

### 3. Public Works

Public works include water infrastructure and supply, sewer infrastructure and treatment capacity, the circulation system, and stormwater infrastructure and management. The purpose of this chapter is to assess the capacity and performance of public works facilities for existing and anticipated development as defined by the Land Use Plan and Land Use Plan map. Needed infrastructure improvements and capacity expansions are identified and steered toward resilient and sustainable approaches to support all land uses, including existing development. Infrastructure capacity is prioritized according to three land use categories as presented in Chapter 2. Development: 1) Coastal Act Priority Uses; 2) Local Priority Uses (affordable housing); and 3) Non-Priority Uses. The Coastal Act further identifies that agricultural and coastal dependent uses have priority over other development types on private lands, including visitor-serving commercial recreation facilities. The Land Use Plan establishes water supply and sewer treatment capacity reserves for the top tier, Coastal Act Priority Uses. Finally, given these Coastal Act priorities and existing infrastructure constraints, policies in this chapter bring forth the prospect that an ultimate limit on the city's potential growth must be explored during this 2040 planning horizon because current infrastructure capacity could be exhausted before full buildout of the Planning Area.

#### Land Use Plan Framework

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The Land Use Plan (LUP) emphasizes a sustainable pattern of development and managed growth, primarily within the Town Center. Buildout of the city depends on public works systems that are resilient to changing conditions including the effects of climate change, and to the extent feasible, the increasing population and visitation from the greater Bay Area. To that end, this chapter identifies that potential growth under the LUP and in the unincorporated Midcoast can likely be supported by existing water and sewer infrastructure through the 2040 planning horizon, including full buildout of the Town Center. However, for the circulation system, with nearly 3 million annual visitors to the local area, roadway capacity had already been notably overwhelmed by severe periods of congestion from busy weekend visitor traffic for many years at the time of the LUP update. The existing and projected levels of visitor demand cannot be accommodated by any practical approach to increasing circulation system capacity. Beyond the 2040 planning horizon, water supply and sewer system capacity could become overburdened at full buildout; and the effects of climate change will further stress all infrastructure systems. Based on these findings, the need for careful monitoring and interventions are explored in this chapter.

This chapter addresses public works as critical facilities and also plans for essential services. Critical facilities and essential services include the following:

**Critical Facilities.** Water tanks, municipal wells, and major sewer and water service mains and pumps; communications infrastructure; the SAM Wastewater Treatment Plant; Highways 1 and 92; emergency preparedness and response facilities including the Emergency Operations Center and fire station; and schools.

**Essential Services.** Essential services include critical facilities, as well as public and quasi-public uses such as government buildings (e.g. Half Moon Bay Library and City Hall), public health services, and a wide range of care facilities (e.g. childcare and human service agencies).

In the context of this chapter, critical facilities and essential services are considered to ensure available and projected capacity and reliability to serve the community's health and safety needs under the projected buildout. In Chapter 7. Environmental Hazards, critical facilities are discussed in the context of locating new facilities away from hazardous areas where feasible and protecting existing facilities that are vulnerable to hazard risks.

For infrastructure planning, it is important to consider the regional context of the Planning Area as part of both the urbanized and rural San Mateo County Midcoast. The City's public works facilities overlap or interface with those of the Midcoast as highlighted below:

**Water.** The Coastside County Water District (CCWD) service area includes the entire city and extends north into the Midcoast serving the unincorporated communities of Princeton and El Granada (Figure 3-1). The Planning Area is fully within the Half Moon Bay Terrace groundwater basin which extends north into Montara.

**Sewer.** The City of Half Moon Bay's sewer system serves the southern two-thirds of the city south of Frenchmans Creek, the Granada Community Services District (GCSD) includes portions of the Planning Area north of Frenchmans Creek, and unincorporated northern portion of the Miramar neighborhood, El Granada, and Princeton (Figure 3-2). The Montara Water and Sanitary District (MWSD) serve the remainder of the Midcoast including Montara and Moss Beach. All city and Midcoast municipal sewage is treated at the Sewer Authority Mid-Coastside (SAM) facility.

**Circulation.** Highways 1 and 92, the primary circulation routes for the Midcoast including the Planning Area, are State Highways under the jurisdiction of the California Department of Transportation (Caltrans) (Figure 3-3).

**Stormwater.** The Planning Area is located entirely within the California Interagency Watershed (Calwater) San Mateo Coastal Hydrologic Area. The hydrologic area is divided into smaller sub-basins as further described in the Hydrology and Water Quality section of Chapter 6. Natural Resources. Within the Planning Area, nine local watersheds are identified including Roosevelt, Pullman, Frenchmans, Pilarcitos, Kehoe, Beachwood, Kelly/Metzgar, Seymour, and Ocean Colony (Figure 6-5 in Chapter 6. Natural Resources).

Thus, while this chapter's focus is public works capacity for Planning Area buildout, Midcoast growth and infrastructure needs are also acknowledged and presented as applicable in the following discussions and associated analyses.

## **COASTAL ACT POLICIES AND DEFINITIONS**

The Coastal Act requires new development to be served by adequate services, including water, sewer, and circulation, and in a manner that does not adversely impact coastal resources (Section 30250). The Coastal Act also limits expansion of new public works facilities to those improvements necessary to accommodate planned development or uses permitted by the Coastal Act or Local Coastal Program (LCP). Where existing or planned public works can accommodate only a limited amount of new development, priority is given to recreation, coastal-dependent land uses, essential public services, and basic industries vital to the economic health of the region, state, or nation (Section 30254).

Coastal Act requirements for public works facilities are specifically relevant to the City's water, sewer, circulation, and stormwater systems' existing capacities and projected needs, which are discussed in this chapter. Other public works systems including communications, energy, and solid waste are addressed briefly in this chapter and more completely in the City's General Plan.

The following Coastal Act definitions and policies are relevant to public works and are incorporated into this LUP.

### **Chapter 2: Definitions**

#### **Section 30114. Public Works**

"Public works" means the following:

- a. All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities.
- b. All public transportation facilities, including streets, roads, highways, public parking lots and structures, ports, harbors, airports, railroads, and mass transit facilities and stations, bridges, trolley wires, and other related facilities. For purposes of this division, neither the Ports of Hueneme, Long Beach, Los Angeles, nor San Diego Unified Port District nor any of the developments within these ports shall be considered public works.
- c. All publicly financed recreational facilities, all projects of the State Coastal Conservancy, and any development by a special district.
- d. All community college facilities.

#### **Section 30118. Special district**

"Special district" means any public agency, other than a local government as defined in this chapter, formed pursuant to general law or special act for the local performance of governmental or proprietary functions within limited boundaries. "Special district" includes, but is not limited to, a county service area, a maintenance district or area, an improvement district or improvement zone, or any other zone or area, formed for the purpose of designating an area within which a property tax rate will be levied to pay for service or improvement benefiting that area.

## **Article 2: Public Access**

### **Section 30212.5. Public facilities; distribution**

Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

## **Article 3: Recreation**

### **Section 30222. Private lands; priority and development purposes**

The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

## **Article 4: Marine Environment**

### **Section 30231. Water quality protection**

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

## **Article 6: Development**

### **Section 30250. Location; existing developed area**

- (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.
- (b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.
- (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.

### **Section 30254. Public works facilities**

New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural

areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

**Section 30254.5. Terms or conditions on sewage treatment plant development; prohibition**

Notwithstanding any other provision of law, the commission may not impose any term or condition on the development of any sewage treatment plant which is applicable to any future development that the commission finds can be accommodated by that plant consistent with this division. Nothing in this section modifies the provisions and requirements of Sections 30254 and 30412.

**California Coastal Commission Environmental Justice Policy**

The Coastal Commission unanimously adopted an Environmental Justice Policy in March 2019 to provide guidance on how to address environmental justice in land use planning and coastal development permits. This policy supports affordable housing as a means of providing coastal access and recreation opportunities to people of all backgrounds, races, cultures, and income levels. In part, this policy states:

*The Commission will use its legal authority to ensure equitable access to clean, healthy, and accessible coastal environments for communities that have been disproportionately overburdened by pollution or with natural resources that have been subjected to permanent damage for the benefit of wealthier communities. Coastal development should be inclusive for all who work, live, and recreate on California's coast and provide equitable benefits for communities that have historically been excluded, marginalized, or harmed by coastal development.*

**LAND USE PLAN BUILDOUT**

Buildout projections are necessary to determine the extent to which the City's public works infrastructure has the capacity to serve existing and anticipated development for the planning horizon and beyond. This LUP presents two levels of buildout projections: first for the 2040 planning horizon, and second for the maximum theoretical buildout (MTB). While the 2040 buildout projections help foresee nearer term infrastructure needs using a typical 20-year plan horizon for anticipating major infrastructure upgrades, MTB projections present an extreme scenario including all potential development sites to analyze longer-term infrastructure capacity.

The San Mateo County LCP was updated in 2013 and similarly included Midcoast growth projections for "Phase 1" and "Buildout" scenarios. For coordination purposes, the County's LCP "Phase 1" projections are understood to be reasonably aligned to this LUP's 2040 planning horizon; and the "Buildout" scenario represents a maximum buildout without an assumed end year as is the case for this LUP's MTB scenario. The Half Moon Bay and San

Mateo County unincorporated Midcoast buildout projections are summarized below in Table 3-1, and the assumptions and calculations for the projections are provided in Appendix B.

**Table 3-1. City of Half Moon Bay and Midcoast Buildout Summary**

	<b>2018</b>	<b>2040 Projections</b>	<b>MTB</b>
<b>Dwelling Units<sup>1</sup></b>			
Midcoast Total	9,210	11,028	14,006
Half Moon Bay	4,830	5,612	7,051
Unincorporated Midcoast	4,380	5,416	6,955
<b>Population<sup>2</sup></b>			
Midcoast Total	23,909	28,532	35,347
Half Moon Bay	12,565	14,535	18,262
Unincorporated Midcoast	11,344	14,027	17,085
<b>Employment (Jobs)<sup>3</sup></b>			
Midcoast Total	7,930	11,047	-----
Half Moon Bay	5,379	6,053	7,684
Unincorporated Midcoast	2,551	4,994	-----

<sup>1</sup> Residential Dwelling Units:

Half Moon Bay:

- Existing: 2013-2017 American Community Survey, City of Half Moon Bay GIS, and City of Half Moon Bay building permits data.
- 2040 Projections and Maximum Theoretical Buildout: Land Use Plan Appendix B.

Unincorporated Midcoast:

- Existing and 2040 Projections: Connect the Coastside (Public Working Draft), January 15, 2020, page 37, 2014 data including 80 additional dwelling units for 2014-2018 per San Mateo County Planning staff.
- Maximum Theoretical Buildout: San Mateo County LCP 2013, page 2.45.

<sup>2</sup> Population:

Half Moon Bay:

- Existing: 2013-2017 American Community Survey.
- 2040 Projections and Maximum Theoretical Buildout: Assumes 2.59 persons per residential dwelling units per 2013-2017 American Community Survey.

Unincorporated Midcoast:

- Existing and 2040 Projections: Connect the Coastside (Public Working Draft), January 15, 2020, 2014 data adjusted to account for population associated with 20 additional dwelling units per year from 2014-2018 per San Mateo County Planning staff.
- Maximum Theoretical Buildout: San Mateo County LCP 2013, page 2.45, Table 2.21.

<sup>3</sup> Employment:

Half Moon Bay:

- Existing: Half Moon Bay Economic and Real Estate Conditions and Trends, Economic and Planning Systems, July 2014; augmented with City of Half Moon Bay planning and building permit data from 2014 - 2018.
- 2040 Projections and Maximum Theoretical Buildout: Land Use Plan Appendix B.

Unincorporated Midcoast:

- Existing and 2040 Projections: Connect the Coastside, (Public Working Draft), January 15, 2020, page 38.
- Maximum Theoretical Buildout: San Mateo County, ABAG, and other data sources do not include jobs projections for the unincorporated Midcoast for the maximum theoretical buildout condition.

## Water

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This section provides an overview of the Planning Area's municipal water service provider and sources; analyzes water supply adequacy for the Planning Area and its priority uses; and presents water policy issues as a basis for the LUP policies.

### **WATER SERVICE PROVIDER AND SOURCES**

Coastside County Water District (CCWD) is the municipal water provider for the City of Half Moon Bay and the unincorporated areas of Miramar, El Granada and Princeton. As shown in Figure 3-1 below, the Planning Area, with the exception of agricultural lands outside the city limits, is served by CCWD. The remainder of the unincorporated Midcoast is served by the Montara Water and Sanitary District, a member of Sewer Authority Mid-Coastside (SAM).

