2.12 Public Utilities and Facilities

This chapter describes the environmental setting and assesses the potential for Plan Bay Area to impact public utilities, facilities, and services within the nine counties of the Bay Area. The public utilities, facilities, and services included in this EIR include water supply, wastewater/stormwater, and solid waste. The analysis is focused on those areas where demand for services may increase as a result of growth anticipated by Plan Bay Area. For a discussion of water quality see *Chapter 2.8: Water Resources.*

Environmental Setting

PHYSICAL SETTING

Water Supply

Climatic conditions and annual precipitation are described in *Chapter 2.8: Water Resources.*

San Francisco Bay Hydrologic Region

As defined by the San Francisco Bay Regional Water Quality Control Board (RWQCB), the San Francisco Bay Hydrologic Region (Bay Region) encompasses numerous individual watersheds that drain into the San Francisco Bay and directly into the Pacific Ocean. It covers approximately 4,550 square miles and includes portions of all nine Bay Area counties as well as Santa Cruz County. Bay Region watersheds are listed in **Table 2.12-1** and the largest watersheds are depicted in **Figure 2.12-1**.

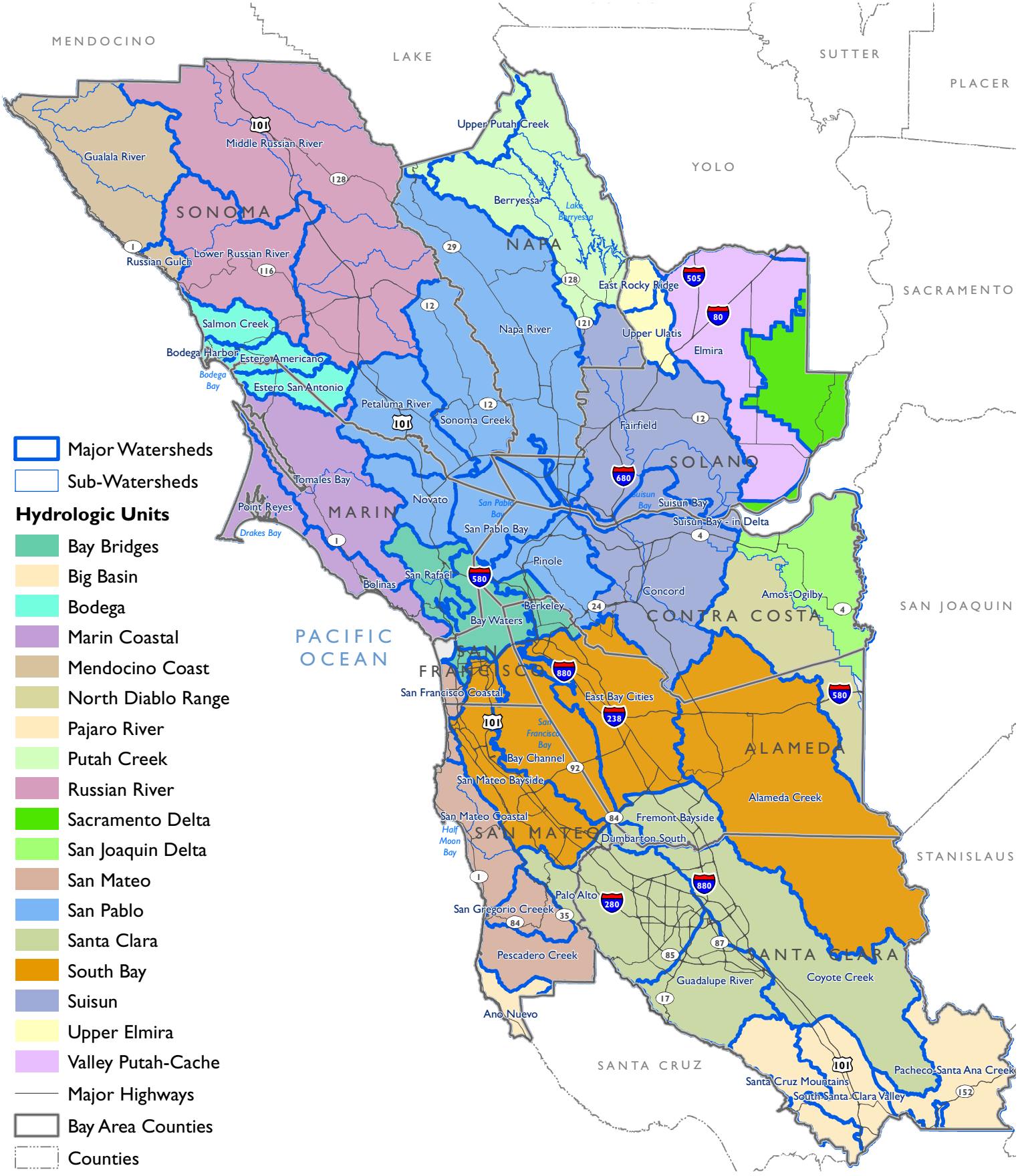
TABLE 2.12-1: WATERSHEDS OF THE SAN FRANCISCO BAY HYDROLOGIC REGION

North Bay	Corte Madera Creek watershed
	Novato Creek watershed
	Petaluma River watershed
	Sonoma Creek watershed
	Napa River watershed
	Marin and North Bay Coastal drainages (including Lagunitas Creek, Arroyo Corte Madera Creek, Miller Creek, etc.)
Suisun Bay	Green Valley/Suisun Creeks watersheds
	Walnut Creek watershed
	San Pablo/Wildcat Creeks watersheds
	Suisun Bay drainages (including Sulphur Springs Creek, Laurel Creek, Mt Diablo Creek, etc.)
East Bay	San Leandro Creek watershed
	San Lorenzo Creek watershed
	Alameda Creek watershed
	East Bay drainages (including Rodeo Creek, Cordonices Creek, Claremont Creek, Peralta Creek, Lake Merritt watershed, etc.)
South Bay	Coyote Creek watershed
	Guadalupe River watershed
	West Santa Clara Valley drainages (including Stevens Creek, Permanente Creek, Saratoga Creek, etc.)
Peninsula	San Francisquito Creek watershed
	San Mateo Creek watershed
	San Mateo and Peninsula Coastal drainages (including Cordilleras Creek, Colma Creek, Pilarcitos Creek, Pescadero Creek, San Gregorio Creek, etc.)

Source: California Department of Water Resources and the California Water Boards, "San Francisco Bay Area Integrated Regional Water Management Plan," 2006.

Figure 2.12-1

Major Local Watersheds in the SF Bay Hydrologic Region



Data Source: CalWater 2.2.1, 2004; Cal-Atlas Geospatial Clearinghouse, 2012; The Conservation Lands Network, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.

0 5 10 20 Miles

1 in = 16 miles

This page intentionally left blank.

Water Supply Agencies

Water supply for each county is provided by its respective water supply department or agency. Some counties contain several water providers. The focus of this EIR is on a regional analysis of water supply. According to the 2006 San Francisco Bay Integrated Water Management Plan[1], the agencies and departments included in this description are the major contributors to the water sources in each Bay Area county.

Alameda County Water District

The Alameda County Water District (ACWD) serves the cities of Fremont, Newark, and Union City. ACWD is a retail water purveyor that allocates 70 percent of its water to residential customers and approximately 30 percent to commercial, industrial, institutional, and large landscape customers. In the 2009-2010 fiscal year, it provided water for a total of 80,139 customers, or over 340,000 individuals.[2]

Contra Costa Water District

The Contra Costa Water District (CCWD) provides water to approximately 500,000 people in Contra Costa County, covering a total area of 140,000 acres. It operates and maintains a complex system of water transmission, treatment, and storage facilities to supply both treated and untreated (raw) water to its customers. It provides treated water to Clayton, Clyde, Concord, Pacheco, Port Costa and parts of Martinez, Pleasant Hill, and Walnut Creek. In addition, CCWD provides wholesale treated water to the City of Antioch, the Golden State Water Company in Bay Point, the Diablo Water District in Oakley, and the City of Brentwood. It also sells untreated water to the cities of Antioch, Martinez and Pittsburg, as well as to industrial and irrigation customers. CCWD pumps water from four intakes in the Sacramento-San Joaquin Delta. The intakes are located at Rock Slough, on Old River, on Victoria Canal and at Mallard Slough. The backbone of the district's water conveyance system is the 48-mile Contra Costa Canal, which starts at Rock Slough and ends at the Martinez Reservoir. In 2010, the CCWD served approximately 110,000 acre-feet of water to its customers.[3]

East Bay Municipal Utility District

The East Bay Municipal Utility District (EBMUD) serves Alameda, Alamo, Albany, Berkeley, Castro Valley, Crockett, Danville, Diablo, El Cerrito, El Sobrante, Emeryville, Hayward, Hercules, Kensington, Lafayette, Moraga, Oakland, Orinda, Piedmont, Pinole, Pleasant Hill, Richmond, Rodeo, San Leandro, San Lorenzo, San Pablo, San Ramon, Selby and Walnut Creek. EBMUD's principal water source is the Mokelumne River Basin in the Sierra Nevada Range. EBMUD has water rights and facilities to divert up to 325 million gallons per day (mgd) from the Mokelumne River, which comprises approximately 90 percent of the agency's water supply. EBMUD's Mokelumne River facilities include Pardee Dam and Reservoir located near Valley Springs, and Camanche Dam and Reservoir located ten miles downstream of Pardee. Snowmelt from Alpine, Calaveras and Amador counties that feeds the upper Mokelumne River is collected in Pardee and Camanche Reservoirs, where it is stored for use by EBMUD. Overall, the

[1] Prepared by RMC for the California Department of Water Resources and the California Water Boards.

[2] Alameda County Water District, *Urban Water Management Plan 2010-2015*, 2011.

[3] Contra Costa Water District, *Urban Water Management Plan*, 2011.

Basin serves approximately 1.34 million people throughout areas of Alameda and Contra Costa counties, including services to residential, industrial, commercial, institutional, and irrigation waters.[4]

Marin Municipal Water District

The Marin Municipal Water District (MMWD) serves the populous eastern corridor of Marin from the Golden Gate Bridge northward up to, but not including, Novato, and is bounded by the San Francisco Bay on the east, and stretches through the San Geronimo Valley in the west. The incorporated cities and towns of San Rafael, Mill Valley, Fairfax, San Anselmo, Ross, Larkspur, Corte Madera, Tiburon, Belvedere and Sausalito are within the District's service area. The district covers approximately 147 square miles and serves a population of approximately 190,000 through about 61,000 service connections. MMWD's potable water distribution system includes approximately 941 miles of water mains, 90 pump stations, and 124 treated water storage tanks with a total storage capacity of 82 million gallons (MG).[5]

City of Napa Water Department

The City of Napa is a major water supply source in Napa County, receiving its annual State Water Project entitlement through the Napa County Flood Control and Water Conservation District, which is the contract administrator. The designated water service areas include most of the lower Napa Valley, the Rural Urban Limit Line, and all areas within the city limits of the City of Napa. The City exports water to the cities of American Canyon, St. Helena and Calistoga, the Town of Yountville, and the California Veterans Home. The predominant use of land in the area is residential development. As of 2010, the population served by the City of Napa Water Department was 86,743. The City of Napa currently meets its demands by supplying water from three major sources: Lake Hennessey, the Milliken Reservoir, and the State Water Project, as delivered through the North Bay Aqueduct.[6]

San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission (SFPUC) operates the Regional Water System (RWS) that provides water to nearly 2.5 million people within San Francisco, San Mateo, Santa Clara, Alameda, and Tuolumne counties. The RWS consists of more than 280 miles of pipeline and 60 miles of tunnels, 11 reservoirs, five pump stations, and two water treatment plans. The SFPUC provides water to both retail and wholesale customers, totaling approximately 32 and 68 percent, respectively.

The Tuolumne River watershed on the western slope of the central Sierra Nevada, which provides water to the RWS, is comprised of three regional water supply and conveyance systems—the Hetch Hetchy System, the Alameda System, and the Peninsula System. The amount of Tuolumne River supplies delivered depends on annual water conditions. In normal years, approximately 80 to 85 percent of SFPUC water supply is provided by runoff from the upper Tuolumne River watershed.[7] This percentage may be reduced in dry years, based on the severity and timing of drought conditions. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd, and Lake Eleanor. Water is diverted from

[4] East Bay Municipal Utility District, *2010 Urban Water Management Plan,* 2011; U.S. Census 2010

[5] Marin Municipal Water District, *2010 Urban Water Management Plan*, 2011

[6] City of Napa*, Urban Water Management Plan 2010 Update*, 2011

[7] California Department of Water Resources and the California Water Boards, *San Francisco Bay Area Integrated Regional Water Management Plan*, 2006

the Hetch Hetchy reservoir into a series of tunnels, aqueducts and pipelines (the Hetch Hetchy System) that cross the San Joaquin Valley to facilities located in Alameda County (the Alameda System). The Alameda System includes conveyance facilities that connect the Hetch Hetchy System to facilities located in the San Francisco Peninsula (the Peninsula System), which also connects to the City and County of San Francisco's distribution system. This water supply serves customers in San Francisco, as well as 28 wholesale customers located in Alameda, Santa Clara, and San Mateo counties.

Reservoirs and tanks within San Francisco have the capacity to hold approximately 413 million gallons of water. The SFPUC estimates this capacity to be a five-day supply at the current average water consumption rate for the city. In addition, there is an emergency supply of existing non-potable water immediately available within the city at Lake Merced, which currently holds approximately 1.5 billion gallons of water. In 2010, the total retail demand for water in the city was 77.7 million gallons per day, and the non-residential demand was 23.5 million gallons per day (assuming successful SFPUC conservation programs).[8]

The primary water source for San Mateo County is SFPUC's Peninsula System. The system utilizes two reservoirs, Crystal Springs and San Andreas, which collect runoff from the San Mateo Creek Watershed. Water from the Pilarcitos Reservoir, on Pilarcitos Creek, directly serves one of the wholesale customers, the Coastside County Water District (which serves Half Moon Bay, Miramar, Princeton By The Sea, and El Granada), and can also deliver water to Crystal Springs and San Andreas Reservoirs. Wholesale customers of the SFPUC Peninsula System include: the cities of Burlingame, Daly City, East Palo Alto, Menlo Park, Millbrae, San Bruno, Redwood City, the Town of Hillsborough, the Coastside County Water District, the Mid-Peninsula Water District, and the North Coast County Water District. It also serves the California Water Service Company Bear Gulch and Bayshore Districts.

Santa Clara Valley Water District

The Santa Clara Valley Water District (SCVWD) is the county's primary water provider, serving Santa Clara County's population of 1,781,642.[9] The SCVWD encompasses all of the county's 1,300 square miles and serves its 15 cities. Although the City of Palo Alto and the Purissima Hills Water District are located within the County of Santa Clara and SCVWD's service area, most of the current water supply to these two agencies is from SFPUC. Both agencies, however, benefit from the comprehensive water management programs and services provided by SCVWD.[10]

The SCVWD manages groundwater and provides comprehensive water management as authorized by the Santa Clara Valley District Act. The SCVWD's water supply system is comprised of storage, conveyance, recharge, treatment, and distribution facilities that include 11 local reservoirs, the groundwater basin, groundwater recharge facilities, treatment plants, imported supply, and raw treated water conveyance facilities. The primary source of water for the SCVWD is the use of groundwater and surface water stored in the reservoirs. The reservoirs store up to 25 percent of Santa Clara County's water supply. The capacity of all the local reservoirs of the SCVWD is 169,009 acre-feet, with 113,758 acre-feet of restricted capacity.

