

2 SYSTEM DESCRIPTION

2.1 SERVICE AREA PHYSICAL DESCRIPTION

*Urban Water Management Planning Act Requirement:
10631(a) Describe the service area of the supplier.*

General Location Overview

The City of Morgan Hill is located in the Santa Clara Valley about 20 miles south of downtown San Jose and 10 miles north of Gilroy. The City consists of approximately 11 square miles with an additional 23 square miles in the Sphere of Influence. Most current development is between Highway 101 and the western foothills. The commercial core is along Monterey Road with an expanding commercial corridor along Highway 101. Beyond the core area, the development is discontinuous with residential and commercial land separated from the rest of the City, such as the Holiday Lake Estates and Jackson Oaks areas. Most of the City is on relatively flat valley land, but some development has occurred in the foothill areas both east and west of the valley. Elevations of homes range from about 350 feet on the valley floor to over 1,200 feet in the foothills.

Geologically, the City of Morgan Hill is situated on the drainage divide between the San Francisco Bay and the Monterey Bay. Coyote Creek drains from the eastern hills and flows north, while Llagas Creek drains from the western hills and flows south. All flood control for these creeks and management of the local groundwater basins are under the jurisdiction of the Santa Clara Valley Water District. The District owns and operates reservoirs on both of the major creeks. These reservoirs provide flood control from winter rains, retain runoff from winter rains for percolation during the dry summer months, and store purchased water for delivery to water suppliers to the North.

The City of Morgan Hill receives its water from two groundwater sources: The Coyote Valley subarea of the Santa Clara Subbasin and Llagas Subbasin, part of the Gilroy-Hollister Basin.. Morgan Hill is situated over both the Llagas and Santa Clara groundwater subbasins. All subbasins within Santa Clara County are managed and administered by the District. Figure

2.1.1 illustrates the City's service area, and Figure 2.1.2 depicts its relationship to the District boundaries and facilities.

Soil and Topography

The study area forms in the southern Santa Clara Valley and encompasses the eastern foothill slopes of the Santa Cruz Mountain range and the western foothill slopes of the Mt. Hamilton range, and the broad, flat alluvial plain between them. The majority of the land within the service area is flat, alluvial terrain. The level terrain is adjoined by rolling foothills and steeper slopes of the mountain ranges, both to the east and west. The dominant soil types are upland soils developed on sedimentary, basic igneous, and serpentine rock, the slow to very slow draining subsoils of alluvial fans, and the moderately well to rapid draining medium to fine textured soils of the alluvial plain. Soil cover and vegetation in the area includes a wide range of trees, thick brush, and grass.

Water System Overview

Morgan Hill provides potable water service to its residential, commercial, industrial, and institutional customers within the City limits. The City's municipal water system extracts water from the underground aquifers via a series of groundwater wells distributed along the valley floor and supplies thirteen pressure zones. Water is then pumped up to service the five higher pressure zones on both east and west sides of the valley via booster stations.

The City's water system facilities include 17 groundwater wells, 13 potable water storage tanks, 10 booster stations, and over 160 miles of pressured piping ranging from 2 to 14 inches in diameter. Gate valves and pressure-reducing valves are used to isolate or regulate flow between pressure zones. Currently, the City has an operational storage capacity equivalent to approximately 1.25 days of average water use. Tables 2.1.1, 2.1.2, and 2.1.3 provide a description of City facilities.

Table 2.1.1 Reservoirs			
Reservoirs	Date of Construction	Construction Type	Capacity (Gallons)
Boy's Ranch 2	1977	Steel	550,000
Boy's Ranch 3	2006	Steel	1,000,000
Nob Hill	1980	Steel	2,000,000
Llagas	1967	Steel	350,000
Woodland	1971	Steel	30,000
Glen Ayers	1979	Steel	100,000
Encino	1975	Steel	600,000
Holiday 1	1980	Concrete	500,000
Holiday 2	1962	Concrete	250,000
Jackson Oaks	1972	Steel	350,000
Hydro-Pneumatic	1979	Steel	1,000
El Toro	1966	Steel	500,000
Edmunson	2002	Steel	4,000,000