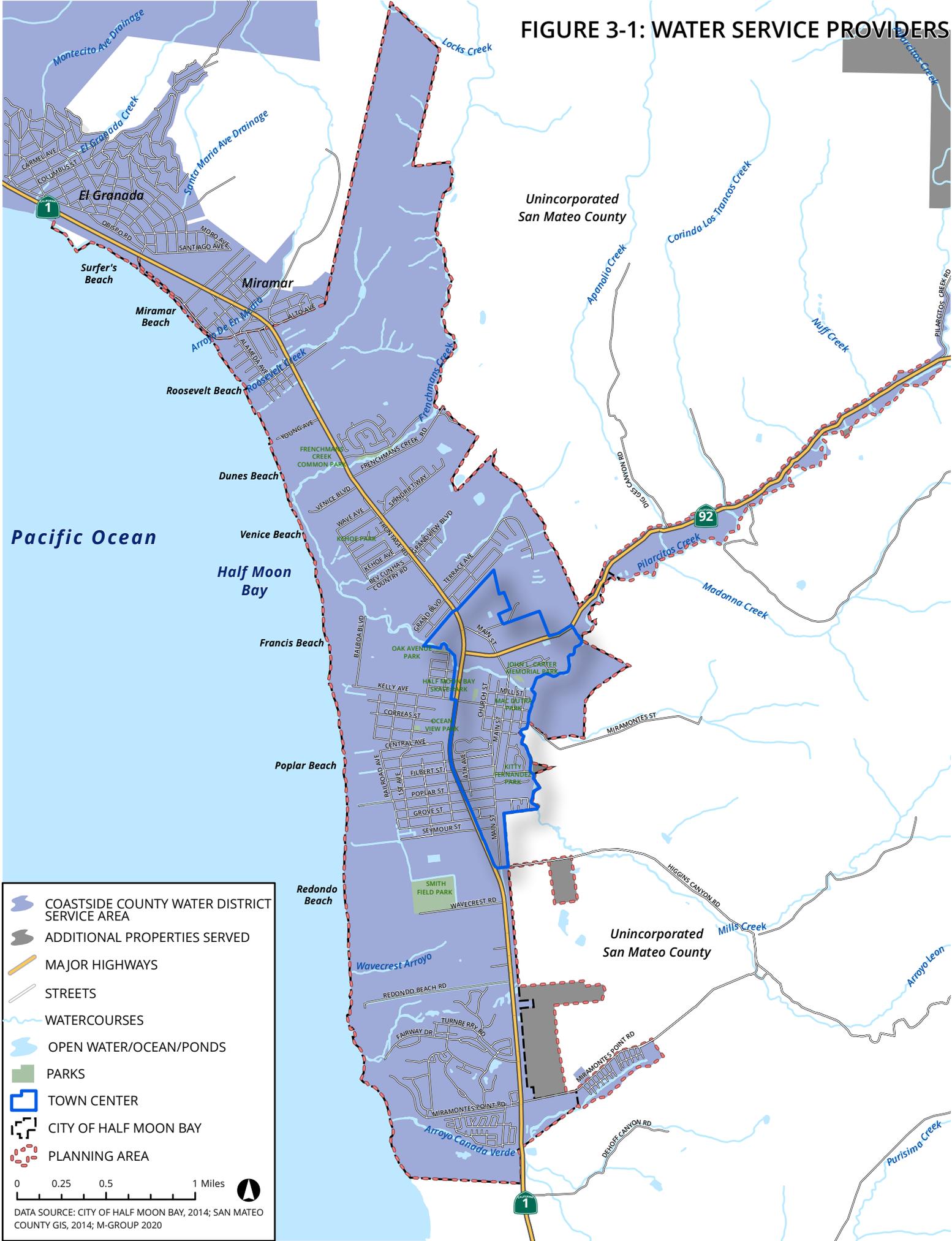
CCWD is responsible for ensuring that the service area's water supply needs are met under a range of extreme circumstances. Through their capital improvement planning, the district identifies infrastructure needs including the adequacy of storage facilities or other management methods, such as those necessary to fulfill conservation mandates.

Most of CCWD's supply is conveyed to the service area from the San Francisco Public Utilities Commission's (SFPUC's) Pilarcitos Reservoir and Upper Crystal Springs Reservoir. The SFPUC has a perpetual commitment, or supply assurance, to deliver water to its 24 permanent wholesale customers that are members of Bay Area Water Supply and Conservation Agency (BAWSCA). Each wholesale customer is allocated a supply assurance through individual supply guarantees (ISGs). CCWD is a member agency of BAWSCA and has an ISG of 2.175 million gallons per day (mgd) (about 800 million gallons per year or MGY). In 2009, wholesale customers and the SFPUC memorialized the supply assurance agreement for a 25-year term with a potential 10-year extension, and the next negotiation of the water supply agreement will be in 2034. SFPUC's commitment to supply water to BAWSCA member agencies is considered to be perpetual and survives the agreement's expiration or termination.

Local sources also contribute to CCWD's supply and include Pilarcitos Creek, Denniston Creek, and the Denniston Wells. During periods of prolonged drought, water supply from the SFPUC may be rationed, and local sources may be diminished. However, to address such conditions, SFPUC's commitment to supply water to BAWSCA member agencies including CCWD is supported by steps taken through its Water System Improvement Program to meet dry-year demands and assure that rationing does not exceed 20 percent.

Private water wells, which are particularly important for agricultural and agricultural-compatible uses, are also used throughout the city. In the past, private wells have also been allowed for residential development in areas considered not to be served by the municipal water system. However, as discussed later in this chapter, private wells for non-priority land uses are a cause for concern in protecting groundwater quality and supply.

FIGURE 3-1: WATER SERVICE PROVIDERS



-  COASTSIDE COUNTY WATER DISTRICT SERVICE AREA
-  ADDITIONAL PROPERTIES SERVED
-  MAJOR HIGHWAYS
-  STREETS
-  WATERCOURSES
-  OPEN WATER/OCEAN/PONDS
-  PARKS
-  TOWN CENTER
-  CITY OF HALF MOON BAY
-  PLANNING AREA

0 0.25 0.5 1 Miles 

DATA SOURCE: CITY OF HALF MOON BAY, 2014; SAN MATEO COUNTY GIS, 2014; M-GROUP 2020

**Service Area Water Supply Adequacy**

Water supply for CCWD’s service area is 2,725,000 gallons per day (gpd), equivalent to approximately 1,000 million gallons per year (MGY).<sup>4</sup> This supply provides for the whole service area and is not specifically allocated between the City and the unincorporated areas; however, historically, the City accounts for approximately two thirds of the service area’s water sales.

The service area water supply includes the following:

**Table 3-2. CCWD Service Area Water Supply**

Water Supply Source	Average Gallons per Day (gpd)	Million Gallons per Year (MGY) (rounded) <sup>5</sup>
SFPUC	2,175,000	800
Local	550,000	200
<b>Total</b>	<b>2,725,000</b>	<b>1,000</b>

*Source: CCWD Urban Water Management Plan, September 2016, Chapter 6. System Supplies*

**Service Area Water Demand.** Population projections and estimated water demand for the 2040 and MTB scenarios for the CCWD service area are presented in Table 3-3.

Gross daily per capita demand (gpcd) assumptions are used to broadly estimate future water demand. Daily per capita demand is a gross measure and considers water use by both residential and non-residential land uses, including by residents and visitors. Population projections serve as a proxy to estimate growth for all types of land uses. This approach is appropriate for long-range planning purposes. Over a four-year period from 2014 - 2018, average gross demand (100-110 gpcd) was higher than average daily residential demand (52-58 gpcd).<sup>6</sup> This variance is indicative of the City’s numerous non-residential and visitor-serving uses with high water demand, such as hotels and restaurants, in addition to fire flow and other non-residential uses.

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<sup>4</sup> CCWD Urban Water Management Plan, September 2016, Chapter 6. System Supplies

<sup>5</sup> The SFPUC supply is 2,175,000 which equates to 794 MGY. CCWD and BAWSCA round up to 800 MGY when presenting information in MGY. For purposes of this LUP, the more accurate 2,175,000 gpd is used for modeling purposes; and 800 MGY is used as a reference only.

<sup>6</sup>Bay Area Water Supply and Conservation Agency (www.BAWSCA.org) Member Agency Profiles, accessed July 2020.

**Table 3-3. Per Capita Water Demand Estimates for the CCWD Service Area**

	2020	2040	MTB
<b>CCWD Service Area Population:</b>	18,188	21,975	28,371
- Half Moon Bay <sup>7</sup>	13,040	14,535	18,262
- Unincorporated CCWD Service Area <sup>8</sup>	5,148	7,440	10,109
Gross Daily per Capita Demand (gpcd) <sup>9,10</sup>	110	110	100
<b>CCWD Service Area Totals:</b>			
<b>Average Daily Demand (gpd)</b>	2,000,000	2,420,000	2,840,000
<b>Annual Demand (MGY)</b>	730	882	1,036

Source: See footnotes.

Assuming a stable water supply and per capita use rates, the estimates indicate that water supply is likely adequate through the 2040 planning horizon. In a scenario in which growth approaches MTB, demand would surpass the 2,725,000 gpd supply. Conservation and new supplies, including recycled water, may contribute to an adequate long-term water supply to meet MTB demand. However, these sources could also be necessary to offset reduced supply in the case of drought or regulatory constraints. Water supply and system issues are further discussed later in this section.

**Water Supply Reservations for Priority Uses.** As addressed in Chapter 2. Development, priority uses in the Planning Area are defined as follows:

Coastal Act Priority Uses. Coastal-dependent uses, visitor-serving commercial uses, coastal access and recreational facilities, and agricultural uses. Coastal Act Priority Uses are considered top tier priority in this LCP. Essential services are also included as a

<sup>7</sup> Population - Half Moon Bay:

- 2020: ABAG Projections 2018
- 2040 Projections and MTB: Assumes 2.59 persons per residential dwelling units per 2013-2017 American Community Survey.

<sup>8</sup> Population - Unincorporated San Mateo County:

- 2020 and 2040: CCWD Urban Water Management Plan, September 2016, page 3-2, Table 3-2. Retail: Population – Current and Projected based on ABAG Projections 2013. The table presents population projections for the whole service area, unincorporated County population calculated by subtracting City of Half Moon Bay 2040 and MTB Projections.
- MTB: San Mateo County Local Coastal Program Policies, June 2013, page 2.45, Table 2.21 Estimated Buildout Population of LCP Land Use Plan.

<sup>9</sup> Bay Area Water Supply and Conservation Agency ([www.BAWSCA.org](http://www.BAWSCA.org)) Member Agency Profiles, accessed July 2020.

<sup>10</sup> Gross Daily per Capita Demand (gpcd) is based on demand rates at the time of the LUP update and does not account for anticipated reductions in per capita water demand due to continued and strengthening water conservation requirements. Leading up to the LUP update, Executive Order B-37-16 and related legislation mandating water conservation beyond 2020, collectively known as “Making Water Conservation a California Way of Life,” and the long-term effects of its associated legislation on per capita demand rates had not yet been realized.

Coastal Act Priority Use in this chapter for the purposes of infrastructure reservations, consistent with Coastal Act Section 30254.

Local Priority Uses. Affordable dwelling units, including but not limited to units created through the Workforce Housing Overlay designation. Local Priority Uses are considered second tier priority behind Coastal Act Priority Uses in this LCP.

The City is obligated by the Coastal Act to ensure that supply is reserved for Coastal Act Priority Uses. Similarly, the LUP includes supply reservations to support affordable housing as a Local Priority Use.

Water supply demand for existing priority uses and reserve requirements for potential new priority uses at the 2040 plan horizon and at MTB are summarized in Table 3-4. Actual water demand for existing Coastal Act Priority Uses in the CCWD service area (including agricultural irrigation, restaurants, recreation, parks/beaches, marine, and hotel) was approximately 245,000 gpd (89 MGY) at the time of the LUP update. Thus, in addition to reserving water for future Coastal Act Priority Uses, a supply for the existing Coastal Act Priority Uses must be maintained. As noted in the table, there is no past water reservation requirement for Local Priority Uses. However, the LUP includes such requirement for new Local Priority Uses.

**Table 3-4. Reserved Water Supply for New Priority Uses**

	2040		MTB	
	Supply Reserved for 2040 gpd/MGY	Supply Reserved for Existing + 2040 gpd/MGY	Supply Reserved for MTB gpd/MGY	Supply Reserved for Existing + MTB gpd/MGY
<b>New Priority Land Uses:</b>				
Coastal Act Priority Uses	<b>125,000/46</b>	<b>370,000/135</b>	<b>198,000/72</b>	<b>443,000/162</b>
Ag. and Ag. Compatible Uses	42,500		62,000	
Coastal Recreation	6,250		12,500	
Visitor-Serving Commercial	67,200		105,700	
Essential Services	8,750		17,500	
Local Priority Uses	<b>40,000/15</b>	<b>40,000/15</b>	<b>102,000/37</b>	<b>102,000/37</b>
Workforce Housing Overlay w/ Coastal Act Priority Uses <sup>11</sup>	15,000		34,000	
Affordable Housing	25,000		68,000	
<b>Total Annual Demand</b>	<b>165,000/61</b>	<b>410,000/150</b>	<b>300,000/110</b>	<b>545,000/199</b>
<b>Percent CCWD Supply</b>	<b>6%</b>	<b>15%</b>	<b>11%</b>	<b>20%</b>

*Sources: Refer to Appendix B. 2040 includes new development between 2020 and 2040; MTB includes development between 2020 and an unknown future time at full buildout.*

Modeling the water demand for projected development of Coastal Act Priority Uses and Local Priority Uses indicates that adequate water supply is available to be reserved for both

<sup>11</sup> Most Workforce Housing Overlay housing units associated with Coastal Act Priority Uses will be farmworker housing. These units qualify as both Coastal Act Priority Uses and Local Priority Uses.

existing and projected new Coastal Act and Local Priority Uses for the 2040 plan horizon and MTB of the Planning Area, assuming that 245,000 gpd (89 MGY) is already being provided to existing Coastal Act Priority Uses. The reserved supply for new uses at MTB is:

Coastal Act Priority Uses:	198,000 gpd (72 MGY)	7% of CCWD supply
Local Priority Uses:	102,000 gpd (37 MGY)	4% of CCWD supply

For context, the 1996 LUP established a reserve of 340,000 gpd (124 MGY) for Coastal Act Priority Uses through 2000. Actual water demand for existing priority uses in 2020 was almost 30 percent lower than the reservation established in the 1996 LUP. It is notable that the buildout projections of the updated LUP are lower than for the 1996 LUP and thus a similar projection including both existing and new uses of 370,000 mgd (135 MGY) for the 2040 buildout is reasonable; noting that the MTB projection is an extreme scenario that is not anticipated to ever occur. The 1996 LUP also assumed maximum use of reclaimed water for local recreational uses and this supply was never realized. As previously stated, water demand modeling for this LUP update incorporates numerous conservative assumptions, which are presented in Appendix B.

### Service Area Water Connections

Water service is provided through a system of water connection allocations. There are three different types of water connections: priority connections that are available to Coastal Act Priority Uses, affordable housing connections that are available to Local Priority Uses, and non-priority connections that are available to Non-Priority Uses. The coastal development permit for the Crystal Springs pipeline project imposed a limit on the number of connections that can be sold by CCWD. Additional connections cannot be established without an amendment to the coastal development permit. As of 2020, about 1,230 remaining uninstalled water connections were held by CCWD or private landowners throughout the service area, including within the city limits and the unincorporated Midcoast, as summarized in Table 3-5. The City accounts for approximately two-thirds of the water connections as of 2020.

The number of water connections does not equate to a specific amount of water supply, rendering it difficult to estimate the number of water connections that will be required for any buildout scenario. For example, most single-family homes require one standard sized (5/8-inch) water connection. However, water demand for single-family homes varies significantly as a result of household size, conservation practices, and landscape irrigation. Connections are allocated based on plumbing fixture unit counts to ensure that the number and/or size of the connection will adequately serve the new development. Therefore, any approach to equating water demand to water connections can only be a rough estimate. The most current reference comes from the 2013 San Mateo County certified LCP which assumes that a single-family dwelling will use 315 gpd during high water use periods (i.e. summer months, accounting for landscape irrigation and swimming pools).

