

Montara Water and Sanitary District 2011 Master Plan



Prepared By:



Presentation Overview

- Master Plan Purpose and Approach
- General System Statistics
- Production Data Summary
- Consumption Data Summary
- Demand Analysis
- Reliable Supply Analysis

MWSD Master Plan Purpose and Approach

Purpose: To address the District's current and future water supply needs and create a plan to meet customer demands

Master Plan Approach		
MWSD Now	MWSD's Needs	How MWSD Can Address the Needs
<p>Serving Customers with Water Meeting All Drinking Water and Safety Standards</p> <p><u>Facilities</u> Water Storage Tanks Wells and Pumps Surface Water Treatment Plant Wellhead Treatment Distribution System</p> <p><u>Sources</u> Montara Creek Nine Groundwater Wells</p>	<p>Ability to Reliably Serve Current and Future Water Demands</p> <p>Continue to Serve Water Meeting All Drinking Water and Safety Standards</p> <p>Function Reliably and Cost-Effectively</p>	<p>Short-Term: Now to 2015</p> <p>Implement facility improvements</p> <p>Explore options for additional water supply</p> <p>Long-Term: 2015 - Buildout</p> <p>Develop additional water supply to meet buildout demands</p> <p>Implement facility improvements</p>

Current Water System Overview

- 1614 Residential, 30 Commercial, and 133 PFP Connections

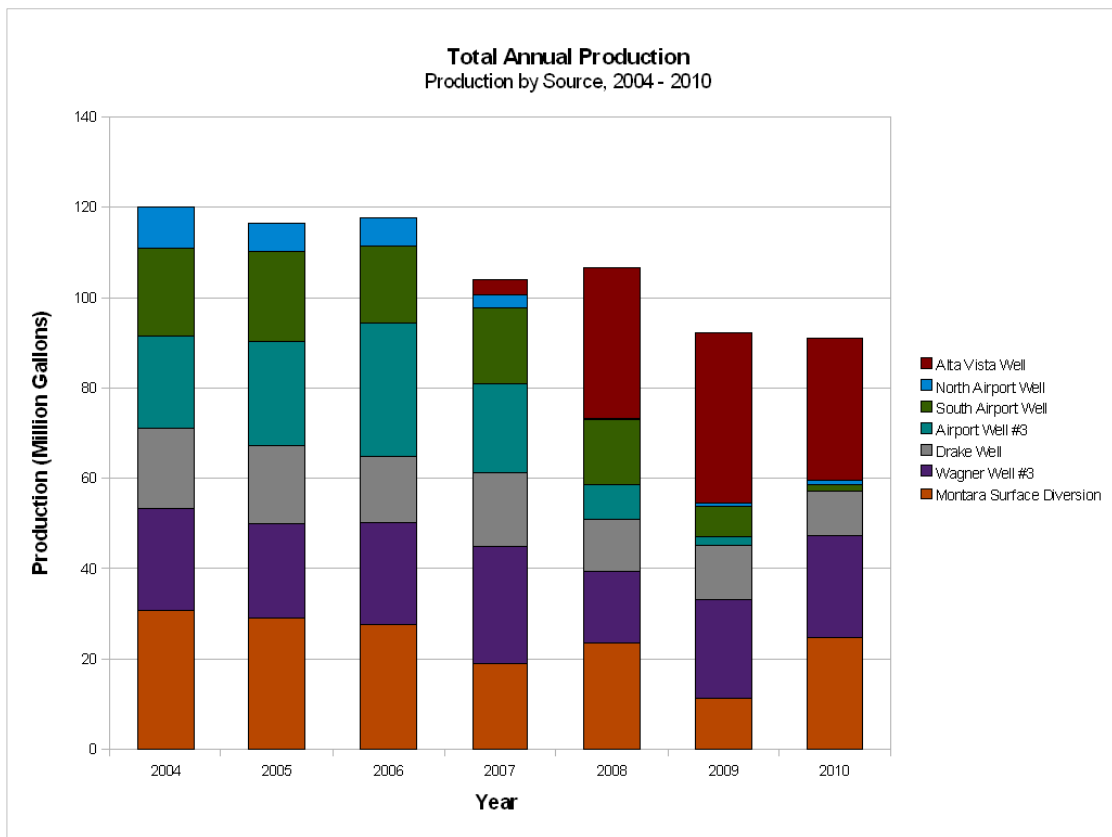


Production Data Summary

2004 - 2010

- **Average Daily Source Production** 318,418 gpd
- **Maximum Daily Source Production** 473,758 gpd
 - Averaged from actual max day data, 2006-2010
- Production has decreased over the last 7 years
- System Reliability has increased over the last 7 years