Table 2.1.2 Approximate Pumping Capacity		
Wells	Winter GPD	Summer GPD
Boys Ranch I	1,815,840	1,392,480
Boys Ranch II	732,960	483,840
Boys Ranch III	570,240	334,080
Diana I	1,333,440	1,359,360
Diana II	1,517,760	1,637,280
Diana III	581,760	492,480
Diana IV	N/A	1,152,000
Dunne I	544,320	478,080
Dunne II	735,840	722,880
Jackson I	756,000	720,000
Main Well I	N/A	1,080,000
Main Well II	1,329,120	1,393,920
Nordstrom	1,641,600	1,471,680
San Pedro	807,840	849,600
Tennant	508,320	516,960
Butterfield	639,360	606,240
Condit	288,000	288,000
Total	13,802,400	14,978,880

**Table 2.1.3
Booster Stations**

Booster Stations	Services in Zones
East Dunne Booster	1473
Easy St. Booster	3
El Toro Booster	7
Encino Booster	50
Glen Ayre Booster	60
Hydro-Pneumatic Booster	98
Jackson Booster	678
Llagas Booster	332
Peak & Main Booster	474
Woodland Booster	40

Figure 2.1.1 – City of Morgan Hill Service Area

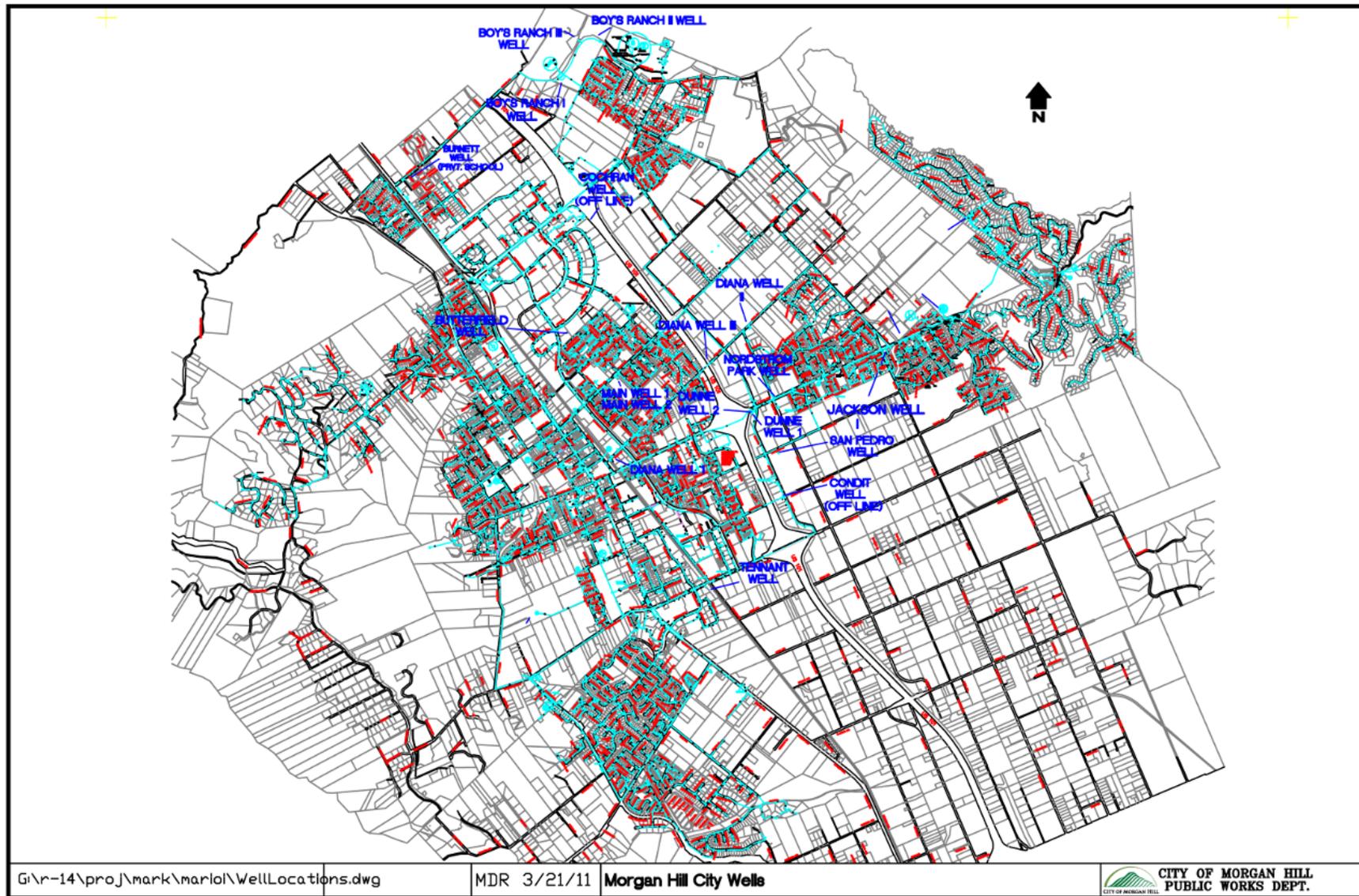
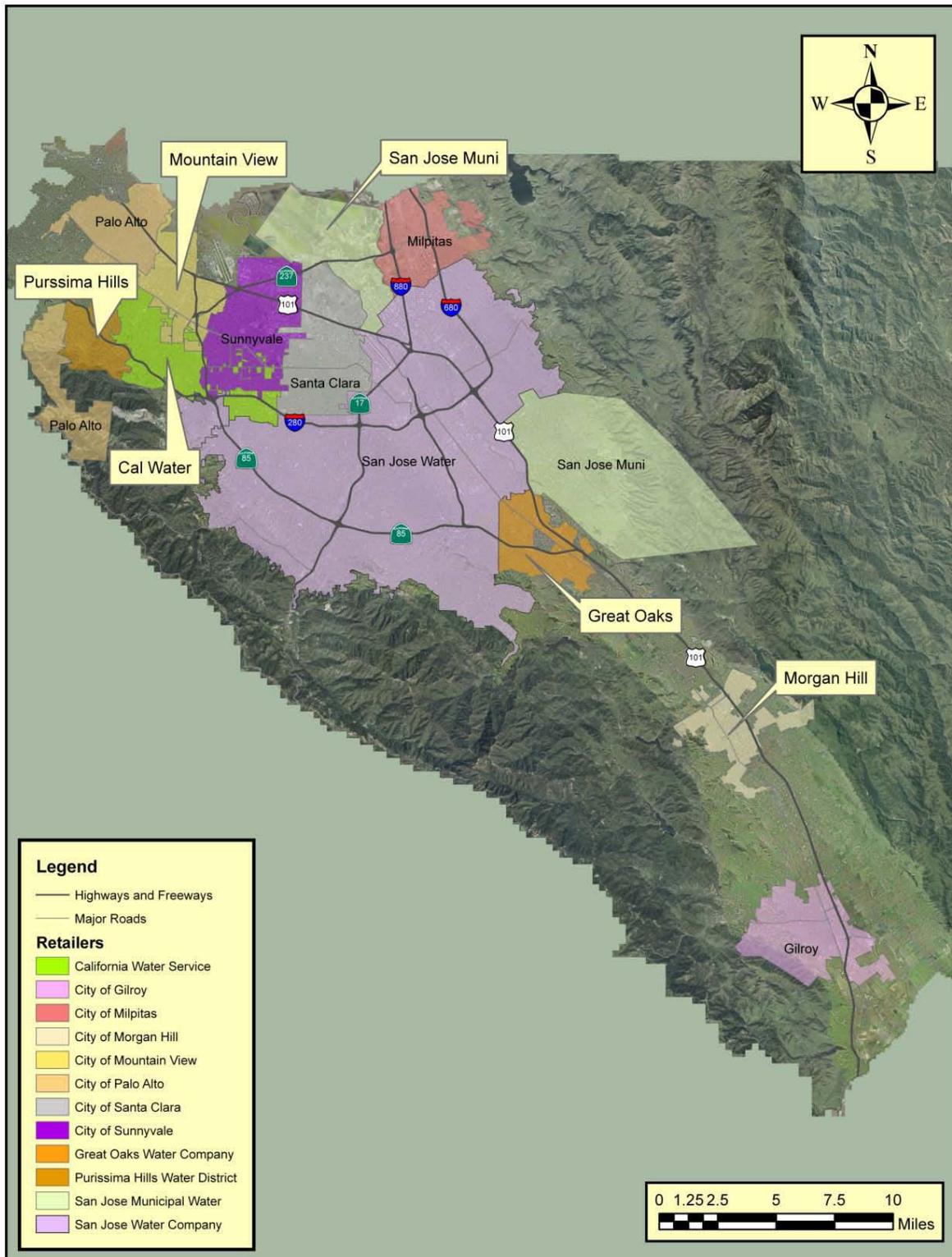


