



Final 2010
Urban Water Management
Plan and Update to
the Water Shortage
Contingency Plan

June 2011

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KEY ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments	MGD	Million gallons per day
ACDD	Alameda Creek Diversion Dam	MID	Modesto Irrigation District
Act	Urban Water Management Planning Act	MOU	Memorandum of Understanding
AFY	Acre-feet per year	MPMWD	Menlo Park Municipal Water District
BAWSCA	Bay Area Water Supply and Conservation Agency	PARWQCP	City of Palo Alto's Regional Water Quality Control Plant
BMP	Best Management Practice	PEIR	Program Environmental Impact Report
CDD	City Distribution Division	psi	pounds per square inch
CEQA	California	RWQCB	San Francisco Regional Water Quality Control Board
CEQA	California Environmental Quality Act	RWS	Regional Water System
CII	Commercial, irrigation and institutional	SBSA	South Bayside System Authority
City	City of Menlo Park	SBx7-7	Water Conservation Act of 2009
Commission	San Francisco Public Utilities Commission	SCVWD	Santa Clara Valley Water District
CUWCC	California Urban Water Conservation Council	SFPUC	San Francisco Public Utilities Commission
DHS	California Department of Health Services	TID	Turlock Irrigation District
DMM	Demand Management Measure	UWMP	Urban Water Management Plan
DWR	California Department of Water Resources	WCIP	Water Conservation Implementation Plan
East Palo Alto	East Palo Alto Sanitary District	WQB	Water Quality Bureau
EOP	Emergency Operations Plan	WS&TD	Water Supply and Treatment Division
ERRP	Emergency Response and Recovery Plan	WSA	Water Supply Agreement
ETo	Evapo-transpiration of common turf grass	WSAP	Water Shortage Allocation Plan
gpcd	Gallons per capita per day	WSIP	Water Supply Improvement Program
gpm	Gallons per minute	WSIP	Water System Improvement Program
ISA	Interim Supply Allocation	MGD	Million gallons per day
ISG	Individual Supply Guarantee		
ISL	Interim Supply Limitation		
IWSAP	Interim Water Shortage Allocation Plan		
MCL	Maximum contaminant level		

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SECTION 1 INTRODUCTION AND PLAN PREPARATION

1.1 INTRODUCTION

1.1.1 Purpose

The purpose of developing an Urban Water Management Plan (UWMP) is to evaluate whether a water supplier can meet the projected water demands of its customers over a 20- or 25-year planning horizon and under a range of water supply scenarios. This evaluation is accomplished through analysis of current and projected water supply and demand for 1) normal, 2) single-dry and 3) multiple-dry water year conditions. In addition, the purpose of the UWMP is to:

- Identify measures to be implemented or projects to be undertaken to reduce water demands and address water supply shortfalls;
- Identify stages of action to address up to 50 percent reduction in water supplies during dry water years;
- Identify actions to be implemented in the event of a catastrophic interruption in water supplies;
- Assess the reliability of the sources during normal, single-dry and multiple-dry water years; and
- Identify when, how and what measures the water supplier could undertake in order to meet California's requirements for a 20 percent per capita reduction in urban water use statewide by 2020.

The City of Menlo Park (City) operates the Menlo Park Municipal Water District (MPMWD), a water system providing retail water service to approximately 40% of the customers in the City. It serves about 4,000 service connections and provides just under 4,500 acre-feet of water annually (4 million gallons per day or MGD). The California Water Services Company and the O'Connor Tract Co-operative Water Company serve the remaining customers within the City limits.

1.1.2 Law

California's Urban Water Management Planning Act (Act) is codified in California Water Code Sections 10610 through 10656. The Act requires urban water suppliers that have 3,000 or more connections, or that supply at least 3,000 acre-feet per year (AFY) of water, to submit a UWMP to the California Department of Water Resources (DWR) every five years. MPMWD meets the threshold for this State requirement.

The Act was modified in 2009 by Senate Bill x7-7 (SBx7-7). SBx7-7 requires a 20 percent statewide reduction in urban water use by the year 2020. The percent reduction required by each water supplier varies by region and includes water savings targets, measured in daily per capita use, to be met by 2020 as well as an interim water savings target to be met by 2015. Each water supplier's 2010 UWMP will establish the baseline use from which targeted reductions are made, making the 2010 UWMP a particularly important document. Each water supplier's 2010 UWMP will also establish its 2015 interim water use target and 2020 water use target using one of four methods developed by DWR. Each agency may revisit its target calculations in 2015 and can change the methodology used to compute the target at that time. Because of the new SBx7-7 requirements, DWR extended the due date for adoption of the UWMP to July 1, 2011.

1.1.3 Structure of the Plan

The UWMP generally follows the structure outlined in *Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan* developed by DWR and finalized in March 2011. The guidelines can be found at the following website link: <http://www.water.ca.gov/urbanwatermanagement/guidebook/>.

This document is organized into six (6) sections as shown on the table below. The table also includes a description of the key elements in the sections. All the information requested in the UWMP guidelines and Act is provided within this document.

