

Appendix C
CAPACITY OF WATER AND WASTEWATER
SYSTEMS

Existing Potable Water Infrastructure

The water distribution system for the northern portion of the unincorporated Midcoast is owned and operated by Montara Water and Sanitary District (MWSD). MWSD’s water supply sources include Montara Creek and Denniston Creek. Water is delivered to the system through the Alta Vista Water Treatment Plant north of Montara, as well as from nine groundwater well locations. The water distribution system consists of three water storage tanks, which have a combined capacity of 662,000 gallons, and over 3.4 miles of distribution pipelines ranging from 2- to 16-inch mains.¹¹

The water distribution system for the southern portion of the unincorporated Midcoast and Half Moon Bay is owned and operated by Coastside County Water District (CCWD). CCWD’s water supply sources include Pilarcitos Lake, Upper Crystal Springs Reservoir, Pilarcitos Well Field and Denniston Creek. The primary water supply source is purchased from the SFPUC (Pilarcitos Lake and Upper Crystal Springs Reservoir). Other supplies (about 10 percent in 2010) comprise Infiltration Well water from the District’s Pilarcitos well field, and surface water and groundwater from the District’s Denniston Project. Water is delivered to the system through one of two treatment plants: the Denniston Water Treatment Plant near Half Moon Bay Airport and the Nunes Water Treatment Plant in Half Moon Bay. The water distribution system consists of 11 treated water storage tanks, which have a combined storage capacity of 8.1 million gallons, and over 100 miles of transmission and distribution pipelines.¹²

In addition, private water wells are used in areas not served by public water systems, and in some cases when public water systems do not allow connection.

Existing Potable Water Capacity and Demand

Water Capacity Reserved for Priority Uses

For the unincorporated Midcoast, both MWSD and CCWD have water capacity reserved for priority land uses defined by the Coastal Act and Midcoast Local Coastal Program (LCP). The reserved water capacity amounts are included in Table 2.17 of the Midcoast LCP Policies, June 2013, reproduced here as Table B 1. Based on original buildout estimates from 1980 (Table 1.1 of the LCP), MWSD has approximately 82,480 gallons/day for Phase 1 (year 2000) and 61,126 to 76,814 gallons/day for full buildout. CCWD has approximately 369,716 gallons/day allocated for priority uses for Phase 1 (year 2000) and 490,404 to 532,036 gallons/day allocated for priority uses at full buildout.

Table B 1: Amount of Water Capacity to be Reserved for Priority Land Uses¹

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day

Montara Water and Sewer District (Montara/Moss Beach)

¹¹ SRT Consultants, “Montara Water and Sanitary District Water System Master Plan” (December 2011).

¹² Coastside County Water District website, “Distribution” (2013).

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day
Coastal Act Priorities				
Marine-Related Industrial	–	–	–	–
Commercial Recreation	.57 acres	1,100	.82 acres	1,230
Public Recreation	282 persons	3,200	408 persons	4,080
Floriculture		18,800		10,000
Essential Public Services ²				5,000
Local Coastal Program Priorities				
Specific Developments on Designated Sites Containing Affordable Housing	148	64,380	148	35,816 to 51,504
Other Affordable Housing			20	5,000
Total Water Capacity for Priority Land Uses		82,480		61,126 to 76,814
Percent of Total Water Capacity for Priority Land Uses		10.6%		5.4 to 9.2%
Percent of Buildout Allowed by Phase		50 to 69%		100%
Total Water Capacity		778, 800		836,300 to 1,128,700
Coastside County Water District (County Jurisdiction)				
Coastal Act Priorities				
Marine-Related Industrial	22.85 acres	55,770	29.29 acres	71,870
Commercial Recreation	33.15 acres	61,630	42.50 acres	79,395
Public Recreation	248 persons	2,900	318 persons	3,700
Floriculture		179,400		220,000
Essential Public Services ²		7,700		14,135
Local Coastal Program Priorities⁴				
Specific Developments on Designated Sites Containing Affordable Housing	104	39,936	322	77,924 to 112,056
Other Affordable Housing ⁵			20	5,000
Consolidated Lots in Miramar	55	20,900	70	16,900 to 24,400
Historic Structures ³	1	14,480	1	1,480
Total Water Capacity for Priority Land Uses		369,716		490,404 to 532,036