Figure 2.1.2 – Santa Clara Valley Water Retailer Service Areas



Source: Santa Clara Valley Water District 2010 UWMP Update

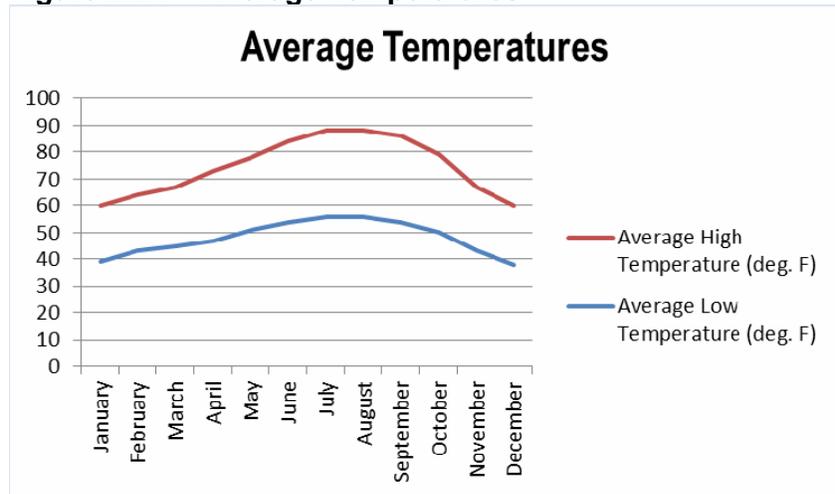
2.2 SERVICE AREA CLIMATE

*Urban Water Management Planning Act Requirement:
10631(a) Describe the service area – climate.*

Temperature

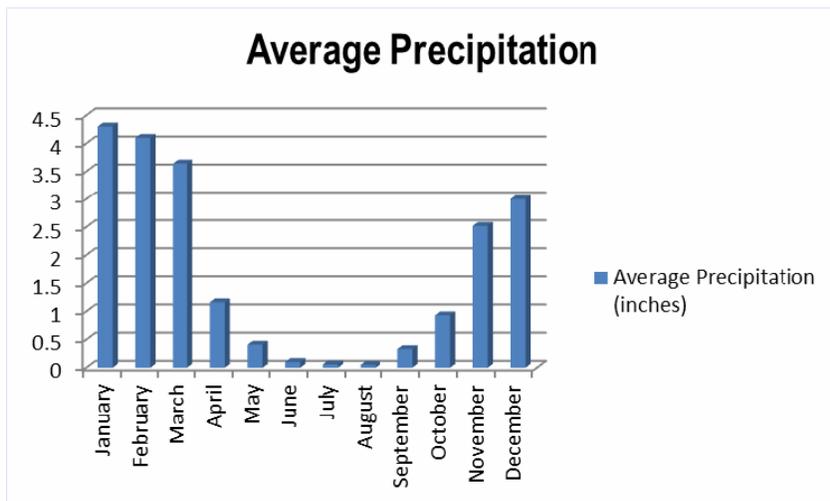
The City’s Mediterranean semi-arid climate is temperate year-round, with warm and dry weather lasting from late spring through early fall. The temperature range is generally moderate as depicted in Figure 2.2.1; the maximum average high temperature is 88 °F and the minimum average annual temperature is 38 °F.