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Production Data Summary

2004 - 2010

Source	Rated Capacity	Annual Average Production Rate (gpm), 2004 -2007 ¹	Annual Average Production Rate (gpm), 2007 -2010
Alta Vista Well	150	N/A	72
North Airport Well	100	46	58
South Airport Well	55	42	35
Airport Well #3	100	73	55
Drake Well	35	37	37
Portola Well #1	9	6	6
Portola Well #3	10	7	6
Portola Well #4	16	6	8
Wagner Well #3	70	58	69
Montara Surface Water	75	63	49
Total	620	344	395

¹Production Rates prior to the installation of Alta Vista Well

Reliable Supply Capacity

Reliable Supply: the total source capacity with the largest source out of service

The Largest Source: Alta Vista Well

Total source capacity 620 gpm

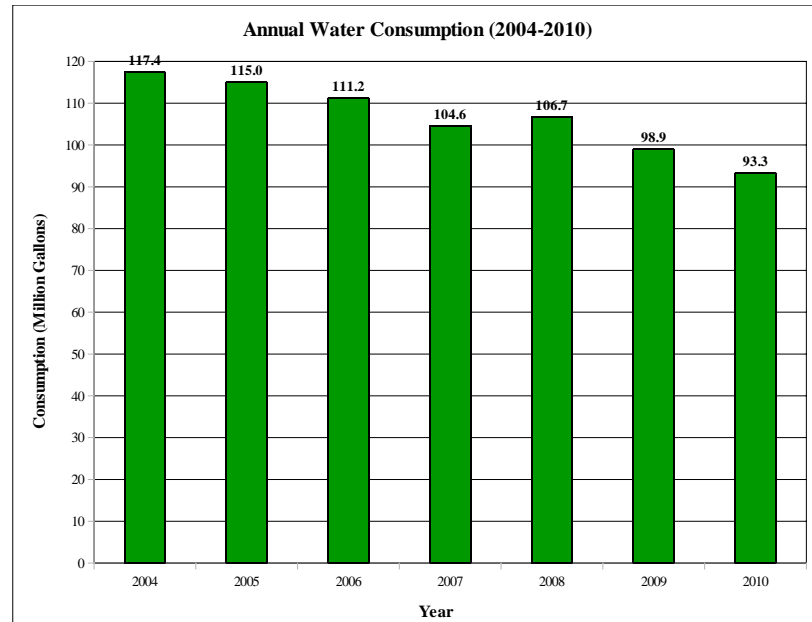
Alta Vista Well capacity 150 gpm

Total reliable capacity 470 gpm

Consumption Data Summary

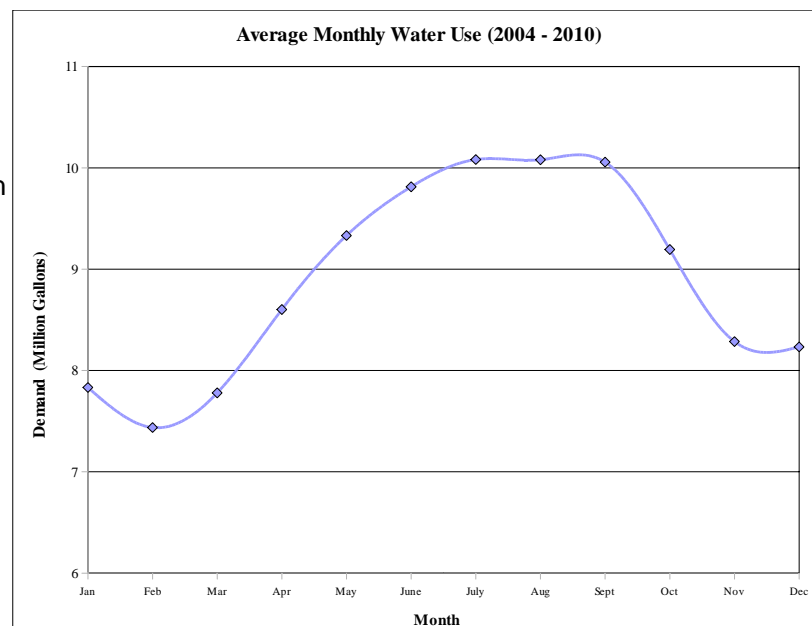
2004 - 2010

- Average Annual Consumption = 106.73 MG
- Average Daily Water Use = 292,400 gpd



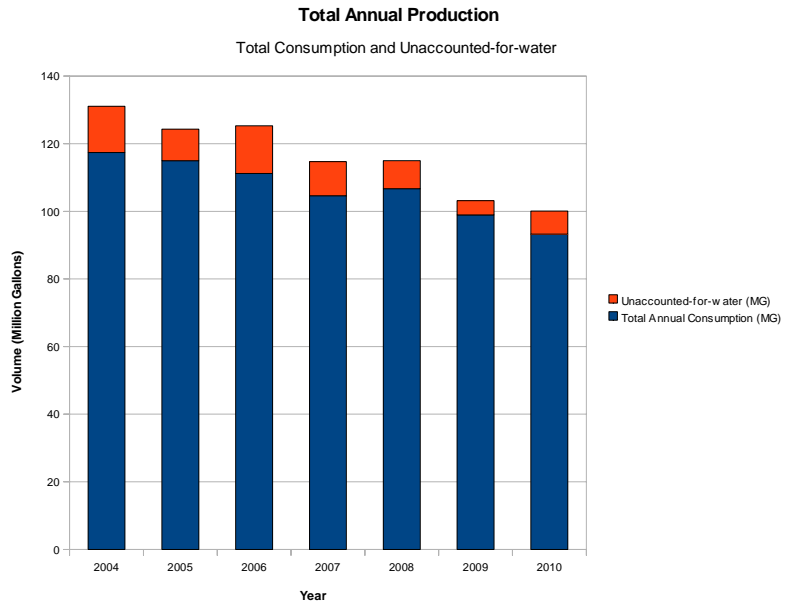
Average Monthly Water Use 2004 - 2010

The driest months of the year, May through October, have the highest consumption volumes on average, most likely due to increases in water used for irrigation.



Unaccounted-for-water, 2004 - 2010

- Due to main and hydrant replacements, flushing, other operational uses, and leaks
- Average Unaccounted-for-water = 6.8%
- 2009-2010: Unaccounted-for-water has decreased though flushing has increased



Demand Analysis Current MWSD Water Demands

Customer demand calculation is based on the production data analysis and includes unaccounted-for-water

Source	Demand on MWSD Water System, gallons	Peaking Ratio
Average Daily Demand (ADD)	318,418	1.0
Maximum Daily Demand (MDD)	473,758	1.5 ¹
Maximum Hour	34,500 ²	2.6
Design Fire (2 hours at 2,000 gpm)	240,000	N/A

¹ Calculated empirically from MDD and ADD

² Based on a 2.6 peaking ratio

Demand Analysis

Per Capita Demands

Per capita demand was determined from 2000 US Census data, MWSD production records, and water connection records

Per Capita Demand Calculation	
Average Daily Demand (ADD)	318,418 ¹
Number of Residential System Connections	1614
Household Size	2.74 people/household ²
