WASTE

4.17.4.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery Act of 1976 (Title 40 of the Code of Federal Regulations), Part 258, contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design (liners, leachate collection, run-off control, etc.), groundwater monitoring, and closure of landfills.

State Regulations

Sanitary District Act of 1923

The Sanitary District Act of 1923 (Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and enforces the sanitation districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater. This act was amended in 1949 to allow sanitation districts to also provide solid waste management and disposal services, including refuse transfer and resource recovery.

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties throughout California to divert 50 percent of all solid waste from landfills as of January 1, 2000, through source reduction, recycling, and composting. To help achieve this, the act requires that each city and county prepare a source reduction and recycling element to be submitted to the Department of Resources Recycling and Recovery (CalRecycle). AB 939 also established a goal for all California counties to provide at least 15 years of ongoing landfill capacity.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on two factors: a jurisdiction's reported total disposal of solid waste divided by the jurisdiction's population. The California Integrated Waste Management Board was replaced by CalRecycle in 2010. CalRecycle sets a per capita disposal rate target for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capita disposal rate.

Organic Waste Methane Emissions Reduction Act (Senate Bill 1383)

In September 2016, SB 1383 was signed into law establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants in various sectors of California's

UTILITIES AND SERVICE SYSTEMS

economy. SB 1383 establishes goals to reduce the landfill disposal of organics by achieving a 50 percent reduction in the 2014 level of statewide disposal of organic waste by 2020 and a 75 percent reduction by 2025. SB 1383 grants CalRecycle the regulatory authority to achieve the organic waste disposal reduction targets and establishes an additional target that at least 20 percent of currently disposed edible food must be recovered for human consumption by 2025. Methane emissions resulting from the decomposition of organic waste in landfills are a significant source of greenhouse gas emissions contributing to global climate change. Organic materials—including waste that can be readily recycled or composted—account for a significant portion of California's overall waste stream.

Mandatory Commercial Recycling Requirements (Assembly Bill 341)

Assembly Bill (AB) 341 (Chapter 476) set a statewide solid waste diversion goal of 75 percent by 2020. AB 341, which was passed in 2011 and took effect July 1, 2012, mandates recycling for businesses producing four or more cubic yards of solid waste per week or multi-family residential dwellings of five or more units. Under AB 341, businesses and multi-family dwellings of five or more units in the EIR Study Area must separate recyclables from trash and either subscribe to recycling services, self-haul their recyclables, or contract with a permitted private recycler.

Mandatory Commercial Organics Recycling (Assembly Bill 1826)

AB 1826, which was enacted in 2014, mandates organic waste recycling for businesses and multifamily dwellings with five or more units. The commercial organics recycling law took effect on April 1, 2016, and organic waste includes food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. Currently, businesses and multi-family residences of five or more units that generate four or more cubic yards per week of solid waste (including recycling and organic waste) must arrange for organic waste recycling services. In the fall of 2020, CalRecycle will review the annual reports from various jurisdictions, and if the statewide goal of 50 percent reduction in organic waste as compared to 2014 has not been met, the organic recycling requirements will cover businesses and multi-family residences that generate two or more cubic yards of solid waste per week. Marin Sanitary Service offers two organics recycling programs that allow businesses to comply with the requirements of AB 1826:

- **Food 2 Energy (F2E):** The F2E program diverts organic food waste from local restaurants, delis, food vendors, and grocery stores and converts the material into biogas through anaerobic digestion that is used as a power source for the CSMA WWTP.
- **Commercial Compost:** This program provides commercial compostable carts for businesses that generate organic material, including food scraps, food-soiled paper, and plant/landscape trimmings, that are turned into organic compost at Redwood Landfill.

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act requires development projects to set aside areas for collecting and loading recyclable materials. This act required CalRecycle to develop a model ordinance for adoption by any local agency to provide adequate areas for the collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or

UTILITIES AND SERVICE SYSTEMS

an ordinance of their own that establishes standards, including space allocation, for the collection and loading of recyclable materials.

CALGreen Building Code

As previously described in Section 4.17.1.1 (Water Regulatory Setting) CALGreen establishes building standards for sustainable site development. Sections 4.408 and 5.408, Construction Waste Reduction Disposal and Recycling, mandate that, in the absence of a more stringent local ordinance, a minimum of 65 percent of nonhazardous construction and demolition debris generated during most new construction must be recycled or salvaged. CALGreen requires developers to prepare and submit a waste management plan for on-site sorting of construction debris, which is submitted to the City for approval, or use a waste management company with verifiable documentation. The waste management plan must:

- Identify the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specify if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identify the diversion facility where the material collected can be taken.
- Identify construction methods employed to reduce the amount of waste generated.
- Specify that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Local Regulations

Zero Waste Marin

Zero Waste Marin is the formal name for the Marin County Hazardous and Solid Waste Management Joint Powers Authority (JPA), which was formed in 1997 and consists of city and town managers from Belvedere, Corte Madera, Fairfax, Larkspur, Mill Valley, Novato, Ross, San Anselmo, San Rafael, Sausalito, Tiburon, and Marin County. The goal of Zero Waste Marin is to help residents and businesses in Marin County meet the County's goal of 94 percent diversion from landfills by 2025 by reducing and recycling their solid waste and safely disposing of hazardous wastes. Zero Waste Marin ensures the County's compliance with State recycling mandates and provides information on household hazardous waste collection, recycling, composting, and waste disposal. The Marin County Department of Public Works/Waste Management administers Zero Waste Marin, and the AB 939 Local Task Force provides citizen and industry review.⁶⁴

Climate Change Action Plan 2030

The San Rafael Climate Change Action Plan 2030 was issued in April 2019 and includes a variety of strategies to reduce greenhouse gas emissions from both existing and future development in San Rafael.⁶⁵ The CCAP focuses on mitigation efforts such as renewable energy, low-carbon transportation, composting, and water conservation. About half of the organic material that is landfilled is recoverable. The City

⁶⁴ Zero Waste Marin, 2020. About Zero Waste Marin, accessed at <https://zerowastemarin.org/who-we-are/about-zero-waste-marin/> on June 24, 2020.

⁶⁵ City of San Rafael, 2019. *Climate Change Action Plan 2030*. Dated April 23, 2019.

UTILITIES AND SERVICE SYSTEMS

encourages residents and businesses to divert, recycle, and compost organic waste. The CCAP has the following goals for community and municipal waste.

- **WR-C1: Commercial Organic Waste.** Work with Zero Waste Marin, Marin Sanitary Service, and nonprofits such as Extra Food to divert commercial organic waste from the landfill through recycling, composting, and participation in waste-to-energy and food recovery programs.
 - Conduct outreach and education to businesses subject to State organic waste recycling mandates (AB 1826) and encourage or enforce compliance with the law.
 - Refer new and major remodel commercial and multifamily residential project proposals to the City's waste hauler for review and comment and require projects to provide adequate waste and recycling facilities and access as feasible.
 - Encourage and facilitate commercial and multifamily property owners to require responsible use of on-site recycling facilities in lease and rental agreements and to train and regularly evaluate janitorial, landscape, and other property management services.
- **WR-C2: Residential Organic Waste.** Work with Zero Waste Marin, Marin Sanitary Service, and other organizations to educate and motivate residents to utilize curbside collection services and home composting for food waste.
- **WR-C3: Construction and Demolition Debris and Self-Haul Waste.** Require all loads of construction and demolition debris and self-haul waste to be processed for recovery of materials as feasible. Investigate creation of an ordinance requiring deconstruction of buildings proposed for demolition or remodeling when materials of significant historical, cultural, aesthetic, functional, or reuse value can be salvaged.
- **WR-C4: Mandatory Waste Diversion.** Adopt an ordinance requiring mandatory subscription to and participation in waste diversion activities, including recycling and organics collection provided by Marin Sanitary Service. Consider including phase implementation of the ordinance, penalties, and practical enforcement mechanisms.
- **WR-C5: Waste Processing Infrastructure.** Review and revise the City's franchise agreement with Marin Sanitary Service to ensure waste reduction and diversion targets are met. Conduct a feasibility study and consider investing in new solid waste processing infrastructure to remove recoverable materials (recycling and organics) from the waste stream and reduce contamination. Require regular residential and commercial waste audits and waste characterization studies to identify opportunities for increased diversion and to track progress in meeting targets.
- **WR-C6: Extended Producer Responsibility.** Encourage the State to regulate the production and packaging of consumer goods and take-back programs. Encourage on-demand delivery services like Amazon and Blue Apron to reduce packaging waste and investigate requirements and incentives for same through ordinance or engagement campaigns.
- **WR-C7: Inorganic Waste.** Promote reuse, repair, and recycling of inorganic materials, and encourage reduced use of packaging and single use items through engagement campaigns. Investigate supporting a local building material reuse center.
- **WR-M1: Waste from Public Facilities.** Increase opportunities for recycling, reuse, and composting at City facilities.

UTILITIES AND SERVICE SYSTEMS

- **WR-M2: Waste from City Operations.** Embark on an educational and social marketing-based campaign to increase recycling, composting, reuse, and waste reduction within municipal operations. Conduct periodic waste audits of City facilities to understand where opportunities for increased diversion lie and to track progress.

Marin Countywide Integrated Waste Management Plan

The California Integrated Waste Management Act of 1989 (AB 935) requires each county to prepare and adopt a Countywide Integrated Waste Management Plan (CIWMP). The CIWMP is a State-mandated plan prepared by Zero Waste Marin. The plan identifies solid waste facilities within Marin County and describes the countywide plan for reaching the State-mandated 50 percent recycling goal. Waste reduction and disposal facilities in the county that require solid waste facility permits must conform to policies and siting criteria in the CIWMP. The CIWMP includes, by reference, source reduction and recycling elements, household hazardous waste elements, and nondisposal facility elements as well as a plan that describes countywide diversion programs and landfill disposal needs. The elements must be reviewed every five years and revised if necessary. The latest five-year review report for the CIWMP was submitted by Zero Waste Marin in March 2018.

In addition, each city, county, or regional agency must prepare an annual report for submittal to CalRecycle that summarizes its progress in reducing solid waste as required by Public Resources Code Section 41821. Once every two or four years (depending on the compliance schedule), CalRecycle conducts its own jurisdictional review of the annual reports to determine if the jurisdiction has met the Integrated Waste Management Act goals.

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs that are relevant to solid waste facilities are primarily in the Sustainability and Conservation Elements. As part of the proposed project, some existing General Plan policies would be amended or substantially changed, and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact later in this chapter under Section 4.17.4.3, Impact Discussion.

San Rafael Municipal Code

The SRMC includes various directives to manage solid waste in San Rafael. The SRMC is organized by title, chapter, and section. Most such directives are found in Title 9, Health and Sanitation, and Title 12, Building Regulations, as follows:

- **Chapter 9.19, Refuse and Recycled Materials Collections and Disposal.** The purpose of this chapter is to prevent actual or potential public health hazards and/or public nuisance within the city of San Rafael by regulating the accumulation, collection and disposal of solid waste, including but not limited to garbage, rubbish, waste matter, yard waste, recyclable materials and refuse.

UTILITIES AND SERVICE SYSTEMS

- **Chapter 12.235, California Green Building Construction Standards Code Amendments.** Section 12.235.020, Amendments, describes the deletions and amendments to the adopted 2019 CALGreen Building Code Standards as described in Section 12.100.010, Adopted Code.

Existing Conditions

The Marin Hazardous and Solid Waste Management JPA, now known as Zero Waste Marin, consists of member agencies that collectively implement programs to comply with AB 939 requirements and divert from landfills 50 percent of all the solid waste that is generated. Zero Waste Marin, which includes 11 cities and towns as well as unincorporated areas in the county, has the goal of 94 percent waste diversion from landfills by 2025. As the regional agency, the JPA reports diversion progress to CalRecycle on a countywide basis.⁶⁶ The JPA's disposal rate in 2018 was 5.2 pounds of waste per day (ppd) per resident and 11.8 ppd per employee, which is well below the CalRecycle targets of 7.6 ppd per resident and 17.3 ppd per employee.⁶⁷

Marin Sanitary Service provides residential, multi-family, and commercial garbage, recycling, and compostable collection services in the city and the unincorporated areas that are in the EIR Study Area. Marin Sanitary Service also provides the Food 2 Energy program for large generators of food waste, such as restaurants and grocery stores. The program collects organic food waste, diverts it from the landfill, and delivers it to the CSMA WWTP where it is converted into biogas to power the WWTP.

The Marin Recycling Center (MRC), located at 565 Jacoby Street in San Rafael, is the processing facility for all residential and commercial curbside recyclable materials. These materials are collected by Marin Sanitary Service in dual-sort carts at the curbside throughout the city. In addition to processing all curbside recyclables, the Buy Back center inside the MRC pays for certain recyclable items. MRC accepts and processes collected recyclables, including glass bottles and jars, aluminum and tin cans, and plastic bottles that have California Redemption Value. In addition, the MRC provides safe, secure document shredding services for all of Marin County. A mobile shredding van is also available on an on-call basis, or an account can be established for regular pick-up service.

The Marin Resource Recovery Center (MRRC), also located at 565 Jacoby Street in San Rafael, accepts and processes nonhazardous materials that are not picked up curbside. Waste accepted at the MRRC includes mixed construction and demolition debris; building construction and remodeling materials; landscaping materials; and bulky items, such as mattresses, box springs, bed frames, furniture, and noncommercial car and truck tires. Waste at the MRRC goes through a customized system of screens, conveyors, blowers, magnets, and hand-sorting. Each month, the MRRC processes nearly 3,000 tons of recyclables. The recycling rate for the second quarter of 2020 was 55.6 percent.⁶⁸

⁶⁶ R3 Consulting Group, Inc., March 2011, *Marin County Hazardous and Solid Waste Management JPA Zero Waste Tool Kit*. <https://zerowastemarin.org/assets/Toolkits/FinalDraftZeroWasteFeasibilityStudy012710.pdf>

⁶⁷ CalRecycle, 2020, *Jurisdiction Review Reports*. <https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports/PerCapitaDisposalTrends>.

⁶⁸ Marin Recycling Center, 2020. *Marin Resource Recovery Center, Q2 2020 Recycling Certification*. Accessed at https://marinresourcerecoverycenter.com/mobius_cms/mrrcwp-content/uploads/2020/07/Q2-20202-Recycling-Certification.pdf on July 24, 2020.

UTILITIES AND SERVICE SYSTEMS

The Marin Household Hazardous Waste Facility, also located at 565 Jacoby Street in San Rafael, accepts hazardous materials from Marin County residents and businesses.⁶⁹ The Reuse It Marin program encourages the reuse of certain hazardous materials that otherwise would be disposed of. Some of the items offered for reuse include latex paint, aerosol cans, household cleaning products, and automotive products. Approximately 61 percent of the collected hazardous waste material is recycled, and only 2 percent is landfilled.⁷⁰

There are currently two landfills that accept most of the solid waste from the county:

- **Redwood Landfill.** This landfill currently accepts approximately 54 percent of the solid waste generated by the county. The landfill is operated by Waste Management and is located on a 420-acre site at 8950 Redwood Highway north of Novato and east of US-101. Approximately 220 acres are dedicated to landfill operations, and the remaining 200 acres support composting, recycling, and reuse services as well as open space and a freshwater lagoon for migratory waterfowl. A plant was constructed in 2017 that converts landfill gas to clean, renewable electricity for use by Marin Clean Energy customers. Waste Management also operates the largest composting facility in Marin County and offers recycled compost and mulch as WM EarthCare products. The landfill is licensed as a Class III nonhazardous disposal facility. It has a maximum permitted throughput of 2,300 tons/day and a remaining capacity of 26 million tons. The estimated closure date is July 1, 2024.
- **Potrero Hills Landfill.** This landfill accepts approximately 41 percent of the waste generated by the county. The landfill is operated by Waste Connections Company and is located on a 526-acre site at 3675 Potrero Hills Lane, a few miles south of Suisun City in the hills of Suisun Marsh in Solano County. A compost facility and a landfill-gas-to-energy plant is also operated at this site. The landfill has a maximum permitted throughput of 4,330 tons/day and a remaining capacity of 13,872,000 tons. The closure date is estimated to be February 14, 2048.

Other landfills that accepted waste from the county in 2018 (latest year in CalRecycle records) were, in decreasing tonnage amounts:

- | | |
|---|--|
| ▪ Keller Canyon: 14,029 tons | ▪ Guadalupe Sanitary: 21 tons |
| ▪ Monterey Peninsula: 1,625 tons | ▪ Fink Road: 14 tons |
| ▪ Recology Hay Road: 1,240 tons | ▪ Sacramento County: 11 tons |
| ▪ Altamont Landfill & Resource Recovery: 632 tons | ▪ Foothill Sanitary: 8 tons |
| ▪ Corinda Los Trancos (Ox Mountain): 358 tons | ▪ Kirby Canyon Recycling and Disposal Facility: 8 tons |
| ▪ Vasco Road Sanitary: 77 tons | ▪ Yolo County Central: 2 tons |
| ▪ Forward: 42 tons | ▪ Newby Island Sanitary: 1 ton |
| ▪ Azusa Land Reclamation County: 34 tons | |

⁶⁹ Marin Sanitary Service, About Marin Sanitary Service, <https://marinsanitaryservice.com/support/about-us/>, accessed on May 24, 2019.

⁷⁰ Marin Household Hazardous Waste Facility, 2020. About the Marin HHW Facility. Accessed at <https://marinhhw.com/about-marin-hhw/> on July 24, 2020.

UTILITIES AND SERVICE SYSTEMS

According to the latest available data (2018) from CalRecycle, 95 percent of solid waste collected from the county was taken to the Redwood and Potrero Hills landfills.⁷¹ Table 4.17-6 describes these two facilities in addition to the other three landfills that received the majority of the solid waste in 2018. Comparing the maximum permitted daily throughput to the average disposal amounts in 2018, the five landfills in Table 4.17-6 collectively have an excess capacity of 5,888 tons/day. Although the Redwood Landfill is scheduled to close in 2024 and the Keller Canyon Landfill is scheduled to close in 2030, the other three landfills will be open to accept waste from 2048 to 2107. The latest five-year review of the Marin County Integrated Waste Management Plan prepared in March 2018 indicates that the county has adequate disposal capacity (i.e., equal to or greater than 15 years).

TABLE 4.17-6 LANDFILLS SERVING ZERO WASTE MARIN

Landfill	Redwood Landfill	Potrero Hills Landfill	Keller Canyon Landfill	Monterey Peninsula Landfill	Recology Hay Road Landfill
Total Waste received in 2018 (tons)	360,730	933,379	811,886	220,370	716,235
Waste received from Zero Waste Marin in 2018 (tons)	134,862	97,201	14,029	1,625	1,240
Percentage of total waste from Zero Waste Marin	37%	10%	1.7%	0.7%	0.2%
Maximum permitted throughput (tons/day)	2,300	4,330	3,500	3,500	2,400
Average 2018 daily disposal rate (tons/day)	1,202	3,111	2,706	734	2,387
Remaining capacity (tons)	26,000,000	13,872,000	63,408,410	48,560,000	30,433,000
Estimated closing date	7/1/2024	2/14/2048	12/31/2030	2/28/2107	1/1/2077

Sources: CalRecycle. 2019. Solid Waste Information System (SWIS) Facility/Site Search; CalRecycle. 2019. Landfill Tonnage Reports.

Zero Waste Marin has set a goal of 94 percent diversion from landfills by 2025, which would greatly reduce the need for landfill disposal. The current diversion rate for 2018 is 66 percent, which is down from 75 percent in 2014.⁷² Zero Waste Marin also provides grants to its member agencies to develop and implement programs that work toward the zero waste goal. The City has received an ongoing grant to continue its efforts for FY 2020–2021.

4.17.4.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the CEQA Guidelines, implementation of the proposed project would result in significant impacts related to solid waste if it would:

1. Generate solid waste in excess of State and local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

⁷¹ CalRecycle, 2019, Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility. <https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility>.

⁷² Marin County Hazardous & Solid Waste Management JPA, 2020. Board of Directors Meeting, May 28, 2020. Accessed at <https://zerowastemarin.org/wp-content/uploads/2020/05/Agenda-Packet.pdf> on July 25, 2020.

UTILITIES AND SERVICE SYSTEMS

2. Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.
3. Result in significant cumulative impacts related to solid waste.

4.17.4.3 IMPACT DISCUSSION

UTIL-9	Implementation of the proposed project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
---------------	--

General Plan 2040

Zero Waste Marin does not differentiate the amount of solid waste generated by each city or town within its jurisdiction. Therefore, the total amount of solid waste sent to landfills in 2018 (the latest year of record) for the service area was determined. The proportion of waste generated by the EIR Study Area was determined by dividing the service population of the EIR Study Area (i.e., residents plus employees) by the service population of the county. The existing service population of the EIR Study Area is approximately 32 percent of the county's service population. A three-year average disposal rate (from 2016 to 2018) for Zero Waste Marin shows that it collects approximately 235,070 tons of waste per year for landfill disposal.⁷³ Assuming that 32 percent of the collected solid waste is generated by the EIR Study Area, this equals approximately 75,222 tons/year under current conditions.

The service population in the EIR Study Area is anticipated to increase by 11 percent by the year 2040, which would result in an increase of 8,274 tons/year. At year 2040, it is estimated that 83,496 tons/year or approximately 278 tons/day would be sent to landfills for disposal. This estimate is conservative because it assumes that there is no change in the current diversion rate of 66 percent. With implementation of the Zero Waste Marin program's Integrated Waste Management Program, the diversion and recycling rate should increase over time. The results for the EIR Study Area and the Downtown Precise Plan Area are summarized in Table 4.17-7.

As shown in Table 4.17-7, a total of 83,496 tons/year would equate to about 278 tons/day (assuming 300 disposal days/year). Assuming that half of the solid waste is sent to Redwood Landfill and half to Potrero Hills Landfill, this would be about 12.5 percent of the current excess capacity of 1,098 tons/day at Redwood Landfill and about 11 percent of the current excess capacity of 1,219 tons/day at Potrero Hills Landfill. Assuming that Redwood Landfill closes in 2024 and Keller Canyon Landfill closes in 2030, the other three landfills would have an excess capacity of 4,020 tons/day, which would easily accommodate the 278 tons/day from the proposed project. In addition, these calculations conservatively assume that there is no increased diversion rate for recycling. The goal for Zero Waste Marin is a diversion rate of 94 percent by 2025, which would reduce the solid waste disposal to landfills. Also, the latest annual report by

⁷³ CalRecycle, 2019, Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility. <https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility>.

UTILITIES AND SERVICE SYSTEMS

Zero Waste Marin indicates that there is sufficient landfill capacity to meet the needs of the county for the next 15 years.

TABLE 4.17-7 SOLID WASTE LANDFILL DISPOSAL FOR THE EIR STUDY AREA

Area	Existing Service Population ^{a,b}	Existing Solid Waste Generation (tons/years)	Service Population at Buildout ^{a,b}	Percentage Increase	Solid Waste Generated at Buildout (tons/year)
Total EIR Study Area	119,951	75,222	132,976	11	83,496
Downtown Precise Plan Area	9,015	5,642	14,605	62	9,140

Notes:

^a. Refer to Tables 3-4 and 3-5 of this Draft EIR.

^b. Service population is the sum of population and employment.

Furthermore, potential future development pursuant to the proposed General Plan 2040 would comply with Section 4.408 of the 2019 CALGreen, which requires that at least 65 percent of nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse. Development would also comply with AB 341, which mandates recycling for commercial and multifamily residential land uses as well as schools and school districts. Additionally, potential future businesses pursuant to the proposed General Plan 2040 that generate organic waste in amounts over a certain threshold would be mandated to recycle organic matter in accordance with AB 1826. Therefore, solid waste facilities would be able to accommodate project-generated solid waste.

In addition, the proposed Community Services and Infrastructure (CSI) Element contains goals, policies, and programs that require local planning and development decisions to consider impacts related solid waste and solid waste facilities. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts related to solid waste:

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.17, Reducing Landfilled Waste Disposal:** Requires the reduction of landfilled waste disposal and related greenhouse gas emissions by reducing material consumption; requiring curbside collection and composting of organic materials; increasing recycling, re- use, and resource recovery; and encouraging the use of recyclable goods and materials.
 - **Program CSI-4.17A: Waste Reduction.** Implement waste reduction programs consistent with the San Rafael Climate Change Action Plan and Zero Waste Goal. These include partnerships with Zero Waste Marin, Marin Sanitary Service, and other organizations; requirements for construction and demolition debris recycling; increased monitoring of waste diversion targets; waste audits; and additional infrastructure for removal of recoverable materials from the waste stream.
 - **Program CSI-4.17B: Recycling.** Continue recycling programs and expand these programs to increase waste diversion rates for homes, apartments and workplaces. .
 - **Program CSI-4.17C: Construction and Demolition Waste.** Continue to implement programs requiring recycling of construction and demolition debris. Encourage the reuse of recycled building materials in future projects.
 - **Program CSI-4.17D: Waste Reduction Programs.** Continue efforts to reduce electronic waste, refrigerants, and single use plastics; and ensure proper disposal of household hazardous waste.

UTILITIES AND SERVICE SYSTEMS

This should include enforcement of City bans on plastic bags and polystyrene foam and potential new programs to reduce microplastics from waterways.

- **Program CSI-4.17E: Community Composting.** Consider a mandatory community-scale program for curbside collection and composting of food and green waste, as well as vegetation cleared through fire prevention efforts.
- **Program CSI-4.17F: Food to Energy.** Support the Central Marin Sanitation/ Marin Sanitary Food to Energy Program.
- **Program CSI-4.17G: Recyclable Waste Receptacles.** Support efforts by Marin Sanitary to install waste receptacles for recyclables in areas of heavy pedestrian traffic.
- **Policy CSI-4.18, Waste Reduction Advocacy and Education:** Work with other cities and the County of Marin to advocate for programs and legislation to reduce waste and share waste reduction responsibilities with the manufacturers of consumer products.
 - **Program CSI-4.18A: Recycling Education.** Encourage Marin Sanitary to continue its recycling education programs and to expand awareness of “reduce, reuse, and recycle” principles among all residents and employees. Programs to promote reuse and repair of consumer goods rather than landfill disposal should also be supported.

With continued compliance with the applicable regulations, leading to increased recycling and waste diversion and adherence to and implementation of the proposed General Plan 2040 goals, policies, and programs, anticipated rates of solid waste disposal from the potential future development pursuant to the proposed project would be *less than significant* with respect to permitted landfill capacity.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As shown in Table 4.17-7, the existing service population for the Downtown Precise Plan is 9,015 (see Table 3-5). This amounts to approximately 2.4 percent of the service population of the county. Since Marin County generated on average approximately 235,070 tons of waste per year in the past three years, it is assumed that the Downtown Precise Plan Area generated 5,642 tons/year. With a service population increase to 14,605 by 2040, this would equate to an increased solid waste disposal rate of 3,498 tons/year for a total of 9,140 tons/year. This is equivalent to about 30 tons/day (assuming 300 disposal days/year), which is a small percentage of the existing capacity of the five landfills that serve Marin County. In addition, Zero Waste Marin plans to increase recycling and waste diversion rates to 94 percent by 2025. Therefore, there would be sufficient landfill capacity to accommodate the proposed potential future development in the Downtown Precise Plan Area, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

UTIL-10 Implementation of the proposed project would comply with federal, State, and local statutes and regulations related to solid waste.

General Plan 2040

As discussed above, Zero Waste Marin, which serves the EIR Study Area, complies with State requirements to reduce the volume of solid waste through recycling and organic waste diversion. Its per capita disposal rates of 5.2 ppd per resident and 11.8 ppd per employee are well below the CalRecycle targets of 7.6 ppd per resident and 17.3 ppd per employee. In addition, all potential future development pursuant to the proposed General Plan 2040 would comply with CALGreen, which requires that at least 65 percent of nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse (Section 4.408 of the 2019 CALGreen). Potential future development would also comply with AB 341, which mandates recycling for commercial and multifamily residential land uses as well as schools and school districts. Additionally, potential future businesses pursuant to the proposed General Plan 2040 that generate organic waste in amounts over a certain threshold would be mandated to recycle organic matter in accordance with AB 1826. Therefore, the City and waste service providers would comply with all applicable federal, State, and local solid waste regulations, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

Zero Waste Marin, which serves the Downtown Precise Plan Area, complies with State requirements to reduce the volume of solid waste through recycling and organic waste diversion. Similar to potential future development in the areas outside of the Downtown Precise Plan Area, all potential future development pursuant to the Downtown Precise Plan would comply with Section 4.408 of the 2019 CALGreen and with the requirements of AB 341. Therefore, the City and waste service providers would comply with all applicable federal, State, and local solid waste regulations, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

UTIL-11 Implementation of the proposed project could result in a cumulatively considerable impact to solid waste.