Table 1.1
Structure of the Plan

Section	Title	Key Elements
1	Introduction and Plan Preparation	Introduction
		Coordination
		Plan Adoption, Submittal and Implementation
2	System Description	Service Area Physical Description
		System Description
		Service Area Population
3	System Demands	Baselines and Targets
		Water Demands
		Water Demand Projections for Retailers
		Water Use Reduction Plan
4	System Supplies	Water Sources
		Groundwater
		Transfer Opportunities
		Desalinated Water Opportunities
		Recycled Water Opportunities
5	Water Supply Reliability and Shortage Contingency Planning	Future Water Projects
		Water Supply Reliability
		Water Shortage Contingency Planning
		Drought Planning
6	Demand Management Measures (DMMs)	Water Quality
		Description of DMMs
		Implementation of DMMs

1.1.4 Level of Planning

The Act specifies the required content of each UWMP and allows for the level of detail provided in each UWMP to reflect the size and complexity of the water supplier’s system. The Act requires projections in five-year increments for a minimum of 20 years. This UWMP considers a 25-year planning horizon through year 2035.

The Act does not require that a UMWP contain the level of system-specific detail that would be included in a water system master plan. Also, the Act specifically exempts UWMPs from review under the California Environmental Quality Act (CEQA)¹. In addition, Water Supply Assessments for new development (Water

¹ Water Code Section 10652

Code Section 10631) and Water Supply Verifications for new development (Water Code Section 66473.7) may rely on the UWMP as a foundational document for findings required in these documents.

1.2 COORDINATION

1.2.1 Agency Coordination

MPMWD owns and operates its distribution system and purchases potable water from the San Francisco Public Utilities Commission (SFPUC). The majority of the water supply originates in the Hetch Hetchy watershed with the remainder supplied by the Alameda watershed. MPMWD coordinated this UWMP with SFPUC which provided specific language regarding its water supply and the reliability of its water supply.

MPMWD is a member of the Bay Area Water Supply and Conservation Agency (BAWSCA), a special-legislation agency that represents the interests of 24 cities and water districts, and two private utilities, that purchase water wholesale from SFPUC. Established in 2003, BAWSCA has worked with these 26-member agencies to negotiate with SFPUC, develop regional conservation strategies and develop a strategic approach for regional water supply development. BAWSCA has also prepared an analysis of the feasibility of achieving SBx7-7 compliance through a regional alliance of its members. MPMWD has coordinated with BAWSCA, and this UWMP includes discussion of regional analyses that have been conducted by BAWSCA.

1.2.2 Public Participation

Urban water suppliers are required by the Act to encourage active involvement of the community within the service area prior to and during the preparation of the UWMP. The Act also requires urban water suppliers to make a draft of the UWMP available for public review and to hold a public hearing regarding the findings of the UWMP prior to its adoption. Appendix A includes the 60 day Notice of Preparation and the Public Hearing Notice.

Information on the UWMP update can be found at:

<http://www.menlopark.org/departments/pwk/UrbanWaterMP.html>.

MPMWD has coordinated with its neighboring water, wastewater treatment and community agencies and with the public. Table 1.2 (DWR Table 1) outlines the scope of this coordination.

Table 1.2 (DWR Table 1)
Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
AGENCIES:						Yes	
1100 Sharon Park Dr. Homeowners Association						Yes	
451 Oak Grove Homeowners Association						Yes	
Acterra						Yes	
Acterra						Yes	
American Red Cross						Yes	
BAWSCA	Yes			Yes		Yes	
Bay Localize						Yes	
Bay-Friendly Landscaping & Gardening						Yes	

Table 1.2 (DWR Table 1) cont'd
 Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
Bayshore Community Resource Center						Yes	
Belle Haven Homeowners Association						Yes	
Belle Haven Library, City of Menlo Park						Yes	
Bohannon Organization						Yes	
Burgess Drive Homeowners Association						Yes	
CA American Water Coastal Division						Yes	
CA Dept. of Water Resources						Yes	
CA Indian Legal Services						Yes	
CA Native Plant Society						Yes	
CA Public Utilities Commission						Yes	
Cal Water Bear Gulch District						Yes	
California American Water - American Water Services						Yes	
Campo Bello Homeowners Association						Yes	
Canopy						Yes	
CEC Burlingame						Yes	
Chinese Community Ctr						Yes	
City of Belmont Water Dept						Yes	
City of Daly City Water Department						Yes	
City of East Palo Alto						Yes	
City of Foster City						Yes	
City of Foster City Water Utility						Yes	
City of Mountain View						Yes	
City of Palo Alto Water, Gas, Waste Water Utility				Yes		Yes	
City of Redwood City						Yes	
City of Redwood City Water						Yes	
City of Redwood City Public Works						Yes	
City of Santa Clara						Yes	
City of Sunnyvale						Yes	
Coastal Conservancy						Yes	
Committee for Green Foothills						Yes	
Department Of Veterans Affairs						Yes	
Dept of Water Resources						Yes	
DHS, Drinking Water Branch						Yes	
East Palo Alto Senior Center						Yes	
Ennovationz						Yes	
Environmental Defense Fund						Yes	
Estero Municipal Improvement District						Yes	
Felton Gables Homeowners Association						Yes	
FFPI						Yes	
Ford Land Company, LLC						Yes	
Fortistar						Yes	
Foundation for the Future						Yes	
Friends of the Eel River						Yes	
Geron Corporation						Yes	
Green Town Los Altos						Yes	
Green@Home						Yes	
Heritage At Menlo Park						Yes	