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day
Percent of Total Water Capacity for Priority Land Uses		29.4%		30.4 to 41.8%
Percent of Buildout Allowed by Phase		59 to 78%		100%
Total Water Capacity for Priority Land Uses		1,257,000		1,273,600 to 1,611,600

Notes:

1. Capacity shall be reserved for additional priority land use development when service provider develops new supplies to serve new connections on vacant lands. Does not include existing, developed priority land uses at time of LCP adoption.
2. Essential public services include the following uses: Emergency Facilities, Correctional Facilities, Transportation Facilities (public), Utility Facilities, Hospitals, Skilled Nursing Facilities, Intermediate Care Facilities, Libraries, Community Centers, Elementary and Secondary Schools, Institutional Day Care Facilities for Children (Day Care Centers as defined by State law), Adults and the Elderly, Institutional Full-Time Care Facilities for Children and Adults, Institutional Shared Housing Facilities for the Elderly and One-Family Dwellings with Failed Domestic Wells. These services must be provided by a public agency or private non-profit or government-funded (partially or fully) purveyor to be considered an essential public service. The reserve capacity allocated to these priority uses may not be shared by any associated, non-priority use and must be forfeited when the priority use is discontinued. 12,710 gallons/day are reserved for One-Family Dwellings with Failed Domestic Wells. This reservation is allocated as follows: Coastside County Water District - 7,710 gallons/day (30 units) Montara Water and Sanitary District - 5,000 gallons/day (20 units)
3. In order to qualify for priority, historic structures must meet the criteria contained under LCP Policy 2.31c(6).
4. Where development of new public water facilities can accommodate only a limited amount of new connections on vacant land, adequate capacity for Coastal Act priority uses shall be reserved before reserving capacity for Local Coastal Program priority uses.
5. Affordable means as defined by Section 6102.48.6 of the certified zoning regulations, and subject to income and cost/rent restrictions for the life of the development.

Source: San Mateo County Midcoast LCP, 2013

The Half Moon Bay Local Coastal Land Use Plan, from 1993, also establishes priority and non-priority water use allocations. The Half Moon Bay LCP establishes a phased reservation of CCWD water for priority uses in Half Moon Bay, out to the year 2000. As shown in Table B 2 (Table 10.4 in the LCLUP), priority uses include Commercial Recreation, Public Recreation, and Floriculture. Amounts are based on the allocation of land use in the Land Use Plan and proposed development phasing. The LCLUP anticipated that most of the irrigational needs for local recreation would be met through the use of reclaimed wastewater from the sewage treatment facilities. However, there is currently no recycled water system that serves the City of Half Moon Bay. The Sewer Authority Mid-Coastside (SAM) Treatment Plant, located west of Highway 1 between Frenchmans Creek and Pilarcitos Creek, would need costly infrastructure improvements to upgrade from secondary to tertiary treatment in order to produce recycled water. CCWD has shown interest in reaching an agreement with SAM to produce and distribute recycled water, but does not have a recycled water master plan at this time.¹³

¹³ West Yost Associates, "Coastside County Water District 2010 Urban Water Management Plan Update", June 2011.

Table B 2: New CCWD Water Capacity to be Reserved for Priority Land Uses Under the Half Moon Bay LCP at Year 2000

Coastal Act Priorities	Annual Demand (mgd)
Marine-Related Industrial	-
Commercial Recreation	
Equestrian Facilities	.01
Hotel/Motel	.03
Restaurant	-
<i>Subtotal</i>	.04
Public Recreation	
Local Recreation (local parks, playfields)	.02
Campsites	.02
Beaches	.02
<i>Subtotal</i>	.06
Public Recreation	
Local Recreation (local parks, playfields)	.02
Campsites	.02
Beaches	.02

Source: City of Half Moon Bay Local Coastal Land Use Plan, 1993.