The discussion below addresses two aspects of cumulative impacts: (1) would the effects of the cumulative development result in a cumulatively significant impact on the resources in question and, if that cumulative impact is likely to be significant, (2) would the contributions to that impact from the project, which is the subject of this Draft EIR, be cumulatively considerable?⁷⁴

⁷⁴ CEQA Guidelines Section 15064(h)(1), “cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, current, and probable future projects.

UTILITIES AND SERVICE SYSTEMS

The area considered for cumulative impacts to solid waste disposal facilities is Marin County. As reported in Chapter 4.14, Population and Housing, of this Draft EIR (see Table 4.14-1), the 2040 projected service population for Marin County is 417,630, which amounts to an increase of 46,336, or approximately 12.5 percent, over the county's existing service population of 371,294. Since the county generated 235,070 tons of solid waste in 2019, it is assumed that in 2040 it would generate approximately 264,454 tons, or 882 tons per day. The five landfills that receive the majority of that solid waste have an excess capacity of 5,888 tons/day and could easily provide for the projected growth. In addition, 15 other landfills received solid waste from Marin County in 2018. If one or more of the landfills that currently receive most of the solid waste from the county were unavailable in the future, it is likely that the solid waste volume could be increased at one or more of the other landfills. In addition, Zero Waste Marin has a goal to recycle or divert 94 percent of its waste by 2025, which would reduce the volume of solid waste transported to landfills. Therefore, with continued compliance with the applicable regulations, in combination with past, present, and reasonably foreseeable development, solid waste cumulative impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

UTILITIES AND SERVICE SYSTEMS

This page intentionally left blank.

4.18 WILDFIRE

This chapter describes the potential impacts associated with the adoption and implementation of the proposed project that are related to wildfire. A summary of the relevant regulatory framework and existing conditions is followed by a discussion of potential impacts and cumulative impacts from implementation of the proposed project.

4.18.1 ENVIRONMENTAL SETTING

4.18.1.1 REGULATORY FRAMEWORK

This section summarizes key State and local regulations set forth to identify wildfire hazard areas and to reduce wildfire risks to new and existing structures. There are no federal regulations related to wildfires that are applicable to the Environmental Impact Report (EIR) Study Area.

State Regulations

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of California's wildlands. The Office of the State Fire Marshal supports CAL FIRE's mission to protect life and property through fire prevention engineering programs, law and code enforcement, and education. The Office of the State Fire Marshal provides for fire prevention by enforcing fire-related laws in State-owned or-operated buildings; investigating arson fires in California; licensing those who inspect and service fire protection systems; approving fireworks for use in California; regulating the use of chemical flame retardants; evaluating building materials against fire safety standards; regulating hazardous liquid pipelines; and tracking incident statistics for local and State government emergency response agencies. The California Fire Plan is the State's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The California Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and CAL FIRE.

Fire Hazard Severity Zones and Responsibility Areas

CAL FIRE publishes maps recommending fire hazard severity zones for every California county. The maps identify lands in California as falling within one of the following management areas: local responsibility area (LRA), state responsibility area (SRA), and federal responsibility area (FRA). Within each of these areas, a single agency has direct responsibility: in LRAs, local fire departments or fire protection districts are responsible; in SRAs, CAL FIRE is responsible; in FRAs, federal agencies such as the United States Forest Service, National Park Service, Bureau of Land Management, United States Department of Defense,

WILDFIRE

United States Fish and Wildlife Service, and Department of the Interior are responsible.¹ Within the LRA, CAL FIRE designates lands as being within a Very High Fire Hazard Severity Zone (VHFHSZ) or non-VHFHSZ.

State Responsibility Areas Fire Safe Regulations

Section 4290, Hazardous Fire Areas, of the California Public Resources Code (PRC) includes fire safety regulations that apply to development in San Rafael to decrease the risk of wildfire events. Section 4290 establishes minimum standards for roads for fire equipment access; standards for signs identifying streets, roads, and buildings; private water supply resources for emergency fire use; fuel breaks and greenbelts; basic emergency access; and wildland fuel modification. Section 4290 works in conjunction with current and new building construction development standards in SRAs, defined by the State Board of Forestry and Fire Protection as an area in which the State has primary financial responsibility for preventing and suppressing fires. Section 4291, Mountainous, Forest-, Brush- and Grass-Covered Lands, of the PRC requires annual defensible space of 100 feet to be provided around all structures in or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, including land with such characteristics in portions of the EIR Study Area. SRA Fire Safe Regulations do not supersede local regulations that equal or exceed minimum State regulations.

California Office of Emergency Services

The California Office of Emergency Services (Cal OES) was established on January 1, 2009, and created by Assembly Bill (AB) 38, which merged the duties, powers, purposes, and responsibilities of the former Cal OES with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall state agency response to major disasters in support of local government. It is responsible for ensuring the State's readiness to respond to and recover from all hazards—natural, man-made, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. In 2018, Cal OES completed a *State Hazard Mitigation Plan*, which designated fire hazard severity zones and wildland-urban interface (WUI) areas.²

Senate Bill 1241

SB 1241 requires that the fire hazard severity zone maps prepared by CAL FIRE be included in each general plan in the state. Each map sets the foundation for subsequent policies, usually in a general plan's safety element, to address fire prevention and protection in areas with a High or VHFHSZ. SB 1241 additionally requires that General Plan Safety Elements get reviewed by CAL FIRE prior to adoption to ensure policies provide adequate wildfire protection.

¹ Association of Bay Area Governments and Metropolitan Transportation Commission, 2018, *White Paper: Bay Area Wildland Urban Interface Review of Risks, Plans, and Strategies*, page 7; and Contra Costa County, 2018, *Contra Costa County Hazard Mitigation Plan*, page 13-1.

² California Office of Emergency Management. 2018. *California State Hazard Mitigation Plan*, https://www.caloes.ca.gov/HazardMitigationSite/Documents/002-2018%20SHMP_FINAL_ENTIRE%20PLAN.pdf, accessed on April 25, 2019.

California Building Code

Building Design Standards

The California Building Code (CBC), Part 2 of 24 California Code of Regulations, identifies building design standards, including those for fire safety. The CBC is updated on a three-year cycle. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. Commercial and residential buildings are plan checked by local city and county building officials for compliance with the CBC and any applicable local edits. Typical fire safety requirements of the CBC include the installation of sprinklers in all high-rise buildings and other facilities; the establishment of fire-resistance standards for fire doors, building materials, and particular types of construction in high fire hazard severity zones; requirements for smoke-detection systems; exiting requirements; and the clearance of debris. The City of San Rafael regularly adopts each new CBC update under the San Rafael Municipal Code (SRMC) Chapter 12.100, Adopted Codes.

Materials and Methods for Exterior Wildfire Exposure

Chapter 7A of the CBC, Materials and Methods for Exterior Wildfire Exposure, prescribes building materials and construction methods for new buildings in a fire hazard severity zone. Chapter 7A contains requirements for roofing; attic ventilation; exterior walls; exterior windows and glazing; exterior doors; decking; protection of underfloor, appendages, and floor projections; and ancillary structures.

California Fire Code

The California Fire Code incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official fire code for the state and all political subdivisions. It is found in California Code of Regulations Title 24, Part 9 and, like the CBC, it is revised and published every three years by the California Building Standards Commission. Also like the CBC, the California Fire Code is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions. The City of San Rafael regularly adopts each new fire code update under SRMC Title 4, Fire. The California Fire Code is a model code that regulates minimum fire safety regulations for new and existing buildings; facilities; storage; processes, including emergency planning and preparedness; fire service features; fire protection systems; hazardous materials; fire flow requirements; and fire hydrant locations and distribution. Typical fire safety requirements include installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

Wildland-Urban Interface Areas

Chapter 49 of the California Fire Code, Requirements for WUI Fire Areas, prescribes construction materials and methods in fire hazard severity zones; requirements generally parallel CBC Chapter 7A.

WILDFIRE

Defensible Space

California PRC Sections 4291 et seq. require that brush, flammable vegetation, or combustible growth within 100 feet be removed around all buildings on or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land covered in flammable materials. Requirements regarding hazardous vegetation and fuel management are also contained in Sections 4906 and 4907 of the California Fire Code.

2018 Strategic Fire Plan for California

CAL FIRE produced the *2018 Strategic Fire Plan for California*, which contains goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments.³ The *2018 Strategic Fire Plan for California* focuses on fire prevention and suppression activities to protect lives, property, and ecosystems in addition to providing natural resource management to maintain state forests as a resilient carbon sink to meet California's climate change goals. This plan provides State Responsibility Fire Safe Regulations, which requires that all parcels 1 acre or larger provide a minimum 30-foot setback for buildings from all property lines and/or the center of the road. A key component of the *2018 Strategic Fire Plan for California* is the collaboration between communities to ensure fire suppression and natural resource management is successful.⁴

California Public Utilities Commission

In 2007, wildfires in southern California were ignited by overhead utility power lines and aerial communication facilities near power lines. In response, the California Public Utilities Commission (CPUC) began considering and adopting regulations to protect the public from fire hazards due to overhead power lines and nearby aerial communication facilities. The CPUC published a Fire Threat Map under Rulemaking 15-05-006, following procedures in Decision 17-01-009, revised by Decision 17-06-024, which adopted a work plan for the development of a utility High Fire Threat District where enhanced fire safety regulations in Decision 17-12-024 apply.⁵ The fire regulations require electric utilities to:⁶

- Prioritize the correction of safety hazards.
- Correct nonimmediate fire risks in "Tier 2" (elevated fire threat) areas on the CPUC High Fire-Threat District within 12 months, and in "Tier 3" (extreme fire threat) areas within 6 months.
- Maintain increased clearances between vegetation and power lines within the High Fire Threat District.
- Maintain stricter wire-to-wire clearances for new and reconstructed facilities in Tier 3 areas.
- Conduct annual inspections of overhead distribution facilities in rural areas of Tier 2 and Tier 3 areas.
- Prepare a fire prevention plan annually if overhead facilities exist in the High Fire Threat District.

³ California State Board of Forestry and Fire Protection. 2019. *2019 Strategic Fire Plan for California*, <https://www.fire.ca.gov/media/5504/strategicplan2019-final.pdf>, accessed on April 25, 2019.

⁴ California State Board of Forestry and Fire Protection. 2019. *2019 Strategic Fire Plan for California*, <https://www.fire.ca.gov/media/5504/strategicplan2019-final.pdf>, accessed on April 25, 2019

⁵ California Public Utilities Commission, <http://www.cpuc.ca.gov/firethreatmaps/>, accessed on March 23, 2020.

⁶ California Public Utilities Commission, press release: CPUC Adopts New Fire-Safety Regulations, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K352/201352402.PDF>, accessed on March 23, 2020.

Regional Regulations

Marin Community Wildfire Protection Plan

The *Marin Community Wildfire Protection Plan*⁷ (CWPP), adopted in July 2016, is intended to provide a foundation for and facilitate continued collaboration between the multiple agencies providing fire protection within Marin County. The CWPP has five goals: (1) continue to identify and evaluate wildland fire hazards; (2) articulate and promote the concept of land use planning related to fire risk; (3) support and continue to participate in the collaborative development and implementation of wildland fire protection plans; (4) increase awareness, knowledge, and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires; and (5) integrate fire and fuels management practices.

Marin County Operational Area Emergency Recovery Plan

The *Marin County Operational Area Emergency Recovery Plan* (ERP), adopted in November 2012, establishes procedures and assigns responsibility to ensure the effective management of emergency recovery operations within the Marin County Operational Area, which includes San Rafael. The ERP describes operational concepts relating to recovery, identifies components of recovery organization, and describes general responsibilities of the Marin County Office of Emergency Services (Marin OES). Recovery operations in a multi-jurisdictional incident are coordinated and managed by the Marin OES in accordance with the California Emergency Services Act.

Marin Operational Area Emergency Operations Plan

The *Marin OES Emergency Operations Plan*, adopted in October 2014, establishes emergency management policies and procedures, in addition to assigning responsibilities to ensure the effective management of emergency operations within the Marin Operational Area. Cities and towns within the county participate in the Marin OES coordination of emergency management activities. Emergency operations are split into four phases: (1) Preparedness Phase, (2) Response Phase, (3) Recovery Phase, and (4) Prevention/Mitigation Phase. The City of San Rafael coordinates with Marin OES to ensure emergency management functions meet the expectation of the City.

Local Wildfire Prevention and Mitigation Initiative / Marin Wildfire Prevention Authority

The San Rafael Fire Department (SRFD) has partnered with FireSafe Marin and all of the neighboring cities and towns to develop a countywide wildfire prevention strategy. In September 2019, the SRFD introduced a proposed plan to create a new joint powers authority agreement (countywide coalition) named the Marin Wildfire Prevention Authority (MWPA). The MWPA would be a multi-agency authority that would include the cities and towns of Marin County, the County of Marin, and fire protection districts in Marin County to fund, coordinate, and oversee wildland fire detection, fuel reduction, public education, defensible space evaluations, and local agency wildfire prevention efforts.

⁷ Marin County Fire Department. 2016. *Community Wildfire Protection Plan*, <https://drive.google.com/file/d/0Bx15pyv0JoJZZ0tVR1pXOV9vTGRQVTRrQWxER0VOeVQxd2xz/view>, accessed on April 25, 2019.

WILDFIRE

The proposed new revenue measure for sustained support of wildfire prevention activities (Measure C) was approved by voters in March of 2020 and will accomplish key initiatives:

- Improving emergency alert and warning systems to enhance early alert for organized evacuations.
- Expanding coordinated efforts to reduce combustible plants and vegetation.
- Improving evacuation routes and infrastructure to enhance traffic flow and promote safe evacuations.
- Expanding and enhancing defensible space and home evaluations and educating homeowners about how to reduce the vulnerability of their home and neighborhood to wildfire.
- Providing grants and support to seniors, persons with disabilities, and low-income homeowners who need assistance maintaining defensible space, making homes fire resistant, reducing combustible vegetation, and preparing for emergencies.
- Creating and sustaining a coordinated local wildfire public safety and disaster preparedness program.
- Supporting residents to establish Firewise USA programs in neighborhoods through ongoing public education.

Marin County Multi-Jurisdictional Local Hazard Mitigation Plan.

The Marin County Multi-Jurisdictional Local Hazard Mitigation Plan (MCM LHMP) was completed in November 2018 to assess risks posed by natural hazards and to develop a mitigation strategy for reducing the County's risks. Several jurisdictions and special districts participated in the creation of the MCM LHMP, including the City of San Rafael. The risks and mitigations in the MCM LHMP are broad and encompassing of the entirety of Marin County. The MCM LHMP incorporates each local jurisdiction's individual LHMP as appendices to ensure jurisdiction-specific information supplements the vulnerability mitigation in the MCM LHMP. The City of San Rafael LHMP is incorporated into the MCM LHMP as Appendix P.

Marin County Code of Ordinances

The Marin County Code of Ordinances (MCCO) is organized by title, chapter, and section. It contains all ordinances for the County. Most provisions relating to fire protection services are included in Title 16, Fire, which establishes the jurisdiction of the Marin County Fire Department (MCFD). Services of the MCFD include response to all types of fires and other emergencies in County unincorporated areas, fire prevention, investigation, emergency medical services, and management of the WUI, including areas within the EIR Study Area. Title 16, Fire, of the MCCO includes the following two chapters related to adoption of and amendments to adopted codes:

- **Chapter 16.16:** Adoption of California Fire Code and International Fire Code, which adopts prescriptions regulating governing conditions hazardous to life and property from fire or explosion. This includes the 2019 Fire Code, which consists of portions of the 2018 International Fire Code as amended by the California Building Standards Commission.
- **Chapter 16.17:** Urban-Wildlife Interface Code, which adopts the 2003 edition of the International Urban-Wildland Interface Code. This code governs the mitigation of wildfire hazards to life and property from the intrusion of fire from wildland exposures.

MCCO Title 19, Marin County Building Code, adopts the 2019 CBC and the 2018 International Building Code to promote healthy, safe, and sustainable communities. Title 19 includes building regulations related to the fire resistance of buildings.

Local Regulations

San Rafael General Plan 2020

The City of San Rafael 2020 General Plan goals, policies, and programs relevant to the wildfire are primarily in the Safety and Resilience Element. As part of the proposed project, some existing General Plan goals, policies, and programs would be amended or substantially changed and new policies would be added. A comprehensive list of policy changes is provided in Appendix B, Proposed General Plan Goals, Policies, and Programs, of this Draft EIR. Applicable goals, policies, and programs are identified and assessed for their effectiveness and potential to result in an adverse physical impact under Section 4.18.3, Impact Discussion, later in this chapter.

San Rafael Municipal Code

The SRMC includes various directives to minimize adverse impacts associated with wildfires in San Rafael. The SRMC is organized by title, chapter, and section. Most provisions related to wildfire prevention are included in Title 4, Fire, Title 12, Building Regulations, and Title 14, Zoning:

- **Chapter 4.08, Fire Code.** This chapter adopts the California Fire Code in its entirety except for portions that are changed or modified by Section 4.08.120 of the chapter. Section 4.08.010 of this chapter recognizes that the adoption of the California Fire Code is to prescribe regulations and building standards in order to protect life and property from fire, explosion, earthquake, and other disasters and to provide for permits. Flammable and combustible liquids materials are regulated in Sections 4.08.060 through Section 4.08.100.
- **Chapter 4.12, Wildland-Urban Interface, Vegetation Management Standards.** Section 4.12.010 establishes a WUI zone in the city, described in the city of San Rafael WUI map, dated July 2, 2007. The WUI is an area where structures and other human development are within a short distance of wildland vegetation that is prone to wildfires. WUI areas are managed by specific combustible vegetation management standards required in order to create defensible space around structures that will minimize the spread of fires from wildlands to structures, from structures to wildlands, and from structures to structures. Chapter 4.12 requires homeowners living within designated WUI zones to maintain up to 100 feet of defensible space around structures or to their property line, whichever is closer. Section 4.12.030 includes the vegetation management standards. Section 4.12.032 describes the exceptions to the vegetation management standards for creeks, drainage ways, and wetlands. Section 4.12.035 describes the exceptions to vegetation management standards for protected plants and wildlife.
- **Chapter 12.100, Adopted Codes.** This chapter adopts the CBC in its entirety except for portions that are changed or modified by Section 12.12.020 of the chapter.
- **Chapter 14.16, Site and Regulations.** Section 14.16.170, Geotechnical Review, requires that geotechnical reports consistent with the geotechnical matrix in the General Plan appendices to assess such hazards as potential seismic hazards, liquefaction, landsliding, mudsliding, erosion, sedimentation, and settlement and hazardous soils conditions to determine the optimum location for structures, to advise of special structural requirements, and to evaluate the feasibility and desirability of a proposed facility in a specific location.

WILDFIRE

San Rafael Local Hazard Mitigation Plan

The *San Rafael Local Hazard Mitigation Plan* (LHMP), adopted in November 2017, is a guide to hazard mitigation within the EIR Study Area and serves as a tool to help decision makers direct hazard mitigation activities and resources. In the context of an LHMP, mitigation is an action that reduces or eliminates long-term risk to people and property from hazards, including wildfire. Table 4.18-1 contains the hazard mitigation actions in the LHMP that reduce the risk of damage or injury from wildfire.

TABLE 4.18-1 LOCAL HAZARD MITIGATION PLAN ACTIONS RELEVANT TO EMERGENCY RESPONSE AND WILDFIRE

Number	Actions
Emergency Response Mitigation Actions	
Action 1	Integrate LHMP into Safety Element of General Plan.
Action 2	Identify the locations, then subsequently equip, stock, and train staff in order to establish emergency evacuation shelters to temporarily house people during major emergencies.
Action 3	Plan, prepare, conduct community outreach, and deploy emergency evacuation exercises in neighborhoods prone to wildfire or tidal flooding during extreme wet weather periods.
Wildfire Mitigation Actions	
Action 42	Funding for vegetation management coordinator position.
Action 43	Create a San Rafael-specific community wildfire protection plan.
Action 44	Create new strategic fuel interruption zones in WUI areas and maintain and expand existing fuel interruption zones.
Action 45	Juniper and bamboo clearing program from residential properties in the WUI.
Action 46	Create new point-specific wildfire prevention programs targeting areas where homeless encampments are known to be.
Action 47	San Rafael Measure A project implementation.

Source: City of San Rafael Local Hazard Mitigation Plan, adopted June 2017.

San Rafael Wildfire Prevention and Protection Action Plan

The *San Rafael Wildfire Prevention and Protection Action Plan* (WPPAP)—conditionally approved in March 2019 and formally adopted in August 2020 following review by a steering committee—provides a series of prescriptions, programs, and ordinance updates to make the city more fire and disaster resistant. The WPPAP is designed to serve as a master plan and framework to address all phases of disaster response: mitigation, preparedness, response, and recovery. The WPPAP considers and incorporates local, county, regional, and national findings and best practices. The WPPAP defines fuel, vegetation management plan, wildfire, and the WUI in the city. Table 4.18-2 summarizes the objectives of the WPPAP that are comprehensive in nature and reflect the need for a cohesive approach to reducing wildfire risk in the EIR Study Area. Objectives are organized into three categories: (1) Vegetation Management; (2) Wildfire Prevention and Protection; and (3) Notifications and Evacuation.

TABLE 4.18-2 WILDFIRE PREVENTION AND PROTECTION ACTION PLAN OBJECTIVES

Number	Objectives
Section 1: Vegetation Management	
Objective 1	Eliminate highly flammable vegetation near structures and roadways throughout San Rafael.
Objective 2	Apply vegetation management and defensible space standards citywide.

TABLE 4.18-2 WILDFIRE PREVENTION AND PROTECTION ACTION PLAN OBJECTIVES

Number	Objectives
Objective 3	Reduce ember ignitions within immediate zones to prevent structure ignitions through enhanced standards and support.
Objective 4	Expand goat grazing for vegetation maintenance.
Objective 5	Establish additional fuel interruption zones.
Objective 6	Improve public education regarding fire-safe landscaping and living with wildfire.
Objective 7	Establish more fire-wise communities in San Rafael.
Objective 8	Reduce hazardous fuels through an abatement process on privately owned unimproved lots and within 200 feet of a structure or 20 feet of a roadway.
Objective 9	Effectively coordinate the removal of vegetative debris from public and private property.
Objective 10	Engage Community Emergency Response Team members, neighborhood response groups, and other volunteers in fire prevention.
Objective 11	Reengage volunteer “broom pull days.”
Objective 12	Review and update WUI map.
Objective 13	Adopt PRC Sections 4290 and 4291.
Objective 14	Develop new efforts, solutions, and resources dedicated to wildfire prevention and protection.
Section 2: Wildfire Prevention and Protection	
Objective 15	Immediately seize ignition sources at encampments and remove encampments in open space as quickly as possible.
Objective 16	Reduce likelihood of ignition in undeveloped land.
Objective 17	Explore opportunities in Fire and Building Code updates to increase use of fire-resistant materials and application of CA Fire Code 7A.
Objective 18	Eliminate fire hazard associated with shake and wooden roofs.
Objective 19	Develop comprehensive San Rafael hazardous vegetation study and mitigation measures.
Objective 20	Complete an analysis of fire roads and strategic fuel breaks.
Objective 21	Increase the number of hardened homes in San Rafael.
Objective 22	Improve development and implementation of vegetation management plans and create new resilient landscape templates.
Objective 23	Increase the number of completed vegetation management plans and resilient landscape templates.
Objective 24	Improve the public’s fire risk awareness with sign improvements and installation.
Objective 25	Reduce fire risk and keep visitors using short-term rentals safe.
Objective 26	Hire additional staff dedicated to vegetation management and disaster mitigation.
Objective 27	Increase police ranger staffing.
Section 3: Notifications and Evacuations	
Objective 28	Reduce fuels along roadways.
Objective 29	Establish a residential hillside “parking box” program.
Objective 30	Improve public emergency alerting capabilities and policies.
Objective 31	Increase capability for early fire warnings and detection.
Objective 32	Review and expand evacuation plans, incorporating areas of refuge, and support neighborhood evacuation drills.
Objective 33	Ensure safe and resilient critical infrastructure.
Objective 34	Ensure that appropriate staff can send and receive emergency alerts.
Objective 35	Ensure that City staff can communicate during an emergency.
Objective 36	Ensure that residents can evacuate through garage doors if power is out.
Objective 37	Prevent potential entrapments by requiring two gates in any fence in designated areas.
Objective 38	Maintain and expand coordination of wildfire prevention and response planning with Marin County, other Marin jurisdictions, Marin County Fire, FireSafe MARIN, and neighboring landowning partners.

Source: City of San Rafael *Wildfire Prevention and Protection Plan*, adopted March 2019.

WILDFIRE

4.18.1.2 EXISTING CONDITIONS

Wildfire Background

Types of Wildfire

There are three basic types of wildland fires:

- **Crown fires** burn trees to their tops and are the most intense and dangerous wildland fires.
- **Surface fires** burn surface litter and duff and are known for being the easiest fires to extinguish and to cause the least damage. Brush and small trees enable surface fires to reach treetops, and so are referred to as *ladder fuels*.
- **Underground fires** occur underground in deep accumulations of dead vegetation. These fires move very slowly and can be difficult to extinguish due to limited access.⁸

Wildfires burn in many types of vegetation—forest, woodland, scrub (including chaparral, sage scrub, and desert scrub), and grassland.⁹ Many species of native California plants are adapted to fire. Chaparral shrubs recover from fire in one of two ways: (1) woody root crowns or burls below the soil surface that survive a fire and resprout; and (2) shrubs (various species of *Manzanita* and *Ceanothus*) that are killed by fire and produce seeds requiring intense heat from a fire to germinate.¹⁰ Additionally, many species of conifers have seed cones that require fire to open in order for them to reproduce.¹¹ Between 2010 and 2017, wildfires in California burned about 265,000 acres of forest land, 207,000 acres of scrub vegetation, 99,000 acres of grassland, 18,000 acres of desert vegetation, and 14,000 acres of other vegetation types.¹² Wildfires have been observed to be more frequent and growing in intensity the past several years, particularly in the State of California where prolonged drought and hot, dry temperatures have been common.

Wildfire Causes

Although the term *wildfire* suggests natural origins, a 2017 study that evaluated 1.5 million wildfires in the United States between 1992 and 2012 found that humans were responsible for igniting 84 percent of

⁸ Natural Resources Canada. 2018. Fire Behavior, <https://www.nrcan.gc.ca/forests/fire-insects-disturbances/fire/13145>, accessed on December 21, 2018.

⁹ California Department of Forestry and Fire Prevention (CAL FIRE). 1999. Learning to Live with Fire, http://www.fire.ca.gov/communications/downloads/live_w_fire.pdf, accessed on April 8, 2019.

¹⁰ Rundel, Philip, and Gustafson, Robert. 2005. *Introduction to the Plant Life of Southern California*. Berkeley and Los Angeles, California: University of California Press.

¹¹ California Department of Forestry and Fire Prevention (CAL FIRE). 1999. Learning to Live with Fire, http://www.fire.ca.gov/communications/downloads/live_w_fire.pdf, accessed on April 8, 2019.

¹² State Board of Forestry and Fire Protection and California Department of Forestry and Fire Prevention (CAL FIRE). 2018. *2018 Strategic Fire Plan for California*, <http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf1614>. Pdf, accessed on April 8, 2019.

wildfires, accounting for 44 percent of acreage burned.¹³ The three most common types of human-caused wildfires are debris burning (logging slash, farm fields, trash, etc.); arson; and equipment use.¹⁴ Power lines can also ignite wildfires through downed lines, vegetation contact, conductors that collide, and equipment failures.¹⁵ CAL FIRE determined that 16 wildfires in northern California in October 2017 were caused by electric power and distribution lines, conductors, and the failure of power poles.^{16,17} Lightning is the most common cause of nature-induced wildfire.¹⁸

An analysis of US Forest Service wildfire data from 1986 to 1996 determined that 95 percent of human-caused wildfires and 90 percent of all wildfires was within 0.5 mile of a road, and that about 61 percent of all wildfires and 55 percent of human-caused wildfires occurred within approximately 650 feet (200 meters) of a road. The study concluded that the increase in human-caused ignition greatly outweighs the benefits of increased access for firefighters.¹⁹

There are three primary methods of wildfire spread:

- **Embers.** Embers are the most prolific cause of home ignition, at a rate of two out of every three homes destroyed. Embers are glowing or burning pieces of vegetation or construction debris that are lofted during a wildfire and can move up to a mile ahead of a firestorm. These small embers or sparks may fall on the vegetation near a home (on dry leaves, needles, or twigs on the roof) and subsequently ignite the home. Ember storms place at potential risk all structures without fire-resistant landscaping and construction that are within miles of the fire.
- **Direct Flame Contact.** Direct flame impingement refers to the transfer of heat by direct flame exposure. Direct contact will heat the building materials of the home, and if the time and intensity of exposure is severe enough, windows will break and materials will ignite.
- **Radiant Heat.** A house can catch fire from the heat that is transferred to it from nearby burning objects, even in the absence of direct flames or embers. By creating defensible space around homes,

¹³ Balch, Jennifer; Bradley, Bethany; Abatzoglou, John, et. al. 2017, March 14. Human-Started Wildfires Expand the Fire Niche Across the United States. Proceedings of the National Academy of Sciences (PNAS): Volume 114 No. 11, <https://www.pnas.org/content/pnas/114/11/2946.full.pdf>, accessed on December 20, 2018.