For this LUP update, similarly to San Mateo County, an estimate of water connection equivalence to water use is based on water demand assumptions for typical single-family development. It is first assumed that one connection is required per single-family home and zero connections are required per ADU. The water demand modeling for the LUP update

assumes 200 gpd per single-family home and 100 gpd per ADU, which results in a 300 gpd equivalence per water connection (which is within 5 percent of the County’s assumption). This is a conservative assumption for the City’s portion of the CCWD service area based on actual water demand. This establishes that for non-residential and all other residential uses, an assumption of 300 gpd per water connection is used for order of magnitude planning purposes only. It is also notable that for many of the Coastal Act Priority Use categories - agricultural uses, recreational uses, and essential services - the uses are currently operating and assumed to expand in their existing locations. Incremental expansions of these uses can often be served via existing water connections, which in practice would be determined on a case-by-case basis. Furthermore, some of these uses have private wells or other water sources. Thus, for these categories of Coastal Act Priority Uses, it is assumed for modeling purposes that the total number of connections needed is reduced by 50 percent.

**Water Connections by Use Type.** In addition to reserving water supply for priority uses, it is also important to consider if the number of available water connections is adequate for buildout of the Planning Area. Connections are reserved by CCWD for Coastal Act Priority Uses and Local Priority Uses. The remaining “non-priority connections” may be used for priority or non-priority uses. Restriction of the use of the priority connections has been a management tool for reserving water supply for priority uses.

Table 3-5 presents the existing number of water connections for Coastal Act Priority Uses and Local Priority Uses in the CCWD service area and the estimated needed number of connections for the Planning Area at 2040 and at MTB, assuming 300 gpd per connection and the other assumptions outlined in Appendix B. The assessment indicates that there will not be enough water connections for Coastal Act Priority Uses at 2040 and MTB or for Local Priority Uses at MTB.

**Table 3-5. Estimated Water Connections for Priority Uses**

Connection Type	Available Service Area Connections (2020)	Estimated Connections Needed	Estimated Remaining (+) or Deficit (-)
Coastal Act Priority Uses	209.0		
- 2040		320	-111
- MTB		507	-298
Local Priority Uses <sup>12</sup>	202.5		
- 2040		133	+69.5
- MTB		340	-137.5

Sources:

*Connections: Coastside County Water District, July 2020*

*Coastal Act Priority Use: 176.5 unsold, held by CCWD; 32.5 sold, held by private parties*

*Local Priority Use: All unsold and held by CCWD*

*Connection Modeling: Refer to Appendix B.*

<sup>12</sup> In Table 3-5, farmworker housing units are included with Local Priority Uses; however, these units qualify as both Coastal Act Priority Uses and Local Priority Uses.

Coastal Act Priority Uses. An estimated 320 connections are required for Coastal Act Priority uses at 2040, and 507 for MTB. In 2020, only about 209 priority connections were available for the CCWD service area. Therefore, there will not be enough connections for the Planning Area if Coastal Act Priority Uses build out as projected.

Local Priority Uses – Affordable Housing. In 2020 there were about 200 water connections available for affordable housing in the CCWD service area. The 2040 buildout scenario requires about 133 Local Priority Use connections, and MTB requires about 340 Local Priority Use connections. Therefore, there is an adequate number of connections for affordable housing through 2040. For MTB, it should be noted that the water demand model was conservative and assumed an average water demand of 200 gpd which is significantly higher than the City's 2020 average of 160 gpd for single-family homes. The modeling also did not assume use of any potable well water for Workforce Overlay Housing units. Therefore, it remains possible that the supply of Local Priority Use connections will last for some time past the 2040 planning horizon. However, San Mateo County's 2013 certified LCP includes over 300 units of affordable housing at plan buildout within the service area.<sup>13</sup> In combination with the City's intentions for affordable housing, demand for affordable housing connections in the service area would exceed supply.

Non-Priority Uses. In 2020 there were about 820 water connections available for non-priority uses. There are enough non-priority water connections available for the 2040 buildout, and likely so in combination with the unincorporated portion of the service area. Well before MTB, there will not be enough connections for buildout of market rate housing and other non-priority uses. The limited supply of non-priority connections for the Planning Area will be exacerbated by concurrent Midcoast buildout.

## **WATER SUPPLY CONSIDERATIONS**

**Supply Assurance and Conservation.** The SFPUC's obligation to deliver water to CCWD is perpetual, and survives the expiration or termination of the Water Supply Agreement between the SFPUC and the Wholesale Customers. The Supply Assurance also requires the SFPUC to supply water to the wholesale customers regardless of whether that supply comes from the Tuolumne River watershed or elsewhere. Thus, even if potential future State action reduces Hetch Hetchy supplies to the Regional Water System from the Tuolumne River watershed, the SFPUC remains legally obligated to find or develop replacement water over time to meet its supply assurance commitment.

The SFPUC's Alternative Water Supply Program was developed in 2019 and is an example of the SFPUC's effort to meet its contractual and legal obligations to wholesale customers. This program is designed to meet future water supply challenges and vulnerabilities, including regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. The program intends to meet future water supply challenges and vulnerabilities and includes for evaluation and consideration a range of approaches including reservoir enlargement, desalination, expanded use of recycled water, and water reuse opportunities, among other projects. The SFPUC anticipates that the

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<sup>13</sup> San Mateo County Local Coastal Program Policies, June 2013, page 2.40-2.42, Table 2.17 Amount of Water Capacity to be Reserved for Priority Land Uses Coastside County Water District.

Alternative Water Supply Program will be an ongoing effort that will extend well into the future.

Nonetheless, the City should be prepared in the event the Planning Area's water supply is diminished over time. For example, it is possible that local sources will not be reliable year after year. To account for this uncertainty when assessing water supply adequacy for the LUP's buildout scenarios, the first line of defense is conservative modeling with safety factors embedded in the projection assumptions. The 2040 and MTB scenarios are modeled for higher than anticipated levels of development. Water demand estimates for each use were also selected to be at least 20 percent higher than actual use at the time of the LUP update. And finally, the modeling does not assume any new supply sources, such as reclaimed water, as discussed below. In order to manage the risk of inadequate water supply to and past the planning horizon, policies are specifically protective of groundwater supplies, seek development of new water supply sources, require reservation of supply for Coastal Act priority uses, and manage growth of non-priority uses.

**Water Supply Reliability.** At the time of the LUP update, CCWD's infrastructure included 8-million-gallons of capacity in its various storage tanks. Water storage capacity is an important factor for Planning Area resilience, for both operational demands and emergencies.

Peak Demand. CCWD is responsible under the Urban Water Management Planning Act (UWMP Act) to ensure that peak demand needs are met under a range of extreme circumstances. Meeting peak demand is supported through the distribution system and its storage capacity. Through their capital improvement planning, the District identifies infrastructure needs such as the adequacy of storage facilities or other management methods to fulfill their obligations. Revisions to the UWMP Act over the past decade require water agencies to establish per capita water use targets to achieve statewide water savings of 20 percent by 2020. CCWD was working on its 2020 UWMP concurrently with the 2020 LUP update, which will provide an update on progress and projections.

Emergency Supply. The CCWD service area benefits from having storage capacity equivalent to approximately three days of the District's total annual water supply.<sup>14</sup> CCWD evaluates the system over time and takes into account the effects of drought and other extreme weather conditions. The District is responsible to ensure the ability of the system to convey peak demand for a larger population in the event of emergency and/or multi-day interruption of service, such as could happen if the Crystal Springs pipeline were cut off. LUP policies are supportive of water supply reliability and storage capacity.

**Reclaimed Water.** Reclaimed water is water that is used more than one time before it passes into the natural water cycle. There are numerous potential sources and uses for reclaimed water in the Planning Area, especially for recycled water, which is treated reclaimed wastewater (sewage). Recycled water is defined in the California Water code (§13050) as, "Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource." In the Planning Area the most relevant uses of recycled water include irrigation

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<sup>14</sup> Bay Area Water Supply and Conservation Agency ([www.BAWSCA.org](http://www.BAWSCA.org)) Member Agency Profiles, accessed July 2020.

for Coastal Act Priority Uses - agriculture and recreation - and possibly industrial processes. Recycled water may also be appropriate for habitat restoration and groundwater recharge.

The 1996 LUP anticipated that most of the irrigation needs for local recreation would be met through the use of locally produced recycled water. However, at the time of the 2020 LUP update, recycled water was not yet available in the Planning Area or the unincorporated Midcoast. CCWD and the Sewer Authority Mid-Coastside (SAM) have continued to demonstrate interest in reaching an agreement for SAM to produce recycled water at its treatment plant for CCWD to distribute to end users. The system would require costly infrastructure improvements at the treatment facility and for distribution pipelines. This LUP update calls for the City to support and facilitate establishment of a recycled water treatment and distribution system for the Planning Area. A joint powers agreement establishes that the City's sewer service area (south of Frenchmans Creek) would have rights to about 50 percent of this potential water source. North of Frenchmans Creek, the GCSD sewer service area would have rights to about 30 percent and the MWSD service area would have rights to about 20 percent of the total supply. Some of the GCSD share would be available to the City of Half Moon Bay because the northern portion of the City is located within GCSD.

Other types of reclaimed water include gray water and desalination of seawater. Gray water, unlike recycled water, is not treated sewage. Rather, it is a subset of wastewater which includes relatively clean waste water from baths, sinks, washing machines, and other kitchen appliances. As an example of existing gray water usage in the Planning Area, some greenhouse operations collect and reuse water within carefully contained irrigation system. Another gray water source is hotel laundry wastewater for landscape irrigation. Seawater can also be reclaimed for other uses when it is desalinated and treated. Desalination of seawater for an additional water source is not anticipated to be feasible or necessary until beyond the 2040 plan horizon.

**New Water Connections.** Over the planning horizon, it may be appropriate to establish additional water connections. To do this, CCWD would need to secure a coastal development permit through the City and/or San Mateo County or an amendment to the 2003 El Granada Pipeline coastal development permit. Before doing so, the City and CCWD will need to monitor water demand of existing uses and frequently update near and long-term development forecasts to ensure that new connections will not result in over-allocation of actual water supply and will not enable development that would adversely impact other infrastructure systems. Coastal development permits allowing increased infrastructure capacity must be carefully considered in relationship to the adequacy of other public works capacity. It is anticipated that other infrastructure systems, particularly circulation, will be significantly constrained so as to not support creation of additional water connections, especially for non-priority uses.

**Coastal Act Priority Uses.** For Coastal Act Priority Uses, the implication of running out of connections for the 2040 and MTB scenario is multifaceted. Land use and water supply policies address this anticipated shortage in the following ways:

- Coastal Act Priority Uses with Lower Water Demand: The LUP update considers land use from numerous perspectives. Chapter 2. Development identifies lower-cost visitor serving uses as sustainable options for cases where prime soils are present and such uses

can be established with a light development footprint. Examples include agricultural compatible uses (e.g. parks, commercial equestrian uses, and other outdoor recreation) and agriculture supplemental uses (e.g. farm stands, agritourism, small-scale farm lodging, and temporary and seasonal uses) geared to coastal visitors. With respect to Coastal Act Priority Uses, Chapter 5. Coastal Access and Recreation encourages lower-cost visitor serving uses to maximize coastal access as required by the Coastal Act. The infrastructure assessments in this Public Works chapter, especially with respect to water demand and trip generation rates, also encourage lower-cost visitor serving uses over more intense uses because they tend to have lower water demand rates and generate less traffic. This is especially noted in estimating the number of needed water connections for different types of Coastal Act Priority Uses. Restaurants and lodging have the highest water demand per square foot as compared to other Coastal Act Priority Uses and would require a significant number of the remaining Coastal Act Priority Use water connections. City records of actual water use indicate that RV camping spaces and other coastal recreational uses have about 25 percent of the water demand of more typical hotel and motel accommodations. Thus, policy throughout the LUP supports lower-cost visitor serving uses as a means for reducing development impacts and ensuring adequate water infrastructure for buildout of uses that maximize coastal access opportunities for all.

- **New Water Supply:** If reclaimed water is brought forward as a new supply source, it may be appropriate for many Coastal Act Priority Uses including recreation, some agriculture and agricultural compatible uses, and even certain essential services. A new class of water connections for reclaimed water could potentially be established, which could increase the number of connections available for some of the highest priority Coastal Act Priority Uses (e.g. agriculture and coastal-dependent uses).
- **Unused Priority Use Connections:** In 2020, about 32 of the service area's 209 Coastal Act Priority Use connections were sold but remained uninstalled. These uninstalled connections could potentially be sold back to CCWD or transferred to other properties with qualifying priority uses. However, as of 2020 CCWD does not have a mechanism for buying back or transferring priority water connections. Allowing buy-backs, transfers, or otherwise establishing new connections to make up for these unused connections, could help maintain an adequate supply of Coastal Act Priority Use connections for many years.

Local Priority Uses. For Local Priority Uses, water demand is anticipated to be relatively low. For Workforce Housing Overlay units, the use is also a low trip generator because employees will live close to work. Establishing more connections if needed for affordable housing is supported by LUP policy, contingent on monitoring and development forecasting. In addition to their availability, the cost of water connections is also especially important for affordable housing. As purchased directly from the Water District, connections for affordable housing, as well as for Coastal Act Priority Uses, were approximately \$17,000 in 2020; while non-priority connections purchased through the secondary market, made up of multiple landowners, cost many times more. Although affordable housing could be developed with non-priority water connections, it would be cost prohibitive. Another important consideration as noted in Chapter 1. Introduction and Framework and Chapter 2. Development, is that affordable housing units developed according to the requirements of the Workforce Housing Overlay designation qualify as Coastal Act Priority Uses if they specifically support

agriculture uses. These units could use Coastal Act Priority Use water connections if more are to be established, and if Local Priority Use water connections become limited.

Non-Priority Uses. Non-Priority Use water connections are expected to be expended after the 2040 Planning Horizon; and there are not enough to support MTB when considering the entire service area. LUP policy is cautiously supportive of creating additional Non-Priority Water Connections. With respect to water supply, additional connections for Non-Priority Uses should only be considered after ensuring that efficiency measures for existing development meet or exceed water conservation requirements or a reclaimed water supply is developed. It must also be demonstrated that the development enabled by additional connections would not adversely impact other infrastructure systems and would not preclude development of Coastal Act or Local Priority Uses.

**Groundwater Management.** In Half Moon Bay, groundwater management considerations include protecting groundwater quality and supply. Seawater intrusion and other contaminants could present a risk to groundwater quality, which may be further exacerbated by climate change and sea level rise. Recharging the aquifer is challenging due to poor percolation of the city's soils and intensified storm events which result in rapid sheet flow and limited infiltration.