---

[8] San Francisco Public Utilities Commission, *2010 Urban Water Management Plan*, 2011.

[9] U.S. Census, 2010.

[10] California Department of Water Resources and the California Water Boards, *San Francisco Bay Area Integrated Regional Water Management Plan*, 2006.

The primary source of water in the Santa Clara Valley is the use of groundwater aquifers that underlie Santa Clara County. Groundwater pumping provides up to half of the county's water supply during normal years. The SCVWD utilizes conjunctive use methods–the practice of storing surface water in a groundwater basin in wet years and withdrawing from the basin in the dry years–in order to ensure proper protection of groundwater aquifers in Santa Clara County. The SCVWD manages two groundwater subbasins that transmit, filter, and store water—the Santa Clara Subbasin and the Llagas Subbasin. The County of Santa Clara also imports water supplies from the Sacramento-San Joaquin Delta through three main pipelines: the South Bay Aqueduct, which carries water from the State Water Project (SWP), and the Santa Clara Conduit and Pacheco Conduit, both of which bring water from the federal Central Valley Project (CVP). Water imported from the CVP and SWP provide, on average, 40 percent of the supplies used annually in the county.[11]

Solano County Water Agency

The Solano County Water Agency (SCWA) is a wholesale water agency that provides untreated water to cities and agricultural districts in Solano County and parts of Yolo County from the Federal Solano Project and the North Bay Aqueduct (NBA) of the State Water Project (SWP). The SCWA's service area population in 2010 was 413,300. It has water contracts to deliver water to Fairfield, Suisun City, Vacaville, Vallejo, Solano Irrigation District, Maine Prairie Water District, the University of California, Davis, and the California State Prison in Solano. The SWP has rights to water originating from the Sacramento and San Joaquin Rivers, and it stores water on Lake Oroville on the Feather River. The SWP provides water to the SCWA through the NBA, a 27-mile long pipeline that delivers untreated municipal water from Barker Slough in the Sacramento-San Joaquin delta to Napa and Solano Counties.

The major facilities of the Solano Project are the Monticello Dam, which captures water from Putah Creek in Lake Berryessa, the Putah Diversion Dam, which diverts water out of lower Putah Creek, and the Putah South Canal, which delivers water to local agencies. The Putah South Canal is 33 miles long.

The SCWA has contracted with the Department of Water Resources (DWR) for an ultimate allocation of 47,756 acre-feet of water per year from the SWP. In 2010, the SCWA delivered a total of 195,361 acre-feet of water to its respective agencies.[12]

Sonoma County Water Agency

The Sonoma County Water Agency (SCWA) serves a large portion of Sonoma County as well as the northern portion of Marin County. The primary water source for the SCWA is the Russian River. The Russian River originates in central Mendocino County and discharges into the Pacific Ocean near Jenner, about 20 miles west of Santa Rosa, and is approximately 110 miles in length. Additionally, the Santa Rosa Plain provides groundwater. Groundwater is an important source of water in Sonoma County because it provides the domestic water supply for most of the unincorporated portion of the County, and is a primary source of water for agricultural users. Three Water Agency wells located along the Russian River-Cotati Intertie Pipeline in the Santa Rosa Plain also provide a portion of the Water Agency's water supply. The Water Agency diverts water from the Russian River and delivers it to customers through a transmission system. The transmission system consists of six radial collector wells at the Wohler and Mirabel production facilities adjacent to the Russian River. In 2010, the Sonoma County Water Agency

[11] Santa Clara Valley Water District, 2010 *Urban Water Management Plan*, 2011.

[12] Solano County Water Agency, *2010 Urban Water Management Plan*, 2011.

provided 50,796 acre feet of water per year (AFY) to its customers and contractors (including surplus and non-surplus customers).[13]

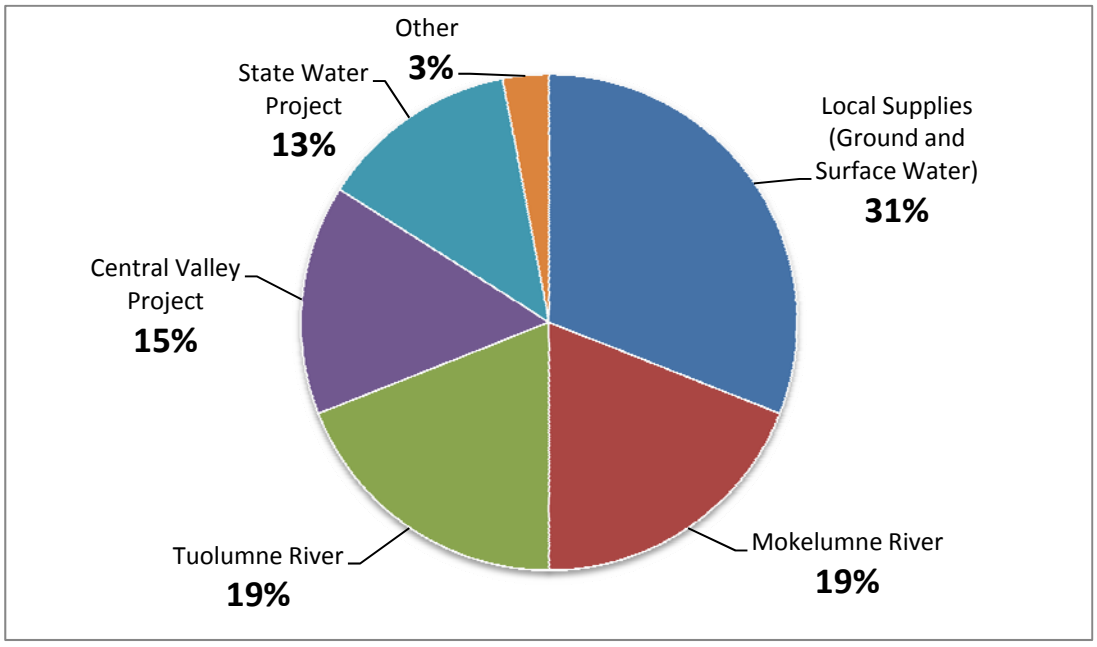
Zone 7 Water Agency

Zone 7 Water Agency's (Zone 7) water service area is located about 40 miles southeast of San Francisco, and encompasses an area of approximately 425 square miles of the eastern portion of Alameda County, including the Livermore-Amador Valley, Sunol Valley, and portions of the Diablo Range. Zone 7's service area also overlies the Alameda Creek Watershed. This watershed encompasses almost 700 square miles, and extends from Altamont Pass to the east, San Francisco Bay to the west, Mount Diablo to the north, and Mount Hamilton to the south. Zone 7 is the water wholesaler for the Livermore-Amador Valley as well as the area's flood control agency. It supplies untreated water for agriculture and treated drinking water to the California Water Service Company, Dublin San Ramon Services District, the City of Livermore, and the City of Pleasanton.[14]

Regional Water Supply

In order to service the region's residential, commercial, and agricultural water needs, Bay Area water agencies must manage a diverse range of water supplies. These include supplies from local and imported sources, as well as through methods such as desalination and recycled water. **Figure 2.12-2** shows the breakdown of typical Bay Area water use by source of supply.

Figure 2.12-2: Bay Area Water Use by Supply Source



Source: California Department of Water Resources and the California Water Boards, San Francisco Bay Area Integrated Regional Water Management Plan, 2006.

[13] Sonoma County Water Agency, *2010 Urban Water Management Plan*, 2011.

[14] Zone 7 Water Agency, *2010 Urban Water Management Plan*, 2010.

Local Water

Local water supplies come from two interconnected sources: surface water and ground water. Surface water is water that collects above ground in a stream, river, lake, wetland, or ocean. Ground water is water that has infiltrated into the subsurface that completely fills (saturates) the void space of rocks or sediment. They are physically connected in the hydrologic cycle when, at certain locations or times of the year, water infiltrates the bed of a stream to recharge ground water or, at others, ground water discharges, contributing to the base flow of a stream. A long-term threat to ground water sources is overdraft. Overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Overdraft can lead to increased extraction costs, land subsidence, water quality degradation, and environmental impacts. Although the Bay Region was not identified in the California Department of Water Resources' last statewide report on groundwater sources in 2003 as an area that is at short-term risk for widespread overdraft conditions, many strategies identified in the Bay Area Integrated Regional Water Management Plan aim to reduce the likelihood of overdraft.[15]

Together, surface water and ground water currently supply approximately 31 percent of Bay Area water.[16] Surface water from local rivers and streams (including the Delta) is an important source for all Bay Area water agencies, but particularly so in the North Bay counties, where access to imported water is more limited due to infrastructure limitations. The Bay Area has 28 primary groundwater basins, which underlie approximately 30 percent of the region (see **Figure 2.12-3**). The basins that are most intensively used for water supply are the Santa Clara, Napa-Sonoma Valley, Petaluma Valley, Niles Cone, and Livermore Valley basins.[17]

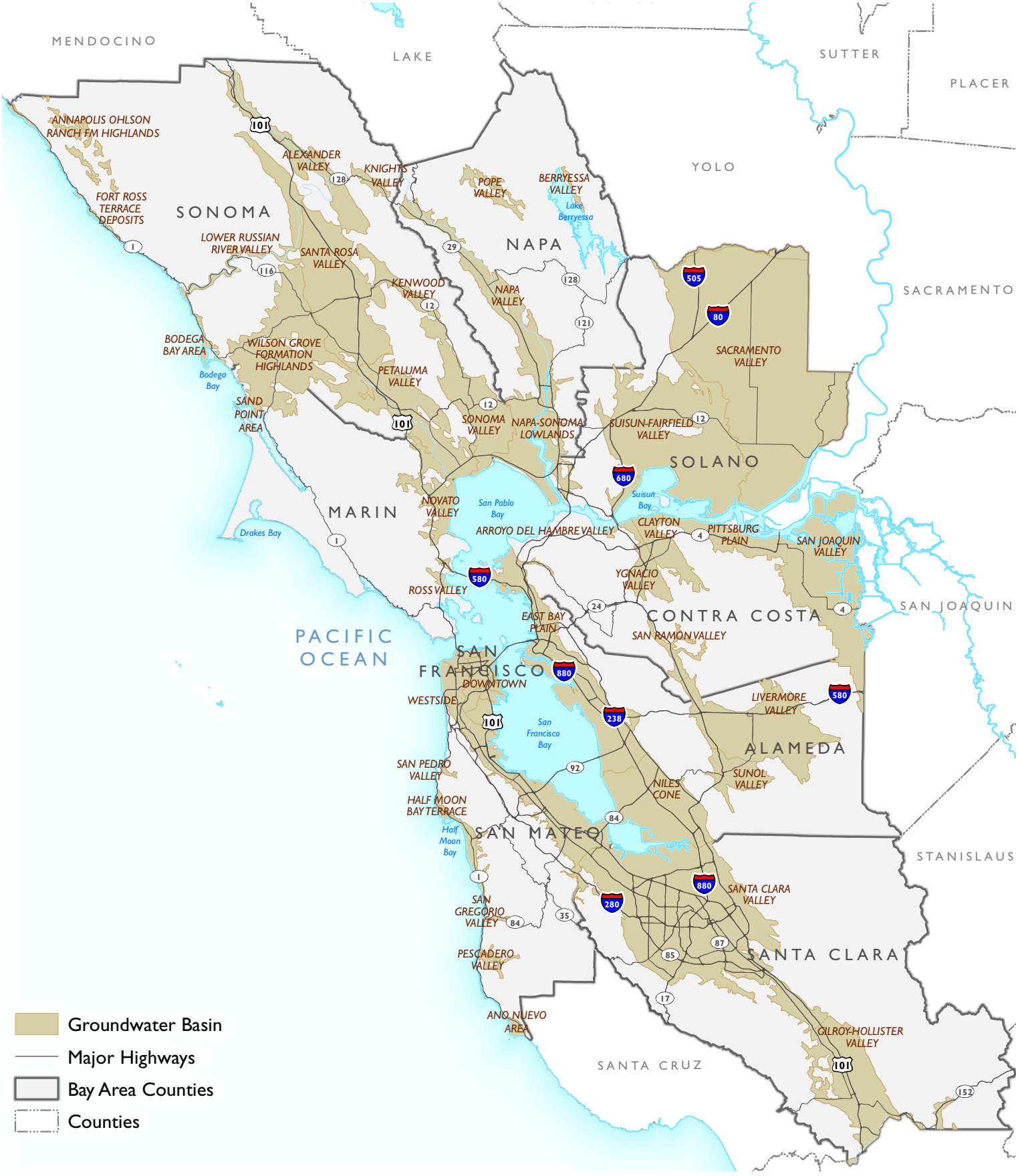
[15] California Department of Water Resources, *California's Groundwater—Bulletin 118 Update*, 2003

[16] California Department of Water Resources and the California Water Boards, *San Francisco Bay Area Integrated Regional Water Management Plan*, 2006

[17] Department of Water Resources, *California Water Plan Update 2009, San Francisco Bay Integrated Water Management—Bulletin 160-09, Volume 3 Regional Reports*, 2009

Figure 2.12-3

Bay Area Groundwater Basins



Data Source: Department of Water Resources, State of California, 2003, 2010; Cal-Atlas Geospatial Clearinghouse, 2012; The Conservation Lands Network, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.

0 5 10 20 Miles

1 in = 16 miles

This page intentionally left blank.

Imported Water

The greatest proportion of Bay Area water is imported from Sierra Nevada and Delta sources, comprising approximately 66 percent of supply.[18] As described under the agency descriptions of the SFPUC and EBMUD above, the primary Sierra Nevada sources are the Mokelumne River and Tuolumne River watersheds. Several Bay Area water agencies receive Delta water through the State Water Project (SWP) and Central Valley Project (CVP), which comprise a vast network of canals and aqueducts for the delivery of water throughout the Bay Area and the Central Valley. Major water conveyance infrastructure delivering water through the SWP and CVP is described in the infrastructure section below.

Recycled Water

In the 1990s, a number of local agencies joined with the California Department of Water Resources (DWR) and the United States Bureau of Water Reclamation to study the feasibility of using high-quality recycled water to augment water supplies and help the Bay-Delta ecosystem. This cooperative effort, known as the Bay Area Regional Water Recycling Program (BARWRP), produced a Master Plan for regional water recycling in 1999 for the five South Bay counties. Since then, local water agencies have built a number of projects consistent with BARWRP and recycled water has come to be widely used in the Bay Area for a number of applications, including landscape irrigation, agricultural needs, commercial and industrial purposes, and as a supply to the area's wetlands. The 2006 Bay Area Integrated Regional Water Management Plan (IRWMP) identified 43 potential recycled water projects that could be implemented by the year 2020.[19] The potential market for recycled water is estimated to be 240,000 acre-feet per year by 2025.[20]

Desalination

Bay Area agencies have increasingly been exploring desalination as an alternative source of drinking water. In 2003, a number of water agencies formed the Northern California Salinity Coalition to formally join together to research and identify regional approaches for addressing salinity impacts as well as the use and application of desalination. In 2005-2006, MMWD operated a desalination pilot, enabling it to conduct environmental studies, test equipment, refine operating costs, and demonstrate the technology to MMWD customers. The agency used the results of the pilot plant operations to refine the design requirements and costs of a full-scale desalination facility. An environmental impact report for the project has been prepared but is under judicial review.