¹⁴ Pacific Biodiversity Institute. 2007. Roads and Wildfires, http://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf, accessed on April 12, 2019.

¹⁵ Texas Wildfire Mitigation Project. 2018. How Do Power Lines Cause Wildfires? <https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires>, accessed on April 12, 2019.

¹⁶ California Department of Forestry and Fire Prevention (CAL FIRE). 2018, June 1. CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf, accessed on April 12, 2019.

¹⁷ California Department of Forestry and Fire Prevention (CAL FIRE). 2018, May 25. CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties, [https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause%20v2%20AB%20\(002\).pdf](https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause%20v2%20AB%20(002).pdf), accessed on April 12, 2019.

¹⁸ Balch, Jennifer; Bradley, Bethany; Abatzoglou, John, et. al. 2017, March 14. Human-Started Wildfires Expand the Fire Niche Across the United States. Proceedings of the National Academy of Sciences (PNAS): Volume 114 No. 11. <https://www.pnas.org/content/pnas/114/11/2946.full.pdf>, accessed on December 20, 2018.

¹⁹ Pacific Biodiversity Institute. 2007. Roads and Wildfires, http://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf, accessed on April 12, 2019.

WILDFIRE

the risk from radiant heat is significantly reduced. A home with 100 feet of clearance from forest or shrubs will usually have minimal impact from radiant heat or direct flame.²⁰

Wildfire season in the Western US recently has lengthened from an average of between five and seven months to year-round. The number of large wildfires in California (i.e., greater than 1,000 acres) has increased from approximately 25 to 55 per year since the 1960s.²¹ At the same time, the average annual temperature in the Western US has risen by nearly two degrees Fahrenheit since the 1970s, and the winter snowpack has declined.²² The encroachment of urban development into wildland areas has been another contributing factor.

Frequent wildfires reduce recovery of shrubs and trees—especially shrubs and trees that must produce seeds to regenerate. Wildfires also increase invasion of nonnative grasses, resulting in the conversion of native shrublands to nonnative grassland.²³ Nonnative grasses are generally more flammable than the chaparral and sage scrub vegetation that is replaced; thus, such conversion exacerbates wildfire hazards.²⁴

Secondary Effects

Secondary effects of wildfire include debris flows postfire and air pollution from the smoke generated by fires. The following sections describe the hazardous conditions created by these secondary wildfire effects.

Debris Flows

Postfire landslide hazards include fast-moving, highly destructive debris flows that can happen soon after wildfires in response to high intensity rainfall events, and flows that are generated over a longer time because of root decay and loss of soil strength. Fires increase the potential for debris flows by increasing the imperviousness of soil so that it repels water, and by destroying vegetation that would slow and absorb rainfall, and whose roots would help stabilize soil.²⁵ The burning of vegetation and soil on slopes more than doubles the rate that water will run off into watercourses.²⁶ Postfire debris flows are particularly hazardous because they can occur with little warning, exert great impulsive loads on objects in their paths, strip vegetation, block drainage ways, damage structures, and endanger human life. Debris flows differ from mudflows in that debris flows are composed of larger particles. Postfire debris flows are

²⁰ City of San Rafael. 2019. Wildfire Prevention and Protection Action Plan.

²¹ State Board of Forestry and Fire Protection and California Department of Forestry and Fire Prevention (CAL FIRE). 2018. 2018 Strategic Fire Plan for California, page 7.

²² State Board of Forestry and Fire Protection and California Department of Forestry and Fire Prevention (CAL FIRE). 2018. 2018 Strategic Fire Plan for California.

²³ US Geological Survey. 2012. Fire-Driven Alien Plant Invasion in a Fire-Prone Community, http://www.californiachaparral.com/images/Fire_driven_alien_plants_Brief.pdf, accessed on April 12, 2019.

²⁴ See University of California Division of Agriculture and Natural Resources (ANR). 2009. Invasive Plants and Wildfires in Southern California, <https://anrcatalog.ucanr.edu/pdf/8397.pdf>, accessed on April 12, 2019.

²⁵ US Geological Survey. 2018. New post-wildfire resource guide now available to help communities cope with flood and debris flow danger, https://www.usgs.gov/center-news/post-wildfire-playbook?qt-news_science_products=1#qt-news_science_products, accessed on December 27, 2018.

²⁶ California Geological Survey. 2018. Post-Fire Debris Flow Facts, <https://www.conservation.ca.gov/index/Pages/Fact-sheets/Post-Fire-Debris-Flow-Facts.aspx>, accessed on December 20, 2018.

most common in the two years after a fire; they are usually triggered by heavy rainfall. It takes much less rainfall to trigger debris flows from burned basins than from unburned areas.

Debris flows are considered a type of landslide, which is defined as a mass-movement process that generates a down-slope movement of mud, soil, rock, and/or vegetation.²⁷ Debris flows occur when surface soils become completely saturated by intense rainstorms and break away from the hillside. These flows are highly fluid, and therefore follow the gulches and creek canyons to the base of the slope.²⁸ Areas with steep slopes are typically within debris flow areas.

Air Pollution

Smoke is made up of a complex mixture of gases and fine particles produced when wood and other organic materials burn. The biggest health threat from smoke is from fine particles (PM_{2.5}), which are microscopic particles that can penetrate the lungs and cause a range of health problems, from burning eyes and a runny nose to aggravated chronic heart and lung diseases. Exposure to particulate pollution is even linked to premature death. Some populations are more sensitive than others to smoke—for instance, people with heart or lung diseases, the elderly, children, people with diabetes, and pregnant women.²⁹

Fire Protection Resources

The SRFD provides fire protection and prevention services in the EIR Study Area and operates six fire stations and one fire administration office. The SRFD, along with a vegetation management specialist, vegetation management inspector, and two open-space rangers with the San Rafael Police Department, manage fire prevention efforts throughout the city. Existing programs include monthly chipper days, WUI home inspections, and removal of dangerous items at encampments that pose immediate fire risks.³⁰ In addition, because wildfires do not respect jurisdictional boundaries, the SRFD recently introduced a proposed plan to create a new joint powers authority with the MWPA to improve regional wildfire prevention efforts. A description of fire protection resources in San Rafael as it relates to the impacts to the SRFD is provided in Chapter 4.15, Public Services and Parks and Recreation, of this Draft EIR.

EIR Study Area

Wildfire History

The City of San Rafael 2017 LHMP describes two wildfire disaster declarations in Marin County and eight wildfires in the county from 1919 to 2016. Two of the eight wildfires were within close proximity to the city of San Rafael (Kent Woodlands Wildfire, 1972; Sorich Park Wildfire, 1976).

²⁷ Foster Morrison. 2017. *City of San Rafael Local Hazard Mitigation Plan*.

²⁸ Foster Morrison. 2017. *City of San Rafael Local Hazard Mitigation Plan*.

²⁹ Airnow. 2018. How Smoke from Fires Can Affect Your Health, <https://airnow.gov/index.cfm?action=smoke.index>, accessed on December 21, 2018.

³⁰ City of San Rafael. 2019. *Wildfire Prevention and Protection Action Plan*.

WILDFIRE

The LHMP also describes three structural fires that in the city, including the Downtown Fire in July 1957, the Courthouse Fire in May 1971, and the Marin History Museum Fire in July 1990.³¹ CAL FIRE's *Historic Wildfire Perimeters (1950–2017)* database shows three additional fires within the city limits: Margarita Drive Fire in 1968, San Rafael Assist Fire in 1975, and the San Rafael Hill fires in 2000 and 2001.³² One additional fire occurred in June 2018 on lands within Boyd Park and burned approximately 13 acres.

Wildfire Hazards

The EIR Study Area is not in an FRA but contains land in an SRA and LRA, as shown on Figure 4.18-1. The SRA includes approximately 6,457 acres in the Sun Valley, Santa Venetia, China Camp, and Lucas Valley neighborhoods.³³ The LRA covers the remaining acreage within the city, approximately 14,169 acres.³⁴

As shown on Figure 4.18-1, the approximately 6,457 acres within the SRA are designated as a moderate fire hazard severity zone. The land in the LRA has 8,315 acres that are not within a fire hazard severity zone, 3,467 acres in a moderate fire hazard severity zone, and 2,387 acres in a high fire hazard severity zone.³⁵ There is no acreage in the EIR Study Area classified by the State of California as being a VHFHSZ.

According to Cal OES, a WUI is defined as any area where structures and other human development meet or intermingle with wildland vegetation.³⁶ Developments in the WUI exacerbate fire occurrence and fire spread in several ways, including:

- Increased numbers of human-caused wildfires.
- Wildfires become harder to fight.
- Firefighting resources are diverted from containing the wildfire to protecting lives and homes.
- Letting natural fires burn becomes impossible, leading to buildup of fuel and increasing wildfire hazard further.³⁷

Increased fire frequency tends to eliminate and replace native shrubs with weedy, highly flammable annual grasslands.³⁸

³¹ Foster Morrison. 2017. *City of San Rafael Local Hazard Mitigation Plan*, pages 4-91 to 4-100.

³² California Department of Forestry and Fire Protection. 2018. *Historic Wildfire Perimeters (1950-2017) Database*. <http://www.arcgis.com/home/item.html?id=853e0aa557e54adc95c9e9c68b585889>, accessed April 12, 2019.

³³ Marin County. 2017. *Fire Hazard Severity Zone*. <http://www.arcgis.com/home/item.html?id=0683285b35354c18a93de194a8e3b70d>, accessed April 17, 2019.

³⁴ Marin County. 2017. *Fire Hazard Severity Zone*. <http://www.arcgis.com/home/item.html?id=0683285b35354c18a93de194a8e3b70d>, accessed April 17, 2019.

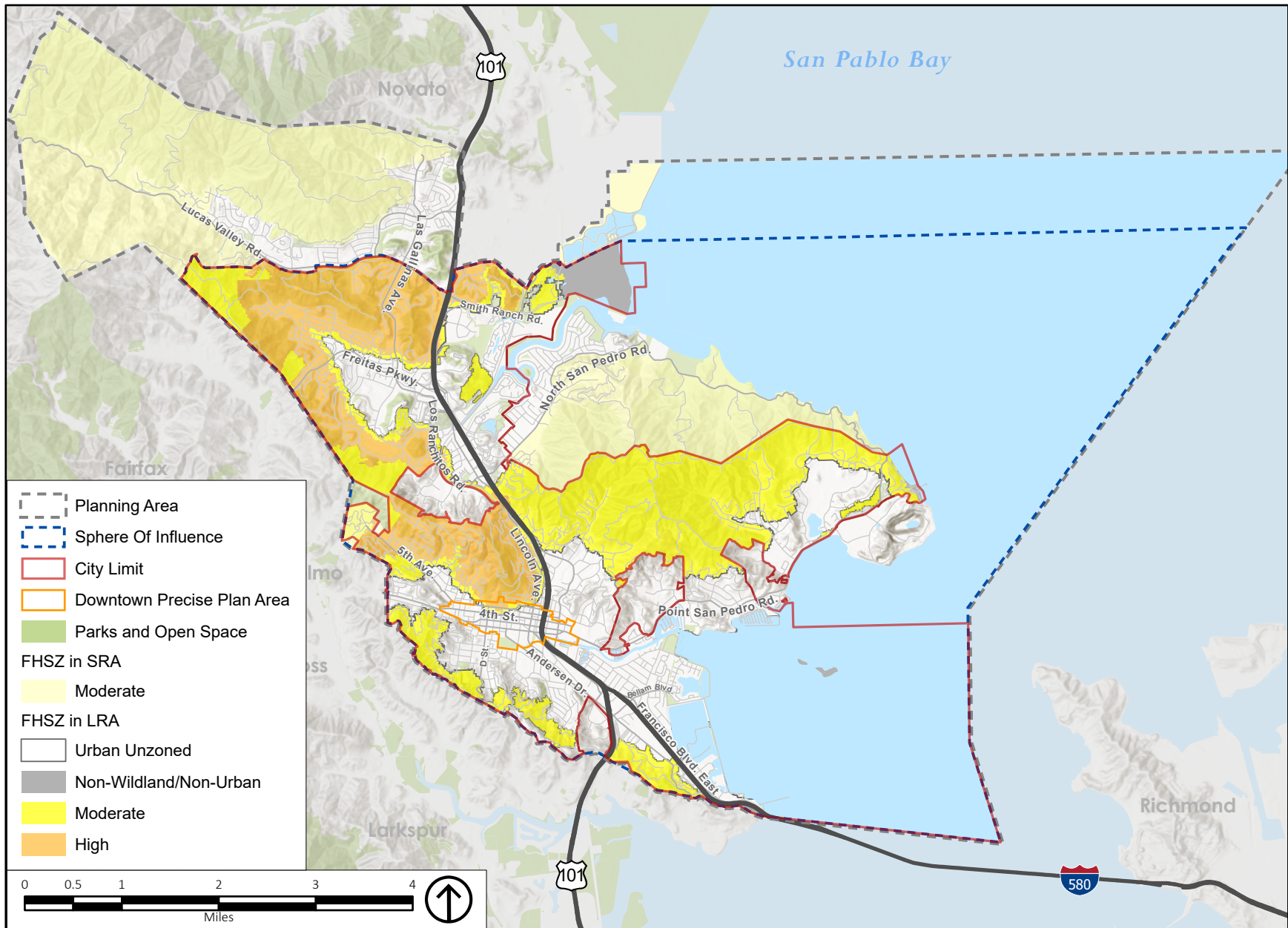
³⁵ Marin County. 2017. *Fire Hazard Severity Zone*. <http://www.arcgis.com/home/item.html?id=0683285b35354c18a93de194a8e3b70d>, accessed April 17, 2019.

³⁶ Cal OES. 2018. *California State Hazard Mitigation Plan*.

³⁷ Radeloff, Volker; Helmers, David; Kramer, H., et al. 2018. Rapid Growth of the US Wildland-Urban Interface Raises Wildfire Risk. *Proceedings of the National Academy of Sciences (PNAS)*: Volume 115 No. 13, <https://www.pnas.org/content/pnas/115/13/3314.full.pdf>, accessed on April 18, 2019.

³⁸ US Geological Survey. 2012. Why Are Biologists Studying Housing Loss from Wildfires? <https://www.usgs.gov/center-news/why-are-biologists-studying-housing-loss-wildfires>, accessed on April 18, 2019.

WILDFIRE



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.18-1

Wildfire Responsibility Areas and Fire Hazard Severity Zones

WILDFIRE

Approximately 6,000 acres of land within San Rafael is in the WUI, as shown on Figure 4.18-2.³⁹ Land uses in the WUI consist of approximately 3,960 acres of residential uses and approximately 2,025 acres of industrial, commercial, and open space uses. According to the WPPAP, the City's current wildfire prevention efforts are focused on the WUI.⁴⁰

The unincorporated portion of the EIR Study Area is primarily within moderate fire hazard severity zones, as shown previously on Figure 4.18-1, and is under the County's jurisdiction and therefore regulated under the Marin CWPP, the Local Wildfire Prevention and Mitigation Initiative and Marin Wildfire Prevention Authority, and CAL FIRE.

Landcover and Vegetation

As described in more detail in Chapter 4.4, Biological Resources, of this Draft EIR, the EIR Study Area contains 12 vegetation communities, but nearly 38 percent of the plantings consist of urban and barren vegetation communities. The dominant nonurban vegetation types in the remaining 62 percent of the EIR Study Area consist of oak woodland (26 percent), annual grassland (14 percent), hardwood-conifer (11 percent), and saline marsh (6 percent). The remaining 5 percent of vegetation consists of coastal scrub, mixed chaparral, riparian woodland, lacustrine, freshwater marsh, eucalyptus, and cropland.

Slopes

Slope is a measure of land steepness, and wildfire intensity and rate of spread increase as slope increases due to the tendency of heat to rise via convection.⁴¹ For example, as slope increases from 20 to 40 percent, flame heights can double, and rates of fire spread can increase fourfold; from 40 to 60 percent, flame heights can become three times higher, and rates of spread can increase eightfold.⁴² The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes. The topography in the EIR Study Area is diverse, with rolling hills, valleys, and ridges that trend from the northwest to the southeast. Areas with steep slopes in the EIR Study Area include Terra Linda and Sleepy Hollow Open Space Area in the northwest corner of the EIR Study Area, Southern Heights Ridge on the southwestern edge of the EIR Study Area, and Black Canyon and San Pedro Mountain in the eastern portion of the EIR Study Area. These areas would also be more susceptible to debris flow after a fire.

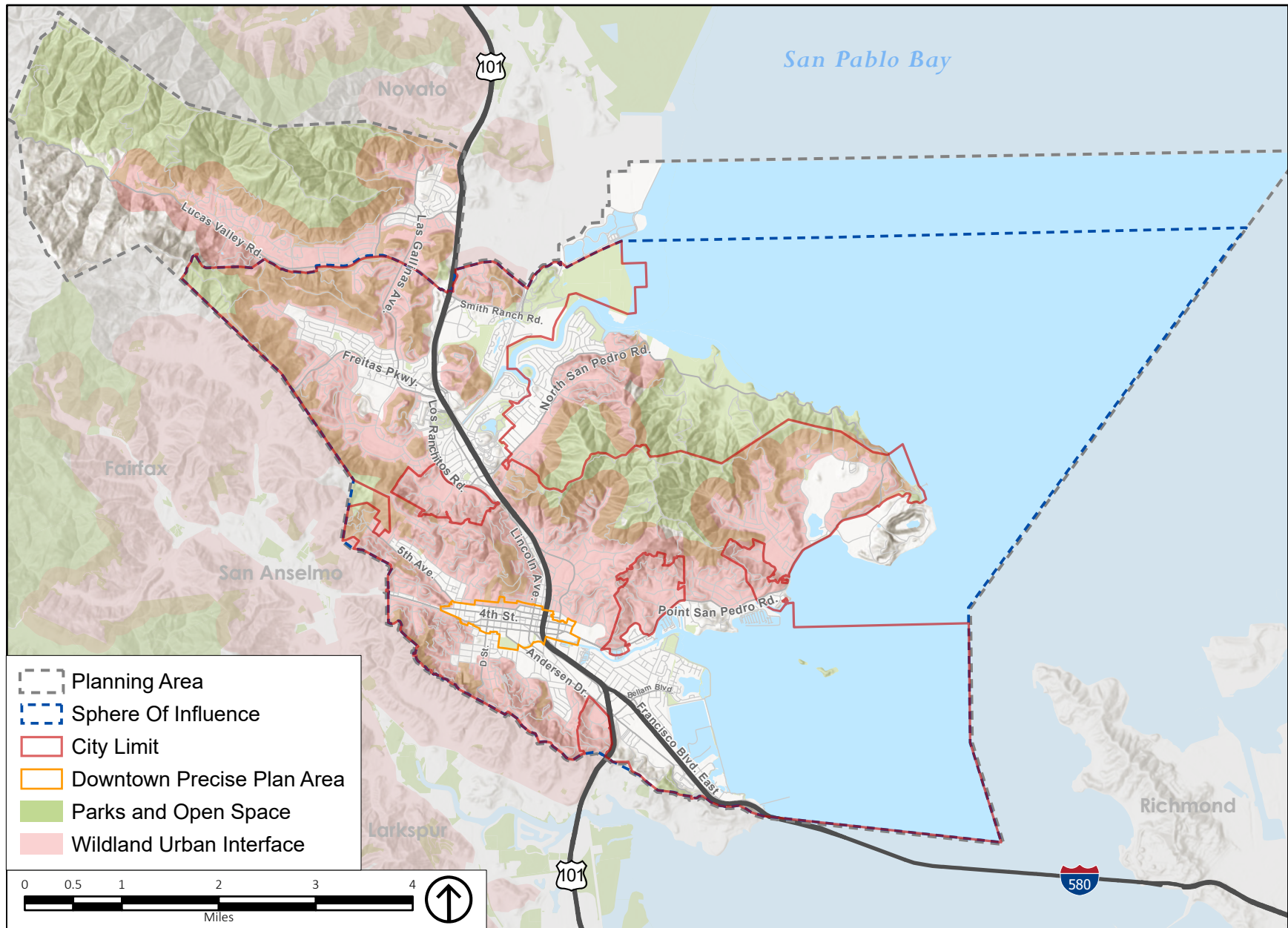
³⁹ County of Marin. 2019. Urban-Wildland Interface. <http://www.marinmap.org/dnn/DataServices/GISDataDownload.aspx>, accessed April 17, 2019.

⁴⁰ City of San Rafael. 2019. *Wildfire Prevention and Protection Action Plan*.

⁴¹ Foster Morrison. 2017. *City of San Rafael Local Hazard Mitigation Plan*.

⁴² Marin County Fire Department. 2016. *Community Wildfire Protection Plan*.

WILDFIRE



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.18-2
Wildland Urban Interface

WILDFIRE

Prevailing Winds

Prevailing winds are considered the wind pattern from the direction that is predominant at a place or season. Winds in the EIR Study Area can be characterized as nontornadic (straight-line) winds, which can exacerbate fire conditions by drying out the vegetation, increasing fuel in the region, and increasing the intensity of existing fires.⁴³ Prevailing wind patterns consist of wind from the west from February to November, and winds from the north from November to February.⁴⁴ The windier part of the year is from February to July, with average wind speeds of 8.0 miles per hour, and the calmer wind months are from July to February, with an average wind speed of 6.9 miles per hour.⁴⁵

Downtown Precise Plan Area

Wildfire History

There are no known wildfires that have occurred in the Downtown Precise Plan Area.

Wildfire Hazards

As shown on Figure 4.18-3, the Downtown Precise Plan Area contains both high and moderate fire hazard severity zones along the northern edge of the boundary. As shown on Figure 4.18-4, the northern, western, and southwestern portions of the Downtown Precise Plan Area are in the WUI.

Landcover and Vegetation

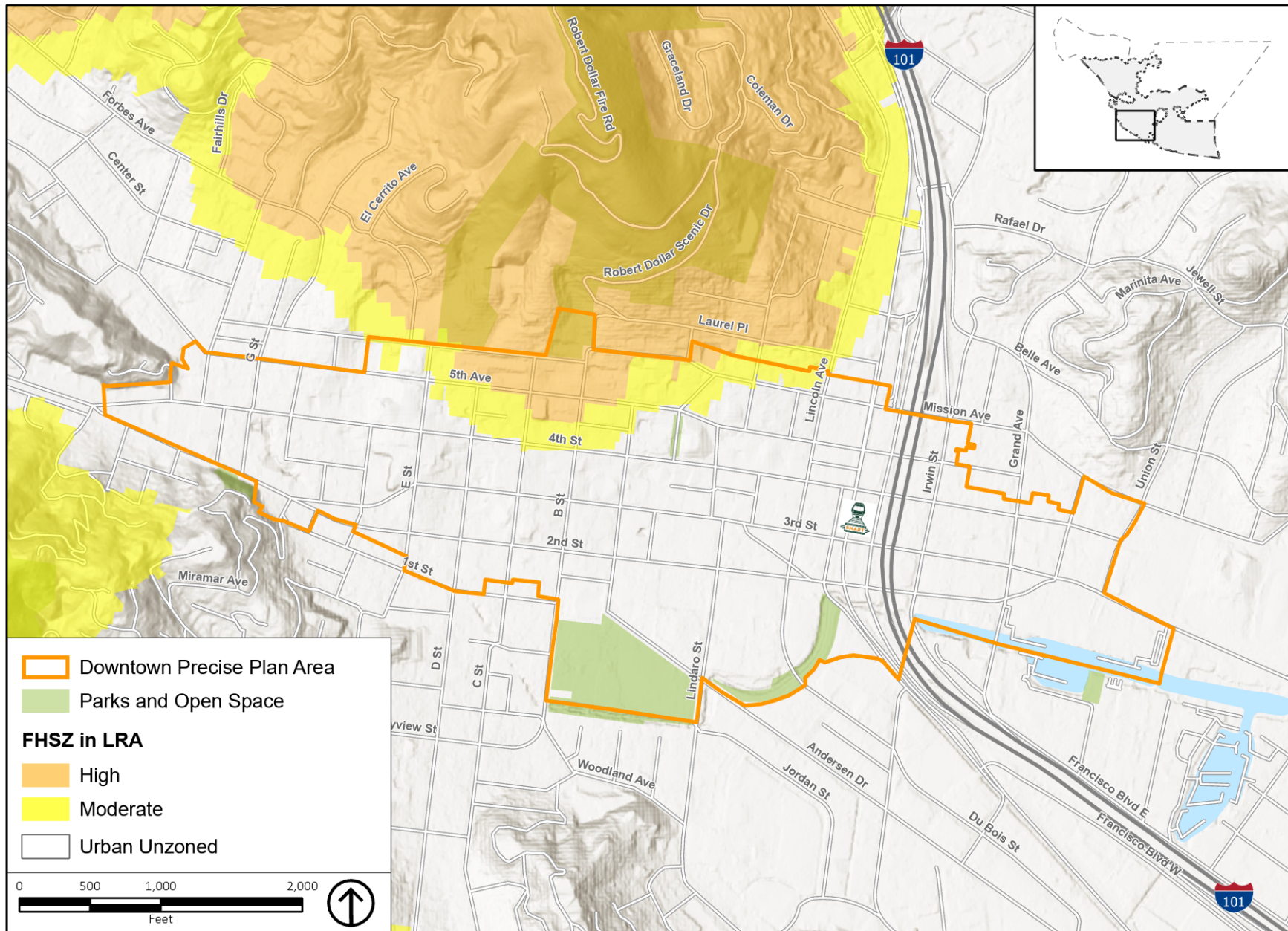
The Downtown Precise Plan Area is designated as an urban, built-out portion of San Rafael. As such, there is little existing natural vegetation within the Downtown Precise Plan Area boundary. Vegetation in the Downtown Precise Plan Area is primarily associated with street trees and associated landscaping. Natural vegetation does exist on San Rafael Hill, which sits on the northern boundary of the Downtown Precise Plan Area. As described in Chapter 4.4, Biological Resources, of this Draft EIR, the vegetation cover of San Rafael Hill consists entirely of oak woodland.

⁴³ Foster Morrison. 2017. *City of San Rafael Local Hazard Mitigation Plan*.

⁴⁴ Weather Spark. 2016. Average Weather in San Rafael California, United States. <https://weatherspark.com/y/562/Average-Weather-in-San-Rafael-California-United-States-Year-Round>, accessed on April 18, 2019.

⁴⁵ Weather Spark. 2016. Average Weather in San Rafael California, United States. <https://weatherspark.com/y/562/Average-Weather-in-San-Rafael-California-United-States-Year-Round>, accessed on April 18, 2019.

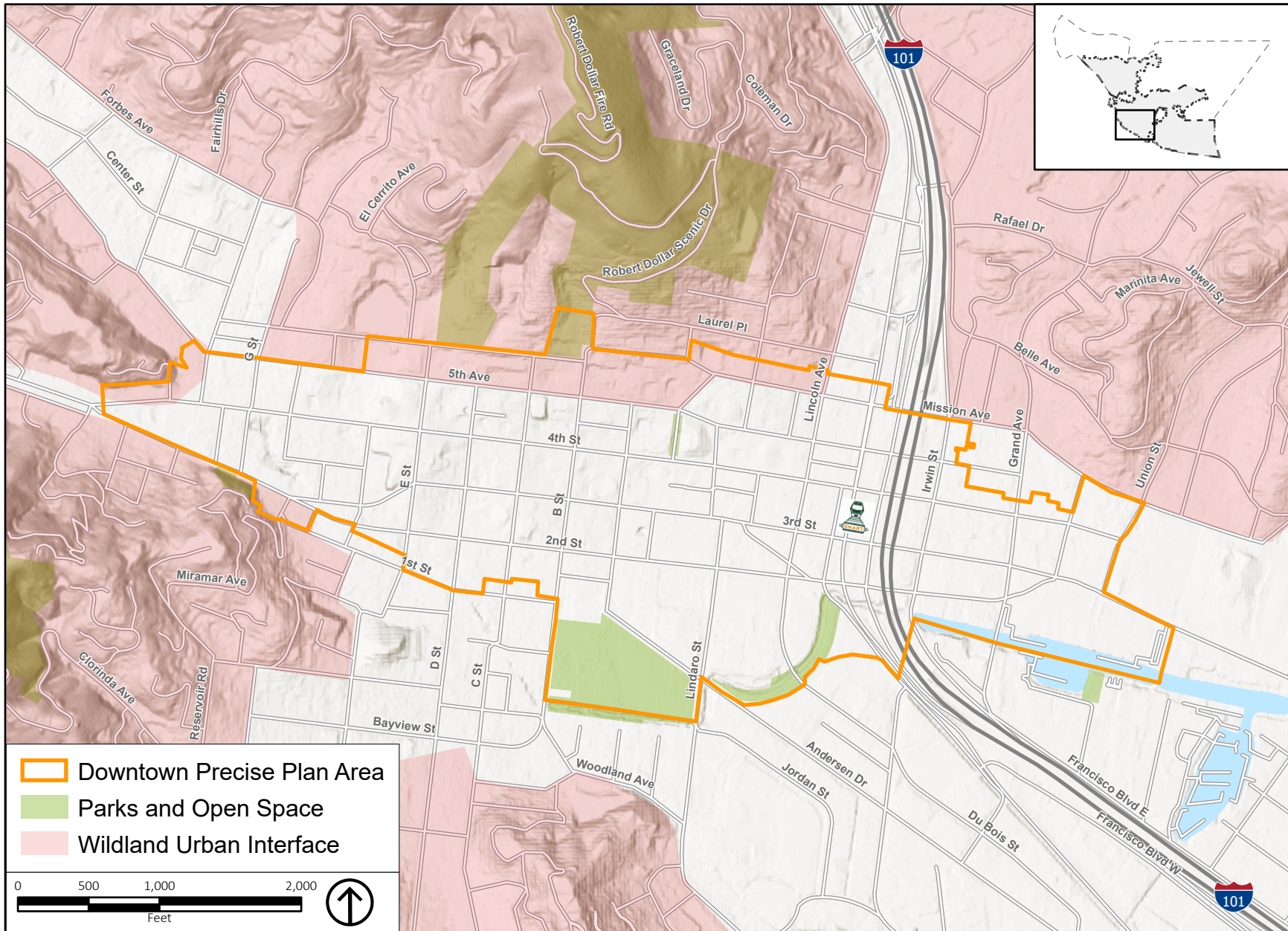
WILDFIRE



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.18-3
Downtown Wildfire Responsibility Areas and Fire Hazard Severity Zones

WILDFIRE



Source: ESRI, 2017; County of Marin, 2009; City of San Rafael, 2019; PlaceWorks, 2019.