In September of 2014, the state adopted the Sustainable Groundwater Management Act (SGMA). The Act requires a water operator's use of groundwater to be sustainable during its planning and implementation horizon without causing undesirable results to the basin. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. In 2018, the State Department of Water Resources (DWR) considered reclassifying the Half Moon Bay Terrace groundwater basin from "very low" to "high" priority, which indicates that they considered the basin to be threatened. Following additional research about the status of the basin's water quality, the sustainability of on-going drawdown from existing wells, and the projected growth within the basin area, DWR concluded that the basin is healthy and a "very low" priority as of 2020.

The LUP includes policies to protect the Half Moon Bay Terrace groundwater basin. Limiting new wells is one consideration. The entire planning area within the urban boundary has access to municipal water. With few exceptions, only priority uses, especially agriculture and agriculture compatible uses, environmental restoration, and public recreation will be granted coastal development permits for new private or public wells. In the event that an existing residential well within the Planning Area fails, policy reserve 10 Coastal Act Priority Use connections for addressing these cases safely, quickly, and more affordably. The basin is also protected from overdraft, which can lead to seawater intrusion, and is supported by green infrastructure as discussed in the Stormwater section of this chapter.

**Water Supply and Environmental Hazards.** Drought and wildland fire are of increasing concern throughout the arid west, as discussed further in Chapter 7. Environmental Hazards. State law requires water districts to establish provisions for multi-year droughts, with which CCWD complies. However, as the effects of climate change progress, the duration of droughts is expected to become longer, making them more impactful and difficult to withstand. For fire risk abatement, fire flow requirements call for larger water mains. Increasing water main size

to support fire flow, including fire sprinkler systems, is not intended to increase capacity or otherwise be growth inducing. However, because growth inducement is a Coastal Act concern, LUP policies address this topic to clarify the purpose of and allow for these infrastructure upgrades for fire flow needs while barring the consumption of fire flow capacity by new development.

## Sewer

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This section provides an overview of the Planning Area's sewer system providers and infrastructure; analyzes sewage treatment capacity adequacy for the Planning Area and its priority uses; and presents sewer policy issues as a basis for updated LUP policies. The terms sewage and wastewater are used interchangeably in the following discussion.

### SEWER SERVICE PROVIDERS AND INFRASTRUCTURE

Planning Area sanitary sewer service is provided by the City of Half Moon Bay south of Frenchmans Creek. North of Frenchman's Creek, service for the Midcoast is provided by Granada Community Services District (GCSD) and Montara Water and Sanitary District (MWSD). The northern portion of the City is located in GCSD. All of these entities collect and transport sewage to the Sewer Authority Mid-Coastside (SAM) wastewater treatment plant for treating and disposing of the sewage (Figure 3-2). SAM is a public agency that provides service to Half Moon Bay, GCSD, and MWSD under an exercise of joint powers agreement (JPA). Each member agency of SAM is allotted capacity rights to the plant. These allocations correspond generally to the relative proportion of sewer collection system pipes owned and managed by each of the JPA members.

In the Planning Area, private on-site wastewater disposal systems (e.g. septic systems with leach fields or serviced storage-vaults) are also used in areas not served by centralized sewage collection systems.

At the time of the LUP update, the sewer system infrastructure was comprised of the following:

City of Half Moon Bay. Includes approximately 35 miles of sewer mains and three lift stations.<sup>15</sup> The City of Half Moon Bay's connection to the SAM Treatment Plant is through a separate siphon connection, owned and maintained by the City of Half Moon Bay.

Granada Community Service District. Includes approximately 33 miles of sewer mains, 4.7 miles of which are located within City limits and the remainder in unincorporated Miramar, El Granada, and Princeton.<sup>16</sup>

SAM. Includes an 8-mile stretch of transmission main referred to as the Intertie Pipeline System (IPS), of which approximately 1.8 miles are gravity mains, while the remaining

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<sup>15</sup> City of Half Moon Bay Sewer System Master Plan, 2016, Akel Engineering Group

<sup>16</sup> BKF Associates and Dyett & Bhatia, Existing Conditions Report for Plan Princeton, May 2014.

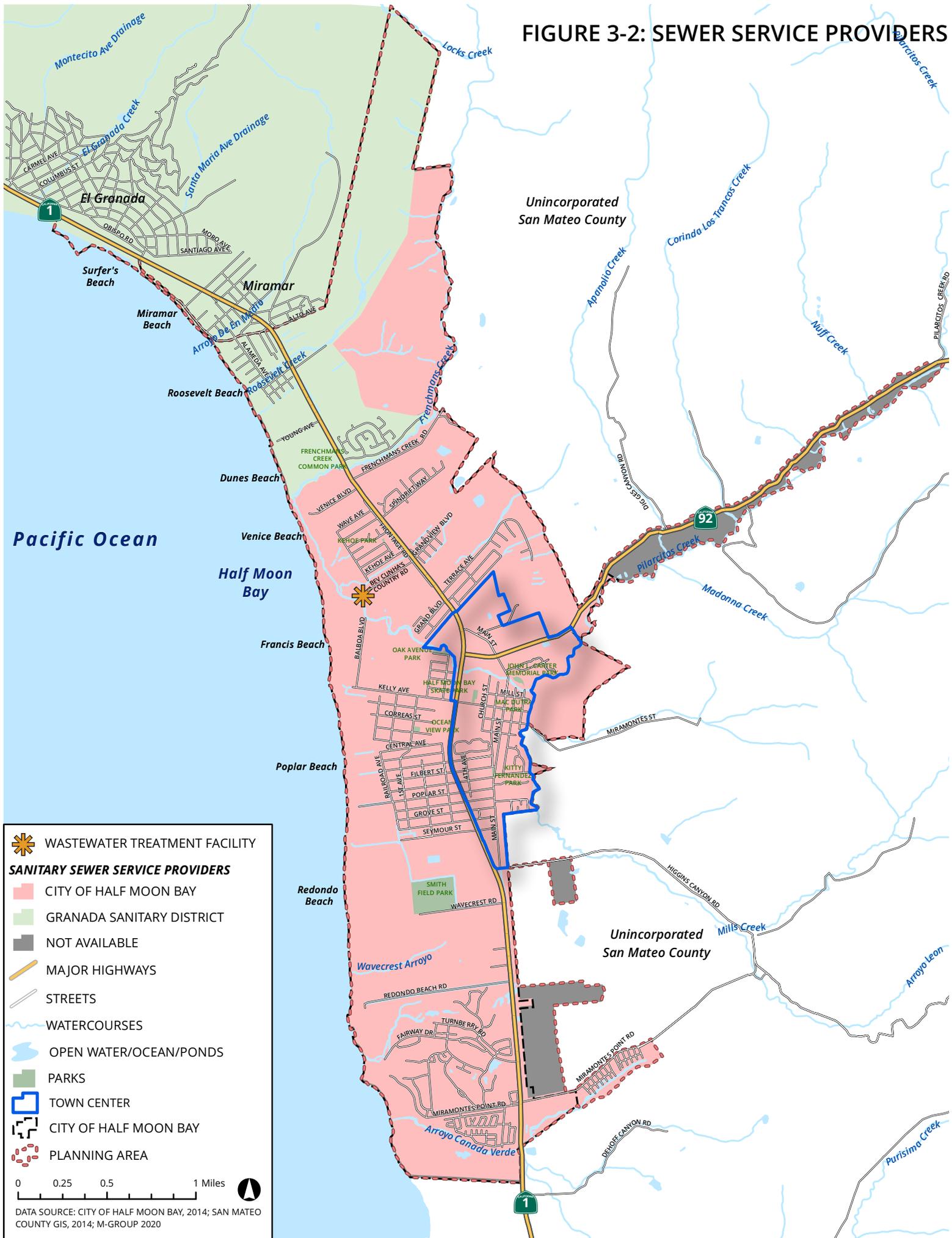
portions are force mains. Four main lift stations connect the GCSD and MWSD member agencies' sewer distribution systems to the SAM Treatment Plant.

Generally, wastewater treatment systems and plants are designed with a capacity to convey and treat wastewater for an existing service population and its projected growth within the service area over the useful life of the primary infrastructure components. Primary infrastructure is comprised of the network of pipes, pumps, lift stations, force mains, and treatment plant facilities. Major components of sewer conveyance systems such as force mains and lift stations require on-going maintenance and planned replacement. As such, these facilities are assessed in frequently updated master plans and accounted for in capital improvement planning for each agency.

### **SEWER TREATMENT CAPACITY**

At the time of the LUP update, the SAM wastewater treatment plant had 4,000,000 gallons per day (gpd) of treatment capacity. The wastewater plant was initially built as a 2,000,000 gpd facility in the early 1980's. Starting in 1996, the SAM treatment plant was expanded after an amendment to the Joint Powers Agreement between the member agencies, increasing the capacity to its current levels by building and expanding treatment tanks and other infrastructure. Other features, such as improvements required by regulatory agencies, have also been completed from time to time.

**FIGURE 3-2: SEWER SERVICE PROVIDERS**



**WASTEWATER TREATMENT FACILITY**  
 WASTEWATER TREATMENT FACILITY

**SANITARY SEWER SERVICE PROVIDERS**

-  CITY OF HALF MOON BAY
-  GRANADA SANITARY DISTRICT
-  NOT AVAILABLE
-  MAJOR HIGHWAYS
-  STREETS
-  WATERCOURSES
-  OPEN WATER/OCEAN/PONDS
-  PARKS
-  TOWN CENTER
-  CITY OF HALF MOON BAY
-  PLANNING AREA

0 0.25 0.5 1 Miles 

DATA SOURCE: CITY OF HALF MOON BAY, 2014; SAN MATEO COUNTY GIS, 2014; M-GROUP 2020

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### Treatment Plant Capacity Adequacy

At the time of the LUP update, the SAM treatment plant was operating with an average annual flow of 1,700,000 gpd. This average volume is less than half of the plant’s permitted capacity and includes all JPA treatment flows. However, sewer system and treatment plant capacity must also be designed to accommodate peak flows which are higher than average flows. Peak flow factors are determined through review of historical data and further modified following engineering analysis of specific system conditions. The average and peak flow conditions most significant to system performance include:

Average Dry Weather Flow (ADWF). The average measured hourly flow that occurs during a dry weather season. This flow rate is the operational design standard for the treatment plant.

Peak Wet Weather Flow (PWWF). The highest measured hourly flow that occurs during a wet weather season. PWWF is historically three to four times higher than PDWF and is directly affected by the severity and length of storm events.

The SAM plant’s design capacity is 4,000,000 gpd ADWF and up to 15,000,000 gpd PWWF.<sup>17</sup> The City of Half Moon Bay service area is allotted half the design capacity, with the other half split between GCSD and MWSD as shown in Table 3-6:

**Table 3-6. SAM Treatment Plant Capacity for Member Agencies**

SAM Member Agency	Percent Allocation	ADWF – gpd	PWWF - gpd
City of Half Moon Bay	50%	2,000,000	7,500,000
GCSD	30%	1,200,000	4,500,000
MWSD	20%	800,000	3,900,000
<b>SAM Plant Total</b>	<b>100%</b>	<b>4,000,000</b>	<b>15,000,000</b>

Source: City of Half Moon Bay Sewer System Master Plan, 2016, Akel Engineering Group

### Wastewater Flows

Factors developed for the 2016 Half Moon Bay Sewer Master Plan were used to estimate the 2040 and maximum theoretical buildout (MTB) average dry weather flow (ADWF) and peak wet weather flow (PWWF) for the City of Half Moon Bay sewer service area and portion of the GCSD within the city limits. The estimates are presented in Table 3-7 using per capita factors to broadly estimate future wastewater flows, similar to the per capita water demand estimates presented in the previous section in Table 3-3.

<sup>17</sup> City of Half Moon Bay Sewer System Master Plan, 2016, Akel Engineering Group

**Table 3-7. Per Capita Wastewater Flow Estimates**

	2020	2040	MTB	Available Capacity (2020)
City of Half Moon Bay Population	12,601	14,535	18,262	
- Half Moon Bay Service Area	11,469	13,216	16,521	
- Half Moon Bay Portion of GCSD	1,133	1,316	1,741	
City of Half Moon Bay ADWF (gpd)	1,200,000	1,380,000	1,730,000	
- Half Moon Bay Service Area	1,090,000	1,260,000	1,570,000	2,000,000
- Half Moon Bay Portion of GCSD	110,000	120,000	170,000	Portion of GCSD
City of Half Moon Bay PWWF (gpd)	6,130,000	7,070,000	8,880,000	
- Half Moon Bay Service Area	5,580,000	6,430,000	8,040,000	7,500,000
- Half Moon Bay Portion of GCSD	550,000	640,000	850,000	Portion of GCSD

*Sources:*

*2018 population estimates: 2016 Half Moon Bay Sewer System Master Plan. Rounding results in summations not exactly matching totals.*

*2040 and MTB population estimates: Land Use Plan buildout analysis.*

*Flow Rates: 2016 Half Moon Bay Sewer System Master Plan, Table 5.1 Historical Flow Data and Peaking Factors. ADWF is 0.90; however to be conservative the maximum day dry weather flow (MDDWF) rate of 1.25 is used; PWWF rate is 6.40.*

The per capita wastewater flow estimates indicate the following:

Half Moon Bay Service Area. Treatment plant capacity is adequate for ADWF where the service area is allotted 4,000,000 gpd capacity and the flow estimate is 1,570,000 gpd in the MTB scenario. For PWWF, capacity is adequate through the 2040 planning horizon; however, in the MTB scenario, the estimated PWWF of 8,040,000 gpd exceeds the allotted treatment plant capacity of 7,500,000 gpd by 7 percent.

GCSD Service Area: Half Moon Bay’s projected contribution to the flows in the GCSD service area account for about 14 percent of the district’s treatment allotment for ADWF and 19 percent for PWWF in the MTB scenario. The San Mateo County LCP assumed that the portion of GSD within the city limits would contribute only about 12 percent to GCSD’s wastewater

flow volume, somewhat less than what is projected in the analysis presented in Table 3-7. For ADWF, this discrepancy is fully offset by the Half Moon Bay service area where flows are estimated to be much lower than the treatment plant capacity.

**Sewer Treatment Plant Capacity Reservations for Priority Uses.** Because PWWF may surpass treatment plant capacity at a future time after the 2040 planning horizon, the City is obligated by the Coastal Act to ensure that capacity is reserved for Coastal Act Priority Uses. Reservations are also provided for Local Priority Uses to support provision of affordable housing. Table 3-8 presents the estimated wastewater flows for new priority uses in the Planning Area for the 2040 and MTB scenarios.