In 2003, the ACWD opened the Newark Desalination Facility, the first brackish water desalination facility in Northern California, with a capacity of 5 mgd and plans to double capacity. The five largest water agencies in the Bay Area (CCWD, EBMUD, SFPUC, SCVWD, and Zone 7) are currently studying the feasibility of constructing a 20 mgd desalination facility at CCWD's Mallard Slough Pump Station in eastern Contra Costa County. The proposed Regional Desalination Project would operate continuously in all year-types (i.e., wet and drought), with the possibility of storing water (including by exchange or transfer) in CCWD's Los Vaqueros Reservoir when demand from the parties is less than plant capacity.

---

[18] Ibid.

[19] Bay Area Clean Water Agencies, *Bay Area Integrated Regional Management Water Plan, Wastewater and Recycled Water Functional Area Document*, 2006.

[20] Department of Water Resources, *California Water Plan Update 2009, San Francisco Bay Integrated Water Management—Bulletin 160-09, Volume 3 Regional Reports*, 2009.

Storage in Los Vaqueros Reservoir could provide flexibility to optimize the Project yield. Pilot plant testing at Mallard Slough was conducted in 2008-2009 and the Project partners have executed a memorandum of agreement to conduct a site-specific analysis to further evaluate the proposed Plan.[21]

Water Transfers

Water transfers allow suppliers with excess water supplies to sell their water to those agencies in need. In addition, agriculture-to-urban transfers can allow agricultural districts with marginal lands to be fallowed (taken out of production). Water transfers also provide reduced vulnerability to water shortages resulting from drought, catastrophic events, and system security breaches. Bay Area water agencies have a number of transfer agreements to improve water supply in the region.

Water Conservation

Reducing water demand through conservation is a key component of improving water supply reliability in the Bay Area. All of the ten major water agencies in the region are members of the California Urban Water Conservation Council, which promotes the development and implementation of conservation Best Management Practices (BMPs) such as metering, public information programs, conservation pricing, and washing machine rebates. Many local water agencies are also implementing conservation projects and programs that extend beyond these baseline BMPs. It is anticipated that regional water agencies will see more than 150,000 AFY of conservation-related savings by 2020.[22]

Water Supply Infrastructure

As noted above, approximately two-thirds of the water used by Bay Area water agencies comes from non-local sources, primarily the Sierra Nevada and the Sacramento-San Joaquin Delta (Delta). As a result, the region relies on a diverse network of water infrastructure including aqueducts and storage facilities to convey supplies to its residents. Major facilities include:[23]

- **Contra Costa Canal.** Originally constructed to serve agricultural needs, the Contra Costa Canal now comprises the backbone of the Contra Costa Water District (CCWD) transmission system. The canal spans 48 miles, conveying water from the Delta to CCWD's treatment facilities and raw water customers.
- **Delta-Mendota Canal.** The Delta-Mendota Canal is a 120-mile segment of the Central Valley Project, which provides water to much of the Central Valley. It runs south along the western edge of the San Joaquin Valley and conveys water to the San Luis reservoir, which stores water supplies for Santa Clara Valley Water District customers.
- **Hetch Hetchy Aqueduct.** The 156-mile Hetch Hetchy Aqueduct roughly parallels the Tuolomne River, conveying San Francisco Public Utilities Commission supplies from the Hetch Hetchy Reservoir across the San Joaquin River and San Francisco Bay, up the peninsula and into Upper Crystal Springs Reservoir, located north of Redwood City.

[21] Bay Area Regional Desalination Project website, www.regionaldesal.com, accessed July 2012.

[22] California Department of Water Resources and the California Water Boards, *San Francisco Bay Area Integrated Regional Water Management Plan*, 2006.

[23] California Department of Water Resources and the California Water Boards, *San Francisco Bay Area Integrated Regional Water Management Plan*, 2006.

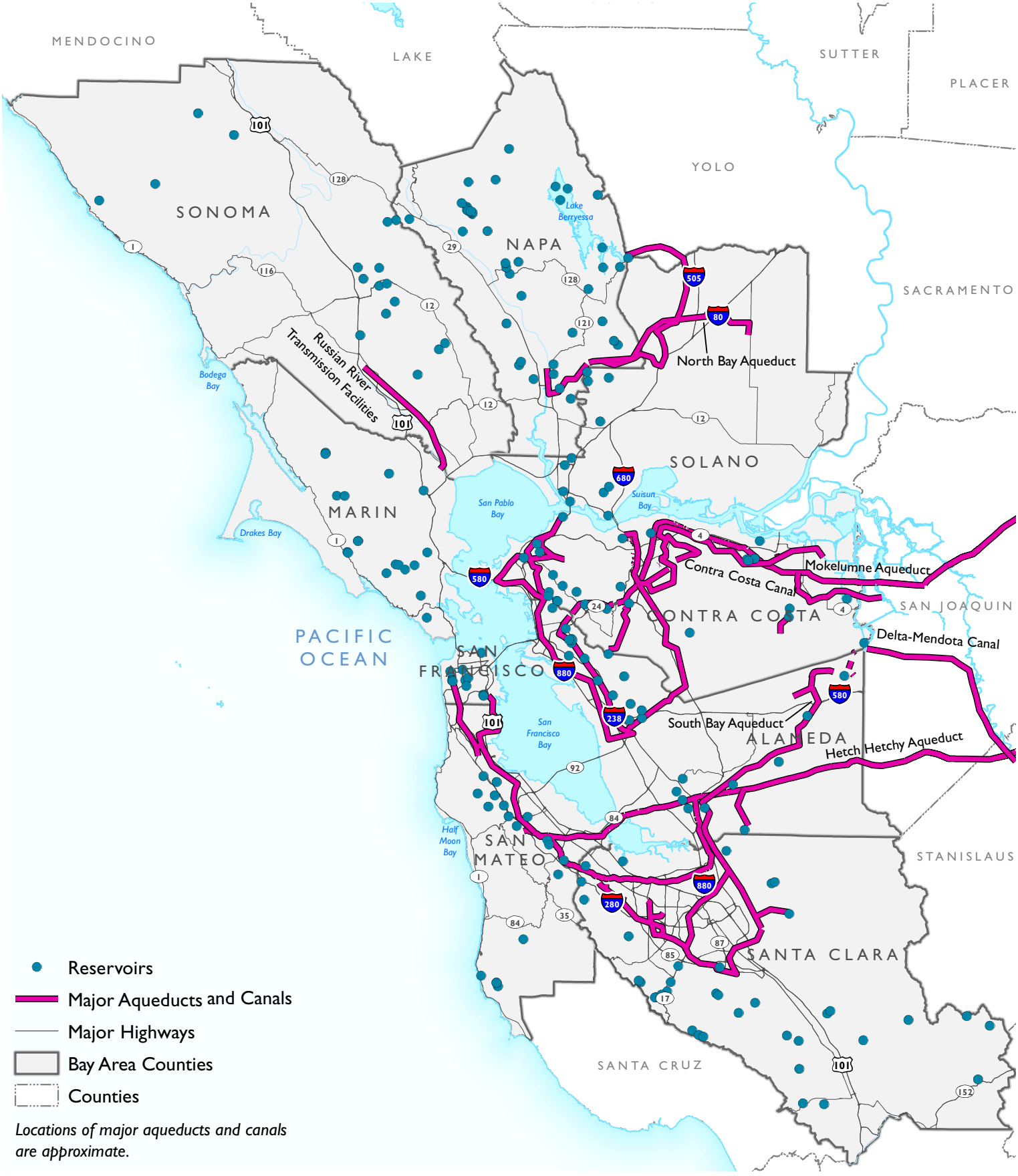
- **Mokelumne Aqueducts.** The three aqueducts which comprise the Mokelumne Aqueduct System convey most of East Bay Municipal Utility District's supply 87 miles from Pardee Reservoir on the Mokelumne River to Walnut Creek.
- **North Bay Aqueduct.** The North Bay Aqueduct (NBA) is an underground pipeline operated remotely by the Department of Water Resources (DWR). The NBA extends from the Delta to Napa County, Vallejo and Benicia. Solano County Water Agency and the Napa County Flood Control Water and Conservation District, which includes the City of Napa as a member agency, receive Delta supplies through the NBA.
- **Russian River Transmission Facilities.** Sonoma County Water Agency operates diversion facilities at the Russian River and an aqueduct system comprised of pipelines, pumps, and storage tanks.
- **South Bay Aqueduct.** The South Bay Aqueduct (SBA) conveys water from the Delta through over 40 miles of pipelines and canals. Alameda County Water District, Zone 7 Water Agency, and Santa Clara Valley Water District receive State Water Project supplies conveyed through the SBA.

A schematic of these facilities and major rivers located in and around the Bay Area is presented in **Figure 2.12-4.** In addition to pipelines and aqueducts, each Bay Area water agency has its own extensive network of surface water storage reservoirs, groundwater extraction wells, water treatment plants, and distribution pipelines.

This page intentionally left blank.

Figure 2.12-4

Major Water Infrastructure Serving the Bay Area



Data Source: National Hydrography Dataset, U.S. Geological Survey, 2011; The Conservation Lands Network, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.

0 5 10 20 Miles

1 in = 16 miles

This page intentionally left blank.

Regional Demographics and Water Demand

While numerous factors influence water demand including employment growth, socio-economic characteristics, geographic distribution of the population, variation in precipitation levels, and water conservation practices, overall population growth is the most important factor. In general, demand management strategies should allow Bay Area water agencies to continue to meet projected demand through 2030 in average years. For example, between 1986 and 2003, demand management and conservation programs helped keep the overall increase of water use in the Bay Area to less than one percent, despite a 23 percent increase in population (see **Figure 2.12-5**).

Table 2.12-2 shows the projected water supplies and demands from the 2010 Urban Water Management Plans (UWMPs) for normal years in the near future (2015) and over the next twenty years (2030 or 2035); none of the UWMPS extends to 2040, the time horizon of the proposed Plan. All of the water districts except for the Solano County Water Agency will be able to provide adequate water supplies to meet projected demand in a year of normal precipitation, although doing so requires some districts to acquire additional supplies. EBMUD sets supply equal to demand for normal years, storing any additional supply. EBMUD notes that it "can meet customer demands through the year 2040 during normal year conditions; therefore, the available supply is considered equal to or greater than demand. However…the frequency of normal year-types will decrease in the future. The frequency of dry years that require customer rationing is expected to increase." Santa Clara Valley Water District's UWMP says, "The District cannot meet total projected demands after 2025 without the implementation of overly restrictive water shortage action unless additional supplies are secured."

Important to note, however, is the fact that the 2035 population projections used by the water agencies for their 2010 Urban Water Management Plans, shown in **Table 2.12-3**, are in aggregate significantly higher than the regional population projected by ABAG for 2040. The region's UWMPs estimate a 2035 total regional population of 9,883,000, more than 7 percent higher than the 2040 regional population projected by ABAG for Plan Bay Area of 9,196,000, which suggests that any water shortfalls may actually be less severe than projected.

TABLE 2.12-2: PROJECTED NORMAL YEAR SUPPLY AND DEMAND (AF/YEAR)

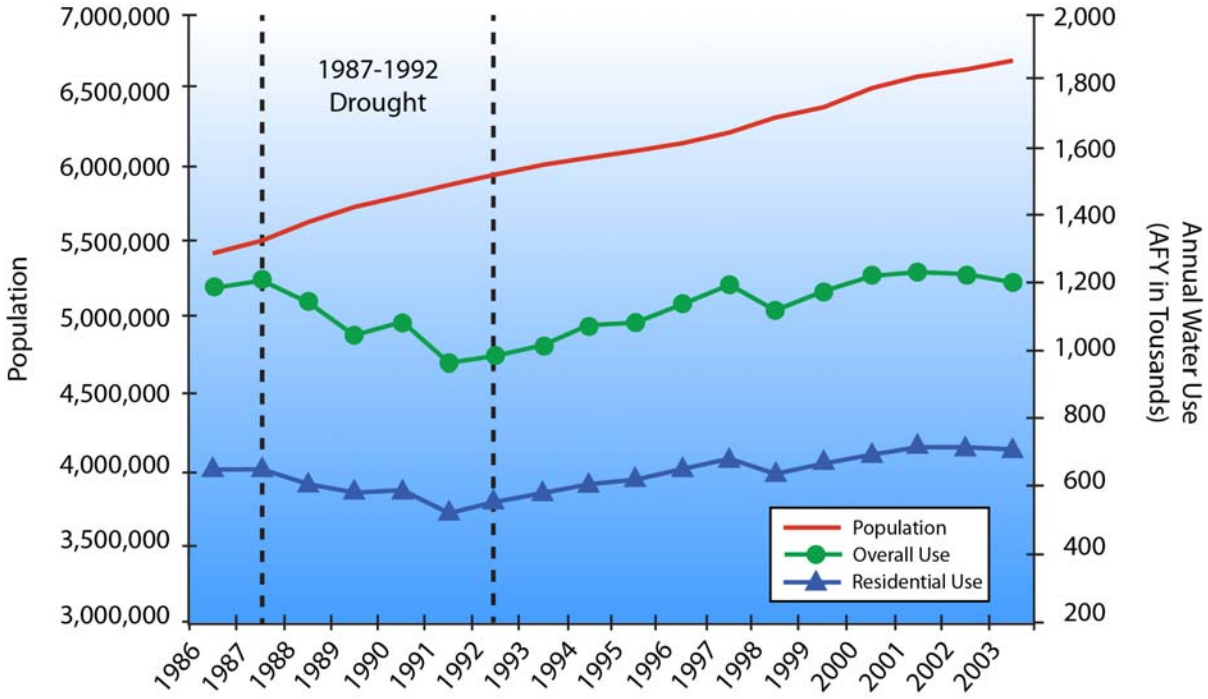
	Current Supply (2015)	*Current Demand (2015)*	*Future Supply (2035)*	*Future Demand (2035)*
Alameda County WD	78,000	66,000	78,000	73,000
Contra Costa WD	213,000	156,000	226,000	187,000
East Bay Municipal Utility District	250,000	250,000	256,000	256,000
Marin Municipal WD	29,000	29,000	29,000	28,000
City of Napa	52,000	14,000	52,000	15,000
San Francisco PUC	97,000	90,000	101,000	91,000
Santa Clara Valley WD	397,000	376,000	423,000	423,000
Solano County WA[1]	255,000	255,000	255,000	255,000
Sonoma County WA	77,000	71,000	82,000	82,000
Zone 7 WA[1]	72,000	66,000	83,000	76,000 to 83,000

Note:

1. Future supply and demand projections are for the year 2030.

Sources:
Alameda County Water District, 2010-2015 Urban Water Management Plan, 2011
Contra Costa Water District, 2010 Urban Water Management Plan, 2011
East Bay Municipal Utility District, 2010 Urban Water Management Plan, 2011
East Bay Municipal Utility District, All About EBMUD, http://www.ebmud.com/sites/default/files/pdfs/All-About-EBMUD-2011.pdf, accessed July 2012
Marin Municipal Water District, 2010 Urban Water Management Plan, 2011
City of Napa Water Department, 2010 Urban Water Management Plan, 2011
San Francisco Public Utilities Commission, 2010 Urban Water Management Plan, 2011
Santa Clara Valley Water District, 2010 Urban Water Management Plan, 2011
Solano County Water Agency, 2010 Urban Water Management Plan, 2011
Sonoma County Water Agency, 2010 Urban Water Management Plan, 2011
Zone 7 Water Agency, 2010 Urban Water Management Plan, 2010

Figure 2.12-5: Population and Water Demand Trends



Source: California Department of Water Resources and the California Water Boards, San Francisco Bay Area Integrated Regional Water Management Plan, 2006

TABLE 2.12-3: PROJECTED SERVICE AREA POPULATION OF MAJOR BAY AREA WATER AGENCIES

Agency	*Projected 2035 Population*[1]
Alameda County Water District	411,000
Contra Costa Water District	635,000
East Bay Municipal Utility District	1,751,000
Marin Municipal Water District	207,000
City of Napa Water Department	94,000
San Francisco Public Utilities Commission[2]	3,080,000
Santa Clara Valley Water District	2,431,000
Solano County Water Agency[4]	454,000
Sonoma County Water Agency[3]	529,000
Zone 7 Water Agency[5]	291,000
TOTAL	**9,883,000**

Notes:

1. Except where noted, projections are from 2009 ABAG population projections.
2. Sum of population figures from Table 3 and Table 5 of the SFPUC UWMP.
3. Sonoma County Water Agency is a wholesale water provider to MMWD. However, the agencies' service populations are listed separately.
4. California Department of Finance, 2010; projected 2030 population
5. California Water Service Company, Dublin San Ramon Services District, City of Livermore, and City of Pleasanton; projected 2030 population

Sources are the same as those in Table 2.12-2.