Figure 4.18-4
Downtown Wildland Urban Interface

Slopes

The Downtown Precise Plan Area has zero to gentle slopes.⁴⁶ Approximately 92 percent of the Downtown Precise Plan Area contains slopes ranging from 0 to 9 percent to the south between First Street on the southern boundary and Fourth Street towards the north. The additional 8 percent of the Downtown Precise Plan Area ranges from 15 to 50 percent.⁴⁷ The northern boundary of the Downtown Precise Plan Area sits at the base of the San Rafael Hill, which has a slope of 50 percent or more at Boyd Park. Therefore, the portion of the Downtown Precise Plan Area which slopes between 15 and 50 percent is concentrated north of Fourth Street until reaching the base of San Rafael Hill.

Prevailing Winds

Wind patterns are uniform for the entire EIR Study Area. As discussed above, prevailing wind patterns consist of wind from the west or north with average wind speeds between 6.9 and 8.0 miles per hour.

4.18.2 STANDARDS OF SIGNIFICANCE

Pursuant to Appendix G, Environmental Checklist Form, of the California Environmental Quality Act (CEQA) Guidelines, implementation of the proposed project, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would result in significant wildfire impacts if it would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.
5. Result in significant cumulative impacts related to wildfire.

4.18.3 IMPACT DISCUSSION

The standards of significance listed in Section 4.18.2, apply to projects that are within or near lands within the SRA or lands that are within a VHFHSZ. As shown on Figure 4.18-1, the EIR Study Area is within the SRA, and as shown on Figure 4.18-2, a large portion of the EIR Study Area is within the WUI. Therefore, the standards of significance in Section 4.18.2 apply to the proposed project.

⁴⁶ USDA, Natural Resource Conservation Service. 2017. Web Soil Survey (WSS). <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, accessed on April 22, 2019.

⁴⁷ USDA, Natural Resource Conservation Service. 2017. Web Soil Survey (WSS). <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, accessed on April 22, 2019.

WILDFIRE

FIRE-1 Implementation of the proposed project could substantially impair an adopted emergency response plan or emergency evacuation plan.

General Plan 2040

As discussed in Section 4.18.1.1, Regulatory Framework, the Marin OES provides emergency management and recovery services through the Marin ERP and the Marin Emergency Operations Plan (EOP). All cities and towns within Marin County participate in the regional coordination of emergency management activities by Marin OES. As described in Impact Discussion HAZ-6 in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, implementation of the proposed General Plan 2040 would not impair implementation of or physically interfere with either the Marin ERP or the Marin EOP.

At the local level, San Rafael is responsible for managing emergency preparedness, response, and evacuation through the LHMP. As discussed above in Section 4.18.1.1, Regulatory Framework, the City of San Rafael LHMP includes actions that support emergency response in the event of a disaster, including wildfire. LHMP Action 1 requires the integration of the LHMP into the Safety and Resilience Element of the General Plan 2040, and Actions 2 and 3 instruct the City to adequately prepare both first responders and the community on emergency evacuations in the event of a natural disaster.

LHMP Action 43 instructs the City to adopt a WPPAP and this was accomplished in August 2020 as described above in Section 4.18.1.1, Regulatory Framework. The WPPAP is San Rafael's master plan and framework to address all phases of a wildfire disaster: mitigation, preparedness, response, and recovery. The framework of the WPPAP is outlined through a series of objectives organized into three categories. Category 3, Notifications and Evacuation, includes several objectives that are focused on maintaining clear routes for emergency vehicle access, improving public emergency alerting capabilities, supporting neighborhood evacuation drills, reviewing and expanding evacuation plans as needed, ensuring safe and resilient critical infrastructure, and limiting design review provisions. Action 32 of the WPPAP specifically states that the City shall review Countywide evacuation plans and expand existing plans to address San Rafael's unique needs which would establish additional transportation network redundancies and potentially reduce the burden on a single egress artery during an emergency. Further, as stated in Section 4.18.1.1, Marin County residents approved Measure C to fund proactive state-of-the-art wildfire prevention and preparedness efforts in Marin County which includes a key initiative aimed to improve evacuation routes and infrastructure to enhance traffic flow and promote safe evacuations.

The proposed Safety and Resilience (S) Element contains goals, policies, and programs that require local planning and development decisions to take into account existing plans related to wildfire. The following General Plan goals, policies, and programs would serve to ensure that future development takes existing plans into account:

Goal S-1: A Safer, More Resilient City. Minimize San Rafael's vulnerability to the impacts of environmental hazards and public health emergencies.

- **Policy S-1.1: Local Hazard Mitigation Plan (LHMP).** The San Rafael LHMP is adopted by reference into the General Plan. Policies and actions throughout the General Plan shall be consistent with the LHMP and support its goals and objectives.

WILDFIRE

- **Program S-1.1A: LHMP Mitigation Action Plan.** Implement the Mitigation Action Plan in the LHMP. The City will consider opportunities to advance each action through operating procedures, development approvals, budgets, public education, and capital improvement projects.
- **Program S-1.1B: Mitigation Program Funding.** Develop an overall funding strategy to prioritize and pursue mitigation projects, including identification and tracking of grants and regular coordination with FEMA and State hazard mitigation agencies.
- **Program S-1.1C: LHMP Updates.** Periodically update the Local Hazard Mitigation Plan to reflect new data, technology, available resources, partnership opportunities, and state and federal requirements.
- **Program S-1.4A: LHMP Amendments.** Amend local emergency preparedness documents as needed to address public health emergencies, including communication protocol, emergency operating procedures, and provisions for sheltering-in-place.

Goal S-4: A Fire-Safe Community. Minimize injury, loss of life, and damage to property resulting from wildland fire hazards.

- **Policy S-4.1: Wildfire Hazards.** Continue vegetation management and maintenance programs to reduce the destructive potential of wildfires.
 - **Program S-4.1A: Wildfire Prevention and Protection Action Plan.** Implement the Wildfire Prevention and Protection Action Plan (August 2020) in a manner consistent with the direction provided by the San Rafael City Council.

Additional General Plan 2040 policies and programs related to emergency response and evacuation are included in the Land Use (LU), Mobility (M), and Community Services and Infrastructure (CSI) Elements. Such policies and programs address emergency access, adequate emergency facilities and response times, and the density of development to ensure growth in San Rafael does not block emergency services access in the event of an emergency. Such policies and programs include:

Goal LU-1: Well-Managed Growth. Grow and change in a way that serves community needs, improves fiscal stability, and enhances the quality of life.

- **Policy LU-1.8: Density of Residential Development.** Use the density ranges in the Land Use Element to determine the number of housing units allowed on properties within the Planning Area. The following provisions apply:
 - The density “range” includes a maximum and minimum. A given General Plan designation may have multiple corresponding zoning districts, including at least one district in which the maximum density may be achieved. Other zoning districts may have maximum densities that are less than the maximum indicated by the General Plan.
 - The number of units permitted on a given parcel may be affected by site resources and constraints, potentially hazardous conditions, climate-related factors (sea level rise, fire hazards, etc.), traffic and access (including wildfire evacuation constraints), the adequacy of infrastructure, City design policies, and prevailing densities in adjacent areas.
 - The maximum net density shown on the General Plan excludes density bonuses that may be provided for affordable housing or other community benefits, in accordance with State law and local housing policies.

WILDFIRE

- As required by State law, an accessory dwelling unit (ADU) or junior ADU shall not be counted as a dwelling unit for the purposes of calculating net density.
- Areas in the “Downtown” General Plan category shall be exempt from the requirements of this policy and are instead subject to standards defined by the Downtown San Rafael Precise Plan.
- **Policy LU-1.10: Intensity of Non-Residential Development.** Use the Floor Area Ratio limits on Figure 3-2 to determine the square footage of building space allowed on properties with non-residential General Plan designations. The following provisions apply:
 - As with density, FAR is calculated on a “net” basis, and is based on the area of each parcel excluding streets and easements.
 - The maximum FAR stated by the General Plan is not guaranteed. The square footage permitted on a given parcel may be affected by site resources and constraints, potentially hazardous conditions, climate-related factors (sea level rise, fire hazards, etc.), traffic and access (including wildfire evacuation constraints), the adequacy of infrastructure, and City design policies.
 - The maximum FARs shown in Figure 3-2 exclude any residential development on the property. In the event that residential uses or mixed use projects are proposed on these sites, the maximum area is the sum of the FAR allowance plus the residential density allowance for the property. This Clause does not apply to Downtown San Rafael, which is regulated by the Downtown Precise Plan.

Goal M-2: Improved Transportation Efficiency and Access. Sustain an efficient, cost-effective transportation network that continuously improves mobility and accessibility for all users.

- **Policy M-2.8: Emergency Access.** Identify alternate ingress and egress routes (and modes of travel) for areas with the potential to be cut off during a flood, earthquake, wildfire, or similar disaster.

Goal CSI-3: Exceptional Public Safety Services. Provide and maintain exceptional fire, public safety, and paramedic services.

- **Policy CSI-3.2: Mitigating Development Impacts.** Engage the Police and Fire Departments in the review of proposed development and building applications to ensure that public safety, fire prevention, and emergency access and response needs are considered and effectively addressed.
 - **Program CSI-3.1B: Capital Facilities.** Complete improvements to essential public safety facilities made possible by voter-approved measures. Conduct periodic evaluations of facility and technology needs in the future to ensure that the Police and Fire Departments are equipped to respond to emergencies and deliver quality services.
 - **Program CSI-3.2B: Emergency Response Time.** Use the development review process to identify appropriate measures to reduce fire hazards and ensure adequate emergency response capacity.
- **Policy CSI-3.6: Mutual Aid.** Maintain mutual aid agreements for police and fire service with other jurisdictions and community service districts to ensure that the capacity exists to adequately respond to local emergencies.

As discussed in Section 4.18.1.1, Regulatory Framework, there are various local, regional, and State agencies that have adopted plans relevant to emergency response and evacuation. Implementation of General Plan 2040 would include the requirement to comply with all existing adopted regulations, which include the 2019 California Fire Code and the 2019 California Building Code regulations, the Marin ERP, the Marin EOP, the SRMC, the LHMP, and the WPPAP. Each of these documents incorporate emergency

WILDFIRE

response and evacuation provisions to ensure existing and future development comply with best management practices. As discussed in Chapter 3, Project Description, of this Draft EIR, potential future development is expected to occur in existing urban areas and would be concentrated on a limited number of vacant parcels in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing residential and residential-serving development. All future development, regardless of the location, is required to comply with adopted local, regional, and State plans and regulations addressing emergency response and evacuation. As such, and as determined in Impact Discussion HAZ-6 in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, implementation of General Plan 2040 would not substantially impair an adopted emergency response or emergency evacuation plan, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to wildfires. Same as potential future development in the remainder of the city, the potential future development in the Downtown Precise Plan Area would be required to comply with adopted local, regional, and State plans and regulations addressing emergency response and evacuation. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, like the General Plan 2040, implementation of the Downtown Precise Plan would not substantially impair an adopted emergency response or emergency evacuation plan, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

FIRE-2	Implementation of the proposed project could, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
---------------	---

General Plan 2040

Pursuant to the 2015 *California Building Industry Association v. Bay Area Air Quality Management District* case, CEQA applies to a project's impacts on the environment and not the environment's impacts on the project, unless the project would exacerbate the environmental hazard.⁴⁸ Implementation of General Plan 2040 would result in a significant impact if it would exacerbate wildfire risks due to site characteristics such as slope, prevailing winds, or vegetation.

The proposed Safety and Resilience (S) Element and the Conservation and Climate Change (C) Element contain goals, policies, and programs that require local planning and development decisions to consider

⁴⁸ California Supreme Court, 2015, *California Building Industry Association v. Bay Area Air Quality Management District*, Opinion No. S213478, date filed December 17, 2015.

WILDFIRE

the risk of wildfire hazards. In addition to the goals, policies, and programs listed in Impact Discussion FIRE-1, the following General Plan goals, policies, and programs would serve to minimize potential adverse impacts from wildfire hazards:

Goal S-4: Reduction of Wildfire Hazards. Minimize injury, loss of life, and damage to property resulting from wildland fire hazards.

- **Policy S-4.1: Wildfire Hazards.** Continue vegetation management and maintenance programs to reduce the destructive potential of wildfires.
 - **Program S-4.1B: Fire Hazard Maps.** Maps identifying potential fire hazard areas in San Rafael. Use these maps for vegetation management and planning purposes.
 - **Program S-4.1C: Fire Protection Ordinance.** Continue to implement Municipal Code standards to reduce fire hazards in areas, including vegetation management requirements and the designation of a Wildland-Urban Interface (WUI) Zone. Periodically update these standards and the WUI map to implement Wildfire Action Plan measures and other programs to further reduce wildfire risks.
 - **Program S-4.1D: Wildfire Fuel Breaks.** Where necessary, create new fuel interruption zones in Wildland Urban Interface areas and maintain and expand zones that are already in place. Highly flammable exotic vegetation should be strategically removed in these areas to slow the spread of wildfire and reduce threats to homes.
 - **Program S-4.1E: Goat Grazing.** Continue the use of goat grazing on lands where native vegetation will not be harmed through cooperative relationships with contractors and public agencies.
 - **Program S-4.1F: Encampment-Related Hazards.** Work collaboratively with service providers for homeless residents and other partners to reduce fire hazards associated with illegal encampments and campfires. Consider partnerships to employ unsheltered residents in vegetation management work.
 - **Program S-4.1G: Open Space and Forestry Management.** Develop science-based open space and forest management plans to reduce fuel loads, maintain fuel breaks, replace highly flammable species with native species, and increase the health and carbon sequestration potential of open space lands.
- **Policy S-4.2: Fire Resilience in Developed Areas.** Improve the resilience of neighborhoods and business districts to wildfire hazards.
 - **Program S-4.2A: Reduction of Structure Hazards.** Implement measures to reduce wildfire hazards to existing structures, including fire-resistant landscaping and building materials, protected vents and gutters, phasing out wood shake roofs, vegetation management requirements around structures, limits on highly flammable plant materials, restricted parking on narrow streets, and enforcement and abatement programs. Focus on measures that provide the greatest fire safety benefits relative to their costs to the City and private sector.
 - **Program S-4.2B: Tree Maintenance.** Undertake a tree safety maintenance program to maintain the health and safety of trees along public roadways and minimize safety impacts from trees falling in road rights of way.
 - **Program S-4.2C: Public Education on Fire Resilience and Response.** Improve public education and awareness about fire-safe structures and landscaping. This should include demonstration projects (“Resilient Landscape Templates”) that help property owners understand what species to remove and what to plant, and how to make their homes more fire-resistant. Education programs also

WILDFIRE

should address actions to be taken in the event a fire is approaching, including warnings, evacuation routes, shelters, and provisions for “go bags” and personal safety.

- **Policy S-4.3: New Development in Fire Hazard Areas.** Design new development to minimize fire hazards. Densities, land uses, and site plans should reflect the level of wildfire risk and evacuation capacity at a given location.
 - **Program S-4.3A: Fire Hazard Mitigation in New Development.** Through the development review process, require appropriate mitigation measures such as fire preventive site design, landscaping and building materials, and the use of fire suppression techniques such as interior and exterior sprinklers. Before adopting new Code standards and requirements, consider and disclose their potential costs to applicants relative to the benefits they may provide.
 - **Program S-4.3B: Development Review for Emergency Response.** Review development applications in fire prone areas to ensure adequate emergency vehicle access, and adequate water pressure and supply for fire-fighting purposes (see also Goal CSI-4).
 - **Program S-4.3C: Wildfire Prevention Funding.** Develop new partnerships, revenue opportunities, and funding avenues for wildfire prevention and hazard abatement.

Goal C-1. Goal C-1: Supporting Our Natural Communities. Protect, restore, and enhance San Rafael’s environment and natural communities.

- **Policy C-1.14: Control of Invasive Plants.** Remove and control undesirable non-native plant species from City-owned open space and road rights-of-way and encourage the removal and control of these species from non-City owned ecologically sensitive or fire-prone areas.
 - **Program C-1.14D: Wildfire Action Plan Implementation.** Implement the provisions of San Rafael’s Wildfire Action Plan (2020) relating to the control of invasive plants, including further limiting the sale or planting of highly flammable non-native plants in the city, supporting volunteer activities to remove Scotch and French broom, revising standards for Eucalyptus, providing fuel breaks on public property, and educating the public on fire-safe landscaping.

Slope

As discussed in Section 4.18.1.2, Existing Conditions, the EIR Study Area contains moderate to steep slopes as well as flatter valley areas. Construction on sloped project sites may require grading and site preparation activities, which could change the slope of a single parcel or site. Each development would be required to submit grading plans and construction drawings, which would be reviewed and approved by City staff based on the California Building Code and California Fire Code. Additionally, new development would be required to comply with General Plan 2040 goals, policies, and programs described in Impact Discussion FIRE-1 and in Impact Discussion FIRE-2.

New slopes created by potential future development would be minor and would not be expected to exacerbate the spread of wildfires within the EIR Study Area because future development is anticipated to occur in existing urban areas. Future development that may occur on sloped land in the greater EIR Study Area is not anticipated to change the overall characteristics of the city. Implementation of the proposed project would not involve new development or redevelopment within the SRA, and therefore would not involve the creation of substantial new slopes that would exacerbate wildfire risks. As described above, implementation of the proposed project would largely occur in existing urbanized areas and would not

WILDFIRE

create new slopes in flat areas of the EIR Study Area. Therefore, significant risk of loss, injury, or death due to slopes would be *less than significant*.

Prevailing Winds

The windier part of the year in the EIR Study Area is from February to July, with average wind speeds of over 8.0 miles per hour. During this time of year, prevailing winds are generally from the west. During the calmer part of the year, from July to February, the winds are generally from the north. Given prevailing wind patterns, the calmer part of the year aligns with the months of driest precipitation; during this time, prevailing winds are blowing from the north.

Implementation of the proposed project would not change prevailing winds. However, wildfires and fire-related air pollution hazards that could originate in the EIR Study Area could be spread by prevailing winds. Figure 4.18-1 shows that the EIR Study Area includes land within an SRA Moderate Fire Hazard Severity Zone, as well as in LRA Moderate and High Fire Hazard Severity Zones. Figure 4.18-2 shows that nearly half of the EIR Study area is within the WUI. Of particular concern would be a wildfire during the dry season that spread due to prevailing winds toward the adjacent cities and SRA-designated areas.

Section 4.18.1.1, Regulatory Framework, describes plans, policies, regulations, and procedures that help to reduce wildfire risks. The Marin CWPP, the Local Wildfire Prevention and Mitigation Initiative, and Marin Wildfire Prevention Authority would reduce wildfire hazards on a regional scale. Implementation of the proposed project and compliance with the San Rafael LHMP and the San Rafael WPPAP would reduce wildfire hazards to structures, residents, and businesses. SRMC Chapter 4.12, Wildland-Urban Interface, Vegetation Management Standards, would further reduce the risk of wildfire through defensible space standards. The proposed project would incorporate the goals, policies, and programs listed earlier in Impact Discussion FIRE-1, earlier in Impact Discussion FIRE-2, and below in Impact Discussion FIRE-3, which would reduce the risk of wildfire hazards in the EIR Study Area.

In addition, the Bay Area Air Quality Management District offers air quality alerts, advisories, and forecasts by email through <http://baaqmdsparetheair.enviroflash.info/>. The district also maintains an interactive online map to view current air quality conditions in the region.

The proposed Conservation and Climate Change (C) and Equity, Diversity, and Inclusion (EDI) Elements contain goals, policies, and programs that require local planning and development decisions to consider air quality impacts as a result of wildfire. The following General Plan goals, policies, and programs would serve to minimize potential adverse impacts on air quality due to wildfires:

Goal C-2: Clean Air. Reduce air pollution to improve environmental quality and protect public health.

- **Policy C-2.4: Particulate Matter Pollution Reduction.** Promote the reduction of particulate matter from roads, parking lots, construction sites, agricultural lands, wildfires, and other sources.
 - **Program C-2.4B: Wildfire Smoke.** Support efforts to reduce health hazards associated from wildfire smoke, such as limits on outdoor activities, access to respirators and air filtration systems, access to clean air refuge centers, and public education.

Goal EDI-2: Healthy Communities and Environmental Justice. Support public health and wellness through community design in all parts of the city.

- **Policy EDI-2.3: Community Health.** Increase community awareness about best practices for maintaining physical and mental health. Incorporate such practices in City-sponsored activities and programs.
 - **Program EDI-2.3C: Municipal Code Review.** Periodically evaluate City codes and ordinances for their impact on health, including provisions for tobacco, vaping, and smoke-free multi-family housing; standards for indoor air quality; and HVAC systems able to sustain safe living conditions during wildfires, power outages, and extreme weather events.

Prevailing regulatory requirements and policies, in addition to air quality response programs, would minimize the exposure of people to a significant risk of loss, injury, or death due to prevailing winds, and impacts would be *less than significant*.

Vegetation

Nearly 38 percent of the EIR Study Area consists of urban and barren vegetation communities. The dominant nonurban vegetation types within the remaining 62 percent of the EIR Study Area consist of oak woodland, annual grassland, and hardwood-conifer. Grassland, oak woodland, and hardwood-conifer fires are easily ignited, and during late summer and fall, natural vegetation is extremely flammable, and wildfires are serious hazards in areas with extensive, unirrigated vegetation.

Although the EIR Study Area largely consists of nonurban vegetation, the proposed project would introduce management activities that would reduce wildfire hazards. These vegetation management measures would include those detailed in Impact Discussion FIRE-3, below. Additionally, new development is expected to occur in existing urban areas and would be concentrated on a limited number of vacant parcels, in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing residential and residential-serving development.

Furthermore, the San Rafael LHMP and San Rafael WPPAP include a comprehensive and cohesive set of actions to reducing wildfire risks within the EIR Study Area, as shown in Table 4.18-1 and Table 4.18-2, above. These actions include maintaining and expanding fuel breaks, applying vegetation and defensible space standards throughout the EIR Study Area, reducing the likelihood of ignition of undeveloped land, and reducing fuels along roadways. Prevailing regulatory requirements and policies, in addition to vegetation management policies and programs in the proposed project, would minimize the exposure of people to a significant risk of loss, injury, or death due to vegetation characteristics, and impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

As discussed in Chapter 3, Project Description, of this Draft EIR, roughly half of the potential future development in San Rafael throughout the horizon year of the General Plan 2040 would occur in the

WILDFIRE

Downtown Precise Plan Area. Development would consist of infill or redevelopment in fully urbanized areas.

Slope

As discussed in Section 4.18.1.2, Existing Conditions, the Downtown Precise Plan Area is primarily gently sloped. Similar to the rest of the EIR Study Area, development in the Downtown Precise Plan Area would require developers to submit grading plans and construction drawings, which would be reviewed and approved by City staff based on the California Building Code and California Fire Code, in addition to complying with general plan goals, policies, and programs described in Impact Discussion FIRE-1 and earlier in Impact Discussion FIRE-2.

New slopes created by potential future development would be minor and would not be expected to exacerbate the spread of wildfires within or beyond the Downtown Precise Plan Area because of the built-out and urban character of the Downtown Precise Plan Area. Future development that may occur on sloped land in the Downtown Precise Plan Area is limited to the northern edge of the Downtown Precise Plan Area. Such development is not expected to change the overall characteristics of the Downtown Precise Plan Area. Such development would not create new slopes in flat areas of the Downtown Precise Plan Area. Therefore, significant risk of loss, injury, or death due to slopes in the Downtown Precise Plan Area would be *less than significant*.

Prevailing Winds

As discussed above, implementation of the proposed project, including the Downtown Precise Plan, would not change prevailing winds. However, wildfires and fire-related air pollution hazards that could originate in the greater EIR Study Area could be spread by prevailing winds and could reach the Downtown Precise Plan Area. Figure 4.18-3 shows that the Downtown Precise Plan Area has a small portion of land on the northern boundary that is located in LRA Moderate and High Fire Hazard Severity Zones. Figure 4.18-4 shows that only a small portion of the Downtown Precise Plan Area, particularly in the north, west, and southwest portions, are within the WUI. There is additional WUI land to the northeast and south that touch or are within one mile of the Downtown Precise Plan Area.

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to wildfires. Same as potential future development in the remainder of the city, the potential future development in the Downtown Precise Plan Area would be required to comply with adopted local, regional, and State plans and regulations addressing wildfires. Therefore, the impacts described for the proposed General Plan 2040 would also apply in the Downtown Precise Plan Area. Accordingly, these regulations, in addition to the General Plan 2040 air quality response programs, would minimize the exposure of people in the Downtown Precise Plan Area to a significant risk of loss, injury, or death due to prevailing winds, and impacts would be *less than significant*.

Vegetation

The Downtown Precise Plan Area is characterized as built-out urban land that does not contain much natural vegetation. San Rafael Hill to the north of the Downtown Precise Plan Area does contain natural vegetation; however, that land is outside of the Downtown Precise Plan Area. Adoption of the proposed

WILDFIRE

project and implementation of the Downtown Precise Plan would incorporate the same plans and policies as General Plan 2040, including provisions in the San Rafael LHMP and San Rafael WPPAP, as well as goals, policies, and programs in the General Plan 2040. Such regulatory requirements and policies, in addition to vegetation management policies and programs, would minimize the exposure of people to a significant risk of loss, injury, or death due to vegetation characteristics, and impacts would be *less than significant*.

As determined in Impact Discussion FIRE-1, potential future development in the Downtown Precise Plan Area would be required to comply with the local, regional, and State plans and regulations adopted to ensure that proposed development would not—due to slope, prevailing winds, or vegetation—expose project occupants to pollutant concentrations from a wildfire, and the impacts would be *less than significant*.

Significance without Mitigation: Less than significant.

FIRE-3 **Implementation of the proposed project could require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) but would not exacerbate fire risk or result in temporary or ongoing impacts to the environment.**

General Plan 2040

As discussed in Chapter 3, Project Description, of this Draft EIR, roughly half the projected buildout in San Rafael would occur outside of the Downtown Precise Plan Area. As described in Impact Discussion FIRE-2, the EIR Study Area includes land within an SRA Moderate Fire Hazard Severity Zone and LRA Moderate and High Fire Hazard Severity Zones. Such development is expected to occur in existing urban areas and would be concentrated on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing residential and residential-serving development, and would utilize existing infrastructure. Existing infrastructure in San Rafael, including roadways, emergency water sources, water infrastructure, power lines, and other utilities, are capable of accommodating an increase in development and population. Therefore, the proposed project does not propose installation of large-scale new infrastructure as part of General Plan 2040 buildout. However, the proposed project does include goals, policies, and programs that require the maintenance of infrastructure such as fuel breaks in the EIR Study Area, most of which are included to ensure achievement of the WPPAP objectives. Previously listed goals, policies, and programs that outline the creation and maintenance of fuel breaks include Goal S-4, Program S-4.1D, and Program 4.1G, along with Program C-1.14D, Wildfire Action Plan Implementation, which would implement fuel break objectives of the WPPAP detailed in Impact Discussion FIRE-2.