Table 1.2 (DWR Table 1) cont'd
 Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
Heublein Inc						Yes	
InMenlo website						Yes	
Kiwanis Club of Menlo Park						Yes	
League of Women Voters - S. San Mateo County						Yes	
League of Women Voters of Palo Alto						Yes	
Legal Aid Society						Yes	
Linfield Oaks Neighborhood Association						Yes	
Lorelei Homeowners Association						Yes	
MB Homeowners						Yes	
Menlo Commons Homeowners Association						Yes	
Menlo Oaks District Association						Yes	
Menlo Park Chamber of Commerce						Yes	
Menlo Park Fire Dept						Yes	
Menlo Park Homeowners Association						Yes	
Menlo Park Police Dept						Yes	
Menlo Park Surgical Hospital, PAMF						Yes	
Menlo Towers Homeowners Association						Yes	
Mid Peninsula Citizens for Fair Housing						Yes	
Mid-Peninsula Water District						Yes	
NAACP						Yes	
National Office for Tongan & Pac Amer Affairs						Yes	
Northern Willows HOA						Yes	
O'Connor Tract Co-operative Water District						Yes	
Oracle						Yes	
Palo Alto Park Mutual Water Company						Yes	
Palo Alto Patch						Yes	
Park Forest One Homeowners Association						Yes	
Park Forest Two Homeowners Association						Yes	
Park Manor Crane St.						Yes	
Peninsula Conservation Ctr Fndtn						Yes	
Peninsula Interfaith Action						Yes	
Peninsula Open Space Trust						Yes	
Peninsula Vet Center						Yes	
Peninsula Volunteers, Inc.						Yes	
Projectos Latinos Organizado De Belle Haven						Yes	
Purissima Hills Water District						Yes	
Restore Hetch Hetchy						Yes	
Rose Paraiso Manor						Yes	
S R I International						Yes	
San Mateo County Environmental Health						Yes	
San Mateo County Sheriff						Yes	
San Mateo County Planning & Building						Yes	
San Mateo Planning Commission						Yes	
Sand Hill Circle Assn						Yes	
Sand Hill Circle Townhouse Association						Yes	
Sand Hill Commons						Yes	
Sand Hill Oak Partners						Yes	
Sand Hill Place Assoc.L.P.						Yes	
Santa Clara Valley Water District						Yes	

Table 1.2 (DWR Table 1) cont'd
 Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
Santa Rita Homeowners Assoc.						Yes	
Senior Center, City of Menlo Park						Yes	
SFPUC	Yes			Yes		Yes	
SFPUC, Planning Division	Yes			Yes		Yes	
Sharon Heights Country Club						Yes	
Sharon Heights Homeowners Association						Yes	
Sharon Hills Homeowners Association						Yes	
Sharon Oaks Homeowners Association						Yes	
Sharon Park Homeowners Assoc						Yes	
Sharon Park One Thousand						Yes	
Sierra Club - Southern Alameda County						Yes	
Sierra Club, Loma Prieta Chapter						Yes	
Silicon Valley Leadership Group						Yes	
SLAC						Yes	
South Bayside System Authority				Yes		Yes	
St Patricks Seminary						Yes	
Stanford Hills Homeowners Association						Yes	
Stanford University						Yes	
Stanford University, Utilities Division-Water						Yes	
Suburban Park Homeowners Association						Yes	
Sustainable San Mateo County						Yes	
Sustainable Silicon Valley						Yes	
Tarlton Properties						Yes	
The Nature Conservancy						Yes	
Trailer Rancho						Yes	
Tuolumne River Trust						Yes	
Tyco Corp						Yes	
Water Agency Response Network						Yes	
Water and Wastewater Svcs, ESA Consultants						Yes	
Water Education Foundation						Yes	
WaterSmart						Yes	
Wellbound Of San Mateo Llc						Yes	
West Bay Sanitary District						Yes	
White Oak Townhomes Association						Yes	
Wholly H2o						Yes	
Willow West Homeowners Association						Yes	
Willows Improvement Network						Yes	
Winzler & Kelly						Yes	
Woodside Town Council						Yes	
World Wildlife Fund						Yes	
INDIVIDUALS:						Yes	
Ora Chaiken						Yes	
Antoinette Barrientos						Yes	
Julie Davis						Yes	
Emily Juan						Yes	
Joanie Levinsohn						Yes	
Marty Mackowski						Yes	
Michelle Slocombe						Yes	
Mitch Slomiak						Yes	

1.3 PLAN ADOPTION, SUBMITTAL AND IMPLEMENTATION

1.3.1 Plan Adoption and Submittal

The findings of the Draft UWMP were presented before the City Council acting as the decision-making body for the MPMWD on June 14, 2011. The meeting was publicly noticed and the public was given the opportunity to offer comments to the UWMP, the water use targets and the water conservation plan. A copy of the agenda materials and the Resolution of Adoption are included in Appendix B.

The Final UWMP incorporates comments made by the City Council and the public. The Final UWMP is available for public viewing at <http://www.menlopark.org/departments/pwk/UrbanWaterMP.html> and at the City’s main office during normal business hours. A copy of the Final UWMP will be submitted to DWR, the California State Library, San Mateo County, SFPUC and BAWSCA no later than 30 days after adoption. Comments to the Final UWMP made by DWR and the responses to the comments will be added to the website for the public’s information.

1.3.2 Plan Implementation

Implementation of the 2010 Final UWMP will be the responsibility of the MPMWD and consists of the activities shown in Table 1.3.