Some Bay Area water agencies are projecting future water supply shortfalls in dry years, and some are already seeing such shortfalls, as shown in **Table 2.12-4**. Other agencies anticipate being able to handle a single dry year, largely due to reservoirs or other storage capacity. The severity and timing of dry year shortfalls differ greatly among the agencies due to the wide variation of supply sources, types of use, and climates within the region.

TABLE 2.12-4: YEAR OF PROJECTED WATER SHORTAGES (SINGLE DRY YEAR)

Agency	*First year in which demand is expected to outpace supply during single dry years*
Alameda County Water District	2010
Contra Costa Water District	2025
East Bay Municipal Utility District	2010
Marin Municipal Water District	none
City of Napa Water Department	2015
San Francisco Public Utilities Commission	none
Santa Clara Valley Water District	none
Solano County Water Agency	Now (2010)
Sonoma County Water Agency	2015
Zone 7 Water Agency	none

Sources are the same as those in Table 2.12-2.

Wastewater Treatment

Wastewater is generated by residential, commercial and industrial sources throughout the Bay Area. Treatment of wastewater provides protection for human health and receiving water bodies, preservation of the health of aquatic and riparian species, as well as improved supply reliability through the removal of harmful pollutants from discharges.

Urbanized and unincorporated areas of cities and counties throughout the Bay Area provide wastewater treatment facilities. These facilities include systems made up of pipelines, pipe stations, interceptor stations and discharge stations. Treatment plants usually send wastewater through three treatment processes, as well as disinfection, storage, and eventual possible reclamation. Many of the Bay Area's wastewater treatment plants include primary and secondary treatment for wastewater, as well as recycled water programs that produce tertiary treated recycled water for various uses. In many cases, secondary effluent is discharged into the San Francisco Bay, and wastewater from Solano County is pumped into the Delta. Wastewater is also recycled for other uses such as agriculture, irrigation, or landscaping.

Wastewater treatment in the Bay Area is provided by various agencies as well as individual city and town wastewater treatment systems. **Table 2.12-5** lists the large (more than 10 mgd) and small (10 mgd or less) wastewater treatment plants in each county in the Bay Area as well as their service areas. Bay Area Wastewater Treatment Facilities are shown in **Figure 2.12-6**.

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*
Alameda County				
City of Hayward	City of Hayward	18.50	12.20	6.30
City of Livermore	Livermore city limits, Ruby Hills in Pleasanton, Lawrence Livermore and Sandia National Laboratories	8.50	6.43	2.07
City of San Leandro, Environmental Services Division	City of San Leandro	7.60	4.90	2.70
Dublin San Ramon Services District	Cities of Pleasanton and Dublin	17.00	11.48	5.52
East Bay Municipal Utility District	Cities of Alameda, Albany, Berkeley, Emeryville, Oakland Piedmont	320.00	80.00	240.00
Oro Loma Sanitary District	San Lorenzo, Ashland, Cherryland, Fairview, and portions of Castro Valley, San Leandro and Hayward	20.00	12.60	7.40
Union Sanitary District	Cities of Fremont, Newark and Union City	33.00	25.10	7.90
Subtotal - Alameda County		***424.60***	***152.71***	***271.89***
Contra Costa County				
Central Contra Costa Sanitary District	Alamo, Clayton, Concord, Danville, Lafayette, Moraga, Orinda, Pleasant Hill, San Ramon, Walnut Creek	53.80	39.10	14.70
City of Brentwood	Brentwood	5.00	3.35	1.65
City of Hercules / City of Pinole	City of Hercules	4.06	3.20	0.86
City of Richmond Municipal Services District	Central Richmond	9.00	8.00	1.00
Crockett-Valona Sanitary District	Unincorporated Town of Crockett	1.81	0.35	1.46
Delta Diablo Sanitation District	Area bounded by Antioch, Pittsburg, Bay Point and the San Joaquin River	16.50	14.20	2.30

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*
East Bay Municipal Utility District	El Cerrito and parts of Richmond	*Listed under Alameda County*		
Ironhorse Sanitary District	Oakley, Bethel Island	4.30	2.60	1.70
Mt. View Sanitary District	Eastern unincorporated Martinez and parts of the City of Martinez bordered by Pine Street, Bush, Vine Hill Way and Waterbird Way	3.20	2.00	1.20
Rodeo Sanitation District	Unincorporated Rodeo area	1.14	0.60	0.54
West County Wastewater District	northern portions of Richmond, El Sobrante	12.50	7.90	4.60
Subtotal - Contra Costa County		***111.31***	***81.30***	***30.01***
Marin County				
Central Marin Sanitation Agency	Area bounded by San Rafael, Fairfax and Corte Madera	30.00	10.00	20.00
Las Gallinas Valley Sanitary District	Northern half of San Rafael, plus county area south of Novato	2.92	2.15	0.77
Marin County Sanitary District #5	Tiburon Peninsula	2.30	0.80	1.50
Novato Sanitary District	City of Novato, Bel Marin, Ignacio and Hamilton	9.00	5.40	3.60
Sausalito Marin City Sanitary District	Marin City and the City of Sausalito	6.00	1.30	4.70
Sewerage Agency of Southern Marin	Mill Valley and surrounding unincorporated areas	3.60	3.27	0.33
Subtotal - Marin County		***53.82***	***22.92***	***30.9***
Napa County				
City of American Canyon	American Canyon	2.5	1.90	0.60
City of Calistoga	City of Calistoga	0.84	0.51	0.33
City of St. Helena	City of St. Helena	0.50	0.42	0.08
Napa Sanitation District	Napa city limits, Silverado Country Club area, and the Napa Industrial Park area	15.40	12.60	2.80

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*
Town of Yountville	Yountville	0.62	0.42	0.20
Subtotal - Napa County		***19.86***	***15.85***	***4.01***
San Francisco				
San Francisco Public Utilities Commission	City and County of San Francisco	106.40	79.10	27.30
San Mateo County				
City of Burlingame	Cities of Burlingame and Hillsborough, and Burlingame Hills	4.70	3.30	1.40
City of Millbrae	Area north of Burlingame and south of San Bruno	3.00	2.00	1.00
City of Pacifica	City of Pacifica	3.30	2.50	0.80
City of San Mateo	City of San Mateo and Foster City	13.60	10.80	2.80
Cities of South San Francisco-San Bruno	Cities of South San Francisco, San Bruno, Colma, southern part of Daly City	13.00	8.20	4.80
North San Mateo County Sanitation District	Daly City and parts of Westborough	8.00	7.60	0.40
Sewer Authority Mid-Coastside	City of Half Moon Bay, Granada, Moss Beach and Montero	2.00	1.30	0.70
San Francisco Public Utilities Commission	Brisbane, portions of Daly City	*Listed under San Francisco*		
South Bayside System Authority	Belmont, San Carlos, Redwood City, Menlo Park, Atherton, Portola Valley and Woodside	29.00	15.90	13.10
Subtotal - San Mateo County		***76.60***	***51.60***	***25.00***
Santa Clara County				
City of Sunnyvale Water Pollution Control Plant	Area bounded by Highway 85, Highway 280 and Great American Parkway	29.50	14.20	15.30
Palo Alto Regional Water Quality Control Plant	East Palo Alto, Los Altos, Los Altos Hills, Mountain View, Palo Alto and Stanford University	39.00	22.50	16.50

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*
San José/ Santa Clara Water Pollution Control Plant	City of San José, County Sanitation Districts 2 and 3, West Valley Sanitation District including Campbell, Saratoga, Monte Sereno, Los Gatos, Burbank and Sunol Sanitary Districts, Cupertino, and Milpitas	167.00	112.00	55.00
South County Regional WasteWater Authority	Morgan Hill, Gilroy	8.50	6.80	1.70
Subtotal - Santa Clara County		***244.00***	***155.50***	***88.50***
Solano County				
City of Benicia	City of Benicia	4.50	2.96	1.54
City of Dixon	Dixon	2.00	1.30	0.70
City of Rio Vista	Rio Vista	1.65	0.39	1.27
City of Vacaville	City of Vacaville	15.00	10.00	5.00
Fairfield-Suisun Sewer District	Fairfield and Suisun	17.50	16.00	1.50
Vallejo Sanitation and Flood Control District	Vallejo area	15.50	9.30	6.20
Subtotal - Solano County		***56.15***	***39.95***	***16.21***
Sonoma County				
City of Cloverdale	Cloverdale	1.00	0.30	0.70
City of Petaluma	Petaluma and Pengrove	6.70	5.00	1.70
Sonoma County Water Agency	The Town of Sonoma, Guerneville, Geyserville, and surrounding unincorporated areas	3.00	2.70	0.30
Sub-regional Reclamation Facility/ Laguna Treatment Plant	Cities of Santa Rosa, Rohnert Park, Sebastopol and Cotati	21.00	17.50	3.50
Town of Windsor	Windsor	1.90	1.37	0.53
Subtotal - Sonoma County		***33.60***	***26.87***	***6.73***
BAY AREA TOTAL		**1,126.34**	**625.80**	**500.55**

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*

Sources:

Alameda County:

State Water Resources Control Board NPDES Permit for East Bay Dischargers Authority, 2012.
City of Livermore General Plan, 2004.
City of Livermore Website, www.cityoflivermore.net, accessed August 1, 2012.
Dublin San Ramon Services District Website, www.dsrsd.com, 2011, accessed July 25, 2012.
East Bay Municipal Utility District Urban Water Management Plan, 2010.
State Water Resources Control Board NPDES Permit for East Bay Dischargers Authority, 2012.
Contra Costa County:
Contra Costa LAFCO: Water and Wastewater Municipal Services Reviews
(http://www.contracostalafco.org/municipal_service_reviews.htm)

Marin County:

Central Marin Sanitation Agency Website, www.cmsa.us, 2012, accessed July 27, 2012.
Las Gallinas Valley Sanitary District, NPDES Permit, 2009.
North Bay Watershed Association Marin Lateral Report Program, 2009.
Sewerage Agency of Southern Marin, NPDES Permit, 2012.

Napa County:

City of American Canyon, Council Agenda Summary Report, May 5, 2009.
City of American Canyon, NPDES Permit, 2011.
City of Calistoga Website, www.ci.calistoga.ca.us, 2012, accessed July 27, 2012.
City of Calistoga, Wastewater Rate Study, 2010.
LAFCO of Napa County, City of St. Helena Municipal Service Review, 2008.
Napa Sanitation District, NPDES Permit, 2011.
State Water Resources Control Board, NPDES Permit and Waste Discharge Requirements for the Town of Yountville, 2004.
Town of Yountville Recycled Water Program: Engineering Report, 2004.

San Francisco:

San Francisco Sewer System Master Plan, Draft June 15, 2010.
San Mateo County:
San Mateo County, General Plan, Chapter 11: Wastewater.
Sunnyvale Strategic Infrastructure Plan for the WPCP, Technical Memorandum, April 7, 2009.
South Bayside System Authority, NPDES Permit, 2012.

Santa Clara County:

City of Sunnyvale Website, www.sunnyvale.gov, accessed July 25, 2012.
Sunnyvale Strategic Infrastructure Plan for the WPCP, Technical Memorandum, April 7, 2009.
City of Palo Alto, Long Range Facilities Plan for the Regional Water Quality Control Plant, May 2012
City of San José Website, www.sanjoseca.gov, 2011, accessed July 30, 2012.
City of San José, San José/ Santa Clara Water Pollution Control Plant Master Plan, July, 2009.
Solano County: City of Benicia, NPDES Permit, 2008.
California Water Quality Control Board, San Francisco Bay Region, 2006.
City of Dixon Wastewater Facilities Plan DRAFT, August 2011.
Central Valley RWQCB, Cease and Desist Order for the City of Dixon WWTF, 2008.
2010-11 Solano County Grand Jury, http://solano.courts.ca.gov/materials/Rio%20Vista%20WWTP%20Report.pdf
City of Vacaville Website, www.ci.vacaville.ca.us, 2012, accessed July 30, 2012.
Vallejo Sanitation and Flood Control District Website, 2010, accessed July 30, 2012.
California Regional Water Quality Control Board, San Francisco Bay Region, Staff Summary Report, February 8, 2012.