**Table 3-8. Reserved Capacity for New Priority Use Wastewater Flows**

Priority Land Uses:	2040 Capacity Reserves gpd/MGY	MTB Capacity Reserves gpd/MGY
Coastal Act Priority Uses	89,300/33	145,850/53
Ag. and Ag. Compatible Uses	2,125	3,100
Coastal Recreation	3,125	6,250
Visitor-Serving Commercial	67,200	105,700
Essential Services	8,750	17,500
I&I Factor +10%	8,100	13,300
Local Priority Uses	44,000/16	112,200/41
Workforce Housing Overlay w/ Coastal Act Priority Uses <sup>18</sup>	15,000	34,000
Affordable Housing	25,000	68,000
I&I Factor +10%	4,000	10,200
<b>Total Annual Flows</b>		
- gpd	<b>133,320</b>	<b>321,500</b>
- MGY	<b>49</b>	<b>94</b>

*Sources: Refer to Appendix B. 2040 includes new development between 2020 and 2040; MTB includes development between 2020 and an unknown future time at full buildout.*

The 1996 LUP reserved sewer treatment capacity for priority land uses totaling approximately 60,000 gpd split evenly between Commercial/Recreational and Public Recreation uses. For the portion of the city located within GCSD, approximately 10,000 gpd were reserved for public recreation uses. For this LUP, reservations required for new priority uses through MTB include:

Coastal Act Priority Uses:	145,850 gpd (53 MGY)
Local Priority Uses:	112,200 gpd (41 MGY)

The 2040 buildout scenario for all uses can be accommodated by the existing treatment plant capacity, including for Coastal Act Priority and Local Priority Uses. However, system

<sup>18</sup> Most Workforce Housing Overlay housing units associated with Coastal Act Priority Uses will be farmworker housing. These units qualify as both Coastal Act Priority Uses and Local Priority Uses.

improvements, will be necessary to serve MTB of the City as well as the unincorporated Midcoast.

## SEWER SYSTEM FACILITIES AND CAPACITY CONSIDERATIONS

**Sewer System Performance.** The SAM wastewater treatment plant's facilities were generally performing adequately for demands at the time of the 2020 LUP update. SAM, MWSD, GCSD, and the City of Half Moon Bay each have sewer system management plans (SSMPs) to address hydraulic performance issues within their district limits, such as adequate storage and flows within each conveyance system. This is achieved through repairs of the existing conveyance systems to reduce the amount of stormwater, identification and elimination of improper connections, replacement of degraded pipe segments, and upgrades to capacity and operations at the lift stations.<sup>19</sup> One of the main concerns related to system performance is inflow and infiltration (I&I) into the collection system pipes. With I&I, any breaks or deficiency in the network, stormwater and groundwater can flow into the sewer collection system, increasing the amount of wastewater being conveyed and ultimately treated at the SAM plant. I&I is evident in both the Half Moon Bay and El Granada sewer districts and is discussed in more detail below. Policies to support additional funding, monitoring and repair of the collection system will help preserve capacity for all uses.

Since the 1996 LUP was certified, several sanitary sewer overflows (SSOs) took place throughout the various systems in the SAM JPA. A few of the SSO's were severe, invoking litigation as well as imposed administrative fines and regulatory compliance and monitoring requirements by the State. Over the course of five years leading up to the LUP update in 2020, the City increased its efforts to monitor conditions so as to prevent or reduce the significance of SSOs by installing sensors at key sewer junctions, updating the Sanitary Sewer Response Plan, investing in the I&I capital program, and undertaking major facility upgrades such as the Ocean Colony Pump Station and Force Main Replacement project, which was nearing construction in 2020.

The City's 2016 Sewer System Management Plan (SSMP) utilized a hydraulic model to evaluate the City's service area for capacity deficiencies.<sup>20</sup> In general, the hydraulic model indicated that the sanitary sewer system exhibits acceptable performance to serve existing customers. Several areas were identified as potentially deficient for the most extreme scenarios. Following the 2016 modeling work, on-going maintenance and repair efforts were undertaken resulting in improved system performance during storm events, and the capacity issues identified in the modeling were not realized.

**Infiltration and Inflow.** In the Planning Area, infiltration and inflow (I&I) is one of the most significant challenges facing the wastewater treatment system. I&I are excess waters that flow into sewer pipes from groundwater and stormwater, primarily during wet weather events. Groundwater (*infiltration*) seeps into sewer pipes through holes, cracks, joint failures, and faulty connections. Stormwater rapidly flows into sewers through holes in manhole covers, and illicit connections from roof drains, foundation drains, or other cross-connections from the stormwater system (*inflow*). As a result of I&I, sewage volumes have in the past exceeded pipeline capacity in several locations throughout the city, resulting in surcharge of

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<sup>19</sup> City of Half Moon Bay Sewer System Management Plan, 2016, Akel Engineering Group

<sup>20</sup> City of Half Moon Bay Sewer System Management Plan, 2016, Akel Engineering Group.

some manholes. I&I can significantly diminish the capacity of the wastewater conveyance and treatment systems during wet weather events, and it is estimated that approximately 20 percent of PWWF is attributed to I&I. In the case of leaky pipes there is also potential for wastewater exfiltration; however, the likelihood of significant leakage is low as a result of the hydraulic pressure placed on underground pipes by soil and groundwater. System improvements that reduce I&I also address exfiltration.

At the time of the Land Use Plan update, the plant was affected by storm water infiltration into the sewage pipelines, which could be exacerbated by sea level rise and increased intensity, frequency and duration of storm events as a result of climate change. It is anticipated that without a proactive I&I management program, this problem will worsen if storm events become more frequent and more intense over time while the underground sewer system infrastructure also continues to age and become more vulnerable to I&I. The Land Use Plan supports efforts to monitor and reduce I&I over the planning horizon to operate within plant capacity and achieve policy objectives for public and environmental health.

**Treatment Plant Vulnerability.** The SAM plant location and condition are a long-term vulnerability for the Planning Area. The SAM treatment plant is located at a low elevation near the shoreline and is subject to both tsunami and dam failure inundation hazards. Vulnerability assessments indicate that the plant will be become subject to inundation as sea level rise approaches one meter (3.3 feet), which is likely to occur by the end of the century.<sup>21</sup> With annual storm events, significant flooding is expected to occur in combination with half a meter of sea level rise. The plant has displayed signs of age and requires a diligent approach to maintenance. SAM has incorporated into its Capital Improvement Program (CIP) planning process an evaluation of plant needs and risks, and included budget for plant repairs.

In time, the plant may need to be protected from flooding risks with armoring or raising sensitive facilities and may eventually require relocation. The plant facility is also limited in area and adjacent to sensitive habitat, which will make it difficult to expand if required to accommodate future changes in regulatory requirements. The LUP includes policies for identifying opportunities such as alternative sites and funding sources should relocation be required in the future to protect the plant from these vulnerabilities. In addition, Chapter 7. Environmental Hazards identifies the SAM plant as a critical facility that warrants shoreline protection or other shoreline hazard adaptation measures to continue providing essential community services.

As new information becomes available, it will be necessary to revisit the modeling inputs and scenarios to address the effects of climate change on the treatment plant's capacity. Major upgrades and/or replacements are going to be necessary during the next 20 years, and an important issue for SAM is whether the existing wastewater treatment plan should be upgraded or expanded in the existing location, or whether it should be relocated. LUP policy supports analysis of a range of potential outcomes, e.g. retrofits, improvements, and relocation.

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<sup>21</sup> Ocean Protection Council, State of California Sea-Level Rise Guidance, 2018 Update.

### **2040 Planning Horizon.**

Average Dry Weather Flow. The wastewater flows associated with 2040 buildout should meet the treatment plant design capacity for ADWF. Reuse of gray water and other reductions of sanitary sewer discharges through updates of the California Building Code, among other regulatory changes, are expected to reduce the overall volume of water requiring treatment. Introduction of a recycled water facility/expansion could also reduce ADWF, as well as PWWF, moving forward.

Peak Wet Weather Flow. The City and GCSD have both determined that deficiencies in their systems can be improved over time. As previously described, I&I likely reduces system capacity by approximately 10 percent. If this condition is improved even modestly by 2040, there will be adequate capacity for PWWF past the 2040 planning horizon which would give time to further evaluate and implement improvements to accommodate additional future development

### **Maximum Theoretical Buildout.**

Average Dry Weather Flow. The wastewater flows associated with MTB should meet the treatment plant design capacity for ADWF and would be improved upon by the approaches noted above for the 2040 scenario.

Peak Wet Weather Flow. The wastewater flows associated with MTB could exceed treatment plant capacity for the PWWF condition. MTB is not anticipated to occur, and assumptions made regarding future development ensure a conservative evaluation of infrastructure capacity. However, despite the conservative approach to modeling, the potential for wastewater flows to exceed treatment plant capacity must be carefully monitored, particularly for wet weather conditions. This is especially important if climate change results in stronger and more frequent storm events.

At the time of the LUP update, the Half Moon Bay sewer conveyance system could deliver only 7,100,000 gpd to the treatment plant, and thus was not able to deliver up to the 7,500,000 gpd PWWF treatment plant capacity; this conveyance system limitation is in and of itself a capacity concern. Improvements to the conveyance system may need to be phased to meet treatment plant capacity over the course of the planning horizon. Despite the potential for both conveyance system and treatment plant infrastructure to exceed capacity at MTB, the risk of wastewater flows from new development exceeding plant capacity is strongly tempered, primarily because, as presented in the preceding section regarding water supply, there are not enough water connections to support the MTB of the Planning Area. Additional water connections necessary to achieve MTB will not be permitted without a robust assessment of the adequacy of sewage treatment plant capacity, as well as roadway capacity.

**Treatment Plant Ocean Outfalls.** State regulations on wastewater discharges and ocean outfalls have tightened in recent years, particularly in State Water Quality Protection Areas, which include state-designated Areas of Special Biological Significance and Marine Protected Areas. The SAM plant currently discharges treated wastewater through an ocean outfall into the Greater Farallones National Marine Sanctuary boundary. The Sanctuary contains Areas of Special Biological Significance and Marine Protected Areas, but none within City limits. SAM's

ocean outfall is regulated through the county-wide National Pollutant Discharge Elimination System (NPDES) permit, which is a primary mechanism for controlling pollutant loads and discharge locations. Future legislation may further regulate existing and new ocean outfalls, particularly in consideration of sea level rise and climate change adaptation needs. If future regulations require reduced outfall flows, this could potentially be addressed through a recycled water system. However, if significant reductions or elimination of the ocean outfall is mandated, there would be challenges in addressing the PWWF.

**Septic Systems.** Septic systems typically include a tank that stores the solid waste, and pipes that release the wastewater into a drainfield where it percolates through the soil and ultimately discharges to groundwater. Naturally occurring microbes then remove harmful bacteria, viruses, and nutrients from the wastewater. However, septic systems that are poorly designed, installed, operated or maintained, or are sited in locations or densities that exceed the treatment capacity of the local soil can cause contamination of groundwater, surface waters, and drinking water with disease-causing pathogens and nitrates. Half Moon Bay's soils are characteristically clay loam, which do not percolate well and can lead to overloading and flooding of the liquid wastewater.

With the Land Use Plan update, the entire planning area within the urban boundary is considered to have access to municipal sewer service. However, certain properties lack convenient access to municipal sewer service and instead employ leach fields or private septic systems. Septic systems are regulated by San Mateo County Environmental Health Services but require a coastal development permit for new installation in city limits. Due to the potential for adverse environmental, water quality, and health impacts from private septic systems, the LUP encourages conversion of existing septic systems to municipal sewer service as it becomes available and feasible. In most cases, new or redevelopment of non-priority uses will not be allowed to use septic systems. Any new priority use that is proposed to rely on a new or existing septic system will need to be assessed to ensure the ability of the drainfield to treat wastewater without the potential for water quality impacts. Alternately, if a private sewage treatment system is the only feasible option, vault systems that do not expose the environment to effluent are preferable.

## Circulation

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The circulation discussion and policies in this chapter focus on Highways 1 and 92 for vehicular traffic. Relevant policy and implementation plans include the 2013 Half Moon Bay Circulation Element (update underway as of the 2020 LUP update), the 2019 Half Moon Bay Bicycle and Pedestrian Master Plan, and the 2020 draft San Mateo County Comprehensive Transportation Management Plan (CTMP). From the perspective of multi-modal coastal access, Chapter 5. Coastal Access and Recreation addresses coastal access routes and points, bicycle and pedestrian circulation, parking and alternate modes, and needed circulation improvements to provide options for visitors and residents.

### **VEHICULAR CIRCULATION SYSTEM**

Highway 1 (Cabrillo Highway) and Highway 92 (San Mateo Road) are the backbones of Half Moon Bay's roadway network, providing regional connections from San Francisco (north)

and the Bayside of San Mateo County and beyond (east) to the coastline at Half Moon Bay and south toward Santa Cruz. Highway 1 and Highway 92 are constructed as arterial roadways and are managed by Caltrans, which has principal responsibility for any improvements. The City of Half Moon Bay can propose, fund and implement changes on the state routes, with Caltrans approval.

Highways 1 and 92 serve three primary user groups:

**Visitors.** The Planning Area is a popular destination for tourists. Weekend and event traffic on these roadways are consistently very heavy.

**Residents.** Almost 80 percent of employed residents out-commute to jobs “over the hill” via Highway 92 on the bay side of San Mateo County, Santa Clara County, and the East Bay; as well as via Highway 1 to San Francisco. Coastside grade, middle and high school commutes rely on Highway 1, with most school commutes made by private car.<sup>22</sup> For local trips, as a result of historic subdivision patterns, many of the city’s neighborhoods are not connected to each other by residential streets. Highway 1 is often the only option for reaching any other part of the city by car.

**Local Industry.** Trucks transport agricultural products out of the area to market. Deliveries to the Ox Mountain landfill as well as transport of sand and gravel from the Pilarcitos Quarry—both of which are located on the north side of Highway 92 east of the city limits—further contribute to a significant presence of truck traffic along this corridor.

Highway 1 traverses the Planning Area from north to south. It has interspersed sections of two-lane and four-lane roadway segments are interspersed along the route which also has several signalized intersections. Highway 92 is a curving road with increasing grade as it traverses east. Trucks that use these routes affect visibility, overall speed, and volume characteristics, especially when present in concentrations and overlapped with commute or recreational traffic including that associated with commercial entities and residences that take access from Highway 92. Local SamTrans bus services run on both of these routes.