**Table 1.3
Plan Implementation**

Description	Guidance Document(s)	Activity	Timeframe
Water supply projects and Capital Improvement Program (CIP)	Annual Budget and 5-year Capital Improvement Program	Preparation of Annual CIP for water supply projects	March, 2011-2015
Water supply reliability	Final UWMP	Continued coordination and collaboration with BAWSCA on the regional water supply strategy *	Near term recommendations: 2011 Mid-term recommendations: 2013 Long-term recommendations: 2013 Implementation beginning 2012
Water demand reduction targets	Final UWMP, Water Conservation Program	Ongoing tracking of GPCD and modifying Water Use Reduction Plan as needed. Ongoing coordination with BAWSCA on regional alliance	10% reduction by 2015; 20% reduction by 2020. Review target and compliance strategy in 2015 UWMP
Voluntary and mandatory water conservation policies and procedures	Water shortage contingency plan in Final UWMP	Ongoing tracking of GPCD and modifying Water Use Reduction Plan as needed. Ongoing coordination with BAWSCA on regional alliance	10% reduction by 2015; 20% reduction by 2020. Review target and compliance strategy in 2015 UWMP

* Timeframe is brought forward from BAWSCA's Long Term Reliable Water Supply Phase 1 Scoping Report (5-27-2010)

1.4 ASSUMPTIONS

The evaluation and projections in this document are based on the MPMWD's current understanding of its water supply contract with SFPUC and its planned (future) water supply projects. This document is a "living" document (i.e., intended to be updated every five years) and as MPMWD's water supply picture changes, the updated UWMP will incorporate those changes accordingly.

1.5 RESPONSE TO DWR COMMENTS ON THE 2005 UWMP

MPMWD received comments from DWR on its 2005 UWMP. As part of the preparation of this 2010 UMWP, MPMWD consulted with DWR about incorporation of response to comments on the 2005 UWMP in the 2010 UWMP. DWR confirmed that concerns about the completeness of the 2005 UWMP can be addressed by providing a complete 2010 UWMP. This document addresses the following specific concerns raised by DWR on the 2005 UWMP in each referenced section or subsection:

- Description of the groundwater basin, status of current studies and expectations for groundwater use (Section 4.4);
- Verification of the three-year estimated minimum water supply (Section 5.4);
- Description of the benefit/cost, status, timeline, publicity, methods, details and conservation achieved when implementing Demand Management Measures (DMMs) (Section 6);
- Discussion of desalination opportunities (Section 4.6);
- Discussion of the preparation for or actions in response to a regional power outage. (Section 5.3);
- Description of the wastewater collection and treatment systems and quantification of the volume of wastewater in service area for each five-year interval (2010, 2015, 2020, 2025 and 2030) (Section 4.7);
- Description of the method of wastewater treatment and disposal (Section 4.7);
- Supply and demand comparisons for a single-dry and multiple-dry years until 2035 (Section 5.4);
- Coordination with San Mateo County and the public and description of where the UWMP was available for inspection (Section 1 and Appendix A);
- UMWP implementation (Table 1.3).

SECTION 2 SYSTEM DESCRIPTION

2.1 SERVICE AREA PHYSICAL DESCRIPTION

MPMWD is located in the City of Menlo Park, which is located along San Francisco Bay in San Mateo County, between Redwood City and East Palo Alto. The City is approximately 30 miles south of San Francisco. MPMWD's water distribution system provides water retail services to approximately forty percent of the City's population. Other purveyors within City limits include the California Water Services Company, which serves the Bear Gulch District, and the O'Connor Tract Co-operative Water Company, which serves a small area using wells. A vicinity map is provided as Figure 2.1. Figure 2.2 illustrates the service area.

MPMWD is governed by the City Council. MPMWD is a member of BAWSCA and purchases all of its water from the SFPUC. Water distribution, water conservation and maintenance of water quality are MPMWD's main water resource functions, as treated water purchased from San Francisco does not require further water treatment.

As illustrated in Figure 2.2, the system is split into four different service area zones, which are described below.

- The lower zone is located north and east of El Camino Real and serves primarily residential and small commercial land uses. The zone includes the Belle Haven, Bay Road, and Willows neighborhoods.
- The high pressure zone is located in northern Menlo Park between Highway 101 and the Bayfront Expressway and serves primarily industrial land uses. It includes the Bohannon Industrial Park and Tyco Properties.
- The upper pressure zone is located in western Menlo Park and is geographically and hydraulically disconnected from other zones. It serves primarily the residential Sharon Heights neighborhood, the Sharon Heights Golf Course and the Stanford Linear Accelerator.
- The Menlo Business Park zone is located along O'Brien Drive between Willow Road and University Avenue. It serves primarily light industrial land uses.

The high pressure zone is hydraulically disconnected from the other zones with inter-tie capabilities. The upper pressure zone is hydraulically as well as geographically separated from the other zones.

The SFPUC water enters MPMWD distribution system through five service connections or turnouts. The high pressure and upper pressure zones each have one turnout (Turnouts 14 and 61, respectively). Turnouts 13 and 15 serve the lower zone and Turnout 73 services the high pressure zone. MPMWD has two reservoirs, which have capacities of 2 MG and 3.5 MG, and act together to serve the Sharon Heights zone. An MPMWD pump station conveys water from Turnout 61 to supplement demands from the Sharon Heights zone and to fill the reservoirs.

There are four interconnections between MPMWD's system and adjacent distribution systems. Three of these connections are with the California Water Company's system, which runs generally through the middle of the City. A fourth consists of a pipeline and meter connection to the O'Conner Tract Cooperative

Water Company. There are no connections to Palo Alto or Redwood City, although MPMWD has assessed the installation of a hard connection with Redwood City at Haven Avenue. The initial assessment concluded that a pressure reducing value would be required on the Menlo Park side because MPMWD's water pressure is 115 pounds per square inch (psi) and neighboring Redwood City's pressure is 40 psi. A temporary connection could be made if necessary during certain rare types of emergencies.