The proposed Community Services and Infrastructure (CSI) Element contains goals, policies, and programs that require local planning and development decisions to consider infrastructure maintenance to reduce the risk and impact of wildfires. The following General Plan policy and programs would serve to minimize potential adverse impacts related to wildfire:

WILDFIRE

Goal CSI-4: Reliable, Efficiently Managed Infrastructure. Support reliable, cost-effective, well-maintained, safe and resilient infrastructure and utility services.

- **Policy CSI-4.14: Utility Undergrounding.** Continue to pursue undergrounding of overhead utility lines, and support maintenance and replacement programs to reduce wildfire hazards.
 - **Program CSI-4.14A: Funding for Undergrounding.** Explore funding opportunities and financing mechanisms to accelerate the undergrounding of utilities, including Rule 20A and B funds, private funding, and assessment districts.
 - **Program CSI-4.14B: Prioritizing of Undergrounding Projects.** Develop a process to prioritize utility undergrounding projects. Among the factors to be considered are aesthetics, visibility, fire hazards, and vulnerability to flooding and sea level rise.
 - **Program CSI-4.8C: Water Pressure and Storage.** Work with MMWD to ensure that water pressure and storage remains adequate for fire-fighting, and to implement standards for new development that ensure adequate water flow.

General Plan 2040 does not propose the installation of large infrastructure projects; however, several policies and programs encourage the City to pursue upgrades and maintenance of such infrastructure. New development would, however, require minor alterations of utility systems to connect water, natural gas, and sewer line piping to new buildings and facilities. Although General Plan 2040 does not anticipate such infrastructure being needed, such infrastructure, if necessary, would be required to comply with the adopted State and local regulations to mitigate the impact of infrastructure on the environment. Furthermore, any development or redevelopment within a fire hazard severity zone and the WUI would be required to comply with building design standards in the California Building Code, Chapter 49 of the California Fire Code, the CPUC's fire regulations for electric utilities, and the San Rafael WPPAP, which would reduce the risk of wildfire due to installation and maintenance of infrastructure. Therefore, the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

The Downtown Precise Plan Area is designated as urban, built-up land, with Moderate and High Fire Hazard Severity Zones located to the north in the WUI. Potential future development in the Downtown Precise Plan Area would not require the installation of new roads, emergency water sources, or power lines, which already exist in the Downtown Precise Plan Area. Similar to development outside of the Downtown Precise Plan Area, new development would require minor alterations of utility systems to connect water, natural gas, and sewer line piping to new buildings and facilities. Such new development would be required to comply with the State regulations and the General Plan 2040 goals, policies, and programs related to the installation and maintenance of infrastructure, and the impact would be *less than significant*.

Significance without Mitigation: Less than significant.

FIRE-4 Implementation of the proposed project could expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, postfire slope instability, or drainage changes.

Catastrophic wildfire can create favorable conditions for other hazards, such as flooding and landslides during the rainy season. A project would result in a significant impact if—due to slopes, drainage patterns, or post-fire slope instability—it would expose people or structures to significant risks from landslides, debris flows, or flooding.

General Plan 2040

As discussed in Chapter 4.7, Geology and Soils, of this Draft EIR, the EIR Study Area contains areas susceptible to landslides and debris flows. The EIR Study Area varies, with rolling hills, valleys, and ridges that trend from the northwest to the southeast. Landslides have the potential to occur in the EIR Study Area, most notably on the steeper slopes on the western edge of the EIR Study Area, in addition to hilly areas surrounding China Camp State Park, Boyd Park, and Harry Barbier Memorial Park. There are both residential and commercial structures surrounding these landslide-prone areas in the EIR Study Area. With respect to flooding, and as described in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR, there are several areas in the EIR Study Area that are within the 100-year and 500-year floodplain, primarily along the eastern edge and in the central area of the EIR Study Area. In the event that a catastrophic wildfire were to occur in these areas with existing landslide and flooding susceptibility, the risk of such a hazard could be exacerbated post-fire. In addition, areas without an existing risk of landslide or flooding hazards that abut areas with risk may become susceptible to such hazards in the wake of a catastrophic wildfire.

While potential future development as a result of the proposed project is primarily expected to occur in existing urban areas and would be concentrated on a limited number of vacant parcels and in the form of infill/intensification on sites already developed and/or underutilized and/or in close proximity to existing development, future projects could occur in areas either already prone to landslide or flooding hazards, or in areas which could be susceptible to landslide or flooding hazards post-fire. Therefore, potential future development in the EIR Study Area could contribute to postfire slope instability or drainage changes upstream. In the event that development is proposed downslope, the development proposal would have to comply with State and local regulations, such as the California Building Code and the SRMC building codes. For example, Section 1803 of the 2019 California Building Code requires a geotechnical investigation that must assess existing landslide susceptibility on a project site. Geotechnical review is also required as described in Section 4.18.1.1, Regulatory Framework, and as outlined in Appendix F, Geotechnical Review Matrix, of the proposed General Plan 2040. Recommendations of the geotechnical investigation, as they pertain to structural design and construction recommendations for earthwork, grading, slopes, foundations, pavements, and other necessary geologic considerations, must be incorporated into the design and construction of the development. Further, as identified in Impact Discussion FIRE-1, development in the EIR Study Area must also comply with best management practices regarding wildfire prevention, action, and recovery as outlined in the Marin ERP, the Marin EOP, the SRMC, the LHMP, and the WPPAP. All future development, regardless of the location, is required to comply with

WILDFIRE

adopted local, regional, and State plans and regulations addressing wildfire prevention which would minimize risks of potential wildfires and post-fire hazards.

In addition, the National Resource Conservation Service's Emergency Watershed Protection program from the United States Department of Agriculture, exists to provide emergency technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods, fires, windstorms and other natural disasters that impair a watershed. Standard practices of the Emergency Watershed Protection program include undertaking post-disaster emergency measures for runoff retardation and soil erosion prevention to safeguard lives and property from floods and the products of erosion on any watershed whenever a wildfire causes or has caused a sudden impairment of the watershed. Emergency Watershed Protection program funds address erosion related watershed impairments by supporting activities such as removing debris from stream channels, road culverts, and bridges; reshaping and protecting eroded banks; correcting damaged drainage facilities; repairing levees and structures; and reseeding damaged areas to establish vegetative cover on critically eroding lands.⁴⁹

The primary purpose of the wildfire hazard policies discussed in this chapter, prevailing regulatory requirements, and the National Resource Conservation Service's Emergency Watershed Protection program, is to minimize risks from downslope or downstream flooding or landslides as a result of postfire slope instability. As such, compliance with these policies and regulatory requirements would ensure impacts from postfire instability would be *less than significant*.

Significance without Mitigation: Less than significant.

Downtown Precise Plan

With respect to flooding, and as described in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR, the majority of the Downtown Precise Plan Area is within the 100-year and 500-year floodplain, in the San Rafael Creek Watershed. This watershed begins in the surrounding mountain areas, which are within Moderate to High Fire Hazard Severity Zones, and drains down into the San Rafael Creek. The Downtown Precise Plan is not anticipated to create new slopes or be located downslope in such a manner that poses a risk to people or structures. Even though the Downtown Precise Plan Area does not have an existing risk of landslide hazards, it does abut areas with landslide risks (Boyd Memorial Park) that may become susceptible to such hazards in the wake of a catastrophic wildfire.

The proposed Downtown Precise Plan has no specific policies, and the Downtown Code has no specific regulations related to wildfires and post-wildfire hazards. Implementation of the Downtown Precise Plan is required to comply with prevailing regulatory requirements to minimize risks from downslope or downstream landslides or flooding as a result of postfire slope instability. Therefore, the impacts described for the proposed General Plan 2040 would also apply to Downtown Precise Plan and the impact from postfire instability would be *less than significant*.

Significance without Mitigation: Less than significant.

⁴⁹ Natural Resources Conservation Service, Disaster Recovery Assistance, <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=nrcseprd1361073>, accessed March 24, 2020.

FIRE-5 Implementation of the proposed project could result in a cumulatively considerable impact to wildfire impacts.

As discussed in Chapter 4, Environmental Analysis, of this Draft EIR, the cumulative setting includes growth within the EIR Study Area in combination with projected growth in the rest of Marin County and the surrounding region. Future development under the proposed project would not interfere with implementation of emergency response plans or result in significant wildfire-related impacts. Potential impacts associated with wildfires would be reduced through compliance with proposed policies and existing local, regional, and State regulations. Cumulative development in adjacent jurisdictions and unincorporated Marin County would be subject to the same State and regional regulations, as well as regional safety plans, such as the Marin CWPP and FireSafe Marin’s Local Wildfire Prevention and Mitigation Initiative.

With respect to the implementation of the proposed project, wildfire hazards and the WUI are addressed in the goals, policies, and programs detailed in Impact Discussion FIRE-1, FIRE-2, and FIRE-3. Future development in the WUI would be required to incorporate fuel breaks, fire-resistant landscaping, adequate vegetation clearances around structures, and other vegetation management measures in the EIR Study Area. Additionally, development review would occur for each proposed project. Cumulative projects would be required to comply with the requirements of the California Building Code Chapter 7A, California Fire Code Chapter 49, PRC Sections 4291 et seq., and the SRA Fire Safe regulations for areas in the SRA. Furthermore, overhead power lines would be required to comply with the CPUC fire safety regulations. Although not required by CEQA, the proposed project includes policies and programs, detailed below, that would enhance public education programs to train the community in the EIR Study Area to prepare for and respond to emergency situations such as wildfire, which would increase regional education and, therefore, cumulative preparedness.

Goal S-6: Emergency Preparedness. Improve disaster preparedness, resiliency, response, and recovery.

- **Policy S-6.2: Neighborhood Disaster Preparedness Programs.** Encourage educational outreach to promote awareness and readiness among residents regarding disaster preparedness. Outreach and education should be targeted for each hazard type and risk area, including climate-related incidents. Community involvement is an essential part of resilience and recovery, and residents play an important role in disaster response.
 - **Program S-6.2A: Educational and Training Programs.** Support educational and training programs through the Police and Fire Departments and community-based organizations. These Programs include Community Emergency Response Teams (CERT), Citizens Police Academy, Neighborhood Response Groups (NRGs), and Voluntary Organizations Active in Disaster (VOAD) among others. Neighborhood teams should supplement City resources during emergency situations and can assist in disaster preparedness and mitigation efforts.
 - **Program S-6.2E: Disaster Management Drills.** Conduct emergency response drills to test the effectiveness of local procedures, including evacuation and emergency shelter drills in neighborhoods prone to flooding and wildfire.

WILDFIRE

Compliance with these requirements would reduce cumulative impacts related to wildfire hazards and emergency response. Accordingly, the proposed project would not cumulatively contribute to a cumulatively significant impact to wildfire impacts. The proposed project would not contribute to a cumulative increase in wildland fire hazards in the immediate vicinity of the Downtown Precise Plan Area or greater EIR Study Area, and the potential for cumulative impacts associated with wildfire hazards would be *less than significant*.

Significance without Mitigation: Less than significant.

5. Alternatives to the Proposed Project

The following discussion is intended to inform the public and decision makers of feasible alternatives to the proposed project that would avoid or substantially lessen any of the significant effects of the proposed project. The California Environmental Quality Act (CEQA) Guidelines set forth the intent and extent of alternatives analysis to be provided in an environmental impact report (EIR). Section 15126.6(a) of the CEQA Guidelines states that:

An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives, which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

5.1 PURPOSE

The alternatives evaluated in this Draft EIR were developed consistent with Section 15126.6(b) of the CEQA Guidelines, which states that:

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

5.2 PROJECT OBJECTIVES

As stated above, the range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the proposed project. As listed in Chapter 3, Project Description, of this Draft EIR, the primary purposes of the proposed project are to plan for the growth and conservation of San Rafael over a 20-year time horizon and to achieve a more equitable, sustainable, and prosperous future for all residents. Objectives related specifically to growth include focusing growth in the Downtown Precise Plan Area, capitalizing on transit opportunities in and around Priority Development Areas (PDAs), and streamlining future development that is consistent with the proposed project. This

ALTERNATIVES TO THE PROPOSED PROJECT

requires extending the buildout horizon to year 2040 and updating goals, policies, and programs so that they meet current State requirements and community priorities. As part of this process, the City drafted 2040 Guiding Principles, which build upon the framework of the vision, guiding principles, and goals of the current General Plan 2020 and reflect the community's desires for San Rafael's future. The draft 2040 Guiding Principles will serve as the project objectives for the EIR. The Guiding Principles are organized in six distinct categories, as listed here and shown on Figure 3-4 in Chapter 3, Project Description, of this Draft EIR.

- **Adapting to the Future.** These principles include preparing for climate change, living green and sustainably, restoring natural systems, being prepared for disasters, embracing innovation, adapting to economic shifts, creating great public spaces, and accommodating change.
- **Economic Vitality.** These principles include investing in education, creating a positive business climate, promoting a thriving downtown, supporting entrepreneurship, encouraging diverse job growth, sustaining a healthy tax base, improving transportation and infrastructure, and nurturing arts and entertainment.
- **Opportunity for All.** These principles include reducing income inequality, ending homelessness, integrating diverse cultures, improving health and wellness, supporting educational excellence, and ensuring environmental justice.
- **Housing Our Growing Community.** These principles include conserving and modernizing existing housing, building more housing, increasing housing choices for the local workforce, meeting special housing needs, encouraging aging in community, improving housing affordability, and treating all residents fairly.
- **Mobility.** These principles include effectively managing congestion, improving bicycle and pedestrian modes, enhancing public transit, reducing neighborhood conflicts, improving safety for all modes of transportation, and using technology to improve efficiency.
- **Building on Our Foundation.** These principles recognize the City's strengths and its legacy of conserving open space, sustaining great neighborhoods, revitalizing Downtown, maintaining a strong sense of place, preserving its history, and providing quality public services.

5.3 SELECTION OF A REASONABLE RANGE OF ALTERNATIVES

Section 15126.6(c) of the CEQA Guidelines states:

The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

ALTERNATIVES TO THE PROPOSED PROJECT

5.3.1 ALTERNATIVES ANALYSIS

Three project alternatives and the comparative merits of the alternatives are discussed in this section in accordance with the CEQA Guidelines. All the potential environmental impacts associated with adoption and implementation of the proposed project were found to be either less than significant without mitigation or less than significant with mitigation, except for impacts to air quality, greenhouse gas emissions, cultural resources (historic buildings), and transportation, which were found to be significant and unavoidable with mitigation measures at the program level. These significant and unavoidable impacts include the following:

- **Impact AIR-2.2:** Operational activities associated with potential future development could cumulatively contribute to the non-attainment designations of the San Francisco Bay Area Air Basin.
- **Impact AIR-3.2.** Operational activities associated with potential future development could expose sensitive receptors to substantial toxic air contaminant concentrations from nonpermitted sources.
- **Impact CULT-1.** Future development in San Rafael on sites that contain a historic resource may cause the demolition, destruction, or alteration of a historic resource such that the significance of the resource is "materially impaired." Such adverse changes or potential adverse changes in the significance of a CEQA-defined historic resource would constitute a significant impact.
- **Impact GHG-1:** Implementation of the proposed project may not meet the long-term GHG reduction goal under Executive Order S-03-05.
- **Impact TRAN-1a** Implementation of the proposed project would result in a significant land use VMT impact for Total VMT and Work VMT due to forecast land use growth through 2040, based on a comparison of the VMT rate increment for Total VMT Per Service Population and Work VMT Per Employee to the corresponding average baseline rates for the full nine-county Bay Area.
- **Impact TRAN-1b:** Implementation of the proposed project would result in a significant road network VMT impact due to the planned capacity of the roadway system.
- **Impact TRAN-6:** Implementation of the proposed project would cumulatively contribute to regional VMT.

The alternatives were selected because of their potential to further reduce and avoid these impacts. The alternatives to be analyzed in comparison to the proposed project include:

- Alternative A: No Project Alternative (Current General Plan)
- Alternative B: Greater Residential Growth
- Alternative C: Lower Residential Growth

The first alternative is the CEQA-required "No Project" Alternative, which assumes the current General Plan 2020 is carried through instead of the proposed project. Alternative B assumes more households, housing units, and population, and slightly fewer jobs, when compared to the proposed project. Alternative C assumes fewer households, housing units, and population, and a slightly greater number of jobs when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.3.2 ASSUMPTIONS AND METHODOLOGY

The alternatives analysis is presented as a comparative analysis to the proposed project. The development intensity for the alternatives varies from the proposed project. The estimated growth under each alternative, as well as the proposed project, is provided in Table 5-1.

TABLE 5-1 FORECASTED ADDITIONAL GROWTH FOR THE PROPOSED PROJECT AND ALTERNATIVES TO THE PROPOSED PROJECT

Category	Proposed Project	Alternative A: No Project	Alternative B: Greater Residential Growth	Alternative C: Lower Residential Growth
DOWNTOWN PRECISE PLAN AREA				
Households	2,100	340	2,550	1,535
Residential Units	2,200	360	2,690	1,615
Population	3,570	800	4,335	2,610
Jobs	2,020	435	2,000	2,050
REMAINDER OF EIR STUDY AREA				
Households	2,150	1,375	3,280	1,325
Residential Units	2,260	1,455	3,440	1,390
Population	5,340	2,615	8,165	3,215
Jobs	2,095	5,310	1,915	2,190
TOTAL EIR STUDY AREA				
<i>Households</i>	4,250	1,715	5,830	2,860
<i>Residential Units</i>	4,460	1,815	6,130	3,005
<i>Population</i>	8,910	3,415	12,500	5,825
<i>Jobs</i>	4,115	5,745^a	3,915	4,240

Note:

^a This figure represents the increment of job growth shown in the Transportation Authority of Marin's traffic model which is based on regional forecasts that will be outdated as soon as *Plan Bay Area 2050* is adopted. This figure is not the increment of job growth assumed in General Plan 2020. Most of the job growth assumed in General Plan 2020 has already occurred. Therefore, this is a reasonable assumption about what would occur in the No Project conditions (CEQA Guidelines Section 15126.6(e)(3)(C)).

Source: City of San Rafael, 2020.

The alternatives analysis assumes that all applicable mitigation measures recommended for the proposed project and the proposed General Plan 2040 goals, policies, and programs would apply to Alternatives B and C, but would not apply to Alternative A. The following discussion compares the environmental impacts of the alternatives with those of the proposed project for each of the environmental topics analyzed in detail in Chapter 4, Environmental Analysis, of this Draft EIR. The impacts of each alternative are classified as fewer, similar to (or comparable to), or greater than the level of impacts associated with the proposed project. Table 5-2 summarizes the relative impacts of each of the alternatives compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

TABLE 5-2 COMPARISON OF IMPACTS OF THE PROJECT ALTERNATIVES AND THE PROPOSED PROJECT

Topic	Proposed Project ^a	Alternative A: No Project	Alternative B: Greater Residential Growth	Alternative C: Lower Residential Growth
Aesthetics	LTS	<	=	<
Agriculture and Forestry Resources	LTS	=	=	=
Air Quality	SU	>	<	>
Biological Resources	LTS/M	>	=	=
Cultural and Tribal Cultural Resources	SU	>	>	<
Energy	LTS	>	=	>
Geology and Soils	LTS	=	=	=
Greenhouse Gas Emissions	SU	>	<	>
Hazards and Hazardous Materials	LTS/M	=	=	=
Hydrology and Water Quality	LTS	=	=	=
Land Use and Planning	LTS	=	=	=
Mineral Resources	LTS	=	=	=
Noise	SU	>	<	=
Population and Housing	LTS	=	=	=
Public Services and Recreation	LTS	<	>	<
Transportation	SU	>	<	>
Utilities and Service Systems	LTS	<	>	<
Wildfire	LTS	=	=	=

Notes:

^a. The impacts listed in this column represent the highest significance determination for each respective standard of significance.

LTS	Less Than Significant	<	Less impacts in comparison to the proposed project
LTS/M	Less Than Significant with Mitigation	=	Similar impacts in comparison to the proposed project
SU	Significant and Unavoidable	>	Greater impact in comparison to the proposed project

5.4 ALTERNATIVE A: NO PROJECT (CURRENT GENERAL PLAN)

5.4.1 DESCRIPTION

Pursuant to CEQA Guidelines Section 15126.6(e)(1), the No Project Alternative is required as part of the “reasonable range of alternatives” to allow decision makers to compare the impacts of approving the proposed project with the impacts of taking no action or not approving the proposed project. Consistent with CEQA Guidelines Section 15126.6(e)(3)(A), when the project is the revision of a plan, as in this case, the no project alternative will be the continuation of the existing plan. Under Alternative A, potential future development in San Rafael would continue to be subject to existing policies, regulations, development standards, and land use designations of the existing General Plan 2020 and Zoning Code.

As described in Chapter 3, Project Description, of this Draft EIR, the existing General Plan 2020 involved a major overhaul and modernization of the prior General Plan 2000 that was adopted in 1988. The City determined that General Plan 2020 provided a good foundation for the proposed General Plan 2040. General Plan 2020 went through a comprehensive review process, resulting in a broad range of community goals and policies. Many of the community issues vetted in General Plan 2020 are still relevant, well addressed, and do not require major changes. Therefore, while the proposed General Plan

ALTERNATIVES TO THE PROPOSED PROJECT

2040 is not a major departure from General Plan 2020 in terms of its underlying vision and fundamental growth concepts, Alternative A would not incorporate the topics that are now required by State law and would not revise relevant policies and programs to meet those requirements.

Pursuant to CEQA Guidelines Section 15126.6(e)(3)(C), the City of San Rafael, acting as the lead agency, should analyze the impacts of the No Project Alternative by projecting what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved, based on current plans and consistent with available infrastructure and community services. Implementation of the No Project Alternative assumes that development growth throughout the city would remain unchanged until the buildout horizon year 2040, which is consistent with other regional plans, including *Plan Bay Area 2040*.

Future development permitted under the No Project Alternative would not increase development potential in San Rafael beyond what was considered in the existing General Plan 2020 and analyzed in the associated EIR (State Clearinghouse No. 2003052031), but rather assumes the remaining development growth shown in Table 5-1 would occur through 2040. No General Plan land use designations or Zoning District changes would be required to accommodate these uses. Table 5-3 shows the difference between 2020 to 2040 growth of the proposed project compared to Alternative A. As shown in Table 5-3, Alternative A would result in less residential growth and more job growth when compared to the proposed project.

TABLE 5-3 2020 TO 2040 GROWTH UNDER THE PROPOSED PROJECT AND ALTERNATIVE A

Category	Proposed Project	Alternative A: No Project	Change between the Proposed Project and Alternative A
Downtown Precise Plan Area			
Households	2,100	340	1,760 fewer households
Residential Units	2,200	360	1,840 fewer residential units
Population	3,570	800	2,770 fewer population
Jobs	2,020	435	1,585 fewer jobs
Remainder of EIR Study Area			
Households	2,150	1,375	775 fewer households
Residential Units	2,260	1,455	805 fewer residential units
Population	5,340	2,615	2,725 fewer population
Jobs	2,095	5,310	3,215 more jobs
Total EIR Study Area			
Households	4,250	1,715	2,535 fewer households
Residential Units	4,460	1,815	2,645 fewer residential units
Population	8,910	3,415	5,495 fewer population
Jobs	4,115	5,745^a	1,630 more jobs

Note:

^a This figure represents the increment of job growth shown in the Transportation Authority of Marin's traffic model, which is based on regional forecasts that will be outdated as soon as *Plan Bay Area 2050* is adopted. This figure is not the increment of job growth assumed in General Plan 2020. Most of the job growth assumed in General Plan 2020 has already occurred. Therefore, this is a reasonable assumption about what would occur in the No Project conditions (CEQA Guidelines Section 15126.6(e)(3)(C)).

Source: City of San Rafael, 2020.

Alternative A would not include the Downtown Precise Plan, which updates the 1993 *Our Vision of Downtown San Rafael and Our Implementation Strategy* (1993 Downtown Vision) and incorporates key

ALTERNATIVES TO THE PROPOSED PROJECT

recommendations of the 2012 *San Rafael Downtown Station Area Plan*, as well as the 2017 *Downtown Parking and Wayfinding Study*, and other more focused projects, such as the 2019 *Third Street Rehabilitation Project* and the 2018 *Third and Hetherton Intersection Improvements*. The urban design, placemaking, historic preservation, transportation, parking, economic development, affordable housing, and antidisplacement strategies included in the Downtown Precise Plan would not be realized in Alternative A.

The alternatives analysis assumes that none of the applicable mitigation measures recommended for the proposed project would apply to Alternative A.

5.4.2 IMPACT DISCUSSION

The potential environmental impacts associated with Alternative A when compared to the proposed project are described herein.

5.4.2.1 AESTHETICS

As described in Chapter 4.1, Aesthetics, of this Draft EIR, the proposed project would not result in any significant impacts related to aesthetics and no mitigation measures are required.

Like the proposed project, potential future development in the EIR Study Area under Alternative A is anticipated to occur in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, where future development would have a lesser impact on scenic vistas. The proposed General Plan 2040 does not include any new land use changes that would increase building height beyond what is previously accounted for under the current General Plan 2020, but would increase maximum height limits in the Downtown Precise Plan Area as part of the proposed Downtown Code. These changes would not be realized under Alternative A. While the areas of potential change under the proposed project are developed with a mix of buildings that range from 1 to 10 stories in height and views would continue to be visible between elements of the existing built environment and over lower-intensity areas, less development potentially obstructing views would occur and impacts to views of the existing scenic resources would be *less* when compared to the proposed project.

There are no State-designated scenic highways within, or in the vicinity of, the EIR Study Area. Therefore, implementation of either scenario would not damage existing scenic resources within a state scenic highway and impacts would be *similar*.

Applicable future projects under both scenarios would be subject to design review prior to project approval pursuant to San Rafael Municipal Code (SRMC) Chapter 14.25, Major Environmental and Design Review Permits, and comply with the various planning documents that govern scenic quality in the city, as described in Section 4.1.1, Regulatory Framework, in Chapter 4.1. However, Alternative A would not realize the proposed Community Design and Preservation Element that was reorganized as part of the proposed General Plan 2040 update to address five primary goals: a beautiful city, a sense of place, an improved public realm, quality construction and design, and protected cultural heritage. The policies emphasize protection of natural features, views, and the waterfront; improvements to gateways and

ALTERNATIVES TO THE PROPOSED PROJECT

corridors; and upgrades to plazas, public spaces, and streetscapes. This element also covers street trees, landscaping, and wayfinding signage more comprehensively than General Plan 2020. Furthermore, principles of good design have been incorporated into the proposed project. Thus, unlike the proposed project, which includes these new policies, development under this alternative would not provide the same level of design consideration related to the visual character or quality of a project site and its surrounding; thus, aesthetic impacts related to these topics would be *greater* than those of the proposed project.

Similar to the proposed project, Alternative A would result in new lighting sources that could result in sources of glare. Potential future development under both scenarios would be required to comply with best management practices in CALGreen and SRMC provisions that ensure new land uses do not generate excessive light levels and reduce light and glare spillover from future development to surrounding land uses. Because Alternative A would result in less development than the proposed project, fewer impacts related to light or glare would occur and impacts would be *less* when compared to the proposed project.

Overall, development in the EIR Study Area under Alternative A would be less and would be guided by the current policies and regulations that guide development in San Rafael, and impacts related to aesthetics would be *less* when compared to the proposed project.

5.4.2.2 AGRICULTURE AND FORESTRY RESOURCES

As determined in Chapter 4.2, Agriculture and Forestry Resources, the proposed project would result in less-than-significant impacts to agricultural resources and no impacts to forest resources. No mitigation measures are required.

The EIR Study Area does not have any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor are there any lands under an active Williamson Act Contract or zoned for forestry, timberland, or timberland production. The California Department of Conservation has designated approximately 2,000 acres of land as Farmland of Local Importance in the EIR Study Area, specifically used as grazing, in the northern unincorporated portion of the EIR Study Area.

The proposed project includes Policy LU-1.5, Development Beyond the Urban Service Area, which serves to retain areas outside of San Rafael's Urban Service Area boundary, but within the Planning Area, as agricultural or open space uses. Policy LU-1.5 would ensure that potential future development under implementation of the proposed project would not result in the conversion of Farmland of Local Importance in the EIR Study Area. Alternative A would continue to allow development under the existing General Plan 2020, which does not contain any goals, policies, or programs that address agricultural land in the EIR Study Area. However, the existing General Plan 2020 encourages development to occur in existing urbanized areas, which would reduce the likelihood that future development under Alternative A would occur in a location that would adversely impact agricultural land. Therefore, impacts would be *similar* under Alternative A when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT**5.4.2.3 AIR QUALITY**

As described in Chapter 4.3, Air Quality, of this Draft EIR, the proposed project would result in significant and unavoidable impacts during the operational phase even with implementation of Mitigation Measures AIR-2.2 and AIR-3.2. Implementation of Mitigation Measure AIR-2.1 3.1a, and AIR-3.1b, would reduce significant impact from construction to a less-than-significant level.