### **CIRCULATION SYSTEM CAPACITY**

The capacity of the circulation system in Half Moon Bay and the unincorporated Midcoast is predominately dependent upon the performance of Highways 1 and 92. As described above in the water supply discussion, in association with the Coastal Commission approval of the El Granada pipeline replacement project, increase in water supply or distribution capacity from CCWD is contingent upon achieving adequate service levels for Highways 1 and 92. Although a CTMP has been in development by San Mateo County for the unincorporated Midcoast, peak weekday and weekend traffic is often gridlocked and is expected to worsen with the development potential and popular visitor destinations of the Midcoast and Half Moon Bay. Highway capacity and congestion are significant constraints for visitors to Half Moon Bay and residents who need to commute and make routine trips. Growth management limitations will

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<sup>22</sup>2013-2017 American Community Survey and Cabrillo Unified School District Safe Routes to School Surveys.

need to be coupled with Town Boulevard improvements and alternative modes of transportation options to offset limited highway capacity.

### **Traffic Performance Standards**

Performance standards are an important tool for analyzing circulation system capacity and adequacy. This is especially relevant from the perspective of supporting coastal access. At the time of the LUP update, the California Environmental Quality Act (CEQA) was undergoing a shift from using level of service (LOS) thresholds as a traffic performance standard to vehicle miles traveled (VMT). LOS is a quality measure that indicates the degree of congestion that occurs during peak travel periods, and it has been the principal measure of roadway and intersection performance for many years. LOS can range from “A” representing free-flow conditions, to “F” representing extremely long delays. VMT measures the total number of miles traveled that originate or terminate within a defined area over a specified period of time. VMT has a stronger connection to environmental impacts including greenhouse gas emissions, energy use, and runoff pollution. Half Moon Bay will continue to utilize LOS and other measures to ensure that localized roadway performance is understood and addressed as necessary, while using VMT to assess environmental impacts of specific development projects. To do so, the City will need to establish a method for measuring VMT, select a significance threshold, and determine approaches for mitigating impacts.

Although automobile delay will no longer be considered a significant environmental impact pursuant to CEQA, LOS assessment remains relevant. LOS analysis can indicate if traffic impacts of proposed development will diminish roadway and intersection performance and may also be applicable to maintaining emergency vehicle response times. The City’s longtime LOS standard has been LOS C on Highways 1 and 92, except during the peak commuting and recreational periods when LOS E is the minimum acceptable standard.

While VMT and LOS serve specific and important purposes, neither provides a thorough measure of the actual travel experience. They also do not take other travel modes into account. Because traffic is a top local concern, additional approaches to evaluating the transportation system are desired by the community. LUP policies call for alternative or additional performance standards to be studied. Examples include:

**Delay Index.** Measures the ratio of peak period travel time on a segment to the free-flow travel time.

**Bicycle, Pedestrian, and Transit Environmental Quality Indices (BEQI, PEQI, and TEQI).** Measures are varied, focus on safety, convenience, and comfort, and may be qualitative.

**Emergency Vehicle Response Times.** Public safety agencies must maintain and account for their response times. Areas with heavy congestion can affect response times which should be taken into account when transportation system improvements or development are contemplated.

### **Highway 1 and 92 Performance**

Traffic modeling of the roadway system was conducted for the LUP update to evaluate system performance, and was considered by three primary segments: Highway 1 between Mirada

Road to the north and Highway 92 to the south (HWY 1 North); Highway 1 between Highway 92 to the north and Miramontes Point Road to the south (HWY 1 South); and Highway 92 between Highway 1 to the west and the city limits to the east (HWY 92). Performance measures evaluated in the traffic model include level of service (LOS) and delay. Vehicles miles traveled (VMT) is not used for this assessment, as VMT does not consider roadway capacity or indicate its performance as discussed in the previous section. The modeling results are presented in Appendix B, Table B-10.

In 2020, during the weekend peak hours when the number of coastal visitors is typically highest, the intersections of Main Street and Highway 92 and Highway 1 and Terrace Avenue both operated at LOS F. Two other Highway 1 intersections, at Frenchmans Creek Road and Venice Boulevard, operated at LOS E. The modeling analysis confirms that Half Moon Bay's primary roadway infrastructure will continue to be heavily impacted at buildout, especially by weekday and weekend peak period traffic. Highway 1 South delay is the least impacted under the existing condition and by buildout. Highway 92 delay increases notably, especially in the PM peak hour conditions. Highway 1 North was already experiencing a delay factor of 3 in 2020, which increases to over 4 and then 5 in the 2040 and maximum theoretical buildout conditions, respectively. This is a dramatic increase and adversely affects the experience of visitors to the coast and quality of life for residents. Increasing roadway capacity may be a consideration in this case; however, the LUP update has identified that expanding capacity will in turn induce more demand, which has the potential to overwhelm the capacity of other public works systems.

### **TOWN BOULEVARD**

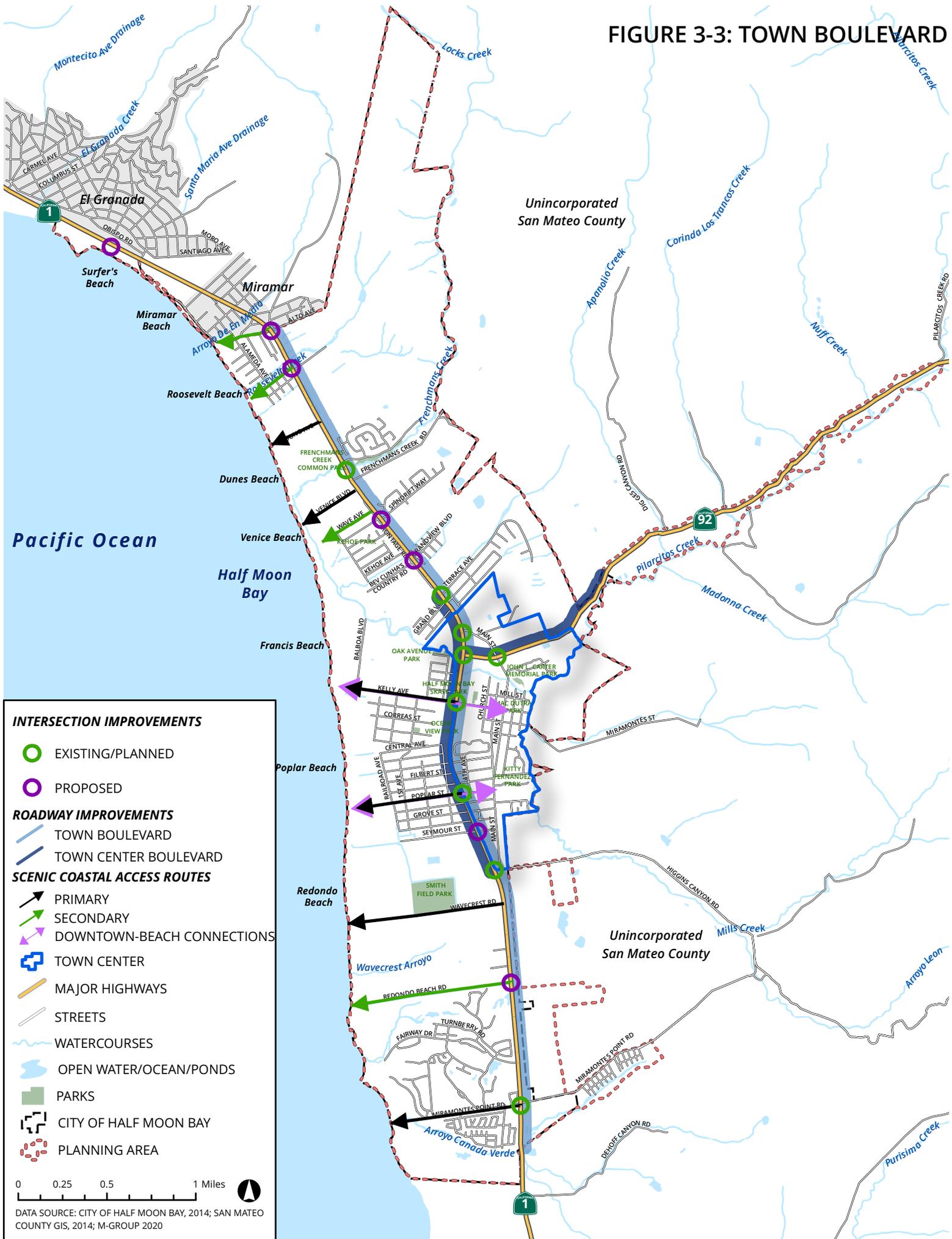
Increasing traffic congestion is a community concern, and expanding Highway 1 into a four-lane road within the Planning Area, and in the unincorporated Midcoast, has been met with strong resistance. Because regional growth in the greater Bay Area is not within the City's control, the community has realistic expectations that weekend peak traffic congestion is unavoidable and will continue to get worse. The design and speed limits of these roadways are appropriate as rural highways but are out of context with the scale and layout of the Planning Area due to high speed limits and lack of designated crossing areas for bicycles and pedestrians. Within the city limits, these roadways need to function as major arterial streets connecting neighborhoods to services.

During the LUP update process, it was determined that the character of Highways 1 and 92 needed to be reconsidered. The LUP thus includes a new vision for these highways within the Planning Area: The Town Boulevard. The Town Boulevard could potentially include lower speed limits; multi-modal improvements with safe crossings; and landscaping and other amenities intended to enhance the image and scenic quality of the city. The Town Boulevard will be implemented in a range of ways and for varying spans of the highways. The primary focus is the North Main Street to South Main Street segment of Highway 1, and Highway 92 between Highway 1 and the eastern city limits. This core section is within the Town Center and referred to as the Town Center Boulevard on Figure 3-3. Farther north and south along Highway 1, other approaches could be incorporated including roundabouts or grade-separations with the objective being a slower, safer, and contextually appropriate roadway to better serve residents and improve coastal access for visitors. In Chapter 2. Development,

policies require Planned Developments to consolidate points of access and provide multi-modal facilities and other improvements to further implement the Town Boulevard.

Figure 3-3 presents a schematic depiction of the Town Boulevard. The Town Boulevard is coordinated with other improvements included in the LUP, as discussed further below and depicted on Figure 3-3.

FIGURE 3-3: TOWN BOULEVARD



**INTERSECTION IMPROVEMENTS**

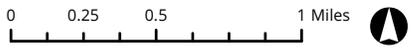
- EXISTING/PLANNED
- PROPOSED

**ROADWAY IMPROVEMENTS**

- TOWN BOULEVARD
- TOWN CENTER BOULEVARD

**SCENIC COASTAL ACCESS ROUTES**

- PRIMARY
- SECONDARY
- DOWNTOWN-BEACH CONNECTIONS
- TOWN CENTER
- MAJOR HIGHWAYS
- STREETS
- WATERCOURSES
- OPEN WATER/OCEAN/PONDS
- PARKS
- CITY OF HALF MOON BAY
- PLANNING AREA



DATA SOURCE: CITY OF HALF MOON BAY, 2014; SAN MATEO COUNTY GIS, 2014; M-GROUP 2020

### **Improvements Underway**

At the time of the 2020 LUP update, several circulation improvement projects along the Town Boulevard were underway. The Eastside Parallel Trail was planned as a new Class I bicycle and pedestrian facility crossing Highway 92 and running adjacent to the eastside of the full length of Highway 1 within the city limits. The City had begun the planning and design process to combine and signalize the intersections of Highway 1 at Terrace and Grand Avenues and to signalize the intersection of Highway 1 and South Main Street. In addition, the City was working to improve traffic flow through signal coordination in the Town Center.

### **Planned Improvements**

The Circulation Element of the City's General Plan identifies roadway improvements along the Town Boulevard that will help to ease traffic congestion while also improving safe access and connectivity for people on foot and on bikes and enhancing access to the coast for visitors. These improvements are intended to accommodate the existing and future travel needs generated as the city approaches build out. Ongoing monitoring studies will evaluate future needs as the land-use patterns of the city evolve. These improvements also support other travel modes such as with signal-controlled highway crossings for bicycles and pedestrians.

In addition to planned improvements, consideration of short and long-term effects of sea level rise and coastal erosion will also necessitate adaptive improvements. Adaptive improvements are preferred pursuant to the California Coastal Commission's 2015 Sea Level Rise Policy Guidance, and strategies can include realignment of roadways away from the beach, various methods of slowing erosion, and managed retreat. For Half Moon Bay, areas of concern based on the 2016 Half Moon Bay Sea Level Rise Vulnerability Assessment include a segment of Highway 1 along the northern coast of the Planning Area bordering El Granada, which is subject to erosion and relies on existing shoreline protection, and Mirada Road in the Miramar neighborhood, which has experienced severe erosion. These vulnerabilities are discussed further in the context of shoreline hazards and sea level rise in Chapter 7. Environmental Hazards.

## **CIRCULATION SYSTEM AND CAPACITY CONSIDERATIONS**

**Circulation System Capacity Constraints.** In general, the circulation system is already constrained in Half Moon Bay. The LUP includes multiple strategies to reduce capacity constraints, including the lot retirement program introduced in Chapter 2 (Development), implementation of the Town Boulevard, and the prioritization of new development in the Town Center where alternative modes of transportation and proximity to goods and services are generally available. While the Coastal Act requires that limited infrastructure systems provide services to Coastal Act Priority Uses over other types of new development, certain types of Coastal Act Priority Uses that involve high trip generation rates should be located in areas of the city that are least impacted by traffic. LUP policies thus discourage the development of new higher trip generating uses north of Highway 92, where traffic modeling confirmed the circulation system is most impacted.

**Emergency Access.** The Town Boulevard design must accommodate emergency vehicles and evacuation traffic. Areas with heavy congestion can degrade response times or

exacerbate the potential for gridlock should a large-scale evacuation be required. This condition is worsened during weekend peak periods when the number of coastal visitors is the highest. LOS analysis can help assess roadway performance for emergency vehicle or evacuation access. Restricting the roadway's capacity while improving circulation with the Town Boulevard will help manage visitor traffic on peak weekend days, which will reduce gridlock and improve intersection performances to allow sufficient emergency access and evacuation. Realization of the approach may require wider shoulders or turn-outs in lieu of additional roadway lanes.