TABLE 2.12-5: FLOW AND CAPACITY OF WASTEWATER TREATMENT FACILITIES IN THE REGION

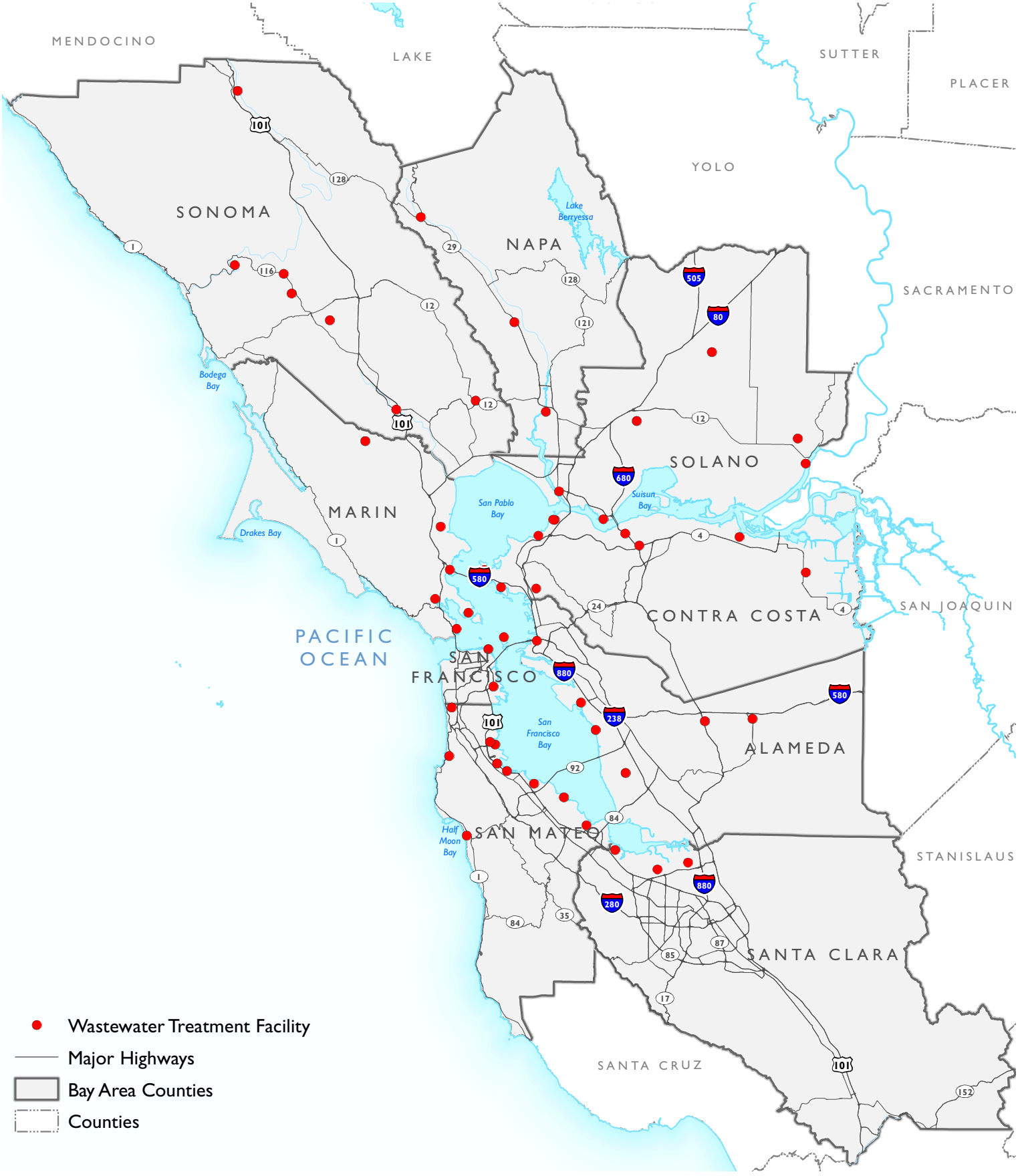
Treatment Plant	*Service Area*	*Facility Capacity (dry weather, mgd)*	*Average Flow per Day (dry weather, mgd)*	*Excess Capacity (dry weather, mgd)*
Sonoma County:				

City of Cloverdale, NDPES Permit, 2012.
City of Petaluma Website, www.cityofpetaluma.net, 2011, accessed July 30, 2012.
Sonoma County Water Agency Website, www.scwa.ca.go, accessed July 30, 2012.
City of Santa Rosa Website, 2004, www.ci.santa-rosa.ca.us, accessed July 30, 2012.
City of Windsor, EIR for Environmental Impact Report for Windsor Station Area/Downtown Specific Plan, 2011.

This page intentionally left blank.

Figure 2.12-6

Wastewater Treatment Plants in the Bay Area



Data Source: Wastewater Treatment Plants, Pacific Institute, 2009; The Conservation Lands Network, 2012; Cal-Atlas Geospatial Clearinghouse, 2012; Tom Tom North America, 2011; Dyett & Bhatia, 2012.

0 5 10 20 Miles

1 in = 16 miles

This page intentionally left blank.

Stormwater Treatment

Stormwater has been identified as urban runoff by the U.S. Environmental Protection Agency (EPA). After a precipitation event, polluted runoff is discharged over land or through storm sewer systems, often untreated with direct flow into water bodies. If left uncontrolled, this polluted water can result in the destruction of wildlife and aquatic ecosystems and can threaten public health. Capture and management of stormwater is used to ensure protection of water quality, aquatic life, and public health throughout the Bay Area. The National Pollutant Discharge Elimination System (NPDES) permitting program provides implementation measures for controlling potentially harmful pollutants found in stormwater runoff from entering water bodies or affecting public health. Additionally, stormwater capture systems assist in maintaining flood protection and create opportunities for ecosystem protection and restoration.

The Bay Area regulates stormwater at the regional, county, and city level. In the early 1990s, RWQCB issued countywide municipal stormwater permits to operators of Municipal Separate Storm Sewer Systems (MS4s) serving populations over 100,000. Subsequently, in 2009, the RWQCB re-issued these countywide municipal stormwater permits as one Municipal Regional Stormwater NPDES Permit to regulate stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, as well as the cities of Fairfield, Suisun City, and Vallejo. MS4s are defined as conveyance systems that are owned by cities or other public entities, designed to collect or convey stormwater (including gutters, storm drains, pipes, ditches, etc.), and are not part of a combined sewer or a publicly owned sewage treatment plant.

Additionally a General Permit for Discharge of Stormwater from small MS4s regulates the discharge of stormwater for the following municipalities: Marin County and its cities, Napa County and its cities, the City and County of San Francisco, Solano County and the City of Benicia, and Sonoma County and the Cities of Petaluma and Sonoma.

Additionally, each county has its own stormwater pollution prevention programs, which aim to facilitate compliance with State and federal regulations through coordination with local municipalities, local residents, businesses and schools. These programs provide initiatives for preventing stormwater pollution, protecting and enhancing water quality in watersheds, waterways, creeks and wetlands, as well as water pollution prevention in the San Francisco Bay and Pacific Ocean.

Solid Waste Disposal

Each Bay Area county, plus the cities of Berkeley, Pittsburg, and San José, has a local enforcement agency (LEA) covering all solid waste facilities in the region. LEA's are responsible for ensuring the correct operation and closure of solid waste facilities in the state, as well as for guaranteeing the proper storage and transportation of solid wastes. In concurrence with the California Department of Resources Recycling and Recovery (CalRecycle), LEA's issue operating permits to facilities including landfills, transfer stations, material recovery, and composting facilities.

Solid waste is the garbage, refuse, and other discarded solid materials generated by residential, commercial, and industrial activities. CalRecycle identifies 10 categories of wastes: paper, glass, metal, electronics, plastic, other organic, construction and demolition (C&D), household hazardous waste, special waste, and mixed residue. Solid waste generation is measured by disposal and diversion. The California Public Resources Code Section 40192 defines disposal as "the final deposition of solid wastes onto land, into the atmosphere, or into the waters of the state." Solid waste that is disposed in landfills is

measured in volume (cubic yards) and weight (tons). Diversion includes programs and practices such as waste prevention and source reduction, recycling, reuse, and composting that reduce the total amount of waste that requires disposal.

Landfills

The Bay Area is currently served by sixteen privately operated landfills and one operated by the Sonoma County Public Works Department. The seventeen landfills have a total remaining capacity of 321,816,851cubic yards, a total daily throughput of 46,374 tons per day, and an estimated average of 63 percent remaining capacity. **Table 2.12-6** shows the remaining capacity of landfills located in the Bay Area and their estimated date of closure.

TABLE 2.12-6: ACTIVE BAY AREA LANDFILLS

Facility	*Operator*	*SWIS Number*	*Estimated Closure Date*[1]	*Max. Through-put (tons/day)*	*Total Capacity (Cu Yd)*	*Remaining Capacity (Cu Yd)*	*% Capacity Remaining*
Tri-Cities Landfill	Waste Management of Alameda County	01-AA-0008	12/01/2008	2,346	19,271,000	880,000	5%
Altamount Landfill	Waste Management of Alameda County	01-AA-0009	01/01/2025	11,500	62,000,000	45,720,000	74%
Vasco Road Landfill	Republic Services of California Inc.	01-AA-0010	08/31/2019	2,250	32,970,000	9,871,000	30%
Acme Landfill	Acme Fill Corporation	07-AA-0002	06/01/2021	1,500	268,700	175,000	65%
Keller Canyon Landfill	Keller Canyon Landfill Co.	07-AA-0032	12/31/2030	3,500	75,018,000	63,408,000	85%
USS-Posco Industries Unit II	US Steel – Posco Industries	07-AC-0042	01/01/2118	8	86,000	not available	not available
Redwood Landfill	Redwood Landfill Inc.	21-AA-0001	01/01/2039	2,300	19,100,000	12,900,000	68%
Clover Flat Landfill	Clover Flat Landfill Inc.	28-AA-0002	01/01/2021	600	5,100,000	2,599,000	51%
Ox Mountain Sanitary Landfill	Republic Services of California Inc.	41-AA-0002	01/01/2018	3,598	37,900,000	44,646,000	118%[2]
Zanker Material Processing Facility	Zanker Road Resource Management Ltd.	43-AN-0001	12/31/2018	350	540,000	540,000	100%
Newby Island Sanitary Landfill	International Disposal Corporation	43-AN-0003	06/01/2025	4,000	50,800,000	18,275,000	36%
Zanker Road Class III Landfill	Zanker Road Resource Management Ltd.	43-AN-0007	12/12/2003	1,300	1,300,000	700,000	54%
Kirby Canyon Recycling and Disposal Facility	Waste Management of California Inc.	43-AN-0008	12/31/2022	2,600	36,400,000	57,272,000	157%[2]
Guadalupe Sanitary Landfill	Guadalupe Rubbish Disposal Co, Inc.	43-AN-0015	01/01/2048	1,300	28,600,000	11,055,000	39%
Recology Hay Road	Recology Hay Road	48-AA-0002	01/01/2077	2,400	37,000,000	30,433,000	82%
Potrero Hills Landfill	Potrero Hills Landfill Inc.	48-AA-0075	02/14/2048	4,330	83,100,000	13,872,000	17%

TABLE 2.12-6: ACTIVE BAY AREA LANDFILLS

Facility	*Operator*	*SWIS Number*	*Estimated Closure Date*[1]	*Max. Through-put (tons/day)*	*Total Capacity (Cu Yd)*	*Remaining Capacity (Cu Yd)*	*% Capacity Remaining*
Central Disposal Site	County Of Sonoma Public Works Dept.	49-AA-0001	01/01/2014	2,500	19,779,250	9,471,000	48%
TOTAL[3]				**46,374**	**509,147,330**	**321,816,851**	**63%**

Notes:

1. Date is found in or estimated from information in the current permit or permit application, including the approved closure plan for the facility. Some facilities may still be active even if estimated closure date has expired.
2. Permitted amounts; design amounts not yet permitted.
3. Excludes USS-Posco Industries Unit II facility due to missing data.

Source: California Department of Resources Recycling and Recovery, Solid Waste Information System, www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, accessed July 2012

Collection, Transfer, Recycling, and Material Recovery Facilities

There are 49 transfer stations in the Bay Area that receive solid waste and transfer it into containers or vehicles before it is finally disposed of in a landfill or transformation facility. Two additional facilities are proposed for Santa Clara and Sonoma Counties. The total maximum combined daily throughput capacity of transfer stations in the Bay Area is 46,974 tons per day. **Table 2.12-7** identifies the daily throughput of transfer facilities in the region. Several of the listed facilities also handle recycling services.

TABLE 2.12-7: ACTIVE BAY AREA TRANSFER/PROCESSING FACILITIES

Facility	*Operator*	*SWIS Number*	*Max. Throughput (tons/day)*
Pleasanton Garbage Service Solid Waste Transfer Station	Pleasanton Garbage Service, Inc.	01-AA-0003	720
Davis Street Transfer Station/Resource Recovery Complex	Waste Management of Alameda County	01-AA-0007	5,600
Alameda County Industries Direct Transfer Facility	Alameda County Industries	01-AA-0290	250
Fremont Recycling and Transfer Station	BLT Enterprises of Fremont, Inc.	01-AA-0297	2,400
Berkeley Solid Waste Transfer Station	City Of Berkeley Solid Waste Management Division	01-AC-0029	560
Contra Costa TS And Recovery	Allied Waste Industries, Inc.	07-AA-0027	1,900
Central Processing Facility	West County Resource Recovery Inc.	07-AA-0034	1,200
WCCSLF Organic Materials Processing	West Contra Costa Sanitary Landfill Inc.	07-AA-0044	196
Brentwood Solid Waste Transfer Station	City Of Brentwood, Public Service Dept.	07-AA-0053	400
Golden Bear Waste Recycling Center	Golden Bear Transfer Services, Inc.	07-AA-0056	1,000
Recycling Center and Transfer Station	Contra Costa Waste Services, Inc.	07-AC-0043	1,500
El Cerrito Recycling Center	City of El Cerrito	07-AA-0063	99
Marin Sanitary Service Transfer Station	Marin Sanitary Service	21-AA-0005	2,640
Devlin Road Transfer Station	Napa-Vallejo Waste Management Authority	28-AA-0027	1,440
City of Napa Material Diversion Facility	Napa Recycling and Waste Services, LLC	28-AA-0030	360
Steele Canyon Road Transfer Operation	Berryessa Garbage Service, Inc	28-AA-0034	not available

TABLE 2.12-7: ACTIVE BAY AREA TRANSFER/PROCESSING FACILITIES

Facility	*Operator*	*SWIS Number*	*Max. Throughput (tons/day)*
Pacific Union College Transfer Facility	Pacific Union College	28-AA-0036	90
San Francisco Solid Waste Transfer and Recycling Center	Sanitary Fill Company	38-AA-0001	3,000
Recycle Central at Pier 96	Norcal Waste Systems, Inc.	38-AA-0012	2,100
Oliver Padilla Small Volume CD/I Operation	OP Trucking CDI Operations	38-AA-0014	25
Big for Hauling and Demolitions	Big for Hauling and Demolitions	38-AA-0018	25
Smart Demolition	Smart Demolition	38-AA-0019	25
San Bruno Transfer Station	San Bruno Garbage Company, Inc	41-AA-0014	120
Mussel Rock Transfer Station	Allied Waste Industries, Inc.	41-AA-0015	500
Shoreway Environmental Center	Allied Waste Industries, Inc.	41-AA-0016	3,000
Blue Line MRF And TS	Blue Line Transfer, Inc.	41-AA-0185	1,200
Pescadero Transfer Station	Browning-Ferris Industries, San Carlos	41-AA-0018	10
Peninsula Sanitary Services Direct Transfer Facility	Peninsula Sanitary Services, Inc.	43-AA-0032	149
Green Team MRF Direct Transfer Facility	Waste Connections of California, Inc.	43-AN-0020	149
Recology San Martin Transfer Station	Recology South Valley	43-AA-0003	500
Sunnyvale MRF and Transfer Station	Bay Counties Waste Services	43-AA-0009	1,500
Z-Best Composting Facility	Zanker Road Resource Management, Ltd.	43-AA-0015	not available
Zanker Material Processing Facility	Zanker Road Resource Management, Ltd.	43-AN-0001	1,250
Zanker Road Class III Landfill	Zanker Road Resource Management, Ltd.	43-AN-0007	1,300
BFI`s Recyclery	International Disposal Corporation	43-AN-0014	1,600
Guadalupe Sanitary Landfill	Guadalupe Rubbish Disposal Co, Inc.	43-AN-0015	3,650
Greenwaste Recovery Facility	Green Waste Recovery	43-AN-0019	934
Premier Recycling Facility	Premier Recycling	43-AN-0023	300
California Waste Solutions, Inc.	California Waste Solutions, Inc.	43-AN-0024	530
Mission Trail Transfer Station	Mission Trail Waste Systems	43-AO-0002	375

TABLE 2.12-7: ACTIVE BAY AREA TRANSFER/PROCESSING FACILITIES

Facility	*Operator*	*SWIS Number*	*Max. Throughput (tons/day)*
Pacific Coast Recycling	Pacific Coast Recycling, Inc.	43-AA-0021	480
Rogers Avenue Transfer Station	Recology Silicon Valley	43-AN-0025	99
Guerneville Transfer Station	County Of Sonoma Public Works Department	49-AA-0139	160
Sonoma Transfer Station	County Of Sonoma Public Works Department	49-AA-0144	760
Healdsburg Transfer Station	County Of Sonoma Public Works Department	49-AA-0245	720
Global Materials Recovery Systems	Global Materials Recovery Systems	49-AA-0390	544
Central Transfer Station	County of Sonoma	49-AA-0404	1,500
Sonoma Vermiculture	Sonoma Vermiculture, LLC	49-AA-0405	15
Annapolis Transfer Station	County Of Sonoma Public Works Department	49-AA-0364	99
TOTAL[1]			**46,974**

Note:

1. Excludes Steele Canyon Road Transfer Operation and Z-Best Composting Facility due to missing data.

Source: California Department of Resources Recycling and Recovery, Solid Waste Information System, www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, accessed July 2012

Composting, Chipping, and Grinding

There are 50 active composting facilities in the region that collect, grind, mix, pile, and add moisture and air to organic materials to speed natural decay and produce a soil amendment. Another 23 chipping and grinding facilities in the region are designed to reduce the size of compostable material.[24] Recycling, composting, chipping, and grinding all reduce the amount of solid waste that must be disposed of in a landfill.