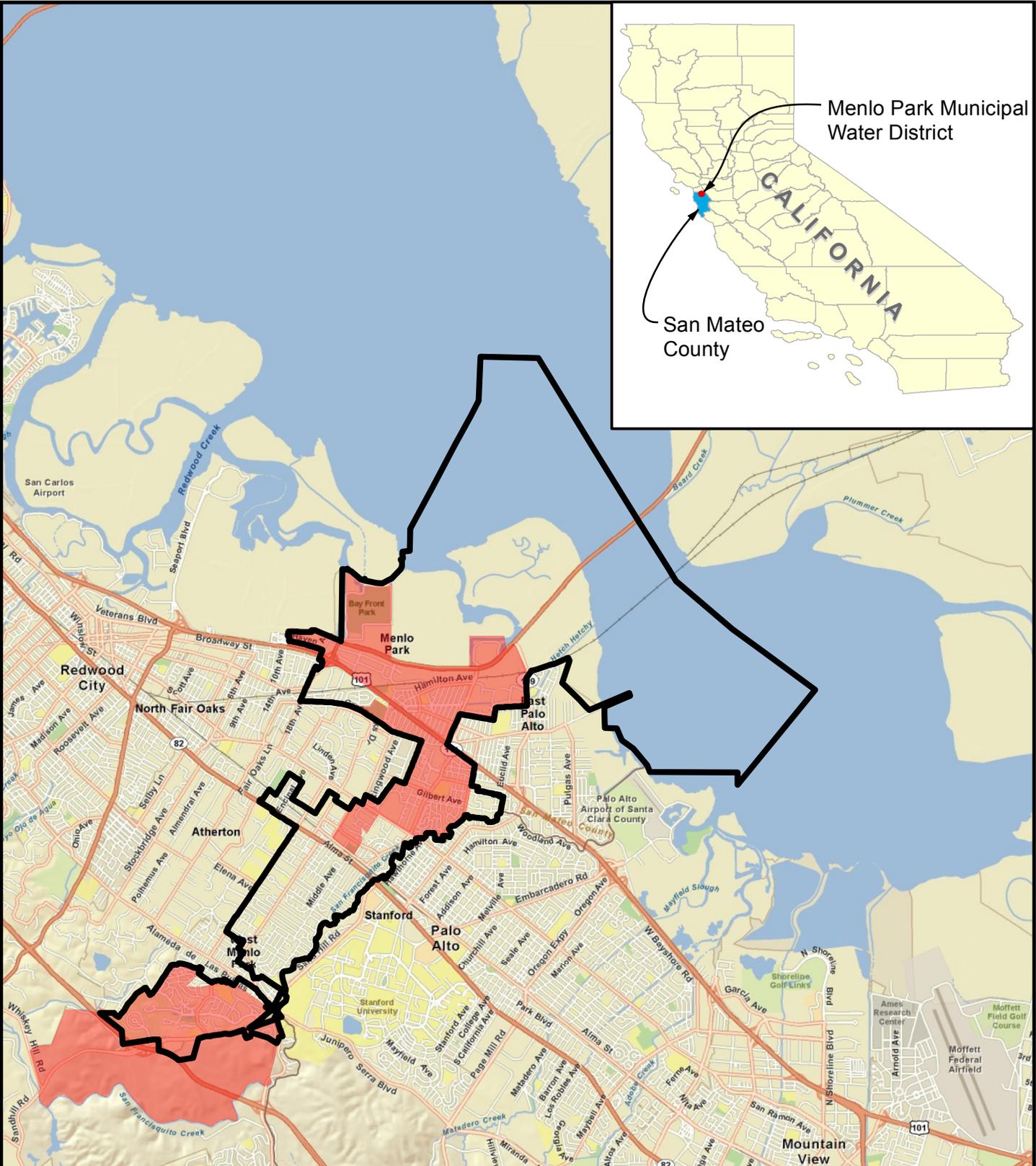
Metcalf and Eddy evaluated MPMWD's water system in their March 28, 2000 "Water System Evaluation Report." Hydraulic modeling was performed to evaluate alternative projects to improve system performance. The addition of a reservoir and pump station in the upper zone was evaluated to meet fire protection and emergency storage requirements. Construction of an additional 3.5 MG of storage and separate inlet and outlet structures for the reservoirs was implemented in 1997. MPMWD is currently in the planning stages of a project to construct emergency wells in the lower zone and is exploring the construction of an irrigation well to serve the Sharon Heights Golf Course.

John Eiding conducted a seismic study with several recommendations for implementation (Eiding, 2003). These recommendations are discussed in Section 5 of this UWMP, Water Shortage Contingency Planning.

2.2 SERVICE AREA POPULATION

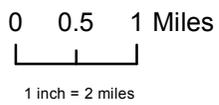
Historically, the MPMWD has reported that it serves approximately one-third of the City and reported its population as just over 10,000 persons. In 2005, SFPUC hired a contractor to develop a demand survey for planning purposes. The City began using the population figures projected from that report, which were based on the Association of Bay Area Governments (ABAG) data and which also illustrated a population of about 10,000 persons, again assuming that MPMWD's service population was approximately one-third of the City population.