Water Demand

MWSD currently serves over 1,600 residential and 30 commercial connections for a maximum daily demand of over 473,000 gallons per day (gpd).¹⁴ Based on the MWSD Public Works Plan, December 2013, MWSD has 128,000 gallons per day available to be utilized for new service connections, beyond those connections existing as of December 11, 2013. 80,959 gallons per day is currently required to be reserved for priority uses, as described above. 47,041 gallons per day are available for non-priority uses.

CCWD's baseline per capita water use in 2010 was 128 gallons per capita per day (gpcd) according to the 2010 Urban Water Management Plan Update. In order to comply with the Water Conservation Act of 2009, CCWD's target per capita water use is 120 gpcd by 2020. The water demand in 2010 was approximately 2,265 acre-feet per year (afy) and is projected to reach 3,149 afy by 2035. The District plans to meet the 2035 water demand projection with 730 AFY from Denniston Creek, 150 AFY from Pilarcitos well field, and 2,269 AFY from the SFPUC. The District is currently entitled to purchase approximately 2,455 afy from the SFPUC. This entitlement will not be increased before 2018, and because availability of additional water from SFPUC after 2018 is uncertain, the District assumes for planning purposes that this supply will not be increased.

¹⁴ SRT Consultants, "Montara Water and Sanitary District Water System Master Plan" (December 2011).

System Deficiency of Potable Water

MWSD issued a Water System Master Plan in 2011 to address the current and future water demands in the district in order to create a baseline for the Capital Improvements Program. The required volume of storage for MWSD's existing water system included operational, emergency, and fire-fighting demand. The analysis resulted in a current storage deficit of over 333,000 gallons in 2010 and an anticipated deficit of over 575,000 gallons by 2020.

As described in the Midcoast LCP, new public water service connections in MWSD must be consistent with the MWSD Public Works Plan (Coastal Commission PWP No. 2-06-006). The most recent amendment to the Public Works Plan was approved by the Coastal Commission in December 2013. As described in the MWSD Public Works Plan, any increase in water supply or distribution capacity to provide additional service connections must be reviewed by the Coastal Commission. The Commission would then evaluate the proposed increase to see if it increased capacity in the water system is matched with adequate capacity of other area infrastructure, including but not limited to the need for adequate transportation levels of service on Highways 1 and 92. Based on information provided by Montara Water and Sanitary District, MWSD does not allow the trading of existing water service connections, nor does MWSD issue any new connections without a planning agency's approval. MWSD provides water and sewer service to all developments within its boundary that receives a building permit from San Mateo County.

In April 2011, CCWD adopted a Water Shortage Contingency Plan providing a response plan in the event of prolonged drought, water supply shortages, or emergency outages. During normal year comparison, CCWD's water supplies are adequate to meet projected demands. CCWD currently has an ongoing pipeline replacement program to replace sections of old and damaged pipelines throughout the Study Area with new ductile iron pipelines to reduce leaks and minimize losses throughout the system.¹⁵

Currently, CCWD has 209 unsold priority water service connections (5/8" size) and zero unsold non-priority water service connections. New non-priority developments must trade or purchase water service connections from existing owners, not from CCWD. New development that relies upon water from CCWD must be consistent with the Coastal Development Permit (CDP) for the El Granada Pipeline Project (Coastal Commission CDP A-2-SMC-99-063; A-1-HMB-99-020). This requirement is also included in the Midcoast LCP. As described in the El Granada Pipeline Project CDP, future expansion of the water supply system to support growth in excess of the existing development level shall not be approved unless the regional transportation system, specifically Highways 1 and 92, is improved to provide adequate levels of service.