Construction and Demolition and Inert Debris Facilities

Construction and Demolition (C&D) materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development. Metals are the most commonly recycled material while lumber makes up the majority of debris that still goes to a landfill. There are 19 C&D recyclers and inert fill-disposal operations in the Bay Area.[25]

[24] California Department of Resources Recycling and Recovery, Solid Waste Information System, www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, accessed July 2012

[25] Ibid.

REGULATORY SETTING

Federal Regulations and Authorities

Safe Drinking Water Act (SDWA)

Passed in 1974 and amended in 1986 and 1996, the SDWA gives the EPA the authority to set drinking water standards. Drinking water standards apply to public water systems, which provide water for human consumption through at least 15 service connections, or regularly serve at least 25 individuals. There are two categories of drinking water standards, the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations (NSDWR). The NPDWR are legally enforceable standards that apply to public water systems. NPDWR standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water.

Clean Water Act (CWA)

Section 402 of the CWA establishes the NPDES permit program to regulate the discharge of pollutants from point sources. The CWA defines point sources of water pollutants as "any discernible, confined, and discrete conveyance" that discharges or may discharge pollutants. These are sources from which wastewater is transmitted in some type of conveyance (pipe and channel) to a waterbody, and are classified as municipal or industrial. Municipal point sources consist primarily of domestic treated sewage and processed water, including municipal sewage treatment plant outfalls and stormwater conveyance system outfalls. These outfalls contain harmful substances that are emitted directly into waters of the U.S. Without a permit, the discharge of pollutants from point sources into navigable waters of the U.S. is prohibited. NPDES permits require regular water quality monitoring. In California, the NPDES permit program is administered by the State Water Resources Control Board.

Provision C.3

On May 17, 1996, EPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, which provided guidance on permit application requirements for regulated MS4s. MS4 permits include requirements for post-construction control of stormwater runoff in what is known as Provision C.3. The goal of Provision C.3 is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

Resource Recovery and Conservation Act (RCRA) of 1976

RCRA Subtitle D focuses on state and local governments as the primary planning, regulating, and implementing entities for the management of nonhazardous solid waste, such as household garbage and nonhazardous industrial solid waste. To promote the use of safer units for solid waste disposal, Subtitle D provides regulations for the generation, transportation, and treatment, storage, or disposal of hazardous wastes. EPA developed federal criteria for the proper design and operation of municipal solid waste landfills (MSWLFs) and other solid waste disposal facilities, but state and local governments are the primary planning, permitting, regulating, implementing, and enforcement agencies for management and

disposal subject to approval by EPA. EPA approved the State of California's program, a joint effort of the CIWMB, SWRCB, RWQCBs, and LEAs, on October 7, 1993.

State Regulations and Authorities

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board and divided the state into nine regions, each overseen by a regional water quality control board (RWQCB). Each RWQCB region is required to prepare and update a Basin Plan for their jurisdictional area. The RWQCBs also issue waste discharge requirements for discharges of privately- or publicly-treated domestic wastewater to locations other than surface water, such as groundwater basins. The Planning Area is largely within the San Francisco Bay RWQCB, with portions in the North Coastal, Central Coastal, and Central Valley RWQCBs.

Construction General Permit

The California Construction Stormwater Permit (Construction General Permit)[26], adopted by the State Water Resources Control Board, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges and all discharges that contain a hazardous substance in excess of reportable quantities, unless a separate NPDES Permit has been issued to regulate those discharges. The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the Nation;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies BMPs that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all Permit Registration Documents with the SWRCB prior to the start of construction. Permit Registration Documents must include:

- Notice of Intent;
- Risk Assessment;

[26] *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

- Site Map;
- SWPPP;
- Annual Fee; and
- Signed Certification Statement.

Typical BMPs contained in Stormwater Pollution Prevention Plans are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The Stormwater Pollution Prevention Plan must also include a discussion of the program to inspect and maintain all BMPs.

Caltrans NPDES Permit

Caltrans was originally issued a statewide NPDES permit (Order 99-06-DWQ) in 1999, which requires Caltrans to regulate nonpoint source discharge from its properties, facilities, and activities. The Caltrans permit requires development of a program for communication with local agencies, and coordination with other Municipal Separate Storm Sewer Systems (MS4) programs where those programs overlap geographically with Caltrans facilities. As part of the permit, Caltrans is required to create and annually update a Stormwater Management Plan (SWMP) that is used to outline the regulation of pollutant discharge caused by current and future construction and maintenance activities. SWMP requirements apply to discharges from Caltrans stormwater conveyances, including catch basins and drain inlets, curbs, gutters, ditches, channels, and storm drains. The SWMP applies to discharges consisting of stormwater and non-stormwater resulting from the following:

- Maintenance and operation of state-owned highways, freeways, and roads;
- Maintenance facilities;
- Other facilities with activities that have the potential for discharging pollutants;
- Permanent discharges from subsurface dewatering;
- Temporary dewatering; and
- Construction activities.

The discharges addressed by the SWMP flow through municipal stormwater conveyance systems or flow directly to surface water bodies in the state. These surface water bodies include creeks, rivers, reservoirs, lakes, wetlands, lagoons, estuaries, bays, and the Pacific Ocean and tributaries.

This SWMP applies to the oversight of outside agencies' or non-Caltrans entities' (third parties) activities performed within Caltrans' MS4 to ensure compliance with stormwater regulations. Non-Caltrans activities include highway construction and road improvement projects, as well as residential use and business operations on leased property.

The SWMP must be approved by the SWRCB and, as specified in the permit, it is an enforceable document. Compliance with the permit is measured by implementation of the SWMP. Caltrans' policies, manuals, and other guidance related to stormwater are intended to facilitate implementation of the

SWMP. Caltrans also requires all contractors to prepare and implement a program to control water pollution effectively during the construction of all projects.

In lieu of the more recently adopted General Construction Permit as described above, Caltrans continues to modify its current policies and procedures to be consistent with the new permit.

California Administrative Code, Title 22

Under Title 22, the State Department of Health establishes State-wide effluent bacteriological and treatment reliability standards for recycled water uses. The standards are based on the potential for human contact with recycled water. The Regional Water Quality Control Board (RWQCB) has established and enforces requirements for the application and use of recycled water. Permits are required from RWQCB for any recycling operation. Applicants for a permit are required to demonstrate that the proposed recycled water operation is in compliance with Title 22 and will not exceed the ground and surface water quality objectives in the regional basin management plan.

The Water Conservation Act of 2009 (Senate Bill X7-7 2009)

These sections of the Water Code, enacted as SB X7-7—The Water Conservation Act of 2009, set water conservation targets and efficiency improvements for urban and agricultural water suppliers, Sections 10608.16 and Sections 10608.48, respectively. The legislation establishes a State-wide target to reduce urban per capita water use by 20 percent by 2020. Urban retail water suppliers are required, individually or on a regional basis, to develop an urban water use target by December 31, 2010, to meet their target by 2020, and to meet an interim target (half of their 2020 target) by 2015. Urban water suppliers cannot impose conservation requirements on process water (water used in production of a product) and are required to employ two critical efficient water management practices—water measurement and pricing. Urban retail water suppliers must include in a water management plan, to be completed by July 2011, the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use.

California Urban Water Management Planning Act

This part of the State Water Code (Section 10610) states that each urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 AF of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years by preparing a UWMP and updating it every five years. The Act describes the contents of UWMPs, and requires each agency's UWMP to assess the reliability of the agency's water resources over a 20-year planning horizon.

California Senate Bill (SB) 610

Referred to as SB 610, the intent of this part of the State Water Code is to ensure that sufficient water supplies are available for growing communities. Water Code Section 10910 requires any project subject to CEQA of a specified minimum size to require a local public water provider with more than 3,000 service connections to prepare a Water Supply Assessment (WSA) for the project. The WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the development project. Water supply must be assessed for normal, single dry, and multiple dry water years during a 20-year forecast. If supplies are found to be

insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for the project.

California Senate Bill (SB) 221

SB 221 applies to subdivisions of more than 500 dwelling units (Water Code Section 10912). Like SB 610, it is intended to ensure an adequate water supply for new development. SB 221 requires that approval of a tentative map showing the design and improvement of a proposed subdivision shall include a requirement that a sufficient water supply is available.

California Groundwater Management Act

The Groundwater Management Act (AB 3030, Water Code Sections 10750 et seq.) provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans (GMP) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facilities' maintenance and water quality.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB issues individual and general NPDES permits for wastewater and stormwater through the authorization of EPA. Discharges that may impact surface or groundwater, and which are not regulated by an NPDES permit, are issued a waste discharge requirement (WDR) that serves as a permit under the authority of the California Water Code. The RWQCBs issue Land Disposal WDRs that permit certain solid and liquid waste discharges to land to ensure that wastes do not reach surface water or groundwater. Land Disposal WDRs contain requirements for liners, covers, monitoring, cleanup, and closure. The RWQCBs also permit certain point source discharges of waste to land that have the potential to affect surface or groundwater quality. This category of discharges, known as "Non-15" WDR, are the most diverse and include sewage sludge and biosolids, industrial wastewater from power plants, wastes from water supply treatment plants, treated wastewater for aquifer storage and recovery, treated groundwater from cleanup sites, and many others.

Related to wastewater collection and treatment facilities, stormwater drainage facilities, and landfills the SWRCB has issued the following regulations:

- Caltrans NPDES Permit (Order 99-06-DWQ): Requires Caltrans to regulate nonpoint source discharge from its properties, facilities, and activities. Among other requirements, Caltrans must annually update an enforceable Stormwater Management Plan (SWMP).
- Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ): Requires all federal and State agencies, municipalities, counties, districts, and other public entities that own, operate, or are otherwise responsible for sanitary sewer systems greater than one mile in length that collect and/or convey untreated wastewater to a publicly owned treatment facility in California to prepare sewer system management plans and report all sanitary sewer overflows (SSOs) to the SWRCB. Order No. WQ 2008-0002-EXEC, amended the statewide Monitoring and Reporting Program for SSOs that reach surface waters or storm drains. The RWQCB issued Order No. R9-2007-0005 to reaffirm the prohibition of SSOs upstream of a wastewater treatment facility.

AB 885 - On-Site Wastewater Treatment Systems (OWTS)

AB 885 (Chapter 781, Statutes of 2000) required the SWRCB to draft and implement regulations for siting, installation, operation, and maintenance of OWTS. Proposed regulations were issued in 2009 and adopted in June 2012.[27]

Integrated Waste Management Act of 1989 (AB 939 or IWMA)

The IWMA was enacted by the California legislature to reduce dependence on landfills as the primary means of solid waste disposal, and to ensure an effective and coordinated approach to safe management of all solid waste generated within the State. The IWMA establishes a hierarchy of preferred waste management practices: (1) source reduction (waste prevention), to reduce the amount of waste generated at its source; (2) recycling (or reuse) and composting; (3) transformation; and (4) disposal by landfilling. The IWMA required disposal of waste by the local jurisdictions to be cut by 25 percent by 1995 and by 50 percent by 2000. Waste disposal levels from the year 1990 were used as the base, adjusted for population and economic conditions.

The IWMA also requires the preparation of a Countywide Integrated Waste Management Plan (CIWMP), including a Countywide Siting Element that must demonstrate a remaining landfill disposal capacity of at least 15 years to serve all the jurisdictions in the county. The Countywide Siting Element includes a combination of strategies to demonstrate adequate capacity, including existing, proposed, and tentative landfills or expansions; increased diversion efforts; and the export of solid waste for disposal. As part of the CIWMP, the IWMA also requires that each jurisdiction (cities and the county) prepare a Source Reduction and Recycling Element (SRRE), a Household Hazardous Waste Element (HHWE), and a Non-Disposal Facility Element (NDFE).

Title 14, California Code of Regulations

CalRecycle regulations pertaining to nonhazardous waste management in California include minimum standards for solid waste handling and disposal; regulatory requirements for composting operations; standards for handling and disposal of asbestos containing waste; resource conservation programs; enforcement of solid waste standards and administration of solid waste facility permits; permitting of waste tire facilities and waste tire hauler registration; special waste standards; used oil recycling program; electronic waste recovery and recycling; planning guidelines and procedures for preparing, revising, and amending countywide IWMP; and solid waste cleanup program.

Title 27, California Code of Regulations

CalRecycle and the SWRCB jointly issue regulations pertaining to waste disposal on land, including criteria for all waste management units, facilities and disposal sites; documentation and reporting; enforcement, financial assurance; and special treatment, storage, and disposal units.

California Department of Water Resources (DWR)

The DWR is responsible for the planning, construction, and operation of State Water Project (SWP) facilities. It also sets conditions on use of SWP facilities. In addition, DWR is responsible for statewide water planning, evaluating urban water management plans, overseeing dam safety and flood control, and transfer of certain water rights permits (e.g., pre-1914).