As described in Chapter 4.3, Air Quality, of this Draft EIR, implementation of the proposed project would not conflict with the 2017 *Clean Air Plan*, would pose no operational community risks or hazards, and would not generate any substantial odors. However, at a program level, implementation of the proposed project would result in significant and unavoidable impacts related to construction and operation of potential future development, as well as the cumulative contribution to the non-attainment designations of the San Francisco Bay Area Air Basin.

Alternative A would continue development as allowed under the existing General Plan 2020, which would result in less redevelopment in the EIR Study Area. Development under both scenarios would be subject to the Bay Area Air Quality Management District's (BAAQMD's) basic control measures for fugitive dust control and screening sizes. Additionally, future development under both scenarios could result in construction activities within 1,000 feet of residential and other sensitive land uses, thus, temporarily elevating concentrations of toxic air contaminants and diesel-PM_{2.5} in the vicinity of sensitive land uses. While the regulatory setting mitigating construction impacts is the same, less development would occur under Alternative A; therefore, construction impacts would be *less* when compared to the proposed project.

Under Alternative A, reduced development would occur; therefore, less direct and indirect criteria air pollutant emissions from energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment) would occur. Under both scenarios, subsequent environmental review of applicable development projects would be required to assess potential impacts under BAAQMD's project-level thresholds. As demonstrated in Chapter 4.16, Transportation, the Total Vehicle Miles Traveled (VMT) Per Service Population and Work VMT Per Employee would be *greater* under Alternative A than the proposed project (29.5 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 17.5 Work VMT Per Employee compared to 16.9 Work VMT Per Employee). This is because the proposed project includes greater infill development in the PDAs and Transit Priority Areas (TPA), which would reduce VMT from automobiles. Alternative A would not include the goals, policies, and programs in the proposed project, which would concentrate development in existing urban areas and therefore could lessen the net benefit gained from siting future development near public transit and existing services. Therefore, as a result of reducing development, Alternative A would not necessarily reduce trips, which are the major source of criteria air pollutants from the proposed project. Therefore, while Alternative A would result in less overall development than the proposed project, air quality impacts from the operation of these uses would be considered *greater* when compared to the proposed project.

Same as the proposed project, Alternative A is not the type of project that would result in significant impacts from odor and impacts would be *similar* under both scenarios.

ALTERNATIVES TO THE PROPOSED PROJECT

Overall, because Alternative A would result in less infill development that would create a higher VMT per capita, air quality impacts under Alternative A would be *greater* when compared to the proposed project.

5.4.2.4 BIOLOGICAL RESOURCES

As described in Chapter 4.4, Biological Resources, of this Draft EIR, the proposed project would result in less-than-significant impacts to biological resources with implementation of Mitigation Measures BIO-1 through BIO-4.

The EIR Study Area is not within any local, regional, or State habitat conservation plan areas. Therefore, neither scenario would conflict with the conservation strategy in any Habitat Conservation Plan or Natural Community Conservation Plan and impacts would be *similar*.

The City of San Rafael General Plan is the primary planning document for the City of San Rafael. The existing General Plan 2020 and the proposed revisions to policies and programs under the Conservation and Climate Change (C) Element are intended to ensure consistency between the General Plan and Zoning Ordinance and would not conflict with local policies and ordinances protecting biological resources because the General Plan is the overriding planning document for San Rafael. Accordingly, impacts to biological resources under Alternative A would be *similar* when compared to the proposed project.

Although potential future development under the proposed project could potentially affect animal and plant species identified as candidate, sensitive, or special-status species, proposed goals, policies, and programs; proposed mitigation measures; and adherence to all federal, State, and local regulations relating to biological resources would fully mitigate any potential impacts. The proposed project would also have a less-than-significant impact on riparian habitats, wetlands, and wildlife movement corridors because compliance with proposed goals, policies, and programs; proposed mitigation measures; and adherence to all federal, State, and local regulations relating to biological resources would fully mitigate any potential impacts. Further, potential future development under the proposed project would primarily occur as infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, which reduces the likelihood that special-status plant and animal species could be impacted. Infill development also reduces the likelihood that the riparian habitats, wetlands, and wildlife movement corridors could be impacted.

The existing General Plan 2020 encourages development to occur in existing urbanized areas, which would mean that Alternative A would also reduce the likelihood of development in areas of the EIR Study Area that are more likely to cause an adverse impact to a sensitive riparian habitat, wetland, or wildlife movement corridor. Mitigation Measure BIO-1 requires that as part of the discretionary review process for development projects in the EIR Study Area, the City shall require all project applicants to prepare and submit project-specific baseline biological resources assessments (BRA) if the project site(s) contain natural habitat with features that could support special-status species and other sensitive biological resources, as well as active nests of birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. No similar requirement currently exists in the General Plan 2020 conditions and these standards would not be realized under the Alternative A scenario; therefore, impacts would be *greater* when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

The proposed project could introduce taller buildings in the Downtown Precise Plan Area, which would increase impacts to birds resulting from colliding into buildings when compared to Alternative A. However, tall buildings subjecting birds to collision would occur under either scenario. The proposed project's potential bird collision impacts would be fully mitigated with implementation of Mitigation Measure BIO-4b, which would set standards for potential future development involving buildings exceeding 5,000 square feet or structures taller than 30 feet tall. These standards would not be realized under the Alternative A scenario; therefore, impacts would be *greater* when compared to the proposed project.

In summary, impacts to biological resources from potential future development as allowed under Alternative A would be *greater* when compared to the proposed project.

5.4.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

As described in Chapter 4.5, Cultural and Tribal Cultural Resources, of this Draft EIR, the proposed project would result in less-than-significant impacts to cultural and tribal cultural resources with implementation of Mitigation Measures CULT-2 through CULT-4 and would result in a significant and unavoidable impact with implementation of Mitigation Measure CULT-1.

Under Alternative A, new development would continue throughout the city under existing plans and regulations. As explained in Chapter 4.5, there are existing prehistoric, architectural, historical, or archaeological resources in the EIR Study Area that could all be impacted by new demolition, inappropriate modification, or inappropriate new construction under the proposed project or Alternative A. Like the proposed project, Alternative A would be subject to the procedures of conduct following the discovery of human remains set forth in California Health and Safety Code, Public Resources Code and the California Code of Regulations. Because less development would occur under the Alternative A scenario, the potential to impact these resources would be *less* when compared to the proposed project. However, the proposed project includes Mitigation Measures which require the proposed General Plan 2040 to adopt additional programs that would further protect historic resources in the EIR Study Area. Under Alternative A, these programs would not be adopted. Therefore, Alternative A would have *greater* impacts to cultural resources as compared to the proposed project when following common protocols.

5.4.2.6 ENERGY

As described in Chapter 4.6, Energy, of this Draft EIR, the proposed project would not result in any significant impacts related to energy and no mitigation measures are required.

All development that occurs in the State is required to comply with best management practices regulated in the 2019 California Green Building Code and 2019 Building and Energy Efficiency Standards, which ensure new development would not result in the wasteful or inefficient use of energy. Further, new development would automatically be enrolled in renewable energy supplied by Marin Clean Energy. Such requirements and enrollment in MCE would be required under both the proposed project and under Alternative A. Additionally, neither the proposed project nor Alternative A would introduce a level of development and population growth that would be anticipated to necessitate the construction of new energy supply facilities or transmission infrastructure.

ALTERNATIVES TO THE PROPOSED PROJECT

Less development would occur under the Alternative A scenario, so energy consumption from construction would be *less* when compared to the proposed project. However, newer buildings would be more energy efficient, thus energy impacts from buildings would be less energy efficient under Alternative A when compared to the proposed project. Ultimately, as described in the air quality discussion, energy use from VMT would be greater under Alternative A because less infill development in PDAs and TPAs would occur when compared to the proposed project. Therefore, overall energy demand and consumption would be *greater* under Alternative A when compared to the proposed project.

5.4.2.7 GEOLOGY AND SOILS

As described in Chapter 4.7, Geology and Soils, of this Draft EIR, the proposed project would result in less-than-significant impacts related to geology and soils with implementation of Mitigation Measure GEO-6.

Future development under both Alternative A and the proposed project would be subject to the same federal, State, and local regulations that address and prevent hazards associated with geology, soils, and seismicity. Both General Plan 2020 and proposed General Plan 2040 encourage development in urbanized settings where there is less likelihood for impacts from geologic hazards to occur. Although Alternative A would result in less overall development, compliance with existing regulations related to geologic and seismic safety would apply similarly to both future development under Alternative A and the proposed project; therefore, Alternative A would result in *similar* impacts when compared to the proposed project.

5.4.2.8 GREENHOUSE GAS EMISSIONS

As described in Chapter 4.8, Greenhouse Gas Emissions, of this Draft EIR, the proposed project would result in two significant and unavoidable impacts despite implementation of Mitigation Measures GHG-1.

Implementation of the proposed project would result in significant and unavoidable greenhouse gas (GHG) emissions impacts when applying program-level thresholds for the forecast year 2040. With respect to GHG emissions from construction, new buildings constructed would be subject to the triennial updates to California's Building and Energy Efficiency Standards, which would presumably improve over time. While new buildings would be more energy efficient, there would be an overall increase in energy usage under the proposed project from construction due to the amount of proposed growth. Even with implementation of the 2017 Scoping Plan, the 2050 target identified under Executive Order S-03-05, is estimated to not be achievable without major advances in technology. The identification of these program-level impacts does not preclude the finding of less-than-significant impacts for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance.

Alternative A would not necessarily result in a concentration of development and redevelopment in the Downtown Precise Plan and other urban portions of the EIR Study Area. Reducing development in the Downtown Precise Plan Area specifically could lessen the net benefit gained from siting more intense infill near public transit and result in a higher percentage of transit users that may rely on automobiles (as opposed to walking or biking). Therefore, as a result of reducing infill development near transit, Alternative A would not necessarily reduce trips, which are the major source of criteria GHG emissions from the proposed project. As described in the air quality discussion, the transportation sector is the greatest emitter of air pollutants, which also include GHG emissions. Therefore, because greater Total

ALTERNATIVES TO THE PROPOSED PROJECT

VMT Per Capita and Work VMT Per Employee would occur under Alternative A, impacts related to GHG emissions would be *greater* when compared to the proposed project.

Overall, impacts from GHG emissions under Alternative A would be *greater* when compared to the proposed project.

5.4.2.9 HAZARDS AND HAZARDOUS MATERIALS

As described in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, the proposed project would result in less-than-significant impacts related to hazards and hazardous materials with implementation of Mitigation Measure HAZ-4.

As discussed in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, there are sites within the EIR Study Area and the Downtown Precise Plan Area that are included on a list of hazardous materials sites. Impact Discussion HAZ-4 of this Draft EIR concluded that implementation of the proposed project could result in construction and operation activities on sites with known hazardous materials and, as a result, create a significant hazard to the public or the environment. However, such impacts were deemed less-than-significant with the adoption of mitigation measures. Alternative A would occur as projected in the existing General Plan 2020. General Plan 2020 includes policies that were evaluated in the General Plan 2020 EIR as reducing the impact of locating future development on sites with known hazardous materials as less than significant. Policies of General Plan 2020 require potential future development abide by federal and State law and follow best management practices related to hazards and hazardous materials. Accordingly, Alternative A would have a *similar* impact when compared to the proposed project.

The proposed project was found to have a less-than-significant impact related to the routine transport, use, or disposal of hazardous waste, the release of hazardous waste, or the emitting of hazardous emissions or handling of hazardous materials in the proximity of an existing or proposed school. As further discussed in Chapter 4.9, Hazards and Hazardous Materials, the EIR Study Area is not located within an airport land use plan area for which potential future development could conflict, and implementation of the proposed project would not conflict with an adopted emergency response plan or emergency evacuation plan. Potential future development that could occur in the EIR Study Area from implementation of the proposed project would be required to comply with all federal, State, and local regulations pertaining to hazards and hazardous materials, and the proposed project includes goals, policies, and programs that would further reduce impacts related to hazardous materials. Development that would occur under Alternative A would be required to comply with the same federal and State regulations and would be required to comply with policies in the existing General Plan 2020, which reduce impacts related to hazardous materials. Therefore, Alternative A would have a *similar* impact when compared to the proposed project.

5.4.2.10 HYDROLOGY AND WATER QUALITY

As described in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR, the proposed project would not result in any significant impacts related to hydrology and water quality and no mitigation measures are required. Compliance with existing State and local regulations and procedures would ensure that pre-

ALTERNATIVES TO THE PROPOSED PROJECT

and post-construction impacts to water quality would be less than significant. These regulations and procedures would be maintained under Alternative A.

Although Alternative A would result in less development overall, future development would likely occur within previously urbanized areas and would connect to existing drainage systems already in place and be subject to the same existing federal, State, and local regulations relating to hydrology and water quality, similar to the proposed project. Compliance with existing regulations would ensure that pre- and post-construction impacts to water quality be minimized as future development occurs. While the proposed project has updated and expanded the General Plan 2020 goals, policies, and programs related to hydrology and water quality, impacts to hydrology and water quality were found to be less-than-significant in the General Plan 2020 EIR, which suggests that existing General Plan 2020 policies would ensure future development would not have a hydrology or water quality impact on the environment. Because Alternative A involves continuing implementation of General Plan 2020, and because implementation of General Plan 2020 was found to have less-than-significant impacts on hydrology and water quality, Alternative A would have *similar* impacts to hydrology and water quality when compared to the proposed project.

5.4.2.11 LAND USE AND PLANNING

As described in Chapter 4.11, Land Use and Planning, of this Draft EIR, the proposed project would not result in any significant impacts related to land use and planning and no mitigation measures are required.

The existing General Plan 2020 was adopted with the purpose of harmonizing changes to existing developed areas in order to better serve community needs. While the proposed project would aim to improve connectivity and would not create physical barriers within existing communities, Alternative A would also support the integration of infill development and does not propose physical features that could divide a community. Accordingly, impacts would be *similar* under both scenarios.

Under Alternative A, development would continue to occur throughout the EIR Study Area under the existing General Plan 2020 and Zoning Code and would not conflict with these already approved standards. However, Alternative A would not result in implementation of the Downtown Precise Plan which would establish a detailed vision for the Downtown Precise Plan Area to guide future development. As discussed in Chapter 3, Project Description, of this Draft EIR, implementation of the Downtown Precise Plan would result in the adoption of a Downtown Code, which would amend the existing SRMC Zoning Code. The Downtown Code would be form-based, which means that the physical design of development would be heavily regulated while the land uses within the Downtown Precise Plan Area are not specifically regulated and are instead driven by market forces. Nonetheless, implementation of either development scenarios would not conflict with any applicable land use plan adopted for the purpose of avoiding or mitigating an environmental effect and impacts would be *similar*.

5.4.2.12 MINERAL RESOURCES

As described in Chapter 4.12, Mineral Resources, of this Draft EIR, the proposed project would not result in any significant impacts related to mineral resources and no mitigation measures are required.

ALTERNATIVES TO THE PROPOSED PROJECT

As discussed in Chapter 4.12, Mineral Resources, of this Draft EIR, the San Rafael Rock Quarry and McNear Brickworks are the only designated mineral resource sites with local, regional, or State significance within the EIR Study Area. The site is located outside of the San Rafael city limits, but within the EIR Study Area. The proposed project was found to have a less-than-significant impact on the San Rafael Rock Quarry and McNear Brickworks because potential future development under the proposed project would occur in existing urbanized areas not located near the mineral resource site. Future development under Alternative A would occur in the locations discussed in the existing General Plan 2020, which include already urbanized portions of the EIR Study Area that would not result in an impact to the mineral resource site. Therefore, impacts to mineral resources would be *similar* to the proposed project under Alternative A.

5.4.2.13 NOISE AND VIBRATION

As described in Chapter 4.13, Noise and Vibration, of this Draft EIR, the proposed project would result in a less-than-significant impact with implementation of Mitigation Measures NOISE-1, NOISE-2a, and NOISE-2b.

Future development allowed under the proposed project would be subject to the standards of the SRMC and existing General Plan 2020, including those relating to the interface between residential and non-residential land uses. As specific uses are proposed for particular sites, project-level design, permitting, and/or environmental review would serve to ensure that individual uses would comply with the noise regulations. Future development under Alternative A would also be subject to these applicable standards. Because less construction would occur, noise and vibration from construction would be less under Alternative A when compared to the proposed project.

Alternative A would result in less development but would generate more Total VMT Per Capita and Work VMT Per Employee, which potentially generate more mobile sources of noise. Because construction is temporary, the increased noise impacts from the operational phase would result in *greater* noise impacts under Alternative A when compared to the proposed project.

5.4.2.14 POPULATION AND HOUSING

As described in Chapter 4.14, Population and Housing, of this Draft EIR, the proposed project would not result in any significant impacts related to population and housing, and no mitigation measures are required.

As described in Chapter 4.14, Population and Housing, of this Draft EIR, implementation of the proposed project would slightly exceed current regional projections. However, implementation of the proposed project was found to have a less-than-significant impact due to the focus on infill development in PDAs and TPAs, which is in alignment with the regional planning framework of *Plan Bay Area*. Further, the proposed project is the overriding policy document in the EIR Study Area, which plans for population growth that is reasonably foreseeable through 2040.

Alternative A would result in less population and housing; thus, the regional projections would not be exceeded under this scenario. However, Alternative A would not include the updated policy framework of

ALTERNATIVES TO THE PROPOSED PROJECT

the proposed project that ensure adequate planning occurs to accommodate the future population increase and future development to extended buildout year through 2040. Therefore, impacts under Alternative A would be *greater* when compared to those under the proposed project.

Although less than the proposed project, Alternative A would allow a net increase of residential and non-residential uses in the EIR Study Area through 2040. Since implementation of Alternative A would result in a net increase in housing, like the proposed project, it would not require replacement housing outside the EIR Study Area. Therefore, impacts under Alternative A would be *similar* when compared to those of the proposed project.

In summary, while Alternative A would result in a different growth potential, impacts related to population and housing would be *similar* when compared to the proposed project.

5.4.2.15 PUBLIC SERVICES AND RECREATION

As described in Chapter 4.15, Public Services and Recreation, of this Draft EIR, impacts under the proposed project to fire protection services, police services, parks, schools, and libraries were found to be less than significant. No mitigation measures are required.

Alternative A would result in fewer new residents and jobs to the EIR Study Area, and therefore, would result in less demand on the public service providers that serve the EIR Study Area. Potential future development under Alternative A would be required to comply with all existing City regulations adopted to ensure that development pays its fair share of the cost of delivering services, providing park space and libraries, while payment of property taxes would ensure that future development pays its fair share towards schools. Overall, impacts under Alternative A would be *less* than those of the proposed project.

5.4.2.16 TRANSPORTATION

As described in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in two significant and unavoidable impacts related to transportation despite implementation of Mitigation Measures TRAN-1a TRAN-1b. These significant and unavoidable impacts are related to the inability of the proposed project to achieve the VMT reduction by 2040 of 15 percent below the baseline (2019) regional average. While the proposed General Plan 2040 results in a reduction in VMT Per Service Population by 2040, the VMT threshold of 15 percent below the current regional average would not be met.

As discussed in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in a significant VMT impact for Total VMT and Work VMT and would not result in a significant Home VMT impact. The proposed project would focus potential future development in existing urban areas, half of which would occur specifically in the Downtown Precise Plan Area, which is located in a TPA and is therefore served by public transportation. As such, the VMT generated by potential future development would be lower than if development were proposed in areas not served by public transportation. The proposed project also includes goals, policies, and programs that expand upon General Plan 2020 and to ensure the transportation system in the EIR Study Area is multi-modal and designed to increase bicycle and pedestrian access and safety. Impacts related to hazards from design features, emergency access, and conflicting with adopted plans or decrease performance standards, were found to be less than significant.

ALTERNATIVES TO THE PROPOSED PROJECT

Alternative A would be implemented under the existing General Plan 2020, which does not include the proposed Downtown Precise Plan, which would concentrate roughly half of the development in the EIR Study Area through 2040 in a TPA in the Downtown Precise Plan Area. While the General Plan 2020 focuses on development in urbanized portions of the EIR Study Area, it does not concentrate development in the Downtown Precise Plan Area, and therefore VMT as a result of implementation of Alternative A would be higher than under the proposed project. As demonstrated in Chapter 4.16, Transportation, the Total VMT Per Service Population and Work VMT Per Employee would be greater under Alternative A than the proposed project (29.5 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 17.5 Work VMT Per Employee compared to 16.9 Work VMT Per Employee). Therefore, Alternative A would result *greater* VMT impacts when compared to the proposed project.

Impacts to bicycles and pedestrians would be *greater* under Alternative A when compared to the proposed project since the proposed project's improvements to bicycle and pedestrian facilities, particularly in the Downtown Precise Plan Area, would not be implemented.

Alternative A would not include the multi-modal circulation improvements that are included in the proposed project and the less intense development would result in higher VMT per capita. Overall, transportation impacts in the EIR Study Area under Alternative A would be *greater* when compared to the proposed project.

5.4.2.17 UTILITIES AND SERVICE SYSTEMS

As described in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, impacts to sanitary wastewater, solid waste and stormwater infrastructure, and solid waste, under the proposed project, were found to be less than significant with the compliance of all applicable regulations. No mitigation measures are required.

Demand and consumption trends generally demonstrate that advances in recycling and solid waste reduction requirements, water-efficient regulations in building and landscaping, and stricter stormwater retention requirements, would reduce impact from existing conditions. However, it is assumed that because Alternative A would result in less overall development than the proposed project, less overall water demand, and less wastewater and solid waste generation, impacts under Alternative A would be *less* than those of the proposed project.

5.4.2.18 WILDFIRE

As described in Chapter 4.18, Wildfire, of this Draft EIR, the proposed project would not result in any significant impacts related to wildfire and no mitigation measures are required.

Chapter 4.18, Wildfire, of this Draft EIR determined that, due to compliance with applicable local, regional, and State regulations, the proposed project would not impair the implementation of an emergency response or emergency evacuation plan. Additionally, potential future development as a result of the proposed project would not be located in an area that would expose persons to wildfire or wildfire pollutants, nor would the project expose people or structures to significant risks, including downslope or

ALTERNATIVES TO THE PROPOSED PROJECT

downstream flooding or landslides. Finally, the proposed project would not result in the installation or maintenance of any infrastructure that could exacerbate fire risk or result in impacts to the environment.

Alternative A would continue implementation of the existing General Plan 2020, which focuses development in urbanized areas similar to the proposed project. The existing General Plan 2020 also does not include any infrastructure-related projects and would not conflict with an emergency response or emergency evacuation plan. Therefore, implementation of Alternative A would have *similar* impacts when compared to the proposed project.

5.4.3 RELATIONSHIP OF THE ALTERNATIVES TO THE OBJECTIVES

Under Alternative A, the proposed project would not be implemented and therefore, this alternative would not accomplish any of the project objectives.

5.5 ALTERNATIVE B: GREATER RESIDENTIAL GROWTH

5.5.1 DESCRIPTION

Table 5-4 shows the difference between the growth projections of the proposed project compared to Alternative B. As shown in Table 5-4, Alternative B would result in an increase in the number of households, housing units, and population while slightly reducing the number of jobs in the EIR Study Area when compared to the proposed project.

TABLE 5-4 2020 TO 2040 GROWTH UNDER THE PROPOSED PROJECT AND ALTERNATIVE B

Category	Proposed Project	Alternative B: Greater Residential Growth	Change between the Proposed Project and Alternative B
Downtown Precise Plan Area			
Households	2,100	2,550	450 more households
Residential Units	2,200	2,690	490 more residential units
Population	3,570	4,335	765 more residents
Jobs	2,020	2,000	20 fewer jobs
Remainder of EIR Study Area			
Households	2,150	3,280	1,130 more households
Residential Units	2,260	3,440	1,180 more residential units
Population	5,340	8,165	2,825 more residents
Jobs	2,095	1,915	180 fewer jobs
Total EIR Study Area			
Households	4,250	5,830	1,580 more households
Residential Units	4,460	6,130	1,670 more residential units
Population	8,910	12,500	3,590 more residents
Jobs	4,115	3,915	200 fewer jobs

Source: City of San Rafael, 2020.

ALTERNATIVES TO THE PROPOSED PROJECT

Because Alternative B would include more aggressive housing production, a potential loss of light industrial, office, and retail jobs is presumed. Alternative B includes all the 2015–2023 Housing Element sites, all of the residential sites evaluated in General Plan 2020, all of the potential housing and mixed-use sites identified in the Downtown Precise Plan, and residential development at various locations throughout the EIR Study Area. Alternative B presumes the same General Plan land use designations as the proposed project, except that two sites, one undeveloped and one industrial, would be re-designated as residential. Further, Alternative B would result in a high-density land use designation change on one site that is currently designated Hillside Resource Residential.

The alternatives analysis assumes that all applicable mitigation measures recommended for the proposed project and the proposed General Plan 2040 goals, policies, and programs would apply to Alternative B.

5.5.2 IMPACT DISCUSSION

The potential environmental impacts associated with Alternative B when compared to the proposed project are described herein.

5.5.2.1 AESTHETICS

As described in Chapter 4.1, Aesthetics, of this Draft EIR, the proposed project would not result in any significant impacts related to aesthetics and no mitigation measures are required.

Alternative B does not propose changes that would result in substantial differences from the proposed growth potential of the proposed project. Like the proposed project, potential future development under Alternative B would still be anticipated to occur in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, where future development would have a lesser impact on scenic vistas. Under Alternative B, the proposed increases in maximum height in the Downtown Precise Plan Area would occur. As shown in Table 5-4, Alternative B would result in 490 additional residential units in the Downtown Precise Plan Area and 1,180 additional units in the remainder of the city, compared to the proposed project. This increase in development and height, regardless of the location of the development, would result in higher overall impacts to scenic vistas under Alternative B, therefore, impacts would be *greater* when compared to the proposed project.

Alternative B would, however, benefit from the updated and expanded goals, policies, and programs, as well as the proposed Downtown Precise Plan and the associated Downtown Code. Alternative B would be required to comply with best management practices and SRMC provisions that ensure new land uses do not generate excessive light levels and reduce light and glare spillover from future development to surrounding land uses. Therefore, impacts from light and glare under Alternative B would be *similar* when compared to the proposed project.

Overall, the addition of 1,670 new units in the EIR Study Area under this alternative that would be guided by the same regulations as the proposed project and would occur in the same development pattern, would result in *similar* aesthetics impacts when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.5.2.2 AGRICULTURE AND FORESTRY RESOURCES

As determined in Chapter 4.2, Agriculture and Forestry Resources, the proposed project would result in less-than-significant impacts to agricultural resources and no impacts to forestry resources. The addition of 1,670 new units in the EIR Study Area under this alternative that would be guided by the same regulations and in the same development pattern as the proposed project, would result in *similar* impacts to agricultural and forestry resources when compared to the proposed project.

5.5.2.3 AIR QUALITY

As described in Chapter 4.3, Air Quality, of this Draft EIR, the proposed project would result in significant and unavoidable impacts during the operational phase even with implementation of Mitigation Measures AIR-2.2 and AIR-3.2. Implementation of Mitigation Measure AIR-2.1 3.1a, and AIR-3.1b, would reduce significant impact from construction to a less-than-significant level.

As described in Chapter 4.3, Air Quality, of this Draft EIR, implementation of the proposed project would not conflict with the 2017 *Clean Air Plan*, would pose no operational community risks or hazards, and would not generate any substantial odors. However, at a program level, implementation of the proposed project would result in significant and unavoidable impacts related to construction and operation of potential future development, as well as the cumulative contribution to the non-attainment designations of the San Francisco Bay Area Air Basin. These impacts were not determined based on the number of units, but due to the program-level nature of the project, which would be the same under each scenario. Nonetheless, the increased amount of construction from Alternative B would have *greater* air quality impacts from fugitive dust when compared to the proposed project.

Under Alternative B, increased development would occur; therefore, more direct and indirect criteria air pollutant emissions from energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment) would occur. Similar to the proposed project, development that would occur under Alternative B would be infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. Alternative B would benefit from the updated and expanded goals, policies, and programs in the proposed project aimed at reducing air pollutants and would concentrate development in existing urban areas and therefore Alternative B maintains the net benefit gained from siting future development near public transit and existing services. As described in the transportation discussion for this alternative (Section 5.5.2.16), the Total VMT Per Service Population and Work VMT Per Employee would be less under Alternative B than the proposed project (27.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 16.1 Work VMT Per Employee compared to 16.9 Work VMT Per Employee). The addition of housing does slightly increase the Home VMT Per Resident when compared to the proposed project (11.9 Home VMT Per Resident compared to 11.3 Home VMT Per Resident), but the reduction in Total VMT Per Capita would still reduce emissions when compared to the proposed project. Therefore, as a result of increasing housing and concentrating redevelopment in existing urban areas, Alternative B would reduce VMT, which are the major source of criteria air pollutants from the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

Overall, while Alternative B would result in more residential development than the proposed project, air quality impacts from the operation of these uses would be considered *less* when compared to the proposed project.