**Multi-Jurisdiction Planning.** The LUP is sensitive to San Mateo County's planning effort for Highway 1 ("Connect the Coastside") in the unincorporated Midcoast, which was in progress at the time of the LUP update. It includes similar approaches, such as roundabouts and multi-modal improvements, and does not include significant capacity expansions. Interim evaluation of the Connect the Coastside plan indicates that the existing transportation system, especially Highways 1 and 92, are inadequate for buildout of the coastside. In addition to infrastructure, the draft Connect the Coastside plan recommends implementing lot merger, lot retirement, and mitigation fee programs to reduce capacity needs and fund transportation system improvements.<sup>23</sup>

**Community Character.** From the coastal access perspective, the current traffic conditions are a material constraint and are anticipated to worsen. Half Moon Bay's coastal zone attractions are numerous, and a primary component is the scale of the built environment set upon a narrow band of marine terrace between the coast and Santa Cruz Mountain foothills. The small-town character is a leading draw for coastal visitors. Upscaling infrastructure to accommodate visitors and growth will be at cross-purposes with maintaining the desirability of this area that visitors seek. The findings of Chapter 3. Public Works suggest that infrastructure capacity for some systems is at or near its limits and that the City will need to work on an ultimate buildout strategy to stay within those means for the Planning Horizon.

**Future Improvement Priority Area.** In North Downtown, the Highway 92 and Main Street intersection is especially congested during the weekend peak traffic period. For weekdays, school commute trips for Half Moon Bay High School exacerbate peak period congestions in this area. Development around this intersection is auto-oriented and setback behind parking areas. These parking areas in combination with the large intersection roadway area present as a vast expanse of paved area as the terminus to the arrival sequence from westbound Highway 92. This condition does not impart a sense of place consistent with the small-town character of the Town Center, nor does it provide wayfinding cues for Heritage Downtown or the beaches. Redesign of the intersection as part of the Town Boulevard, potentially with a round-about, would reduce the overall scale of this expansive area. Future redevelopment of the adjacent private properties with denser development framing the roadways would establish both a gateway and a node of walkable commercial and residential uses in this area.

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<sup>23</sup> San Mateo County Midcoast Draft Comprehensive Transportation Management Plan, "Connect the Coastside," 2020.

## **Stormwater**

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Stormwater management is essential for containing runoff, minimizing flood and erosion risks, and reducing contamination from conveyance of urban pollutants. This section addressed the City's stormwater system in the context of system components, capacity, and vulnerabilities. Stormwater is discussed in the context of hydrology and water quality in Chapter 6. Natural Resources.

### **STORMWATER SYSTEM AND MANAGEMENT**

Half Moon Bay's stormwater system is made up of nine watershed areas identified in the City's 2016 Storm Drain Master Plan from north to south as Roosevelt, Pullman, Frenchmans, Pilarcitos, Kehoe, Beachwood, Kelly/Metzgar, Seymour, and Ocean Colony (see Figure 6-5 in Chapter 6. Natural Resources). The Pilarcitos and Kehoe drainage areas have functional overlap. The Pilarcitos drainage area flows to Pilarcitos Creek and discharges into the ocean just north of the SAM plant, while the Kehoe drainage area flows to Kehoe Watercourse which outfalls to Pilarcitos Creek. Throughout the watershed areas, the City maintains a manmade drainage system consisting of closed pipes, open roadside ditches, and other lined or unlined channels. The Town Center discharges stormwater primarily via closed pipes to Pilarcitos Creek. Outside the Town Center, developed areas including neighborhoods drain via a combination of manmade pipes, ditches, and channels into natural and manmade watercourses located west of Highway 1, which eventually discharge directly to the ocean.

Stormwater is managed through this combination of gray and green infrastructure. Green infrastructure is the preferred alternative to gray infrastructure, as it utilizes natural ecosystem services to capture and treat stormwater runoff. Stormwater carried by gray infrastructure such as storm drains and pipes are more likely to convey polluted water directly to coastal environments, causing greater water quality impacts and affect coastal water quality. Green infrastructure such as bioswales, rain gardens, street trees, and green roofs allow stormwater to absorb and infiltrate on site, thereby reducing flooding potential, water quality impacts, erosion and associated sedimentation. Larger-scale projects such as dechannelizing watercourses, can support stormwater management throughout a basin. Green infrastructure improvements often have other cross-cutting benefits as well, such as groundwater recharge, carbon sequestration, and climate change resiliency. The City adopted a Green Infrastructure Plan in 2019 with goals to address some of the drainage requirements of existing impervious surface through public and private projects during the 2040 planning horizon. LUP policies acknowledge the City's Green Infrastructure Plan and encourage the conversion of gray to green infrastructure throughout the city. While these projects can result in significant benefits, it is important to note that implementation of green infrastructure is expected to increase the City's cost to maintain the stormwater system.

One Water is another approach to water management in developed areas that addresses the water cycle in an urbanized area as an integrated system, treating all water as a potential resource and recognizing the combined impact of these systems on flooding, water quality, wetlands, watercourses, estuaries, and coastal waters. The City can collaborate with CCWD and SAM regarding the applicability of the One Water concept in Half Moon Bay to develop a water system in which all water—not just potable water—has a role in meeting the community's water demand without adversely impacting natural resources.

## **STORMWATER SYSTEM CAPACITY**

The 2016 Storm Drain Master Plan identified deficiencies in every watershed area with the exception of Ocean Colony. In the northern portion of the City (Roosevelt, Pullman, and Frenchmans Creek), Pullman Watercourse was considered a high priority for capacity improvements due to flooding depth. Roosevelt was identified as a priority for routine maintenance.

For the Pilarcitos Creek/Kehoe watershed area, localized flooding occurring on Spindrift Way in the Sea Haven neighborhood was identified as a priority, as was flooding on Highway 92 near the intersection of Main Street. The 2016 Storm Drain Master Plan generally assumed gray infrastructure solutions to prevent flooding, such as upsizing pipes. The Storm Drain Master Plan did not anticipate the Green Infrastructure Plan or the level of new development planned for the Town Center area in this LUP update. Most of the Town Center is located within the Pilarcitos drainage area and future study of the system's capacity will be required as development comes forward. To the extent that green infrastructure can be implemented within the most densely developed portion of the city, it should be considered as a first choice. At the time of the LUP update, the City's Storm Drain Master Plan was pending an update to incorporate green infrastructure principles.

## **STORMWATER SYSTEM AND MANAGEMENT CONSIDERATIONS**

**Watershed Restoration.** In addition to requiring green infrastructure, the LUP also identifies numerous restoration opportunities. The Roosevelt watershed flows into Roosevelt Creek, which adjoins the southeastern side of the Guerrero wetlands. The Pilarcitos and Kehoe watershed areas include City-owned lands of Beachwood, Glencreed, and 15 acres south of Bev Cunha's Country Road. The Kelly/Metzgar and Seymour watersheds include City, County, and land trust-owned properties. All of these areas are identified in Chapter 2. Development for conservation and restoration.

**Town Center Development.** Most of the Town Center is located within the Pilarcitos watershed area. Because the Town Center is anticipated to undergo the most change with new infill development, drainage from this area must be carefully managed. Drainage flows are primarily directed to Pilarcitos Creek, which is designated as ESHA and known to support several special status species. In consideration of this sensitivity, LUP policies require low impact development, site control and other means to avoid adverse impacts from stormwater flows, including within the denser Town Center area.

**Localized Flooding.** Several areas of small localized flooding were identified in the City's 2016 Storm Drain Master Plan. LUP policy supports updating the Storm Drain Master Plan to keep track of these areas and addressing them through Capital Improvement Program projects. Policy in Chapter 7. Environmental Hazards advocates for updating the FEMA FIRM maps throughout the City because they currently do not cover several of the inland watercourses, including Pilarcitos Creek downstream from Arroyo Leon. Having accurate mapping will help the City manage localized flooding and minimize the risks caused by development.

**Aging Infrastructure.** As is the case with the water and sewer systems, stormwater infrastructure is aging and will require replacement during the 2040 planning horizon.

**Regional Planning.** At the time of the LUP update, the new established Flood and Sea Level Rise Resiliency Agency was formed with participation by all of the cities in San Mateo County and the County. This agency will assist with regional planning and be able to compete for grant funding to implement flood protection measures, including those for addressing sea level rise.

## Other Public Works Facilities

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The City relies upon other public works facilities and systems that are not specifically addressed in the Coastal Act except where they would meet the definition of development. Some are mentioned below to provide context. Each of these systems are covered in other City planning policy documents.

**Communications.** Communications facilities are an important consideration for the General Plan Safety Element. The City has a number of wireless telecommunication facilities and encourages co-location for network improvements and reduced visual impacts. An active HAM radio group is activated to support public safety efforts during emergencies. The City has also considered redundant systems and has made emergency preparedness a community priority.

**Energy.** Energy, especially energy conservation, is addressed in the General Plan Open Space and Conservation Element. Advances in energy transmission and storage systems will support several policy areas in the LUP, such as to support greenhouse gas emission reductions and an anticipated increase in the use of electric vehicles over time. The City supports residential and commercial energy conservation measures such as EV charging stations, solar paneled roofs, and green building methods.

**Solid Waste.** Solid waste is also addressed in the General Plan Open Space and Conservation Element. The City partners with a service provider for solid waste, recyclable material, and organic waste collection for residential and commercial constituents. Solid waste collection is taken to the Ox Mountain Sanitary Landfill on Highway 92 in unincorporated San Mateo County. Ox Mountain is a Class III municipal solid waste landfill and is the only active landfill in San Mateo County, with an expected remaining capacity to receive waste until 2039. Recyclables and organics are transferred at Ox Mountain and processed at Newby Island in Milpitas.

**Additional Special Districts.** In addition to the districts and JPAs that provide the City's water and sewer utilities services, public services are provided by the Coastside Fire Protection District, Cabrillo Unified School District, and San Mateo County Mosquito and Vector Control, among others.

## Policies – Public Works

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### *Policies – General*

- 3-1. Infrastructure Capacity.** New or expanded public infrastructure, including water, sewer, and transportation facilities, shall be designed and limited to accommodate needs generated by development or uses permitted consistent with this Land Use Plan and the Chapter 3 requirements of the Coastal Act.
- 3-2. Monitor Growth and Infrastructure Capacity.** Monitor growth and infrastructure capacity annually for Coastal Act Priority Uses, Local Priority Uses, and Non-Priority Uses. Publish reports summarizing changed conditions that may affect growth, infrastructure capacity, or the regulatory requirements associated with infrastructure and development.
- 3-3. Coastal Act and Local Priority Uses.** In the event that growth and capacity monitoring indicate that water supply and the associated classifications of water connections or sewer capacity will not be adequate to maintain public works capacity reservations for Coastal Act and Local Priority Uses or to support buildout of the Town Center, the City shall establish a public works capacity allocation process. In all cases, infrastructure reservations shall be prioritized according to the following tiering:
1. Coastal Act Priority Uses: Coastal-dependent, agriculture including farmworker housing, visitor-serving uses, recreation, habitat conservation/restoration, and essential services;
  2. Local Priority Uses: Affordable housing;
  3. Non-Priority Uses: Market-rate housing, general industrial, general commercial.

Allocations of infrastructure capacity for Non-Priority Uses will not be granted in the event that it would preclude development of Coastal Act Priority and Local Priority Uses.

- 3-4. Town Center Infrastructure.** The City shall plan for, fund through development impact fees and other sources, and implement infrastructure improvement projects or allocation systems, including for water, sewer, transportation, and stormwater, to support buildout of the Town Center.
- 3-5. Coastal Development Permit for Public Works.** Require any public utility, government agency, or special district proposing a development project in the City to obtain a coastal development permit, unless explicitly exempted by the LCP, Coastal Act, or other controlling law.
- 3-6. New Development Requirements and Findings.** Require that all new development has available municipal water and sewer services and access from a public street or over private streets to a public street where these improvements or facilities are essential to the type of development. Prior to approval of a coastal development permit, the approving authority shall determine if infrastructure, including water connections, is available and adequate; and if so, shall make the finding that such development will be served with water, sewer, and road facilities, including such

improvements as are provided with the development. Lack of available services or resources shall be grounds for denial of the project or reduction in the density otherwise indicated in the Land Use Plan. Some development types may be exempt from the requirements of this policy such as habitat restoration, trails and other coastal recreational uses, and many agricultural and agricultural supplemental and ancillary uses.

- 3-7. System Improvements.** Allow system improvements to occur to address health and safety needs such as replacing aging infrastructure; ensuring sufficient water capacity for fire flow; improving system capacity to prevent sewer overflows; using green infrastructure in public and private development projects to prevent erosion, sedimentation, or flooding; and providing passing lanes for emergency vehicles. Such improvements are intended to address health, safety, and changing design standards, shall not be growth inducing, shall be phased if they constitute a significant system update, and shall comply with Policy 3-1.
- 3-8. One Water.** Consider the potential applicability of a One Water approach to the City's water systems management for all water resources (e.g. stormwater, wastewater, surface waters, groundwater, and potable water) in collaboration with Coastside County Water District, the Sewer Authority Mid-Coastside, and the San Mateo County Flood and Sea Level Rise Resiliency District.
- 3-9. Municipal Service Provisions.** Only provide municipal services including water, sewer, and roads to areas approved for development, except where services are required for permitted restoration, agricultural, agricultural compatible, and recreational uses. In the case of Planned Developments, prior to master plan approval, provide services only for those uses allowed in advance of master plan approval.
- 3-10. Timing for New or Expanded Public Works Facilities.** The timing and amount of new or expanded City public works facilities or capacities, as well as those provided by other agencies subject to City issuance of a coastal development permit, shall be prioritized for land uses as listed in Policy 3-3 and shall be determined by:
  - a. Considering the anticipated buildout within the urban boundary of the Planning Area and public works capacities as a whole;
  - b. Providing capacity incrementally to support a phased buildout of the land use plan;
  - c. Prioritizing sustainable infrastructure and development that is protective of the environment, conserves resources, and/or supports agriculture;
  - d. Anticipating the public works capacity for buildout of the Town Center;
  - e. Considering if existing capacity has been consumed or will be consumed within the time required to construct additional capacity;
  - f. Considering the availability of related public works to establish whether capacity increases would overburden the existing and probable future capacity of other public works;
  - g. Considering the availability of public funds for public works improvements that benefit existing development, with private funds required for improvements needed for new development; and

- h. Considering San Mateo County's certified Local Coastal Program policies and subsequent buildout and infrastructure modeling prepared by the County for the Midcoast.
- 3-11. Public Works Infrastructure Vulnerability.** Support studies that evaluate the condition of critical facilities, especially public works infrastructure that has been identified as vulnerable to environmental hazard risks, including water storage facilities, the SAM treatment plant and portions of the sewer transmission system, and Highway 1 near Surfers Beach. Studies shall include alternatives analyses for potential retrofit, improvements, relocation, or other considerations.
- 3-12. Service Areas Study.** Study the structure and operations of public works service areas and consider new governance structures, including formation of a new special district or consolidation if service quality and cost can be improved.