In 2009, the MPMWD began working to refine its population projections, particularly as related to the number of residential units actually served as part of each multi-family unit. Working from its Consumer Confidence Report mailing list, which by law must be addressed to every individual household in the service area, MPMWD took its billing database and expanded it to include every apartment and condominium, even if one meter serves more than one multi-family unit. MPMWD then identified the US census tract for each address and applied the household size for that tract to the number of households for the tract. This resulted in a population served by MPMWD of 14,139 as illustrated in Table 2.1 below.



Legend

-  Menlo Park City Limits
-  Menlo Park Municipal Water District Service Area



**Figure 2.1
Vicinity Map**

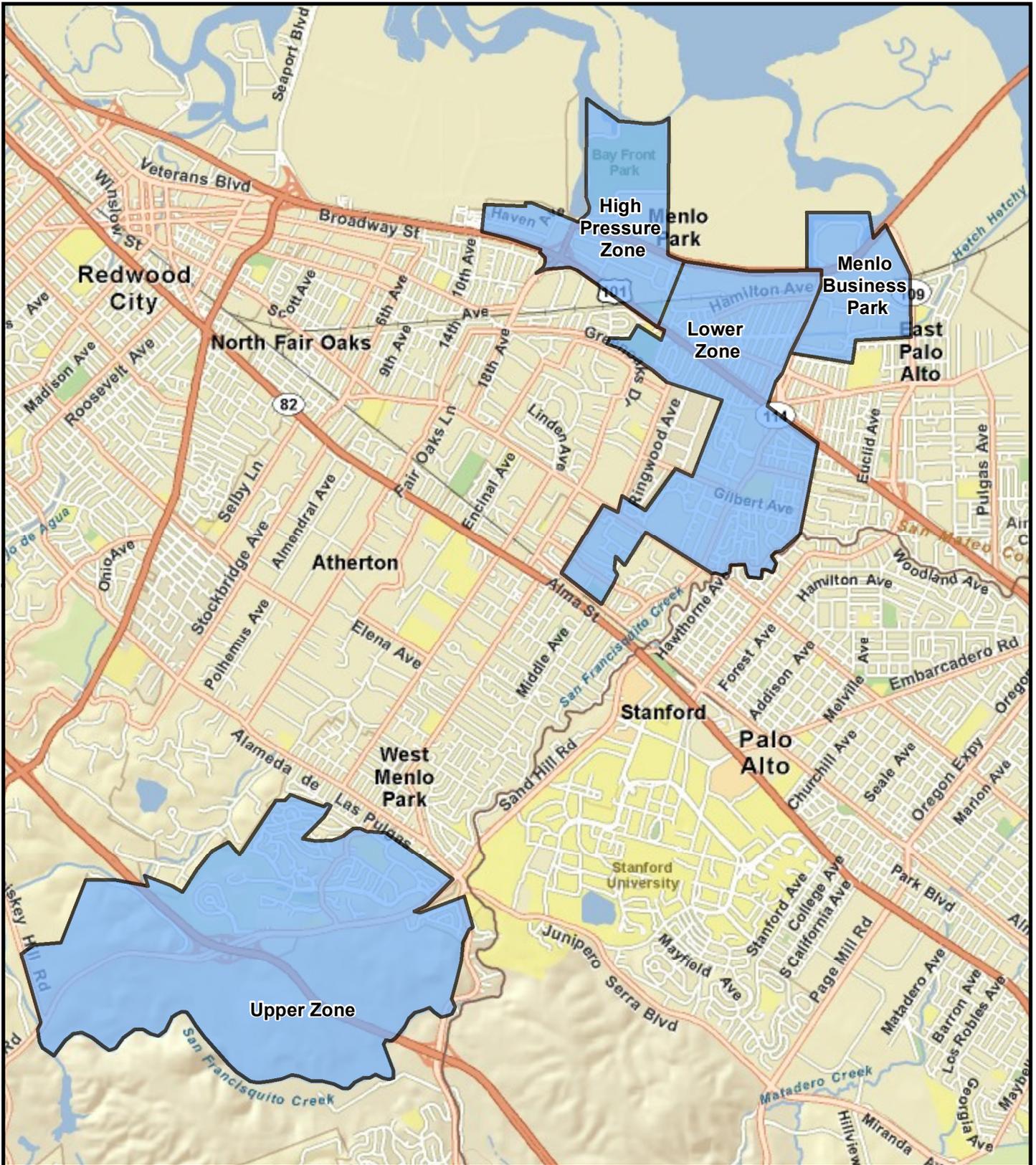
Menlo Park Municipal Water District
Urban Water Management Plan



Sources: USDA: Aerial NAIP 2009 1 meter resolution; Humboldt County GIS: Parcels, Blueline Streams.

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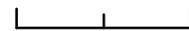
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Legend

 Service Zones

0 0.4 0.8 Miles



1 inch = 1 miles



Sources: USDA: Aerial NAIP 2009 1 meter resolution; Humboldt County GIS: Parcels, Blueline Streams.