5.5.2.4 BIOLOGICAL RESOURCES

As discussed in Chapter 4.4, Biological Resources, of this Draft EIR, the impacts to biological resources from the proposed project are fully mitigable with implementation of Mitigation Measures BIO-1 through BIO-4. Alternative B does not propose any changes that would result in substantial differences from the proposed growth potential of the proposed project. The 490 additional residential units in the Downtown Precise Plan Area and the 1,180 additional units in the remainder of the city would still be anticipated to occur in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, where future development would have a lesser impact on biological resources. Under Alternative B, Mitigation Measure BIO-1, which requires project-specific baseline biological resources assessments for projects on sites that contain natural habitat with features that could support special-status species and other sensitive biological resources, as well as active nests of birds protected under the Migratory Bird Treaty Act and California Fish and Game Code, and Mitigation Measure BIO-4b, which would set standards certain development with the greater likelihood of causing bird collisions would be implemented. Therefore, while development would be more intensive under Alternative B, development would be concentrated in the same urban areas, and additional measures to protect biological resources would be realized, thus potential future development under Alternative B would result in *similar* impacts when compared to the proposed project.

5.5.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

As described in Chapter 4.5, Cultural and Tribal Cultural Resources, of this Draft EIR, the proposed project would result in less-than-significant impacts to cultural and tribal cultural resources with implementation of Mitigation Measures CULT-2 through CULT-4 and would result in a significant and unavoidable impact with implementation of Mitigation Measure CULT-1.

Under Alternative B, new development would continue throughout the city under existing plans and regulations, and would be guided by the Downtown Precise Plan and Downtown Code, which would establish new standards in the Downtown Precise Plan Area to further protect historic buildings. As explained in Chapter 4.5, there are existing prehistoric, architectural, historical, or archaeological resources in the EIR Study Area that could all be impacted by new demolition, inappropriate modification, or inappropriate new construction under the proposed project or Alternative B. Like the proposed project, Alternative B would be subject to the procedures of conduct following the discovery of human remains set forth in California Health and Safety Code, Public Resources Code and the California Code of Regulations. Alternative B would also include all mitigating policies and programs that the proposed project includes to further ensure the protection of historic resources, particularly in the Downtown Precise Plan Area. However, because more development would occur under the Alternative B scenario, the potential to impact these resources would be *greater* when compared to the proposed project. Overall, Alternative B would have a *greater* impact to cultural resources when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.5.2.6 ENERGY

As described in Chapter 4.6, Energy, of this Draft EIR, the proposed project would not result in any significant impacts related to energy and no mitigation measures are required.

All development that occurs in the State is required to comply with best management practices regulated in the 2019 California Green Building Code and 2019 Building and Energy Efficiency Standards, which would be subject to the triennial updates that would presumably improve over time. Compliance with these regulations ensure new development would not result in the wasteful or inefficient use of energy. Further, new development would automatically be enrolled in renewable energy supplied by Marin Clean Energy. Such requirements and enrollment in MCE would be required under both the proposed project and under Alternative B. Additionally, neither the proposed project nor Alternative B would introduce a level of development and population growth that would be anticipated to necessitate the construction of new energy supply facilities or transmission infrastructure.

More development would occur under the Alternative B scenario, so energy consumption from construction would be *greater* when compared to the proposed project. However, newer buildings would be more energy efficient, thus energy impacts from older buildings would be less efficient when compared to the proposed project. This assumes that the increased development potential for the additional housing would possibly involve demolition of older, less energy-efficient buildings than under the proposed project. Ultimately, as described in the air quality discussion and transportation section, energy use from VMT would be less under Alternative B because more infill development in PDAs and TPAs would occur when compared to the proposed project. Therefore, overall energy efficiency would be *similar* under Alternative B when compared to the proposed project.

5.5.2.7 GEOLOGY AND SOILS

As described in Chapter 4.7, Geology and Soils, of this Draft EIR, the proposed project would have less-than-significant impacts related to geology and soils in the EIR Study Area. The impacts related to unknown unique paleontological resources are fully mitigable with implementation of Mitigation Measure GEO-6.

Future development under both Alternative B and the proposed project would occur in the same urban areas and would be subject to the same federal, State, and local regulations that address and prevent hazards associated with geology, soils, and seismicity. Although Alternative B would result in less overall development, compliance with existing regulations related to geologic and seismic safety would apply similarly to both future development under Alternative B and the proposed project; therefore, Alternative B would result in *similar* impacts when compared to the proposed project.

5.5.2.8 GREENHOUSE GAS EMISSIONS

As described in Chapter 4.8, Greenhouse Gas Emissions, of this Draft EIR, the proposed project would result in significant and unavoidable impacts despite implementation of Mitigation Measures GHG-1.

ALTERNATIVES TO THE PROPOSED PROJECT

Implementation of the proposed project would result in significant and unavoidable GHG emissions impacts when applying program-level thresholds for the forecast year 2040. With respect to GHG emissions from construction, new buildings constructed would be subject to the triennial updates to California’s Building and Energy Efficiency Standards, which would presumably improve over time. While new buildings would be more energy efficient, there would be an overall increase in energy usage under the Alternative B from construction due to the amount of proposed growth. Even with implementation of the 2017 Scoping Plan, the 2050 target identified under Executive Order S-03-05, is estimated to not be achievable without major advances in technology. The identification of these program-level impacts does not preclude the finding of less-than-significant impacts for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance.

Development that could occur under Alternative B would occur similar to the proposed project in the Downtown Precise Plan and other urban portions of the EIR Study Area. Alternative B would result in a higher concentration of development in these areas, which would result in the same net benefit gained from siting more intense infill near public transit and result in a higher percentage of transit users that may rely on automobiles (as opposed to walking or biking). Therefore, as a result of placing development in these urban areas, Alternative B would result in less VMT (27.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 16.1 Work VMT Per Employee compared to 16.9 Work VMT Per Employee), which are the major source of criteria GHG emissions from the proposed project. Therefore, while Alternative B would result in the same type of urban development with additional housing, GHG emissions impacts from operation would be considered *less* when compared to the proposed project due to the higher concentration of development.

Under Alternative B, future development in the EIR Study Area would continue to occur under the proposed General Plan 2040 and would result in infill development in PDAs and TPAs near transit as approximately half of the proposed project’s development would. Accordingly, impacts related to consistency with the 2017 Scoping Plan, *Plan Bay Area*, and the City’s *Climate Change Action Plan* as integrated into the General Plan, would be *similar* under both scenarios.

Overall, because Alternative B would result in more infill development and less VMT, impacts from GHG emissions under Alternative B would be *less* when compared to the proposed project.

5.5.2.9 HAZARDS AND HAZARDOUS MATERIALS

As described in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, the proposed project would result in less-than-significant impacts related to hazards and hazardous materials with implementation of Mitigation Measure HAZ-4.

As discussed in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, there are sites within the EIR Study Area and the Downtown Precise Plan Area that are included on a list of hazardous materials sites. Impact Discussion HAZ-4 of this Draft EIR concluded that implementation of the proposed project could result in construction and operation activities on sites with known hazardous materials and, as a result, create a significant hazard to the public or the environment. However, such impacts were deemed less-than-significant with the adoption of mitigation measures. Implementation of Alternative B would occur in approximately the same locations as the proposed project, but would result in a higher intensity

ALTERNATIVES TO THE PROPOSED PROJECT

of development. Alternative B would comply with the same federal and State regulations as the proposed project and would still result in the adoption of the same goals, policies, and programs related to hazardous materials as the proposed project. Therefore, Alternative B would have a *similar* impact when compared to the proposed project.

The proposed project was found to have a less-than-significant impact related to the routine transport, use, or disposal of hazardous waste, the release of hazardous waste, or the emitting of hazardous emissions or handling of hazardous materials in the proximity of an existing or proposed school. As further discussed in Chapter 4.9, Hazards and Hazardous Materials, the EIR Study Area is not located within an airport land use plan area for which potential future development could conflict, and implementation of the proposed project would not conflict with an adopted emergency response plan or emergency evacuation plan. Potential future development that could occur in the EIR Study Area from implementation of the proposed project would be required to comply with all federal, State, and local regulations pertaining to hazards and hazardous materials, and the proposed project includes goals, policies, and programs which would further reduce impacts related to hazardous materials. Development that would occur under Alternative B would be required to comply with the same federal and State regulations and would be required to comply with the same goals, policies, and programs that reduce impacts related to hazardous materials. Therefore, Alternative B would have a *similar* impact when compared to the proposed project.

5.5.2.10 HYDROLOGY AND WATER QUALITY

As described in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR, the proposed project would not result in any significant impacts related to hydrology and water quality and no mitigation measures are required. Compliance with existing State and local regulations and procedures would ensure that pre- and post-construction impacts to water quality would be less than significant. These regulations and procedures would be maintained under Alternative B.

Although Alternative B would result in more development overall, future development would largely occur within previously urbanized areas similar to the proposed project and would connect to existing drainage systems already in place and be subject to the same existing federal, State, and local regulations relating to hydrology and water quality. Compliance with existing regulations would ensure that pre- and post-construction impacts to water quality be minimized as future development occurs. Overall, potential future development under Alternative B and the proposed project would be in the same urbanized environments and would be subject to the same existing regulations that address hydrology and water quality impacts. Future development under each scenario would benefit from the updated and expanded General Plan 2040 goals, policies, and programs related to hydrology and water quality and impacts would be considered *similar* when compared to the proposed project.

5.5.2.11 LAND USE AND PLANNING

As described in Chapter 4.11, Land Use and Planning, of this Draft EIR, implementation of the proposed project would result in less-than-significant impacts related to land use and planning.

ALTERNATIVES TO THE PROPOSED PROJECT

The proposed project would aim to improve connectivity and would not create physical barriers within existing communities. While implementation of Alternative B would result in higher intensity of development, the integration of such development would be *similar* to that of the proposed project and does not propose physical features that could divide a community. Accordingly, impacts would be *similar* under both scenarios.

Under Alternative B, development would occur throughout the EIR Study Area under the proposed General Plan 2040 and Zoning Code while development in the Downtown Precise Plan Area would occur under the Downtown Precise Plan and associated Downtown Code. Such development would be the same as under the proposed project and therefore implementation of either development scenario would not conflict with any applicable land use plan adopted for the purpose of avoiding or mitigating an environmental effect and impacts would be *similar* when compared to the proposed project.

5.5.2.12 MINERAL RESOURCES

As discussed in Chapter 4.12, Mineral Resources, of this Draft EIR, the San Rafael Rock Quarry and McNear Brickworks are the only designated mineral resource sites with local, regional, or State significance within the EIR Study Area. The site is located outside of the San Rafael city limits, but within the EIR Study Area. The proposed project was found to have a less-than-significant impact on the San Rafael Rock Quarry and McNear Brickworks because potential future development under the proposed project would occur in existing urbanized areas not located near the mineral resource site. Future development under Alternative B would occur in the locations discussed in the existing General Plan 2020, which include already urbanized portions of the EIR Study Area that would not result in an impact to the mineral resource site. Therefore, impacts to mineral resources would be *similar* to the proposed project under Alternative B.

5.5.2.13 NOISE AND VIBRATION

As described in Chapter 4.13, Noise and Vibration, of this Draft EIR, the proposed project would result in a less-than-significant impact with implementation of Mitigation Measures NOISE-1, NOISE-2a, and NOISE-2b.

Future development allowed under the proposed project would be subject to the standards of the SRMC as well as goals, policies, and programs proposed in General Plan 2040, including those relating to the interface between residential and non-residential land uses. As specific uses are proposed for particular sites, project-level design, permitting, and/or environmental review would serve to ensure that individual uses would comply with the noise regulations. Future development under Alternative B would also be subject to these applicable standards. Impacts would be *similar* under both scenarios in this regard.

Alternative B would result in higher-intensity development, which would result in more construction but less VMT. Because construction is temporary, the reduced noise from the operational phase, would result in *less* noise impacts under Alternative B when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.5.2.14 POPULATION AND HOUSING

As described in Chapter 4.14, Population and Housing, of this Draft EIR, the proposed project would not result in any significant impacts related to population and housing, and no mitigation measures are required.

As described in Chapter 4.14, Population and Housing, of this Draft EIR, implementation of the proposed project would slightly exceed current regional projections. However, implementation of the proposed project was found to have a less-than-significant impact due to the focus on infill development in PDAs and TPAs, which is in alignment with the regional planning framework of *Plan Bay Area*. Further, the proposed project is the overriding policy document in the EIR Study Area which plans for population growth that is reasonably foreseeable through 2040.

Alternative B would result in more population and housing than the proposed project; thus, the regional projections would be exceeded more than the proposed project under this scenario, but would still be in alignment with the regional planning framework of *Plan Bay Area*. Alternative B would include the updated policy framework of the proposed project, which ensures adequate planning occurs to accommodate the future population increase and future development. Therefore, impacts under Alternative B would be *similar* to those under the proposed project.

Alternative B would allow for a higher net increase of residential and non-residential development in the EIR Study Area through 2040. Alternative B would result in more housing than the proposed project and therefore it would not require replacement housing outside the EIR Study Area. Therefore, impacts under Alternative B would be *similar* to those of the proposed project.

In summary, while Alternative B would result in a different growth potential, impacts related to population and housing would be *similar* when compared to the proposed project.

5.5.2.15 PUBLIC SERVICES AND RECREATION

As described in Chapter 4.15, Public Services and Recreation, of this Draft EIR, impacts under the proposed project to fire protection services, police services, parks, schools, and libraries, were found to be less than significant. No mitigation measures are required.

Alternative B would result in more new residents in the EIR Study Area than the proposed project, and therefore, would result in more demand on the public service providers that serve the EIR Study Area. Potential future development under Alternative B would be required to comply with all existing and proposed new City regulations adopted to ensure that development pays its fair share of the cost of delivering services, providing park space, and libraries. As discussed in Chapter 4.15, the City has recently upgraded critical public service facilities and exceeds the existing parkland standard in General Plan 2020. However, because Alternative B would increase overall development which would result in an increase in demand. Therefore, impacts under Alternative B would be *greater* when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.5.2.16 TRANSPORTATION

As described in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in two significant and unavoidable impacts related to transportation despite implementation of Mitigation Measures TRAN-1a and TRAN-1b. These significant and unavoidable impacts are related to the inability of the proposed project to achieve the VMT reduction by 2040 of 15 percent below the baseline (2019) regional average. While the proposed General Plan 2040 results in a reduction in VMT Per Service Population by 2040, the VMT threshold of 15 percent below the current regional average would not be met.

As discussed in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in a significant VMT impact for Total VMT and Work VMT and would not result in a significant Home VMT impact. Both scenarios would result in similar development patterns, but Alternative B would yield more residential units. Therefore, the Total VMT Per Service Population and Work VMT Per Employee would be *less* under Alternative B than the proposed project (27.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 16.1 Work VMT Per Employee compared to 16.9 Work VMT Per Employee).

Both Alternative B and the proposed project would include the improvements recognized in the Downtown Precise Plan and updated goals, policies, and programs that expand upon General Plan 2020 and to ensure the transportation system in the EIR Study Area is multi-modal and designed to increase bicycle and pedestrian access and safety. Impacts related to hazards from design features, emergency access, and conflicting with adopted plans or decrease performance standards, were found to be less than significant.

Overall, transportation impacts in the EIR Study Area under Alternative B would be *less* when compared to the proposed project.

5.5.2.17 UTILITIES AND SERVICE SYSTEMS

As described in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, impacts to sanitary wastewater, solid waste and stormwater infrastructure, and solid waste, under the proposed project, were found to be less than significant with the compliance of all applicable regulations. No mitigation measures are required.

Since Alternative B would result in greater development, and thus, more water demand, wastewater, and solid waste generation, impacts under the Alternative B would be *greater* when compared to the proposed project.

5.5.2.18 WILDFIRE

Chapter 4.18, Wildfire, of this Draft EIR determined that, due to compliance with applicable local, regional, and State regulations, the proposed project would not impair the implementation of an emergency response or emergency evacuation plan. Additionally, potential future development as a result of the proposed project would not be located in an area that would expose persons to wildfire or wildfire pollutants, nor would the project expose people or structures to significant risks, including downslope or

ALTERNATIVES TO THE PROPOSED PROJECT

downstream flooding or landslides. Finally, the proposed project would not result in the installation or maintenance of any infrastructure that could exacerbate fire risk or result in impacts to the environment.

Alternative B would result in higher-density development that would be located in the same locations as in the proposed project; would adopt the same goals, policies, and programs to reduce the risk of wildfire; and would not include the installation or maintenance of any infrastructure projects. Therefore, implementation of Alternative B would have *similar* impacts to the proposed project.

5.5.3 RELATIONSHIP OF THE ALTERNATIVES TO THE OBJECTIVES

As listed in Section 5.2, the primary purposes of the proposed project are to plan for the growth and conservation of San Rafael over a 20-year time horizon and to achieve a more equitable, sustainable, and prosperous future for all residents. This requires extending the buildout horizon to year 2040 and updating goals, policies, and programs so that they meet current State requirements and community priorities. As part of this process, the City drafted 2040 Guiding Principles, which build upon the framework of the vision, guiding principles, and goals of the current General Plan 2020 and reflect the community’s desires for San Rafael’s future. Big-picture objectives related specifically to growth include focusing growth in the Downtown Precise Plan Area, capitalizing on transit opportunities in and around PDAs, and streamlining future development that is consistent with the proposed project.

Alternative B would result in more housing and population growth in the EIR Study Area when compared to the proposed project. However, such growth would generally occur in the same locations as included in the proposed project, which were chosen based on their appropriateness in fulfilling the City’s goals of focusing infill development in existing urban areas near public transportation. Therefore, Alternative B would meet the project objectives.

5.6 ALTERNATIVE C: LOWER RESIDENTIAL GROWTH

5.6.1 DESCRIPTION

Table 5-5 shows the difference between the 2020 to 2040 growth projections of the proposed project compared to Alternative C. As shown in Table 5-5, Alternative C would reduce the number of households, housing units, and population while slightly increasing the number of jobs in the EIR Study Area when compared to the proposed project.

TABLE 5-5 2020 TO 2040 GROWTH UNDER THE PROPOSED PROJECT AND ALTERNATIVE C

Category	Proposed Project	Alternative C: Lower Residential Growth	Change between the Proposed Project and Alternative C
Downtown Precise Plan Area			
Households	2,100	1,535	565 fewer households
Residential Units	2,200	1,615	585 fewer residential units
Population	3,570	2,610	960 fewer residents
Jobs	2,020	2,050	30 more jobs
Remainder of EIR Study Area			

ALTERNATIVES TO THE PROPOSED PROJECT

Households	2,150	1,325	865 fewer households
Residential Units	2,260	1,390	870 fewer residential units
Population	5,340	3,215	2,125 fewer residents
Jobs	2,095	2,190	95 more jobs
Total EIR Study Area			
Households	4,250	2,860	1,390 fewer households
Residential Units	4,460	3,005	1,455 fewer residential units
Population	8,910	5,825	3,085 fewer residents
Jobs	4,115	4,240	125 more jobs

Source: City of San Rafael, 2020.

Alternative C presumes the same General Plan land use designations as the proposed project and differs only in the presumed rate of growth. Alternative C excludes several 2015–2023 Housing Element sites and Downtown Precise Plan sites included in the proposed project. This alternative would convert less commercial acreage to housing, which results in a slightly higher total of jobs anticipated by 2040.

The alternatives analysis assumes that all applicable mitigation measures recommended for the proposed project and the proposed General Plan 2040 goals, policies, and programs would apply to Alternative C.

5.6.2 IMPACT DISCUSSION

The potential environmental impacts associated with Alternative C when compared to the proposed project are described herein.

5.6.2.1 AESTHETICS

As described in Chapter 4.1, Aesthetics, of this Draft EIR, the proposed project would not result in any significant impacts related to aesthetics and no mitigation measures are required.

Alternative C does not propose any changes that would result in substantial differences from the proposed growth potential of the proposed project. Potential future development would still be anticipated to occur in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, where future development would have a lesser impact on scenic vistas. Under Alternative C, the proposed increases in maximum height in the Downtown Precise Plan Area would still occur. However, Alternative C would result in 585 fewer residential units in the Downtown Precise Plan Area and the 870 fewer units in the remainder of the city, compared to the proposed project, and therefore, overall impacts to scenic vistas under Alternative C would be *less* when compared to the proposed project.

Alternative C would benefit from the updated and expanded goals, policies, and programs, as well as the proposed Downtown Precise Plan and the associated Downtown Code. Alternative C would be required to comply with best management practices and SRMC provisions that ensure new land uses do not generate excessive light levels and reduce light and glare spillover from future development to surrounding land uses. Therefore, impacts from light and glare under Alternative C would be *similar* when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

Overall, the reduction of 1,390 new units and addition of 125 more jobs in the EIR Study Area under this alternative that would be guided by the same regulations as the proposed project and would occur in the same development pattern, and would result in *less* aesthetics impacts when compared to the proposed project.

5.6.2.2 AGRICULTURE AND FORESTRY RESOURCES

As determined in Chapter 4.2, Agriculture and Forestry Resources, the proposed project would result in less-than-significant impacts to agricultural resources and no impacts to forestry resources. The reduction of 1,390 new units and addition of 125 more jobs in the EIR Study Area under this alternative that would be guided by the same regulations and in the same development pattern as the proposed project, would result in *similar* impacts to agricultural and forestry resources when compared to the proposed project.

5.6.2.3 AIR QUALITY

As described in Chapter 4.3, Air Quality, of this Draft EIR, the proposed project would result in significant and unavoidable impacts during the operational phase even with implementation of Mitigation Measures AIR-2.2 and AIR-3.2. Implementation of Mitigation Measure AIR-2.1 3.1a, and AIR-3.1b, would reduce significant impact from construction to a less-than-significant level.

As described in Chapter 4.3, Air Quality, of this Draft EIR, implementation of the proposed project would not conflict with the 2017 *Clean Air Plan*, would pose no operational community risks or hazards, and would not generate any substantial odors. However, at a program level, implementation of the proposed project would result in significant and unavoidable impacts related to construction and operation of potential future development, as well as the cumulative contribution to the non-attainment designations of the San Francisco Bay Area Air Basin. The increased amount of construction from Alternative C would have *greater* air quality impacts from fugitive dust when compared to the proposed project.

Under Alternative C, less development would occur; therefore, less direct and indirect criteria air pollutant emissions from energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment) would occur. Similar to the proposed project, development that would occur under Alternative C would be infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development. Alternative C would benefit from the updated and expanded goals, policies, and programs in the proposed project aimed at reducing air pollutants and would concentrate development in existing urban areas and therefore Alternative C maintains the net benefit gained from siting future development near public transit and existing services. As described in the transportation discussion for this alternative (Section 5.6.2.16), the Total VMT Per Service Population and Work VMT Per Employee would be *slightly greater* under Alternative C than the proposed project (28.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 17.3 Work VMT Per Employee compared to 16.9 Work VMT Per Employee). The reduction of 1,390 new units and addition of 125 more jobs does slightly decrease the Home VMT Per Resident when compared to the proposed project (11.2 Home VMT Per Resident compared to 11.3 Home VMT Per Resident). Therefore, this combination of reduced housing and increased jobs in Alternative C would result in increased but similar VMT, which are the major source of criteria air pollutants from the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

Overall, while Alternative C would result in less housing and more employment than the proposed project, air quality impacts from the operation of these uses would be considered *greater* due to increased VMT when compared to the proposed project.

5.6.2.4 BIOLOGICAL RESOURCES

As discussed in Chapter 4.4, Biological Resources, of this Draft EIR, the impacts to biological resources from the proposed project are fully mitigable with implementation of Mitigation Measures BIO-1 through BIO-4. Alternative C does not propose any changes that would result in substantial differences from the proposed growth potential of the proposed project. The 585 fewer residential units and 30 more jobs in the Downtown Precise Plan Area and the 870 fewer units and 95 more jobs in the remainder of the city would still be anticipated to occur in the form of infill/intensification on sites either already developed and/or underutilized, and/or in close proximity to existing development, where future development would have a lesser impact on biological resources. Under Alternative C, Mitigation Measure BIO-1, which requires project-specific baseline biological resources assessments for projects on sites that contain natural habitat with features that could support special-status species and other sensitive biological resources, as well as active nests of birds protected under the Migratory Bird Treaty Act and California Fish and Game Code, and Mitigation Measure BIO-4b, which would set standards certain development with the greater likelihood of causing bird collisions would be implemented. Therefore, while development would be more intensive under Alternative C, development would be concentrated in the same urban areas, and additional measures to protect biological resources would be realized, thus potential future development under Alternative C would result in *similar* impacts when compared to the proposed project.

5.6.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

As described in Chapter 4.5, Cultural and Tribal Cultural Resources, of this Draft EIR, the proposed project would result in less-than-significant impacts to cultural and tribal cultural resources with implementation of Mitigation Measures CULT-2 through CULT-4 and would result in a significant and unavoidable impact with implementation of Mitigation Measure CULT-1.

Under Alternative C, new development would continue throughout the city under existing plans and regulations, and would be guided by the Downtown Precise Plan and Downtown Code, which would establish new standards in the Downtown Precise Plan Area to further protect historic buildings. As explained in Chapter 4.5, there are existing prehistoric, architectural, historical, or archaeological resources in the EIR Study Area that could all be impacted by new demolition, inappropriate modification, or inappropriate new construction under the proposed project or Alternative C. Like the proposed project, Alternative C would be subject to the procedures of conduct following the discovery of human remains set forth in California Health and Safety Code, Public Resources Code and the California Code of Regulations. Alternative C would also include all mitigating policies and programs that the proposed project includes to further ensure the protection of historic resources, particularly in the Downtown Precise Plan Area. However, because less development would occur under the Alternative C scenario, the potential to impact these resources would be *less* when compared to the proposed project. Overall, Alternative C would have *fewer* impacts to cultural resources when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.6.2.6 ENERGY

As described in Chapter 4.6, Energy, of this Draft EIR, the proposed project would not result in any significant impacts related to energy and no mitigation measures are required.

All development that occurs in the State is required to comply with best management practices regulated in the 2019 California Green Building Code and 2019 Building and Energy Efficiency Standards, which would be subject to the triennial updates that would presumably improve over time. Compliance with these regulations ensure new development would not result in the wasteful or inefficient use of energy. Further, new development would automatically be enrolled in renewable energy supplied by Marin Clean Energy. Such requirements and enrollment in MCE would be required under both the proposed project and under Alternative C. Additionally, neither the proposed project nor Alternative C would introduce a level of development and population growth that would be anticipated to necessitate the construction of new energy supply facilities or transmission infrastructure.

Less development would occur under the Alternative C scenario, so energy consumption from construction would be *less* when compared to the proposed project. However, newer buildings would be more energy efficient, thus energy impacts from older buildings would be less energy efficient when compared to the proposed project. This assumes that the increased development potential for the additional housing and jobs under the proposed project would possibly involve the demolition of older, less energy-efficient buildings than the proposed project. Ultimately, as described in the air quality discussion and transportation section for this alternative, energy use from VMT would be increased and therefore, while Alternative C would result in less housing and more employment than the proposed project, energy impacts would be considered *greater* due to increased VMT when compared to the proposed project.

5.6.2.7 GEOLOGY AND SOILS

As described in Chapter 4.7, Geology and Soils, of this Draft EIR, the proposed project would have less-than-significant impacts related to geology and soils in the EIR Study Area. The impacts related to unknown unique paleontological resources are fully mitigable with implementation of Mitigation Measure GEO-6.

Future development under both Alternative C and the proposed project would occur in the same urban areas and would be subject to the same federal, State, and local regulations that address and prevent hazards associated with geology, soils, and seismicity. Although Alternative C would result in *less* overall development, compliance with existing regulations related to geologic and seismic safety would apply similarly to both future development under Alternative C and the proposed project; therefore, Alternative C would result in *similar* impacts when compared to the proposed project.

5.6.2.8 GREENHOUSE GAS EMISSIONS

As described in Chapter 4.8, Greenhouse Gas Emissions, of this Draft EIR, the proposed project would result in two significant and unavoidable impacts despite implementation of Mitigation Measures GHG-1.

ALTERNATIVES TO THE PROPOSED PROJECT

Implementation of the proposed project would result in significant and unavoidable GHG emissions impacts when applying program-level thresholds for the forecast year 2040. With respect to GHG emissions from construction, new buildings constructed would be subject to the triennial updates to California's Building and Energy Efficiency Standards, which would presumably improve over time. New buildings would be more energy efficient and there would be an overall decrease in energy usage under the Alternative C from construction due to the reductions of proposed growth. Even with implementation of the 2017 Scoping Plan, the 2050 target identified under Executive Order S-03-05, is estimated to not be achievable without major advances in technology. The identification of these program-level impacts does not preclude the finding of less-than-significant impacts for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance.