***Policies – Water System***

- 3-13. Water System Capacity Monitoring.** The City shall review CCWD's annual water sales reports for each land use category; consider remaining water capacity to ensure water supply is sufficient to maintain the City's water reserves for Coastal Act and Local Priority Uses; and evaluate water supply adequacy for remaining buildout of the LUP.
- 3-14. New Water Connections.** Support establishment of new water connections for the different use categories to serve sustainable development and LUP priorities for uses as specified:
1. Coastal Act Priority Uses: Coastal-dependent, agriculture including farmworker housing, and other Coastal Act Priority Uses with lower water demand;
  2. Local Priority Uses: Affordable housing; and
  3. Non-Priority Uses: Only after ensuring that efficiency measures for existing development meet or exceed conservation requirements or a reclaimed water supply is developed, and if development of such uses would not adversely impact other infrastructure systems, and if allocation of Non-Priority Use water connections would not preclude development of Coastal Act or Local Priority Uses.

If CCWD obtains a coastal development permit or permit amendment approving an increase in water supply or distribution capacity to provide additional service connections in excess of limitations imposed by conditions of approval for the Crystal Springs Phase 1 coastal development permit, the City shall encourage, or if the City issues the permit, shall require CCWD to not sell connections in advance of development proposals; and shall only approve such permit if robust assessment of the sewer, circulation, and stormwater management systems indicates that additional connections can be served by other infrastructure.

- 3-15. Reclaimed Water System and Use.** Support establishment of a sustainable reclaimed water supply system, including a wastewater treatment facility to produce recycled water from sewage. Ensure that reclaimed water supply meets or exceeds regulatory water quality standards for use by local horticulture, agriculture, agriculture compatible, and habitat restoration uses. In advance of developing a

recycled water system, coastal development permits shall include conditions of approval for reclaimed water dual piping systems such as for irrigation, toilets, and other uses as appropriate in the future.

- 3-16. Phased Development of Water Supply Facilities.** For development of new water supply infrastructure within the city limits and/or subject to City issuance of a coastal development permit, support phased development of water supply facilities (e.g. water storage tanks and treatment facilities) so as to avoid growth-inducing impacts, and ensure that new development is consistent with Policy 2-26 (Fiscally Sustainable Development); so long as adequate capacity is provided to meet City needs, including emergency response, needs described in the LUP's development policies, and allocations for Coastal Act and Local Priority Uses.
- 3-17. Domestic Water Supply Quality.** Coastal development permits for new water supply sources shall only be issued on the condition that the quality of new potable water supplies after treatment meet or exceed the drinking water quality standards set by the State and federal governments.
- 3-18. Emergency Water Supply and Storage Capacity.** For development of new water supply infrastructure within the city limits and/or subject to City issuance of a coastal development permit that results in expanded water supply, system conveyance capacity, and/or storage capacity that support emergency risk management, ensure such infrastructure is adequately designed to protect public health and safety and is not used to support unanticipated development.
- 3-19. Water Connection Allocation Process for Proposed Development.** Consider working with San Mateo County and CCWD to review water connection needs for buildout of the service area.
- 3-20. Water Connections for New Development.** Other than as described in Policies 3-21 and 3-22, new development within the urban boundary shall require a connection to the Coastside County Water District system. The City shall refer coastal development permit applications for new development or redevelopment projects to CCWD for confirmation of water supply adequacy and consistency with water connection requirements.
- 3-21. New Wells for Public Water Supply.** If new or increased well production is proposed to increase public water supply within the city limits and/or subject to City issuance of a coastal development permit, require that:
  - a. Water quality be adequate to meet the water standards of Policy 3-17;
  - b. Wells are installed under inspection according to requirements of the State and County Departments of Public Health;
  - c. The amount pumped be limited to a safe yield over time which will not impact agricultural water use or water-dependent sensitive habitats including watercourses, riparian habitats, wetlands, and marshes;
  - d. The geologic and hydrologic conditions of the site are examined by a qualified professional to determine a preliminary safe yield and pumping restrictions which will not adversely affect a water-dependent sensitive habitat, including

groundwater levels, potential for seawater intrusion or other potential effects of sea level rise;

- e. During at least the first three years, monitoring and reporting to the City shall be conducted to assess any impact of the well on groundwater, surface water levels, and plant and animal species of water-dependent sensitive habitats to determine if the preliminary safe yield adequately protects the sensitive habitats, and what measures should be taken if and when adverse effects occur; and
- f. If periodic monitoring shows impacts to safe yield, agricultural water use, or water-dependent sensitive habitats, the pumping rate shall be reduced until it is clear that such impacts are not occurring and will not occur in the future.

**3-22. New and Replacement Private Wells.** New private wells, including replacement wells, may only be permitted for new Coastal Act Priority Uses, including agriculture, and Workforce Housing Overlay units associated with Coastal Act Priority Uses. New private wells, including replacement wells, for Non-Priority Uses shall not be permitted unless municipal water service cannot feasibly be extended to the development site. New private wells shall be subject to the same requirements for safe yield and other standards of Policy 3-21. Coastal development permit conditions of approval shall require an agreement that the new private well(s) shall be made available for municipal use in the event of an emergency as necessary.

**3-23. Water Connections for Failed Private Residential Wells.** Reserve 10 Coastal Act Priority Use water connections to be available to existing residential uses with failed wells, in the event that repair is not feasible.

**3-24. Siting of Wells.** Identify opportunities to relocate wells away from hazards and/or areas where falling groundwater levels or seawater intrusion may occur. Require new wells to be sited away from areas where seawater intrusion could occur.

**3-25. Water Conservation Measures.** Require water conservation measures for new development and redevelopment of residential and non-residential uses, including but not limited to, the use of high-efficiency fixtures and equipment, storm water capture, gray water collection and reuse, drip or microspray irrigation systems, and native drought-tolerant landscaping. For agricultural and horticultural business uses, water conservation policies in Chapter 4 are applicable.

#### ***Policies – Sewer Facilities***

**3-26. Sewer System Capacity Monitoring.** The City shall review the SAM and SAM JPA annual wastewater treatment plant performance reports; consider remaining sewer treatment capacity to ensure system and treatment plant capacity is sufficient to maintain the City's reserves for Coastal Act and Local Priority Uses; and evaluate conveyance and treatment plant capacity adequacy for remaining buildout of the LUP.

**3-27. Sewer Treatment Plant Capacity.** Prioritize improvements to the sewer treatment system to meet sewer capacity needs for anticipated buildout of the Planning Area, as follows:

- a. I&I: Coordinate with SAM and the other member agencies to reduce infiltration and inflow (I&I) through repair and maintenance of aging and leaking pipes, joint failures, and faulty connections;

- b. Reclaimed Water Sources: Develop a municipal recycled water treatment facility; and
  - c. Phased Improvements: Phased increases in capacity of the existing Half Moon Bay collection system and SAM treatment plant may proceed concurrently with or after development of a recycled water treatment facility. Phasing plans should ensure that the financial burden on existing residents is minimized; that new development is consistent with Policy 2-26 (Fiscally Sustainable Development); that capacity expansions provide for, but do not exceed, the amount required to support anticipated development capacity of the City as consistent with the Land Use Plan; and that the timing and capacity of the expansion is coordinated with the County of San Mateo. If plant expansion is a regulatory requirement, it may proceed in advance or independently of establishment of a recycled water facility.
- 3-28. Sewer Treatment Plant Improvements.** Coastal development permit review for new development or redevelopment of wastewater treatment systems shall require that such improvements will operate so as to: minimize or eliminate marine resource pollution; incorporate facilities for reclamation of wastewater for reuse; and minimize noise, vibration, odor, and visual impacts on surrounding areas.
- 3-29. Sewer Connections for New Development.** Other than as described in Policies 3-30 and 3-31, new development within the urban boundary shall require a connection to the municipal sewer system.
- 3-30. Existing Septic Systems.** Allow existing septic systems to be maintained for health and safety purposes. Require existing septic systems serving a Non-Priority Use to convert to the municipal sewer system if available and feasible when the Non-Priority Use or the existing septic system is proposed for redevelopment. Ensure that new development proposed on a site with an existing septic system is sited and designed to avoid impacts to any system components, including ensuring there is sufficient capacity for wastewater percolation and treatment without impacts to groundwater or ESHA.
- 3-31. New, Expanded, or New Use of Private Sewer Systems.** New, expanded, or new use of existing private sewer systems, including septic systems, may only be permitted for new Coastal Act Priority Uses and Workforce Housing Overlay units associated with Coastal Act Priority Uses. New private sewer systems for Non-Priority Uses shall not be permitted unless municipal sewer service cannot feasibly be extended to the development site. In such cases where private sewer systems are necessary, serviced vaulted systems are preferred to septic systems. All new private sewer systems require review and approval by the San Mateo County Environmental Health Department.
- 3-32. New Septic Systems Design and Maintenance.** As a condition of approval for new development that includes a new septic system, require evidence of septic system approval from the San Mateo County Environmental Health Department to ensure that new septic systems are sited, designed, installed, operated, monitored and maintained to:
- a. Avoid contributing nutrients and pathogens to groundwater and/or surface waters;

- b. Avoid areas that have poorly or excessively drained soils, nonporous paving or surface covering, shallow water tables or high seasonal water tables that are within floodplains, or where effluent cannot be adequately treated before it reaches streams or the ocean;
- c. Include adequate buffers to avoid impacts to ESHA and water quality from potential seepage, grading and site disturbance, and the introduction of increased amounts of water;
- d. Include protective separation distances between system components, building components, property lines, and groundwater;
- e. Be in full compliance with building and plumbing codes, and the requirements of the San Mateo County Environmental Health Department and the RWQCB; and
- f. Require that the system be upgraded or replaced to achieve compliance; and mitigation is required by San Mateo County Environmental Health or other agency as applicable.

**Policies – Circulation**

*Policies for coastal access routes and points, bicycle and pedestrian circulation, parking and alternate modes are provided in Chapter 5. Coastal Access and Recreation.*

- 3-33. Roadway System to Meet Needs.** The transportation network shall be planned and designed to accommodate traffic due to the buildout of the LUP's envisioned uses and densities in scale with community character; shall support a wide range of user requirements and road types for visitors, residents, and for local industry including agriculture; and to the extent practical, growth beyond the city limits, including within the sphere of influence, and recreational, and regional through traffic.
- 3-34. Town Boulevard.** Any Highway 1 and 92 improvements shall implement the Town Boulevard approach to improve traffic flow, multi-modal access and safety, and emergency access to best serve the circulation needs of visitors and residents in a manner consistent with Half Moon Bay's small coastal town aesthetic and to support Town Center buildout. Town Boulevard improvements may incorporate a lower speed limit, roundabouts, grade-separations and other approaches as potential options in addition to signalized traffic control systems. In addition, Town Boulevard improvements shall:
  - a. Not increase highway capacity through lane widening projects or other expansions other than as specified in the General Plan Circulation Element provided that they are consistent with the Land Use Plan.
  - b. Be coordinated with Caltrans and the San Mateo County Congestion Management Plan.
  - c. Incorporate multi-modal improvements with safe crossings for bicyclists and pedestrians, as well as landscaping and other amenities intended to enhance the image and scenic quality of the city.
- 3-35. Highway 92 Intersections.** Prioritize the study and design of improvements at the intersections of Highway 92 with Highway 1 and Highway 92 with Main Street as part of Town Boulevard implementation, such as wayfinding cues, gateway elements,

- traffic flow and pedestrian-orientation improvements, potential for a roundabout, and aesthetic enhancements. Coastal development permits for development and redevelopment in this corridor shall be required, through conditions of approval, to implement or otherwise support funding of the improvements.
- 3-36. New High-Trip Generating Development.** To the extent feasible, limit the approval of new higher-trip generating development, especially development that would contribute significant traffic to the weekend peak period, north of Highway 92 where the roadway system is most impacted. Require new higher-trip generating development to provide multi-modal options such as bicycle and pedestrian trail connections, airport shuttles, or bicycle rentals.
- 3-37. Vehicle Miles Traveled (VMT).** Establish and use a VMT threshold of significance for purposes of CEQA impact assessment, or other standard per State law. Establish appropriate measurement methods and mitigation approaches for analyzing a proposed development's VMT impacts pursuant to CEQA Guidelines.
- 3-38. Level of Service (LOS).** For coastal development permit review of higher-trip generating development, use LOS analysis to evaluate roadway and intersection performance and determine the impacts to coastal access associated with proposed development and identify potential transportation system improvements.
- 3-39. Additional Performance Standards.** Evaluate and consider adopting additional performance standards to assess additional components of the circulation system. Such standards may include pedestrian, bicycle, or transit quality indexes and delay indexes.
- 3-40. Peak Period Traffic Control.** Coordinate with local law enforcement to provide traffic control personnel at the intersection of Highways 1 and 92 or other congested locations during peak weekend use times to facilitate safety, reduce gridlock, and maintain emergency vehicle access. Coastal development or special event permits for events with high-trip generation shall, through conditions of approval, require funding for traffic control.
- 3-41. Emergency Access and Evacuation.** Ensure adequate emergency vehicle access to all parts of the city, including during times of peak congestion and in popular destinations, such as the beaches, downtown, and California Coastal Trail segments between pedestrian bridges. Widen shoulders and implement other strategies to improve roadways for emergency vehicle access and evacuation traffic.

***Policies – Stormwater System and Management***

*Policies governing hydrology and water quality are provided in Chapter 6. Natural Resources. Policies governing capacity and hydrologic function are provided in the Storm Drain Master Plan and Green Infrastructure Plan.*

- 3-42. Stormwater System Capacity.** Maintain and improve the City's stormwater management system to prevent or mitigate impacts during flood events and for sustainable management of seasonal run-off.
- 3-43. Green Infrastructure and Storm Drain Master Plan.** Update and implement the Green Infrastructure Plan and Storm Drain Master Plan consistent with Land Use Plan policies to improve stormwater system function and management; support

watershed restoration opportunities; reduce erosion and sedimentation; and address lowered ground water tables, flooding issues, and aging stormwater infrastructure.

- 3-44. Best Management Practices for Development.** Implement best management practices for new development through conditions of approval including low impact development techniques (e.g. limited impervious surfaces), site control measures, and other means to manage stormwater flows and improve water quality throughout the City's stormwater basins. For development consisting of areas with significant impervious surfaces, such as parking lots, require design features that capture sediment and other pollutants to filter runoff prior to discharge.