Sanitary Sewer System

Sanitary sewer service is provided by Montara Water and Sanitary District (MWSD), Granada Sanitary District (GSD), and the City of Half Moon Bay for transporting sewage flows, and Sewer Authority Mid-Coastside (SAM) for treating and disposing the sewage. SAM is a public agency providing wastewater treatment services to MWSD, GSD, and Half Moon Bay under a joint powers agreement. Each member agency of SAM is allotted maximum capacity rights for Peak Wet Weather Flow (PWWF), Average Dry Weather Flow (ADWF), Biochemical Oxygen Demand (BOD) and Suspended Solids. These allocations correspond to the sewer treatment capacity and the sewer transmission capacity.

¹⁵ West Yost Associates, "2010 Urban Water Management Plan Update" (June 2011).

Existing Sanitary Sewer Infrastructure

MWSD’s existing sanitary sewer system consists of approximately 25 miles of sewer lines and 13 lift stations. GSD’s existing sanitary sewer system includes approximately 33 miles of sewer line and approximately 1,500 feet of force main running along Highway 1. Granada Sanitary District’s existing sanitary sewer system includes approximately 33 miles of sewer line and approximately 1,500 feet of force main running along Highway 1.16 The City of Half Moon Bay’s existing sanitary sewer system consists of approximately 37 miles of sewer mains, approximately 3,100 laterals, and three lift stations.17 The SAM owns and operates an 8-mile stretch of transmission main, also known as the Intertie Pipeline System (IPS). Four main lift stations are used to connect to the three member agencies’ sewer distribution systems of the SAM Treatment Plant. Approximately 1.8 miles of the IPS are gravity mains, while the remaining portion is force main.

In addition, private on-site wastewater disposal systems (septic) are used in areas not served by centralized sewage collection systems.

Existing Sewage Treatment Capacity

Both MWSD and GSD have sewage treatment capacity reserved for priority land uses defined by the Coastal Act and the Midcoast and Half Moon Bay Local Coastal Programs.

For the unincorporated Midcoast, the reserved sewage treatment capacity amounts are included in Table 2.7 of the Midcoast LCP, which is reproduced here as Table B 3. Based on original buildout estimates from 1980 (Table 1.1 of the Local Coastal Program), MWSD has approximately 400,000 gallons/day for Phase 1 (year 2000) and 580,090 to 794,080 gallons/day at full buildout. GSD has approximately 600,000 gallons/day for Phase 1 (year 2000) and 762,475 to 1,009,765 gallons/day for full buildout.

Table B 3: Sewage Treatment Capacity to be Reserved for Priority Land Uses¹

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day
Montara Water and Sanitary District				
Coastal Act Priorities				
Marine-Related Industrial	-	-	-	-
Commercial Recreation	.56 acres	840	.82 acres	1,230
Public Recreation	282 persons	2,820	408 persons	4,080
Local Coastal Program Priorities				
Specific Developments on Designated Sites	148	32,708	365	66,430 to

¹⁶ Sewer Authority Mid-Coastside, “Sewer System Management Plan”, 2008.

¹⁷ City of Half Moon Bay Public Works, “Sewer System Study”, March 2010.

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day
Containing Affordable Housing				94,900
Total Sewage Treatment Capacity for Priority Land Uses		36,368		71,740 to 100,210
Percent of Total Sewage Treatment Capacity for Priority Land Uses		9.1%		9.0 to 17.3%
Percent of Buildout Allowed by Phase		50 to 69%		100%
Total Sewage Capacity		400,000		580,090 to 794,080

Granada Sanitary District

Coastal Act Priorities				
Marine-Related Industrial	22.85 acres	45,700	29.29 acres	58,580
Commercial Recreation	33.15 acres	49,725	42.50 acres	63,750
Public Recreation	248 persons	2,480	318 persons	3,180
Essential Public Services ²		3,800		5,125
Local Coastal Program Priorities				
Specific Developments on Designated Sites Containing Affordable Housing	104	22,984	104	18,928 to 27,040
Consolidated Lots in Miramar	55	12,155	704	12,240 to 18,200
Total Sewage Treatment Capacity for Priority Land Uses		136,844		162,303 to 175,875
Percent of Total Sewage Treatment Capacity for Priority Land Uses		22.8%		16.5 to 22.5%
Percent of Buildout Allowed by Phase		59 to 78%		100%
Total Sewage Capacity		600,000		762,475 to 1,009,765

NOTES:

1 Capacity reserved for additional priority land use development. Does not include existing, developed priority land uses at time of LCP adoption.