[27] http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/0032owts.pdf

Local Regulations and Authorities

Planning for water management, wastewater and stormwater management, and solid waste disposal are prepared by local agencies to support their long-term resource planning and ensure adequate service to meet existing and future demands. In addition to federal and state regulations governing these planning efforts, cities, counties, and water districts may also provide regulatory advisement on water resources, treatment, and solid waste disposal. Many jurisdictions incorporate policies relating to these topic areas in their municipal codes, development standards, or other regulations.

Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of Plan Bay Area would have a potentially significant adverse impact if the proposed Plan would:

Criterion 1: Result in insufficient water supplies available to serve development implemented as part of the Plan from existing entitlements and resources.

Criterion 2: Result in a determination by the wastewater treatment provider which serves or may serve development implemented as part of the Plan that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Criterion 3: Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Criterion 4: Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Criterion 5: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Criterion 6: Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs and comply with federal, state, and local statutes and regulations related to solid waste.

METHOD OF ANALYSIS

This analysis includes a program-level assessment of impacts related to water supply, wastewater/stormwater, and solid waste. The assessment of available water supply considers the current regional demand and supply of water based on analyses available in current Urban Water Master Plans (UWMPs) for major water providers (e.g., East Bay Municipal Utilities District, San Francisco Public Utilities Commission, Santa Clara Valley Water District, Sonoma County Water Agency, Marin Municipal Water District, etc.). The EIR identifies areas where (1) there is an existing forecasted shortage in long-

term supplies that will need to be met by imported water or additional water conservation, reuse and recycling; or (2) where the proposed Plan projects population or jobs beyond what is assumed in current UWMPs and results in a potential shortage. This requires a survey of the region's UWMPs and summary of where shortages or other inconsistencies exist or are identified in these plans. This analysis does not address small jurisdictions with no or very low growth projected.

Impacts related to wastewater, stormwater, and solid waste are more localized in nature, and therefore the analysis is qualitative and focuses on the existing regulations, standards and policy measures to address these localized impacts.

SUMMARY OF IMPACTS

Land development and transportation projects under the proposed Plan may result in insufficient water supplies and require additional capacity in water treatment, wastewater treatment, stormwater drainage, and landfill facilities. Some public utility systems, such as wastewater treatment, may have adequate capacity regionwide but experience shortages in supply or capacity in localized areas.

The urbanized nature of the proposed Plan, placing 99 percent of future growth within already-developed areas, will tend to limit the need for new "wet" facilities as infill development and redevelopment will usually be able to connect to existing public utility systems; expanded capacity may be needed in some areas to handle increased flows, however. Compliance with existing federal and State regulations will mitigate many impacts. In order to reduce localized impacts to a less than significant level, land use and transportation projects developed under the proposed Plan can incorporate construction, design, siting, and operational strategies that will mitigate their impacts.

It is not expected that the proposed Plan will lead to any exceedance of wastewater treatment requirements.

IMPACTS AND MITIGATION MEASURES

Impact

2.12-1 The proposed Plan could result in insufficient water supplies from existing entitlements and resources to serve expected development.

Impacts of Land Use Projects

As seen in **Table 2.12-2**, the major water suppliers in the region—except the Solano County Water Agency—can supply adequate water for their projected service populations through 2035 during normal years. Adequate supplies for many districts also rely on successful achievement of water conservation targets and the completion of supply expansion projects, such as new water contracts, land acquisition, groundwater recharge, and reclaimed water distribution. In some areas, such as the Santa Clara Valley, adequate supply through 2040 is not guaranteed without significant water conservation efforts. All water suppliers should be pursuing the water conservation targets set by the State under SB X7-7 and regularly updating their Urban Water Management Plans. The enforcement of SB 610 and SB 221 by local jurisdictions should ensure that an adequate water supply is available for large residential developments prior to their approval.

Some water suppliers should be able to meet demands of growth under the proposed Plan, such as the Alameda County Water District, City of Napa, and San Francisco PUC, although these will need to take measures to address water conservation during dry years. Other water suppliers, such as the Contra Costa Water District and Solano County Water Agency, will likely need to pursue additional sources to accommodate expected growth. Portions of the region may also have a difficult time providing adequate water supplies during a single dry year. As shown in **Table 2.12-4**, major water supply agencies in Alameda, Contra Costa, Napa, Solano, and Sonoma counties expect demand to exceed supply during a single dry year before the time horizon of the proposed Plan, the year 2040. Therefore, in localized parts of the region, there is an existing forecasted shortage in long-term supplies during a single dry year that will need to be met by imported water or additional water conservation, reuse, and recycling.

The combined population projections of the agencies for 2035 exceed the 2040 regional population projections used for the proposed Plan, as seen in **Table 2.12-3**. As a result, there may be adequate water supplies across the entire region to serve expected growth under the proposed Plan. For example, EMBUD identifies a potential dry year shortage in 2005, although water supply is expected to meet demand during regular years. EMBUD's 2035 projection (1,751,000) exceeds the projection used for the proposed Plan Bay Area for 2040 for the same set of cities (1,684,000),[28] indicating that the proposed Plan would not worsen the current water shortage concerns in the District. Other major growth areas include San José, served by the Santa Clara Valley Water District, and San Francisco, served by the San Francisco Public Utilities Commission, both of which project no water shortages during a single dry year prior to 2040, largely due to supplies from reservoir storage. Projected growth under the proposed Plan will not be spread evenly around the region, so it is possible that some agencies may have accurate or low population projections, meaning that the proposed Plan may result in population or job growth beyond what is assumed in current UWMPs and could result in a localized water supply shortage.

Therefore, at a regional level, because the land use pattern of the proposed Plan may result in insufficient water supplies, requiring the acquisition of additional water sources and the imposition of conservation requirements, these impacts are considered potentially significant (PS). Mitigation Measures 2.12(a), 2.12(b), and 2.12(c) are described below.

More locally, land development through 2040 served by the Marin Municipal Water District, San Francisco Public Utilities Commission, Santa Clara Valley Water District, or Zone 7 Water Agency should have adequate water supplies in both regular and single dry years. Therefore, development in those areas should have impacts that are less than significant (LS).

Impacts of Transportation Projects

The construction of new roadway capacity, bicycle and pedestrian facilities, transit facilities; maintenance on existing transportation facilities; and operation of new and existing facilities could increase the demand for water for activities such as concrete mixing, dust settling, landscape irrigation, customer services such as restrooms and drinking water, etc. Although these increases in demand are anticipated to be small on a per project basis, the collective demand from all of the projects taken together could increase water demand in such a way as to exceed water supply agencies' projected demand. Because transportation projects under the proposed Plan may be constructed in locations with constrained water

[28] The unincorporated areas of Diablo, El Sobrante, Kensington, and Selby are served by EBMUD but population estimates for these jurisdictions are not identified in the proposed Plan.

supplies, especially during a dry year, these impacts are considered potentially significant (PS). Mitigation Measures 2.12(a), 2.12(b), and 2.12(c) are described below.

Combined Effects

Almost all of the potential impacts on water supplies could come from land development under the proposed Plan. Given the relatively small permanent demand on potable water supplies required by transportation projects, it is unlikely that they could contribute to a significant impact. It is possible that the construction phase of a transportation project (water for mixing concrete, watering down topsoil, initial irrigation needs) could exceed local water supplies on a temporary basis, however, especially during dry years. It is also possible that a transportation project that features significant landscaping that is not drought-resistant could significantly impact local water supplies over a longer term; this impact could be mitigated by using drought-resistant plantings and/or connecting to a reclaimed water distribution system. However, because the proposed Plan overall may result in insufficient water supplies, requiring the acquisition of additional water sources and the imposition of conservation requirements, these impacts are considered potentially significant (PS). Measures 2.12(a), 2.12(b), and 2.12(c) are described below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.12(a) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Implementing water conservation measures which result in reduced demand for potable water. This could include reducing the use of potable water for landscape irrigation (such as through drought-tolerant plantings, water-efficient irrigation systems, the capture and use of rainwater) and the use of water-conserving fixtures (such as dual-flush toilets, waterless urinals, reduced flow faucets).
- Coordinating with the water provider to identify an appropriate water consumption budget for the size and type of project, and designing and operating the project accordingly.
- Using reclaimed water for non-potable uses, especially landscape irrigation. This strategy may require a project to be located in an area with existing reclaimed water conveyance infrastructure and excess reclaimed water capacity. If a location is planned for future reclaimed water service, projects should install dual plumbing systems in anticipation of future use. Large developments could treat wastewater onsite to tertiary standards and use it for non-potable uses onsite.
- Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures that reduce demand for potable water.

2.12(b) MTC shall require the construction phase of transportation projects to connect to reclaimed water distribution systems for non-potable water needs, when feasible based on project- and site-specific considerations.

2.12(c) MTC shall require transportation projects with landscaping to use drought-resistant plantings or connect to reclaimed water distribution systems for irrigation and other non-potable water needs when available and feasible based on project- and site-specific considerations.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

Impact

2.12-2 The proposed Plan could result in inadequate wastewater treatment capacity to serve new development.

Impacts of Land Use Projects

Regional Effects

Table 2.12-5 lists the flow and existing capacity of the wastewater treatment systems in the region. All of the systems currently have capacity beyond average demand. This extra capacity must be adequate to meet projected growth and peak demands, as required by the NPDES permit for each wastewater treatment facility.

As **Table 2.12-5** shows, taken as a whole the region's wastewater treatment facilities handle around 626 mgd with a combined capacity of 1,126 mgd during dry weather. Assuming that wastewater flows increase at the same rate as population growth, by 2040 the average flow per day will rise to 813 mgd across the region, still within existing regionwide capacity as shown in **Table 2.12-8**. Water conservation efforts underway across the region are likely to result in wastewater flows increasing at a lower rate than population and job growth, as well.

Localized Effects

Under the proposed Plan, population and job growth will not be spread evenly. Some counties are projected to grow more than the regionwide rate of 30 percent, such as San Francisco at 35 percent, while others will grow less, such as Marin at 11 percent. **Table 2.12-8** shows how existing wastewater treatment capacity for each county, as listed in **Table 2.12-5**, compares to future average daily flows, assuming that existing wastewater flows grow by the same percentage as the projected county population.

All counties have enough existing overall wastewater treatment capacity to meet future projections except for San Francisco. San Francisco could take steps to reduce per person wastewater flows, such as through water conservation measures, to ensure that its projected population can be served by its existing wastewater treatment capacity.

TABLE 2.12-8: PROJECTED FLOW VS. EXISTING CAPACITY OF WASTEWATER TREATMENT AT A COUNTY LEVEL (DRY WEATHER, MGD)

County	*Aggregate Existing Treatment Capacity*	*Projected Population Growth*	*Aggregate Projected Future Flow*	*Projected Countywide Excess Capacity*
Alameda County	424.60	31%	200.05	224.55
Contra Costa County	111.31	27%	103.25	8.06
Marin County	53.82	11%	25.44	28.38
Napa County	19.86	19%	18.86	1.00
San Francisco	106.40	35%	106.79	-0.38
San Mateo County	76.60	26%	65.02	11.58
Santa Clara County	244.00	36%	211.48	32.52
Solano County	56.15	23%	49.13	7.02
Sonoma County	33.60	23%	33.05	0.55
BAY AREA TOTAL	**1,126.34**	**30%**	**813.07**	**313.28**

Source: Dyett & Bhatia, 2013.

The ability of individual wastewater treatment facilities to meet projected population growth within their service districts is difficult to assess and beyond the range of this EIR. However, it is likely that some treatment facilities will need to expand their capacity to meet actual population growth, or to respond to RWQCB requirements to provide capacity to receive their NDPES permit, such as expanding capacity during the timeframe of the proposed Plan in order to meet additional future growth beyond the time horizon.

Because the land use pattern of the proposed Plan may result in insufficient wastewater treatment capacity, these impacts are considered potentially significant (PS). Mitigation Measure 2.12(d) is described below.

Impacts of Transportation Projects

It is not anticipated that transportation projects could have an effect on wastewater treatment capacity, except in circumstances where an area has a combined stormwater and wastewater conveyance system. In those instances, extra stormwater runoff caused by additional impervious surface from roadway and some transit projects may require additional wastewater treatment capacity in localized locations. As a result of the possibility of impacts on combined drainage systems resulting in insufficient wastewater treatment capacity, these impacts are considered potentially significant (PS). In this case, mitigation of stormwater drainage system capacity impacts will also mitigate wastewater treatment capacity impacts. Mitigation for stormwater runoff into wastewater systems from transportation projects is discussed under Impact 2.12-3; mitigation measures 2.12(f) and 2.12(g) will mitigate these impacts.

Combined Effects

Almost all of the potential impacts on wastewater treatment capacity could come from land development under the proposed Plan. Given the relatively small permanent generation of wastewater by transportation projects, it is unlikely that they could contribute to a significant impact; the exception

could be if stormwater runoff was collected by a combined wastewater/storm sewer system, which could lead to aggregate impacts that are potentially significant (PS). Mitigation Measure 2.12(d) is described below.

Mitigation Measure

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.12(d) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Undertaking environmental assessments of land use plans and developments to determine whether sufficient wastewater treatment capacity exists for a proposed project. These environmental assessments must ensure that the proposed development can be served by its existing or planned treatment capacity, and that the applicable NPDES permit does not include a Cease and Desist Order or any limitations on existing or future treatment capacity. If adequate capacity does not exist, the implementing agency must either adopt mitigation measures or consider not proceeding with the project as proposed.
- Complying with existing local regulations and policies that exceed or reasonably replace the above measure in a manner that reduces impacts on wastewater treatment capacity.

Implementing agencies shall also require compliance with Mitigation Measure 2.12(a), and MTC shall require implementation of Mitigation Measures 2.12(b), and/or 2.12(c) listed under Impact 2.12-1, as feasible based on project- and site-specific considerations, which will help reduce water usage and, subsequently, wastewater flows.

Transportation projects could only cause impacts on wastewater treatment capacity in the case of excess stormwater runoff into a combined wastewater/stormwater conveyance system. Therefore, mitigation of stormwater drainage system capacity impacts will also mitigate wastewater treatment capacity impacts. Mitigation for stormwater runoff into wastewater systems from transportation projects is discussed under Impact 2.12-3; mitigation measures 2.12(f) and 2.12(g) will mitigate these impacts.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

Impact

2.12-3 Development under the proposed Plan could require and result in the construction of new or expanded stormwater drainage facilities, which could cause significant environmental impacts.

Impacts of Land Use Projects

The proposed Plan could urbanize approximately 7,547 acres of land, a roughly one percent increase over existing conditions. This development outside of urban areas could be comprised of a variety of land uses and impervious surfaces (paved areas, building rooftops, parking lots, etc.) that could result in incremental increases in the volume and rate of stormwater runoff, and possibly require the expansion or construction of new stormwater drainage facilities. Subsequently, most if not all of this development will require new stormwater drainage facilities.

Urban infill can also increase impervious surfaces by converting permeable vacant or underutilized parcels into land with more paving or structures; some redevelopment can reduce the amount of impervious surface, however, by converting pavement or buildings into permeable paving or landscape. Redevelopment can also increase the amount and rate of runoff by discharging greater amounts of water on a site than existing prior to development, typically due to excessive landscape irrigation. However, most stormwater drainage systems should have been designed to handle runoff from those infill sites, and properly operated and maintained stormwater drainage systems should not require expansion to accommodate infill development. However, aging infrastructure may require upgrades. The majority, 99 percent, of future development under the proposed Plan is expected to occur within urbanized areas.