Figure 2.2.1 – Average Temperatures



Precipitation

Figure 2.2.2 – Average Precipitation



There is a 130-year rainfall record for the County and the precipitation range is from 4.8 inches annually to over 30 inches annually. In extremely wet years, runoff cannot be effectively captured for water supply. The average annual monthly precipitation in the City of Morgan Hill is presented in Figure 2.2.2.

Additionally, seasonal variations in temperature, rainfall, and evapotranspiration rate are illustrated in Table 2.2.1.

Table 2.2.1 Climate Data				
	Avg. High Temp. (F)	Avg. Low Temp. (F)	Avg. Precipitation (inches)	Avg. ETo (inches/month)
January	60	39	4.30	1.22
February	64	43	4.10	1.65
March	67	45	3.64	3.42
April	73	47	1.16	4.84
May	78	51	0.41	6.22
June	84	54	0.10	6.85
July	88	56	0.06	7.44
August	88	56	0.05	6.74
September	86	54	0.33	5.08
October	79	50	0.93	3.42
November	67	43	2.52	1.77
December	60	38	3.00	0.98

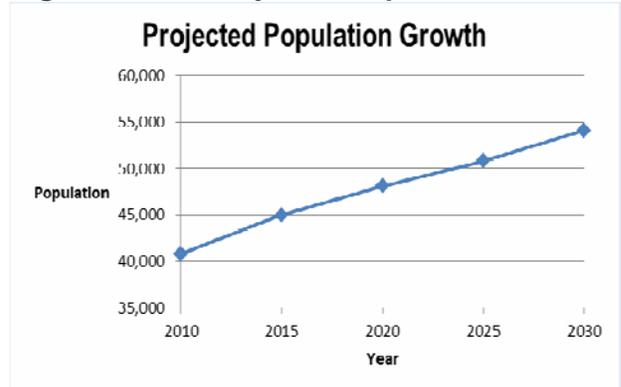
2.3 SERVICE AREA POPULATION

Urban Water Management Planning Act Requirement:

10631(a) Describe the service area – current and projected population ... The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier ... (population projections) shall be in five-year increments to 20 years or as far as data is available.

The City of Morgan Hill's current population is approximately 40,807, according to the California Department of Finance's "E-4 Population Estimates for Cities, Counties, and the State" reports. Population has increased dramatically since 1970 (when the City had a population of approximately 5,600). Rapid growth during the 1970s resulted in the City

Figure 2.3.1 – Projected Population Growth



adopting a growth management system, or Residential Development Control System (RDSCS), passed in 1977 as Measure E. The RDSCS regulates growth by limiting the number of new homes approved each year. The most recent amendment to the RDSCS was in 2004, known as Measure C, and extended the growth management system through 2020, placing a population ceiling of approximately 48,000 by the year 2020. Measures that extend a growth management system further into the future are likely to be enacted by the City and are incorporated in the population projections in Table 2.3.1. Current and past population estimates for the City of Morgan Hill were obtained from the California Department of Finance’s (DOF) E-4 Population Estimates reports.

Table 2.3.1 Population – Current and Projected						
	2010	2015	2020	2025	2030	Data source
Service Area Population¹	40,807	45,000	48,123	50,809	54,109	City Growth Control Measure (Measure C) and California DOF (E-4) Estimates

¹ Service area population is defined as the population served by the distribution system. See Technical Methodology 2: Service Area Population (2010 UWMP Guidebook, Section M).

2.4 OTHER DEMOGRAPHIC FACTORS

Urban Water Management Planning Act Requirement:
 10631(a) Describe the service area – other demographic factors affecting the supplier’s water management planning

The City has become a “bedroom” community for the technology industry located in the more northern reaches of Santa Clara County and centered around the City of San Jose. According to the City’s General Plan, approximately thirty percent of the population is under the age of eighteen, and 73 percent of households are families. Approximately 70 percent of the residents have attended some college, and more than half work in white collar or higher paying occupations. However, at least a quarter of the workforce is employed in lower-skilled service sector occupations, according to projections by Claritas, Inc. (prepared for the City of Morgan Hill’s General Plan – Housing Element Update, 2010). The City’s senior population is expected to grow quickly in the coming years as the “baby boomer” generation ages and life expectancies continue to increase. Between 2008 and 2023, the senior population is estimated to almost double to just over 10,100.