Population Served	4,422 people
Per Capita Demand	72 gpcd¹

¹ The ADD includes the 30 commercial water connections in the service area, so the population absorbs that demand in the per capita demand estimate

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Demand Analysis

Existing Population Demands

- Based on the population living within District service area, calculated from the number of sewer connections vs. the number of water connections

Year	Number of Sewer Connections	Number of Water Connections	Number of Houses Not Connected to MWSD	Population not connected to MWSD	Estimated Population within Service Area
2010	1928	1614	314	860	5,283

- ADD = 5,283 people x 72 gpcd = 380,376
- MDD = ADD x 1.5 = 570,564

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Demand Analysis

Future Population Demands

- Based on 2000 US Census data, MWSD sewer and water connection records, the 2009 SM County LCP, and calculated per capita demand

Year	Total Population	Average Annual Rate of Growth	Projected Average Daily Demand	Projected Maximum Daily Demand (gpd)
2000	4,903	--	--	--
2010	5,283	.75	380,376	570,564
2020	5,836	1	420,192	630,288
2030	6,447	1	464,184	696,276
2040	7,121	1	512,712	769,068
2050	7,866	1	566,352	849,528
2060	8,689	1	625,608	938,412
Buildout (2066)	9,215	1	663,480	995,220

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Reliable Supply vs. Projected Demands

Summary of Results

- Reliable supply will match projected MDD around the year 2027
- Additional connections can be served with existing supply

Year	Total Reliable Supply (gpd)	Projected Maximum Daily Demand (gpd)	Excess or Deficit Supply (gpd)
2010	676,800	570,564	106,236
2020	676,800	630,288	46,512
2030	676,800	696,276	-19,476
2040	676,800	769,068	-92,268
2050	676,800	849,528	-172,728
2060	676,800	938,412	-261,612
Buildout (2066)	676,800	995,220	-318,420

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Proposed Water System Improvements

- Schoolhouse Booster Pump Station Upgrade
- Main Replacements
- Wagner Well Pump Upgrade
- Develop Additional Supply Reliability
- PRV and Valve Installation Program
- Portola Tank Telemetry Upgrade
- SCADA Improvements
- Treatment Upgrades