The successful and continued implementation of Provision C.3 requirements should help mitigate increases in runoff flows from new development and redevelopment projects through post-construction controls such as low impact development (LID) techniques. As required by Provision C.3, for new development that would introduce 10,000 square feet of new impervious surfaces, the specific project applicant would incorporate LID strategies, such as stormwater reuse, onsite infiltration, and evapotranspiration as initial stormwater management strategies. Secondary methods that could be incorporated include the use of natural, landscape based stormwater treatment measures, as identified by Provision C.3.

Redevelopment projects may even result in improved water quality compared to existing conditions where existing development was constructed under older less stringent stormwater requirements. Selection and implementation of these measures could occur on a project-by-project basis depending on project size and stormwater treatment needs as well as what may be necessary to meet NPDES or any other local permitting requirements.

Construction activities can also be a major source of stormwater runoff. Unprotected soil can easily erode during rains or spraying with water. The submission of and compliance with a Storm Water Pollution Prevention Plan (SWPPP) to the SWRCB should mitigate impacts on stormwater drainage facilities for projects over one acre in size. An SWPPP is not required for projects under one acre in size, but such projects on their own are unlikely to cause significant impacts.

The infill nature of the proposed Plan's development pattern, combined with existing stormwater regulations, will likely result in less than significant impacts on the stormwater capacity of existing

systems. However, development outside of urbanized areas will almost certainly require the construction of new stormwater drainage systems, and existing regulations generally do not cover developments less than one acre in size, so as a result the impact is potentially significant (PS). Mitigation Measures 2.12(e), 2.12(f), and 2.12(g) are described below.

Impacts of Transportation Projects

The proposed Plan's new roadway projects could create new impervious areas by converting existing permeable surfaces into impervious surfaces through the expansion of existing roadways and construction of new traffic lanes. The proposed Plan calls for the addition of 687 lane miles to be constructed in the region, a three percent increase over existing conditions. Any projects undertaken by Caltrans, or by a third party operating within its stormwater system, are subject to its Stormwater Management Plan which regulates discharges from Caltrans stormwater conveyances.

Transit projects may also increase impervious surfaces, although many rail systems are below ground (subways), use existing roadways (light rail), or are elevated, and so make little to no contribution to impervious surfaces; some at-grade rail lines may be largely permeable.

As with land development, the construction activities associated with transportation projects can be a major source of additional stormwater runoff. In locations with a combined stormwater and wastewater conveyance system, this increase in runoff could impact wastewater treatment capacity as well, as discussed under Impact 2.12-2. Regulations already exist to mitigate stormwater runoff from transportation projects, however:

- Transportation projects that fall under Caltrans jurisdiction would be covered by the Caltrans NPDES Stormwater Program. As described in the regulatory setting for the State Water Board, this NPDES permit regulates all stormwater discharges from Caltrans-owned conveyances, maintenance facilities and construction activities. Caltrans also has a Storm Water Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. Guidance documents have also been developed by Caltrans to implement stormwater BMPs in the design, construction and maintenance of highway facilities.
- Transportation projects where local agencies are the lead agency are subject to local and state regulations for post-construction runoff management requirements. The NPDES permit requirements described in the land use discussion above (project design including general site design control measures, LID features, treatment control measures, ordinances and regulations) also apply to transportation impacts in order to reduce the discharge of sediments and other pollutants. If stormwater drainage facilities must be built or expanded, the implementing agency must undertake project-level environmental review of the construction and operation of the facilities to assess and mitigate potential environmental impacts, per CEQA.

Overall, while existing regulations may mitigate many impacts, the more stringent and effective Caltrans NPDES Stormwater Regulations only apply to some transportation projects. In addition, new roadway lane miles in areas lacking adequate stormwater drainage capacity will likely require expanded systems regardless of regulations. As a result, the potential stormwater capacity impacts related to transportation improvements from implementation of the proposed Plan at the regional and local level are considered potentially significant (PS). Mitigation Measures 2.12(e), 2.12(f), and 2.12(g) are described below.

Combined Effects

All of the potential impacts on stormwater drainage capacity could come from land development under the proposed Plan, and only in localized areas with development outside of the existing urban footprint. Impacts from transportation projects should be largely mitigated by existing stormwater regulations. Together the proposed Plan creates impacts that are potentially significant (PS). Mitigation Measures 2.12(e), 2.12(f), and 2.12(g) are described below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.12(e) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Complying with all existing applicable federal and State regulations, including Provision C.3 of the EPA's Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, NPDES permit requirements, the submission of and adherence to a Storm Water Pollution Prevention Plan, Water Quality Control Policy for Siting, Design, Operation, and Maintenance of onsite Wastewater Treatment Systems, and/or other relevant current State Water Resource Control Board policy adopted for the purpose of reducing stormwater drainage impacts.
- For projects less than one acre in size, reducing stormwater runoff caused by construction by implementing stormwater control best practices, based on those required for a Storm Water Pollution Prevention Plan.
- To the extent possible, siting or orienting the project to use existing stormwater drainage capacity.
- Constructing permeable surfaces, such as stormwater detention facilities, playing fields, landscaping, or alternative surfaces (vegetated roofs, pervious paving).
- Modeling and implementing a stormwater management plan or site design that prevents the post-development peak discharge rate and quantity from exceeding pre-development rates.
- Capturing rainwater for on-site re-use, such as for landscape irrigation or inside non-potable uses such as toilet flushing.
- Capturing and infiltrating stormwater runoff on site with rain gardens, vegetated swales, constructed wetlands, etc.
- Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures in reducing impacts on stormwater drainage facilities.

2.12(f) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. Transportation projects shall incorporate stormwater control, retention, and infiltration features, such as detention basins, bioswales, vegetated median strips, and permeable paving, early into the design process to ensure that adequate acreage and elevation contours are planned. Implementing

agencies shall require project sponsors to comply with existing local regulations and policies that exceed or reasonably replace measures that reduce stormwater drainage impacts.

2.12(g) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. All transportation projects constructed, operated, or funded by MTC shall adhere to Caltrans' Stormwater Management Plan, which includes best practices to reduce the volume of stormwater runoff and pollutants in the design, construction and maintenance of highway facilities.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

Impact

2.12-4 Development under the proposed Plan could require and result in the construction of new or expanded water and wastewater treatment facilities, which could cause significant environmental impacts.

Impacts of Land Use Projects

It is possible that the increase in population in the region will result in a need for new or expanded water and wastewater treatment facilities to accommodate demand that exceeds the capacity at existing facilities, as described under Impacts 2.12-1 and 2.12-2. Much of the new treatment capacity is likely to be through expansion of existing facilities, since 99 percent of future development is expected to occur within the existing urban footprint and therefore could connect to existing conveyance and treatment systems.

It is possible that some wastewater treatment facilities will be unable to expand their discharge capacity due to EPA limits on the amount of treated water that can be discharged to a body of water. In these instances, wastewater treatment capacity may need to be expanded through retention ponds, reclaimed water distribution, or groundwater recharge.

Environmental impacts could occur from both the construction process and the conversion of undeveloped land to accommodate expanded facilities. The construction process could lead to a wide range of environmental effects such as negative impacts on air quality, stormwater runoff, and noise. The conversion of underdeveloped land could result in the loss of agricultural land, increased stormwater runoff, loss of habitat, and damage to visual and cultural resources, among other impacts. Because site specific information is needed to assess impacts, project level environmental review will be required for construction of new water and wastewater facilities.

Because the land use pattern of the proposed Plan may result in construction of new or expanded water and wastewater treatment facilities, the construction of which may have site specific impacts, these impacts are considered potentially significant (PS). Mitigation Measure 2.12(h) is described below.

Impacts of Transportation Projects

It is not anticipated that transportation projects could have an effect on water treatment demand and therefore could not require new or expanded facilities. It is not anticipated that transportation projects could have an effect on wastewater treatment demand, except in circumstances where an area has a combined stormwater and wastewater conveyance system, where these impacts are considered potentially significant (PS). Mitigation Measure 2.12(h) is described below.

Combined Effects

Almost all of the potential impacts on water and wastewater treatment facilities capacity could come from development under the land use pattern of the proposed Plan; impacts from transportation projects could only occur in the case of a combined stormwater and wastewater conveyance system. Therefore, the combined impact will generally be the same as from land use development, and considered potentially significant (PS). Mitigation Measure 2.12(h) is described below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.12(h) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. For projects that could increase demand on water and wastewater treatment facilities, project sponsors shall coordinate with the relevant service provider to ensure that the existing public services and utilities could be able to handle the increase in demand. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility shall be identified in each project's CEQA documentation. The relevant public service provider or utility shall be responsible for undertaking project-level review as necessary to provide CEQA clearance for new facilities.

Further, all of the mitigation measures listed under Impact 2.12-1 and Impact 2.12-2 will help reduce water demand and wastewater generation, and subsequently help reduce the need for new or expanded water and wastewater treatment facilities. The mitigation measures listed under Impact 2.12-3 will also help mitigate the impact of additional stormwater runoff from land use and transportation projects on existing wastewater treatment facilities.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

Impact

2.12-5 Development under the proposed Plan could exceed wastewater treatment requirements of the RWQCBs.

Although increased wastewater treatment may be required, it is not anticipated that the land development and transportation projects developed under the proposed Plan will exceed, or result in the violation of, the established wastewater treatments standards of the Regional Water Quality Control Boards. The urbanized portions of the region—both incorporated and unincorporated—are covered by an extensive network of wastewater treatment plants which are regulated by the appropriate RWQCB. Existing and future land use plans, and development proposed under these plans, have been and will continue to undergo environmental assessment under CEQA that ensures that new development will not exceed a system's ability to meet wastewater treatment requirements per the system's NPDES permit.

Rural development typically utilizes individually owned and operated septic tanks rather than centralized treatment plants. However, septic systems are generally overseen by local authorities, not the RWQCB, so the threshold of significance would not apply. Furthermore, the proposed Plan is not expected to increase the amount of development in un-urbanized areas, with 99 percent of future development expected to occur within the urban footprint, and therefore its wastewater will almost certainly be handled by a regulated wastewater treatment system. Therefore, this impact is determined to be less than significant (LS).

Mitigation Measures

None Required.

Impact

2.12-6 The proposed Plan could result in insufficient landfill capacity to serve new development while complying with applicable regulations.

Impacts of Land Use Projects

The existing population and jobs of the region will continue to generate solid waste that requires disposal in a licensed and regulated landfill. These current levels of solid waste production will increase due to the expected growth in the region's population, which is expected to increase from 7,151,000 to 9,299,000 during the lifetime of the proposed Plan. The California Department of Resources Recycling and Recovery (CalRecycle) estimates that the average resident in California disposes of 4.5 pounds of trash per day as of 2010.[29] Assuming an average diversion rate of 50 percent, as required by AB 939, the region will go from generating around 8,050 tons of solid waste per day and 2.94 million tons per year, to around 10,500 tons per day and 3.82 million tons per year. In addition, the construction process of

[29] CalRecycle, California's Statewide Per Resident, Per Employee, and Total Disposal Since 1989, available at: http://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal.htm, accessed January 2013.

building new housing and non-residential uses will generate solid waste from activities such as demolition, grading, and excavation.

Landfill closure dates typically reflect the year a landfill is projected to reach capacity and take many factors into account, including rates of solid waste generation, rates of diversion, and projected growth. All but four of the seventeen landfills active in the region, listed in **Table 2.12-5**, have an estimated closure date before the year 2040, which is the time horizon of the proposed Plan. It is unlikely these four remaining landfills, which make up around 13 percent of the region's existing remaining capacity, could handle the solid waste disposal needs of the entire region.

Countywide Integrated Waste Management Plans must demonstrate a remaining landfill disposal capacity of at least 15 years to serve all the jurisdictions in the county, so insufficient landfill capacity should be identified well ahead of time. The region may need to expand existing or construct new landfills, identify waste disposal capacity outside of the region, and/or significantly reduce solid waste generation or diversion rates in order to serve the projected level of development.

Because the land use pattern of the proposed Plan may result in insufficient landfill capacity, these impacts are considered potentially significant (PS). Mitigation Measures 2.12(i) and 2.12(j) are described below.

Impacts of Transportation Projects

Roadway and transit construction and maintenance projects in the proposed Plan have the potential to generate a substantial amount of solid waste during construction. This waste can come from typical construction activities, such as grading, excavation, and removal of existing structures. The operation of transportation facilities may also generate solid waste. The amount of this waste is difficult to predict, but its disposal will face the same landfill capacity issues as land development projects.

Because the transportation projects of the proposed Plan may result in insufficient landfill capacity, these impacts are considered potentially significant (PS). Mitigation Measures 2.12(i) and 2.12(j) are described below.

Combined Effects

Taken together, the solid waste generated by both land use and transportation projects may reduce the capacity of existing landfills faster than anticipated. This may lead to earlier closure dates and a need for larger new landfill capacity sooner.

These impacts are considered potentially significant (PS). Mitigation Measures 2.12(i) and 2.12(j) are described below.

Mitigation Measures

Implementing agencies and/or project sponsors shall consider implementation of mitigations measures including but not limited to those identified below.

2.12(i) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. Countywide Integrated Waste Management Plans and Source Reduction and Recycling

Elements shall take the growth patterns projected by the proposed Plan into account in their evaluation of landfill disposal capacity and determination of strategies to implement to enhance capacity.

2.12(j) Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:

- Providing an easily accessible area that is dedicated to the collection and storage of non-hazardous recycling materials, where feasible.
- Maintaining or re-using existing building structures and materials during building renovations and redevelopment, where feasible.
- Using salvaged, refurbished or reused materials, to help divert such items from landfills, where feasible.
- Diverting construction waste from landfills, where feasible, through means such as:
  - The submission and implementation of a construction waste management plan that identifies materials to be diverted from disposal.
  - Establishing diversion targets, possibly with different targets for different types and scales of development.
  - Helping developments share information on available materials with one another, to aid in the transfer and use of salvaged materials.
- Applying the specifications developed by the Construction Materials Recycling Association (CMRA) to assist contractors and developers in diverting materials from construction and demolition projects, where feasible.[30]
- Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures in reducing impacts on landfills.

Significance after Mitigation

Projects taking advantage of CEQA Streamlining provisions of SB 375 (Public Resources sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measures described above, as feasible, to address site-specific conditions. To the extent that an individual project adopts and implements all feasible mitigation measures described above, the impact would be less than significant with mitigation (LS-M).

MTC/ABAG cannot require local implementing agencies to adopt the above mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore it cannot be ensured that this mitigation measure would be implemented in all cases, and this impact remains significant and unavoidable (SU).

In addition, while individual land development and transportation projects can mitigate their impacts on landfill capacity, the combined and cumulative impacts of the proposed Plan will still be significant and unavoidable (SU) given the expected closure of most of the landfills in the Bay Area during the project

[30] The CMRA specifications are available on the CalRecycle website at: www.calrecycle.ca.gov/conDemo/specs/CMRA.htm

horizon. While there are potential mitigations to this impact, such as the expansion of existing landfills, opening of new landfills, use of landfills in other regions, and mandated rates of diversion, such actions will require regional cooperation by multiple agencies unrelated to MTC and ABAG.

This page intentionally left blank.