Development that could occur under Alternative C would occur similar to the proposed project in the Downtown Precise Plan and other urban portions of the EIR Study Area. Alternative C would result in a higher concentration of development in these areas, which would result in the same net benefit gained from siting more intense infill near public transit and result in a higher percentage of transit users that may rely on automobiles (as opposed to walking or biking). Therefore, as a result of placing development in these urban areas, Alternative C would result in slightly increased VMT (28.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 16.1 Work VMT Per Employee compared to 17.3 Work VMT Per Employee), which are the major source of criteria GHG emissions from the proposed project. While the Work VMT Per Employee is greater than the proposed project, the Total VMT Per Capita is essentially the same. Therefore, while Alternative C would result in the same type of urban development with fewer housing and more jobs, GHG emissions impacts from operation would be considered *similar* when compared to the proposed project due to the higher concentration of development.

Under Alternative C, future development in the EIR Study Area would continue to occur under the proposed General Plan 2040 and would result in infill development in PDAs and TPAs near transit as approximately half of the proposed project's development would. Accordingly, impacts related to consistency with the 2017 Scoping Plan, *Plan Bay Area*, and the City's *Climate Change Action Plan* as integrated into the General Plan, would be *similar* under both scenarios.

Overall, because Alternative C would result in less infill development but slightly greater VMT, impacts from GHG emissions under Alternative C would be *greater* when compared to the proposed project.

5.6.2.9 HAZARDS AND HAZARDOUS MATERIALS

As described in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, the proposed project would result in less-than-significant impacts related to hazards and hazardous materials with implementation of Mitigation Measure HAZ-4.

As discussed in Chapter 4.9, Hazards and Hazardous Materials, of this Draft EIR, there are sites within the EIR Study Area and the Downtown Precise Plan Area that are included on a State recognized list of hazardous materials sites. Impact Discussion HAZ-4 of this Draft EIR concluded that implementation of the proposed project could result in construction and operation activities on sites with known hazardous materials and, as a result, create a significant hazard to the public or the environment. However, such impacts were deemed less-than-significant with the adoption of mitigation measures. Implementation of

ALTERNATIVES TO THE PROPOSED PROJECT

Alternative C would occur in approximately the same locations as the proposed project but would result in a different mix of development (less residential and more jobs). Therefore, development under Alternative C would have a *similar* probability of being located on active hazardous materials sites. Alternative C would comply with the same federal and State regulations as the proposed project and would still result in the adoption of the same goals, policies, and programs related to hazardous materials as the proposed project. Therefore, Alternative C would have a *similar* impact when compared to the proposed project.

The proposed project was found to have a less-than-significant impact related to the routine transport, use, or disposal of hazardous waste, the release of hazardous waste, or the emitting of hazardous emissions or handling of hazardous materials in the proximity of an existing or proposed school. As further discussed in Chapter 4.9, Hazards and Hazardous Materials, the EIR Study Area is not located within an airport land use plan area for which potential future development could conflict, and implementation of the proposed project would not conflict with an adopted emergency response plan or emergency evacuation plan. Potential future development which could occur in the EIR Study Area from implementation of the proposed project would be required to comply with all federal, State, and local regulations pertaining to hazards and hazardous materials, and the proposed project includes goals, policies, and programs which would further reduce impacts related to hazardous materials. Development that would occur under Alternative C would be required to comply with the same federal and State regulations, and would be required to comply with the updated and expanded General Plan 2040 goals, policies, and programs that reduce impacts related to hazardous materials. Therefore, Alternative C would have a *similar* impact when compared to the proposed project.

5.6.2.10 HYDROLOGY AND WATER QUALITY

As described in Chapter 4.10, Hydrology and Water Quality, of this Draft EIR, the proposed project would not result in any significant impacts related to hydrology and water quality and no mitigation measures are required. Compliance with existing State and local regulations and procedures would ensure that pre- and post-construction impacts to water quality would be less than significant. These regulations and procedures would be maintained under Alternative C.

Alternative C would result in less development overall and future development would occur within the same previously urbanized areas as the proposed project that would connect to existing drainage systems already in place and be subject to the same existing federal, State, and local regulations relating to hydrology and water quality. Compliance with existing regulations would ensure that pre- and post-construction impacts to water quality be minimized as future development occurs. Overall, potential future development under Alternative C and the proposed project would be in the same urbanized environments and would be subject to the same existing regulations that address hydrology and water quality impacts. Future development under each scenario would benefit from the updated and expanded General Plan 2040 goals, policies, and programs related to hydrology and water quality and impacts would be considered *similar* when compared to the proposed project.

5.6.2.11 LAND USE AND PLANNING

As described in Chapter 4.11, Land Use and Planning, of this Draft EIR, implementation of the proposed project would result in less-than-significant impacts related to land use and planning.

ALTERNATIVES TO THE PROPOSED PROJECT

The proposed project would aim to improve connectivity and would not create physical barriers within existing communities. While implementation of Alternative C would result in a lower intensity of development, the integration of such development would be *similar* to that of the proposed project and does not propose physical features that could divide a community. Accordingly, impacts would be *similar* under both scenarios.

Under Alternative C, development would occur throughout the EIR Study Area under the proposed General Plan 2040 and Zoning Code while development in the Downtown Precise Plan Area would occur under the Downtown Precise Plan and associated Downtown Code. Such development would be the same as under the proposed project and therefore implementation of either development scenario would not conflict with any applicable land use plan adopted for the purpose of avoiding or mitigating an environmental effect and impacts would be *similar* when compared to the proposed project.

5.6.2.12 MINERAL RESOURCES

As discussed in Chapter 4.12, Mineral Resources, of this Draft EIR, the San Rafael Rock Quarry and McNear Brickworks are the only designated mineral resource sites with local, regional, or State significance within the EIR Study Area. The site is located outside of the San Rafael city limits, but within the EIR Study Area. The proposed project was found to have a less-than-significant impact on the San Rafael Rock Quarry and McNear Brickworks because potential future development under the proposed project would occur in existing urbanized areas not located near the mineral resource site. Future development under Alternative C would occur in the locations discussed in the existing General Plan 2020, which include already urbanized portions of the EIR Study Area that would not result in an impact to the mineral resource site. Therefore, impacts to mineral resources would be *similar* to the proposed project under Alternative C.

5.6.2.13 NOISE AND VIBRATION

As described in Chapter 4.13, Noise and Vibration, of this Draft EIR, the proposed project would result in a less-than-significant impact with implementation of Mitigation Measures NOISE-1, NOISE-2a, and NOISE-2b.

Future development allowed under the proposed project would be subject to the standards of the SRMC as well as goals, policies, and programs proposed in General Plan 2040, including those relating to the interface between residential and non-residential land uses. As specific uses are proposed for particular sites, project-level design, permitting, and/or environmental review would serve to ensure that individual uses would comply with the noise regulations. Future development under Alternative C would also be subject to these applicable standards. Impacts would be *similar* under both scenarios in this regard.

Alternative C would result in less intense development, which would result in more construction and increased but *similar* VMT. Because construction is temporary, the slightly greater but *similar* noise from the operational phase would result in *similar* noise impacts under Alternative C when compared to the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.6.2.14 POPULATION AND HOUSING

As described in Chapter 4.14, Population and Housing, of this Draft EIR, the proposed project would not result in any significant impacts related to population and housing, and no mitigation measures are required.

As described in Chapter 4.14, Population and Housing, of this Draft EIR, implementation of the proposed project would slightly exceed current regional projections. However, implementation of the proposed project was found to have a less-than-significant impact due to the focus on infill development in PDAs and TPAs, which is in alignment with the regional planning framework of *Plan Bay Area*. Further, the proposed project is the overriding policy document in the EIR Study Area which plans for population growth that is reasonably foreseeable through 2040.

Alternative C would result in less population and housing, and more jobs than the proposed project; thus, the regional projections would be closer to the 2040 regional forecasts for San Rafael under Plan Bay Area 2040. Alternative C would include the updated policy framework of the proposed project, which ensures adequate planning occurs to accommodate the future population increase and future development. Therefore, impacts under Alternative C would be *similar* to those under the proposed project.

Alternative C would allow for a lower increase of residential and higher non-residential development in the EIR Study Area through 2040. Alternative C would result in less housing than the proposed project but would still not require replacement housing outside the EIR Study Area. Therefore, impacts under Alternative C would be *similar* to those of the proposed project.

In summary, while Alternative C would result in a different growth potential, impacts related to population and housing would be *similar* when compared to the proposed project.

5.6.2.15 PUBLIC SERVICES AND RECREATION

As described in Chapter 4.15, Public Services and Recreation, of this Draft EIR, impacts under the proposed project to fire protection services, police services, parks, schools, and libraries, were found to be less than significant. No mitigation measures are required.

Alternative C would result in fewer new residents and more jobs in the EIR Study Area than the proposed project, and therefore, would result in *less* demand on the public service providers that serve the EIR Study Area. However, potential future development under Alternative C would be required to comply with all existing and proposed new City regulations adopted to ensure that development pays its fair share of the cost of delivering services, providing park space, and libraries. As discussed in Chapter 4.15, the City has recently upgraded critical public service facilities and exceeds the existing parkland standard in General Plan 2020; therefore, Alternative C would not result in an increase in demand, which would be anticipated to result in a significant impact. Further, the payment of property taxes and development fees that would ensure that future development pays its fair share towards schools as dictated by Senate Bill 50 while City regulations would ensure future development pays its fair share towards potential increases in demand on library services. Overall, impacts under Alternative C would be *less* than those of the proposed project.

ALTERNATIVES TO THE PROPOSED PROJECT

5.6.2.16 TRANSPORTATION

As described in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in two significant and unavoidable impacts related to transportation despite implementation of Mitigation Measures TRAN-1a and TRAN-1b. Both significant and unavoidable impacts are related to the inability of the proposed project to achieve the VMT reduction by 2040 of 15 percent below the baseline (2019) regional average. While the proposed General Plan 2040 results in a reduction in VMT Per Service Population by 2040, the VMT threshold of 15 percent below the current regional average would not be met.

As discussed in Chapter 4.16, Transportation, of this Draft EIR, the proposed project would result in a significant VMT impact for Total VMT Per Capita and Work VMT Per Employee and would not result in a significant Home VMT Per Resident impact. Both scenarios would result in similar development patterns, but Alternative C would yield fewer residential units and more jobs. Therefore, the Total VMT Per Service Population and Work VMT Per Employee would be *slightly* greater under Alternative C than the proposed project (28.3 Total VMT Per Capita compared to 28.1 Total VMT Per Capita and 16.1 Work VMT Per Employee compared to 17.3 Work VMT Per Employee).

Both Alternative C and the proposed project would include the improvements recognized in the Downtown Precise Plan and updated goals, policies, and programs that expand upon General Plan 2020 and to ensure the transportation system in the EIR Study Area is multi-modal and designed to increase bicycle and pedestrian access and safety. Impacts related to hazards from design features, emergency access, and conflicting with adopted plans or decrease performance standards, were found to be less than significant.

Overall, transportation impacts in the EIR Study Area under Alternative C would be *greater* when compared to the proposed project.

5.6.2.17 UTILITIES AND SERVICE SYSTEMS

As described in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, impacts to sanitary wastewater, solid waste and stormwater infrastructure, and solid waste, under the proposed project, were found to be less than significant with the compliance of all applicable regulations. No mitigation measures are required.

Since Alternative C would result in less residential development, and thus, less water demand, wastewater and solid waste generation, impacts under the Alternative C would be *less* when compared to the proposed project.

5.6.2.18 WILDFIRE

Chapter 4.18, Wildfire, of this Draft EIR determined that, due to compliance with applicable local, regional, and State regulations, the proposed project would not impair the implementation of an emergency response or emergency evacuation plan. Additionally, potential future development as a result of the proposed project would not be located in an area that would expose persons to wildfire or wildfire

ALTERNATIVES TO THE PROPOSED PROJECT

pollutants, nor would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides. Finally, the proposed project would not result in the installation or maintenance of any infrastructure that could exacerbate fire risk or result in impacts to the environment.

Alternative C would result in lower-density development that would be located in the same locations as in the proposed project; would adopt the same goals, policies, and programs to reduce the risk of wildfire; and would not include the installation or maintenance of any infrastructure projects. Therefore, implementation of Alternative C would have *similar* impacts to the proposed project.

5.6.3 RELATIONSHIP OF THE ALTERNATIVES TO THE OBJECTIVES

As listed in Section 5.2, the primary purposes of the proposed project are to plan for the growth and conservation of San Rafael over a 20-year time horizon and to achieve a more equitable, sustainable, and prosperous future for all residents. This requires extending the buildout horizon to year 2040 and updating goals, policies, and programs so that they meet current State requirements and community priorities. As part of this process, the City drafted 2040 Guiding Principles, which build upon the framework of the vision, guiding principles, and goals of the current General Plan 2020 and reflect the community's desires for San Rafael's future. Big-picture objectives related specifically to growth include focusing growth in the Downtown Precise Plan Area, capitalizing on transit opportunities in and around PDAs, and streamlining future development that is consistent with the proposed project.

Alternative C would result in less housing and population growth in the EIR Study Area when compared to the proposed project. As discussed in Chapter 3, Project Description, of this Draft EIR, the proposed project specifically plans for infill development in existing urban areas near public transportation to meet the goals of the City. While the growth in Alternative C would occur in the same locations as included in the proposed project, Alternative C would result in less overall development, which would mean that the City would not meet their goal of providing adequate development to accommodate the growing population in the EIR Study Area. Therefore, Alternative C does not meet all the project objectives as outlined in the proposed project.

5.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the proposed project and the alternatives, Section 15126.6 of the CEQA Guidelines requires that an "environmentally superior" alternative be selected and the reasons for such a selection be disclosed. In general, the environmentally superior alternative is the alternative to the proposed project that would be expected to generate the least number of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative to the proposed project selected may not be the alternative to the proposed project that best meets the goals or needs of San Rafael. Because CEQA Guidelines Section 15126.6(c) requires an evaluation of a reasonable range of alternatives to the proposed project, the proposed project under consideration cannot be identified as the environmentally superior alternative. Additionally, in accordance with CEQA Guidelines Section 15126.6(e)(2), if the

ALTERNATIVES TO THE PROPOSED PROJECT

environmentally superior alternative is the “No Project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

A summary of the impacts shown in Table 5-2 for each alternative is as follows:

- Alternative A would, in comparison to the project, result in *reduced* environmental impacts related to aesthetics, and utilities and service systems, but would ultimately result in *greater* impacts related to air quality, biological resources, cultural resources (historic buildings), energy, GHG emissions, noise (operational), and transportation.
- Alternative B would, in comparison to the project, result in reduced environmental impacts related to air quality, energy, GHG emissions, noise (operational), and transportation, but would result in *greater* impacts to cultural resources (historic buildings) and utilities and service systems.
- Alternative C would, in comparison to the project, would result in reduced environmental impacts related to aesthetics, cultural resources (historic buildings), and utilities and service systems, but would have greater impacts to related to air quality, energy, GHG emissions, noise (operational), and transportation.

Therefore, as shown in Table 5-2, Alternative B would be the environmentally superior alternative.

ALTERNATIVES TO THE PROPOSED PROJECT

This page intentionally left blank.

6. CEQA-Required Conclusions and Findings

This chapter provides an overview of the impacts of the proposed project based on the analyses presented in Chapters 4.1 through 4.18 of this Draft Environmental Impact Report (EIR). The topics covered in this chapter include growth-inducing impacts and significant irreversible changes to the environment. A more detailed analysis of the effects that the proposed project would have on the environment, and proposed mitigation measures to minimize significant impacts, are provided in Chapter 4, Environmental Analysis, of this Draft EIR.

6.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines requires that “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short- and long-term effects.” Chapter 2, Executive Summary, contains Table 2-1, which summarizes the significant impacts, mitigation measures, and levels of significance with and without mitigation. While actions from the proposed project and mitigation measures, where feasible, would reduce the level of impact to less than significant, the following impacts would remain significant and unavoidable after mitigation measures are applied. As detailed in Chapters 4.3, Air Quality, Chapter 4.8, Greenhouse Gas Emissions, and Chapter 4.16, Transportation, of this Draft EIR, environmental impacts associated with the proposed project were found to be significant and unavoidable, as listed:

- **Impact AIR-2.2:** Operational activities associated with potential future development could cumulatively contribute to the non-attainment designations of the San Francisco Bay Area Air Basin.
- **Impact AIR-3.2.** Operational activities associated with potential future development could expose sensitive receptors to substantial toxic air contaminant concentrations from nonpermitted sources.
- **Impact CULT-1.** Future development in San Rafael on sites that contain a historic resource may cause the demolition, destruction, or alteration of a historic resource such that the significance of the resource is "materially impaired." Such adverse changes or potential adverse changes in the significance of a CEQA-defined historic resource would constitute a significant impact.
- **Impact GHG-1:** Implementation of the proposed project may not meet the long-term GHG reduction goal under Executive Order S-03-05. (This is a cumulative impact).
- **Impact TRAN-1a** Implementation of the proposed project would result in a significant land use VMT impact for Total VMT and Work VMT due to forecast land use growth through 2040, based on a comparison of the VMT rate increment for Total VMT Per Service Population and Work VMT Per Employee to the corresponding average baseline rates for the full nine-county Bay Area.

CEQA-MANDATED SECTIONS

- **Impact TRAN-1b:** Implementation of the proposed project would result in a significant road network VMT impact due to the planned capacity of the roadway system.
- **Impact TRAN-6:** Implementation of the proposed project would cumulatively contribute to regional VMT.

6.2 GROWTH-INDUCEMENT

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth-inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal of major barriers to development.

This section evaluates the proposed project's potential to create such growth inducements. As CEQA Guidelines Section 15126.2(d) requires, "[it] must not be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment." In other words, negative impacts associated with growth inducement occur only where the projected growth would cause significant adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct or indirect. Direct growth-inducing impacts are generally associated with providing urban services to an undeveloped area. Indirect, or secondary growth-inducing impacts consist of growth induced in the region by additional demands for housing, goods, and services associated with the population increase caused by, or attracted to, a new project.

Further, while implementation of the proposed project would induce growth, as discussed in detail in Chapter 4.14, Population and Housing, of this Draft EIR, the proposed project would be consistent with the regional planning objectives established for the Bay Area. While the project itself implements goals, policies, and programs to accommodate the project's projected growth, it would exceed the current population and household forecasts as projected by the Association of Bay Area Governments (ABAG). However, ABAG prepares forecasts of the region's population and employment every two to four years. Amongst other sources, ABAG's projections take into account local planning documents for the nine-county region, such as the City of San Rafael's General Plan. As such, while the proposed project exceeds the regional projections, both the General Plan and regional forecasts are long-range planning tools that assist local governments to identify policies that address changing environments. Accordingly, following adoption of the proposed project, the regional forecasts would take into account the new growth potential for San Rafael; thus, bringing the two long-range planning tools into better alignment. Additionally, this additional growth would come incrementally over a period of approximately 20 years and a policy framework is in place to ensure adequate planning occurs to accommodate it. The proposed project results in mixed-use development near transportation facilities and employment centers and implements energy and water conservation requirements related to existing and new development, thereby minimizing consumption of non-renewable resources to the extent practicable.

CEQA-MANDATED SECTIONS

6.2.1 DIRECT IMPACTS

The proposed project is a plan-level document and does not propose any specific development; however, implementation of the proposed project would induce growth by increasing the development potential in the EIR Study Area, as shown in Tables 3-6 and 3-7 in Chapter 3, Project Description, of this Draft EIR.

As shown in Table 3-6, the 2040 forecast for the EIR Study Area is 32,382 households; 33,989 residential units; 84,661 total population, and 48,315 employees. As shown in Table 3-7, the forecast for the Downtown Precise Plan Area is 3,596 households; 3,771 residential units; 5,885 total population, and 13,020 employees.

State law requires the City to promote the production of housing to meet its fair share of the regional housing needs distribution made by ABAG. While the City provides adequate sites to meet its fair-share housing obligations, the additional housing capacity provided by the project would meet the additional demand generated by new job growth.

In addition, as shown on Figure 4-1 (see Chapter 4, Environmental Analysis), the EIR Study Area has three PDAs and three TPAs. The proposed General Plan 2040 is anticipating that these areas will absorb most of the City's future growth. The growth envisioned under the proposed project would result in regional benefits by promoting growth that encourages less automobile dependence and supports regional transit systems, which could have associated air quality and GHG benefits. Encouraging infill growth in designated areas would help to reduce development pressures on lands outside the city boundary.

6.2.2 INDIRECT IMPACTS

The proposed project is considered growth inducing because it encourages new growth in the urbanized areas of San Rafael. Development in these areas would consist of infill development on underutilized sites, sites that have been previously developed, and that are vacant and have been determined to be suitable for development. However, infrastructure is largely in place and growth would be required to comply with the City's General Plan, zoning regulations, and standards for public services and utilities; secondary effects associated with this growth do not represent a new significant environmental impact which has not already been addressed in the individual resource chapters of this EIR.

Additional population and employment growth would occur incrementally over a period of approximately 20 years and would be consistent with the regional planning objectives established for the Bay Area.

6.3 SIGNIFICANT AND IRREVERSIBLE CHANGES

Section 15126.2(c) of the CEQA Guidelines requires an EIR to discuss the extent to which the proposed project would commit nonrenewable resources to uses that future generations would probably be unable to reverse. The three CEQA-required categories of irreversible changes are discussed herein.

CEQA-MANDATED SECTIONS

6.3.1 CHANGES IN LAND USE THAT COMMIT FUTURE GENERATIONS

As described in detail in Chapter 3, Project Description, of this Draft EIR, the proposed project generally maintains the land use pattern of the existing General Plan. While new land uses are not introduced in the proposed project, development is encouraged in existing urban areas, particularly in the Downtown Precise Plan Area. The current General Plan provided development allocations for buildout of the city through the year 2020. The proposed project includes increased density and heights in the Downtown Precise Plan Area, but such future development under the proposed project would be located on land that is generally urbanized or on infill sites and sites in developed areas that are underutilized. However, some potential future development may occur on vacant non-urban sites which are already designated for development. Once future development under the proposed project occurs, it would not be feasible to return the developed land to its existing (pre-project) condition. Therefore, there is potential that some of the development allowed under the proposed project would most likely lead to irreversible changes in land use.

6.3.2 IRREVERSIBLE DAMAGE FROM ENVIRONMENTAL ACCIDENTS

Irreversible changes to the physical environment could occur from accidental release of hazardous materials associated with development activities; however, compliance with the applicable regulations and General Plan goals, policies, and programs and implementation of Mitigation Measures HAZ-4a and HAZ-4b, and HAZ-8, as discussed in Chapter 4.9, Hazards and Hazardous Materials, would reduce this potential impact to a less-than-significant level. Therefore, irreversible damage is not expected to result from the adoption and implementation of the proposed project.

6.3.3 LARGE COMMITMENT OF NONRENEWABLE RESOURCES

Implementation of development allowed under the proposed project would result in the commitment of limited, renewable resources such as lumber and water. In addition, development allowed by the proposed project would irretrievably commit nonrenewable resources for the construction of buildings, infrastructure, and roadway improvements. These nonrenewable resources include mined minerals such as sand, gravel, steel, lead, copper, and other metals. Future buildout under implementation of the proposed project also represents a long-term commitment to the consumption of fossil fuels, natural gas, and gasoline. Increased energy demands would be used for construction, lighting, heating, and cooling of residences, and transportation of people within, to, and from San Rafael. However, as shown in Chapter 4.5, Energy, and in Section 4.17.1, Water, and Section 4.17.4, Solid Waste, of Chapter 4.17, Utilities and Service Systems, of this Draft EIR, several regulatory measures and General Plan policies and strategies encourage energy and water conservation, alternative energy use, waste reduction, alternatives to automotive transportation, and green building. Future development, as a result of increased development allocation under the proposed project, would be required to comply with all applicable building and design requirements, including those set forth in Title 24 relating to energy conservation. In compliance with CALGreen, the State's Green Building Standards Code, future development would be

CEQA-MANDATED SECTIONS

required to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials. Therefore, while the construction and operation of future development, as a result of increased development allocations under the proposed project, would involve the use of nonrenewable resources, compliance with applicable standards and regulations and implementation of General Plan policies would reduce the use of nonrenewable resources to the maximum extent practicable; therefore, the proposed project would not represent a large commitment of nonrenewable resources in comparison to a business-as-usual situation.

CEQA-MANDATED SECTIONS

This page intentionally left blank.

8. Common Acronyms and Abbreviations

ACRONYM/ABBREVIATION	MEANING
°C	degrees Celsius
°F	degrees Fahrenheit
AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
afy	acre-feet per year
BAAQMD	Bay Area Air Quality Management District
BAM	best available maps
BASMAA	Bay Area Stormwater Management Agencies Association
BCDC	Bay Conservation and Development Commission
BFE	base flood elevation
BMP	best management practice
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal OES	California Office of Emergency Services
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings
CARB	California Air Resources Board
CBC	California Building Code
CCAP	climate change action plan
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CGP	Construction General Permit
CH ₄	methane
CHP	California Highway Patrol
CIP	capital improvements program

COMMON ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	MEANING
CMP	congestion management program
CMSA	Central Marin Sanitation Agency
CNDDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide-equivalent
CUPA	Certified Unified Program Agency
CWA	federal Clean Water Act
dB	decibel
dBA	A-weighted decibel
DOI	Department of the Interior
DOT	United States Department of Transportation
DPM	diesel particulate matter
DPW	San Rafael Department of Public Works
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EMS	emergency medical services
EOP	emergency operations plan
EPCRA	Emergency Planning Community Right-to-Know Act
EPSFSP	<i>San Rafael Essential Public Safety Facilities Strategic Plan</i>
ERP	emergency recovery plan
ESC	Emergency Services Coordinator
ESCP	erosion and sediment control plan
FAR	floor area ratio
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	flood insurance rate map
FTA	Federal Transit Administration
FOG	fats, oils, and grease
GDP	gross domestic product
GHG	greenhouse gas
GIS	geographic information system
gpcd	gallons per capita per day
GWP	global warming potential
HCP	habitat conservation plan
Hz	herz
I-	Interstate
IPCC	Intergovernmental Panel on Climate Change
ISO	Insurance Services Office
JPA	joint powers authority

COMMON ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	MEANING
kBTU	thousand British thermal units
kW	kilowatt
kWh	kilowatt-hours
LAFCo	Local Agency Formation Commission
LGVSD	Las Gallinas Valley Sanitary District
LHMP	local hazard mitigation plan
LUST	leaking underground storage tank
µg/m ³	micrograms per cubic meter
M	earthquake magnitude
Marin OES	Marin County Office of Emergency Services
MBTA	Migratory Bird Treaty Act
MCCO	Marin County Code of Ordinances
MCFCWCD	Marin County
MCFD	Marin County Fire Department
MCLHMP	<i>Marin County Local Hazard Mitigation Plan</i>
MCSTOPPP	Marin County Stormwater Pollution Prevention Program
mg	million gallons
mgd	million gallons per day
MHHWF	Marin Household Hazard Waste Facility
MCE	Marin Clean Energy
MMTCO _{2e}	million metric tons of CO _{2e}
MMWD	Marin Municipal Water District
MRC	Marin Recycling Center
MRRC	Marin Resource Recovery Center
MRZ	Mineral Resource Zone
MS4	municipal separate storm sewer system
MTC	Metropolitan Transportation Commission
MTCO _{2e}	metric ton of CO _{2e}
MWELo	Model Water Efficient Landscape Ordinance
N ₂ O	nitrous oxide
NAC	noise abatement criteria
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O ₃	ozone
OPC	Ocean Protection Council
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PDA	priority development area
PG&E	Pacific Gas and Electric Company

COMMON ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	MEANING
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM	particulate matter
ppb	parts per billion
ppd	pounds per day
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PRD	permit registration documents
PV	photovoltaic
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Act Information System
RHNA	regional housing needs assessment
RTP/SCS	regional transportation plan / sustainable communities strategy
RWQCB	Regional Water Quality Control Board
SAP	station area plan
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCH	State Clearinghouse
SCP	stormwater control plan
SCWA	Sonoma County Water Agency
SF ₆	sulfur hexafluoride
SMART	Sonoma-Marin Area Rail Transit
SMARTS	Stormwater Multiple Application and Report Tracking System
SOI	sphere of influence
SRMC	San Rafael Municipal Code
SRFD	San Rafael Fire Department
SRPD	San Rafael Police Department
SRSD	San Rafael Sanitation District
SSMP	sewer system management plan
SSO	sanitary sewer overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAM	Transportation Authority of Marin
TMDL	total maximum daily load
TPA	transit priority area
US-	U.S. highway
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VdB	vibration decibel

COMMON ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	MEANING
VMT	vehicle miles traveled
WCR	well completion report
WMD	waste management division
WSA	water supply assessment
WUI	wildland-urban interface
WWTP	wastewater treatment plant

COMMON ACRONYMS AND ABBREVIATIONS

This page intentionally left blank.



Prepared by



1625 Shattuck Avenue, Suite 300
Berkeley, California 94709
510.848.3815

www.placeworks.com