Figure 2.2
Service Area Map

Menlo Park Municipal Water District
Urban Water Management Plan



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**Table 2.1
Census Tract Information for MPMWD**

	# of MF Hshlds	# of SF Hshlds	Total Hshlds	Hshld Size	Total Population Served
Census Tract 6116	79	325	404	2.52	1,018
Census Tract 6117	297	1069	1366	4.47	6,106
Census Tract 6118	0	1	1	5.2	5
Census Tract 6121	14	27	41	2.98	122
Census Tract 6122	336	1179	1515	2.24	3,394
Census Tract 6124	0	50	50	2.8	140
Census Tract 6125	0	34	34	1.86	63
Census Tract 6126	0	0	0	1.75	-
Census Tract 6127	0	0	0	2.69	-
Census Tract 6128	0	0	0	2.7	-
Census Tract 6129	88	170	258	2.36	609
Census Tract 6130	755	547	1302	2.06	2,682
Census Tract 6132	0	0	0	2.62	-
Total	1569	3402	4971		14,139

The population served by MPMWD is shown in Table 2.2 (DWR Table 2). The service area is built-out and population growth is attributed primarily to redevelopment projects within the existing urban footprint. Population is expected to increase only 10.4% over the 25 years spanning 2010 to 2035. This is equivalent to an annual growth rate of 0.42%.

**Table 2.2 (DWR Table 2)
Population – Current and Projected**

	2010	2015	2020	2025	2030	2035	Data Source
Service Area Population^a	14,198	14,438	14,774	15,086	15,406	15,675	Census Data for base population and regional growth projections applied

^a Service area population includes only the population served by the distribution system. The City's total population is over 32,000

In order to perform the baseline calculations that are described in Section 3, the 2009 population of 14,139 was projected backwards to 1994, assuming the same slow growth rate of 0.42% annually. This “backwards projection” is illustrated in Table 3.2 (DWR Table 14). These population figures differ from what was reported in the 2005 UWMP because of MPMWD’s service population recalculation in 2009.

2.2.1 Demographic Trends

The City's General Plan dates from 1994, but relatively recent draft documents (2008) developed for the Housing Element Update indicate a community that is older, wealthier and comprised of smaller size households than San Mateo County or California at large. The age distribution for Menlo Park indicates a higher portion of the population was over the age of 65 than in either the county or the state. The average family and household sizes in Menlo Park are smaller than in the county and state, reflecting the generally older population. The median household income for Menlo Park is \$84,609, 19.4% higher than the median household income for San Mateo County and 78.2% higher than the median household income for the state.

The information developed for the Housing Plan Update indicates that the housing stock in the City is in generally good condition except for some units in the Belle Haven Redevelopment Area, which is served by the MPMWD.

2.2.2 Planned Development

The City is anticipating some near term, largely commercial, development within the MPMWD service area. Projects included in the land use and demand projections for this UMWP include:

- Menlo Gateway (the Bohanan Project) which includes demands developed in a WSA developed by the City for this project;
- GM Site – Sun and Facebook Project which includes demand estimates provided by the applicant;
- Menlo Business Park, which is included within the general non-residential growth analysis; and
- A housing site on Hamilton Avenue, which is included within the general residential growth allowance.

2.3 CLIMATE

MPMWD has a Mediterranean climate with cool, wet winters and warm, dry summers. Rainfall in the area averages 15.28 inches per year and is generally confined to the wet season from late October to early May. The average evapo-transpiration (ETo) for the region is 47 inches per year. ETo is a measure of the amount of water needed for common turf to grow in a specific region. Because the average annual ETo is approximately 32 inches more than the average annual precipitation, and because 90% of the annual precipitation occurs between the months of November and April, growing turf in this region requires a significant amount of irrigation during the dry season and can be expected to contribute to water demand. MPMWD is focusing a portion of its demand management activity on residential landscapes in order to modify practices and behavior that contribute to demand.

Table 2.3 summarizes the climatic factors that can impact water supply within the MPMWD service area.

Table 2.3
Climate

	Standard Average ETo*, in	Average Rainfall, in	Average Temp, °F
January	1.48	3.23	48.1
February	1.88	2.88	51.3
March	3.35	2.22	53.7
April	4.74	0.99	56.6
May	5.36	0.37	60.7
June	6.25	0.08	65
July	6.74	0.02	66.5
August	5.99	0.05	66.6
September	4.52	0.18	65.5
October	3.43	0.71	60.6
November	1.82	1.86	53.5
December	1.48	2.69	48.1
Annual	47.04	15.28	58

* ETo, or evapotranspiration, is the loss of water from evaporation and transpiration from plants.

Rain and Temperature values from Palo Alto CA NOAA station #046646 over 1951 to 2004.

Evapotranspiration values are from Union City CIMIS station #171.

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SECTION 3 SYSTEM DEMANDS

This section describes the urban water system demands, including calculating the baseline (base daily per capita) water use and interim and final urban water use targets. It includes a detailed description of how the baseline and targets were calculated. The calculations follow *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use For the Consistent Implementation of the Water Conservation Bill of 2009* developed by DWR. Background information and the approach used to develop baselines and targets are also included.

This section quantifies the current water system demands by category and projects them over the planning horizon of the UWMP. These projections include water sales to other agencies, system water losses, and water use target compliance. The future water demands are based on the assumed reduction in per capita daily use determined from planning for and implementing actions associated with SBx7-7.

3.1 BASELINES AND TARGETS

The evaluation of baseline water use and the target reduction methodologies are based on information provided by MPMWD on the following:

- Historical water production
- Historical water demand
- Historical connections and population

3.1.1 Baseline Daily Per Capita Water Use

SBx7-7 requires each urban water supplier to develop a Base Daily per Capita Water Use, or baseline per capita water use (baseline), defined as a water supplier's average gross daily per capita use in gallons per capita per day (gpcd). The baseline includes all water entering the delivery system including 1) water losses, except for recycled water delivered within the supplier's service area, 2) water placed into long-term storage, or 3) water conveyed to another urban water supplier. The purpose of developing a baseline per capita water use figure is to have a baseline from which to derive the water use target for 2020 as well as the interim 2015 water use target.