2 Essential public services include the following uses: Emergency Facilities, Correctional Facilities, Transportation Facilities (public), Utility Facilities, Hospitals, Skilled Nursing Facilities, Intermediate Care Facilities, Libraries, Community Centers, Elementary and Secondary Schools, Institutional Day Care Facilities for Children (Day Care Centers as defined by State law), Adults and the Elderly, Institutional Full-Time Care Facilities for Children and Adults, and Institutional Shared Housing Facilities for the Elderly. These services must be provided by

ALLOCATION OF RESERVED CAPACITY TO PRIORITY LAND USES	Phase 1		Buildout	
	Units	Gallons/Day	Units	Gallons/Day

a public agency or private non-profit or government-funded (partially or fully) purveyor to be considered an essential public service. The reserve capacity allocated to these priority uses may not be shared by any associated, non-priority use and must be forfeited when the priority use is discontinued

For the City of Half Moon Bay, the reserved sewage treatment capacity amounts are included in Table 10.4 of the Half Moon Bay LCLUP, reproduced here as Table B 4. The City of Half Moon Bay’s sewer system has approximately 60,000 gallons/day for full buildout (year 2000), split evenly between Commercial/Recreational and Public Recreation uses. Granada Sanitary District has approximately 10,000 gallons/day, for public recreation uses.

Table B 4: Sewage Treatment Capacity to be Reserved for Priority Land Uses Under the Half Moon Bay LCP (mgd, adwf)

Coastal Act Priorities	City of Half Moon Bay	Granada Sanitary District	Total
Commercial/Recreational	.03	--	.03
Public Recreation	.03	.01	.04
Total	.06	.01	.07

Source: *City of Half Moon Bay Local Coastal Land Use Plan, 1993.*

Existing SAM Treatment Plant Capacity

The capacity at the wastewater treatment plant is 4.0 MGD (millions of gallons per day) in Average Dry Weather Flow (ADWF). Currently, the ADWF is 1.7 MGD. Biochemical Oxygen Demand (BOD) and Suspended Solids are the parameters used to evaluate the treatment capacity required at the SAM treatment plant. For any development project proposed in the Study Area, the average daily flow would be based on the net increase produced by the site redevelopment and adjusted for BOD and suspended solids.

Existing System Deficiencies

SAM, the Montara Water and Sanitary District, the Granada Sanitary District, and the City of Half Moon Bay have an ongoing capacity management program to address hydraulic capacity issues within their district limits. The Intertie Pipeline System that conveys wastewater from Granada Sanitary District to the SAM Treatment Plant has had capacity issues, including surcharge in some manholes, during heavy rain periods in the past.

The MWSD sewer system is largely built-out and the existing pipe conditions should be assessed by the district. This will help identify locations causing capacity issues due to pipe diameter, sags, blockages, and roots. The district is continually assessing the current and future capacity requirements for its collection system; especially downstream portions near existing pump stations.

The GSD has performed a sanitary sewer monitoring program that identified inflow and infiltration at locations in the district's collection system. Proposed mitigation measures for these locations include better mapping of the district's collection system, followed by field verification of the locations and elevations to identify capacity issues. GSD has a capital improvements program to replace older clay sewers (circa 1920) and sewers in known problem areas.

The City of Half Moon Bay sewer collection system generally has adequate capacity to serve current levels of flow. The City has initiated a sewer system study to identify existing system deficiencies and prioritize improvements necessary to accommodate peak period flows. The City has also completed a tv/video inspection of the 37 miles of sewer mains to help identify locations causing capacity issues due to deteriorated pipes/joints, sags, blockages and tree roots. Sewer main improvements/rehabilitation, flow monitoring, lift station upgrades, and map updates are all items in the FY 2014/15 Capital Improvement Program budget.