The first baseline is computed using water use and population data for 10 or 15 consecutive years beginning no earlier than 1994 and ending no later than 2010. A water supplier that meets at least 10% of the 2008 measured water demands through recycled water may use the 15-year averages. Because MPMWD does not have recycled water as a supply, a 10-year average was used to develop its baseline. The 10-year average used in this analysis is comprised of data from 1996 to 2005. As required by DWR, base period ranges are shown in Table 3.1 (DWR Table 13).

A second baseline is computed in order to establish the maximum allowable 2020 target. This baseline consists of a continuous five year period ending no earlier than December 31, 2007 and no later than December 31, 2010. The range used for calculating MPMWD's maximum allowable target is the period from 2006 to 2010. This is also illustrated in Table 3.1 (DWR Table 13).

**Table 3.1 (DWR Table 13)
Base Period Ranges**

Base	Parameter	Value	Units
10- to 15-Year Base Period	2008 total water deliveries (from 2008 Public Water System Report)	3,888	AFY
	2008 total volume of delivered recycled water	0	AFY
	2008 recycled water as a percent of total deliveries	0	percent
	Number of years in base period ^a	10	years
	Year beginning base period range	1996	--
	Year ending base period range ^b	2005	--
5-Year Base Period	Number of years in base period	5	years
	Year beginning base period range	2006	--
	Year ending base period range ^c	2010	--

^a If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first base period is a continuous 10- to 15-year period.

^b The ending year must be between December 31, 2004 and December 31, 2010.

^c The ending year must be between December 31, 2007 and December 31, 2010.

Table 3.2 shows baseline per capita water use and the population used to compute the 10-year baseline. As noted in Section 2, MPMWD has recently adjusted its population estimates to better reflect information from the census tracts that it serves. This adjustment was made with 2009 data. In order to calculate MPMWD’s baseline, this adjusted population data was projected backwards using the estimated annual growth rate of 0.42% within the service area. Table 3.2 (DWR Table 14) illustrates that MPMWD’s baseline is 262.03 gallons per capita per day (gpcd).

**Table 3.2 (DWR Table 14)
Base Daily Per Capita Water Use — 10- to 15-Year Range**

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	1996	13,389	3.37	252.01
Year 2	1997	13,445	3.63	270.33
Year 3	1998	13,502	3.22	238.25
Year 4	1999	13,559	3.49	257.32
Year 5	2000	13,616	3.71	272.65
Year 6	2001	13,673	3.60	263.49
Year 7	2002	13,730	3.69	268.95
Year 8	2003	13,788	3.67	266.13
Year 9	2004	13,846	3.79	274.00
Year 10	2005	13,904	3.57	257.11
Base Daily Per Capita Water Use				262.03

Table 3.3 (DWR Table 15) provides the 5-year baseline used to check the maximum allowable target. MPMWD’s 5-year baseline is 241.02 gpcd.

**Table 3.3 (DWR Table 15)
Base Daily Per Capita Water Use — 5-Year Range**

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2006	13,962	3.36	240.61
Year 2	2007	14,021	3.71	264.87
Year 3	2008	14,080	3.59	254.77
Year 4	2009	14,139	3.27	231.62
Year 5	2010	14,198	3.03	213.21
Base Daily Per Capita Water Use				241.02

3.1.2 Individual Agency Targets (2015 and 2020)

Each individual urban water supplier must develop a water use target for the year 2020 as well as an interim water use target for the year 2015. There are four methods that an urban water supplier may use to develop their 2015 and 2020 water use targets. Three methods were provided in SBx7-7 and the fourth was subsequently established by DWR. The four methods are generally described below. A more complete description can be found in DWR's *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* dated March 2011.

- Method 1: 80 percent of Base Daily Per Capita Use;
- Method 2: Performance standards based on actual water use data for indoor residential water use, landscaped area, and commercial, industrial and institutional (CII) water use;
- Method 3: 95 percent of the San Francisco Bay hydrologic region; and
- Method 4: Savings by water sector (indoor residential and CII) and landscape and water loss savings.

Methods 1 and 3 were applied in this analysis. Method 2 requires data specificity that is not currently available. If parcel-level landscape data becomes available, the target may be re-evaluated for the 2015 UWMP. Method 4 is a provisional method subject to revision. MPMWD may evaluate this method in 2015 after it becomes finalized.

Urban Water Use Target Method 1 Evaluation: 80 Percent of Base Daily per Capita Water Use

As part of the Urban Water Use Target Method 1 evaluation, MPMWD's historical water use in terms of gallons per capita per day (gpcd) was evaluated using total gross treated water production for each year and estimated population in each year based on the census data presented in Section 2. The value of 262 gpcd shown in Table 3.2 (DWR Table 14) is considered the base daily per capita water use for Method 1.

- Based on a 10 percent reduction of the base daily per capita water use, the 2015 interim target is 236 gpcd
- Based on a 20 percent reduction of the base daily per capita water use, the 2020 target is 210 gpcd.

Figure 3.1 shows the historical demand, baseline and 2020 targets as determined using Method 1. Like many agencies, MPMWD has seen a significant drop in water use since 2007. This can be attributed to a number of factors including the economic downturn (which reduced non-residential connections in the

City), cooler damper weather patterns and increased conservation in response to the state-wide drought. Per capita water use may rebound over time.

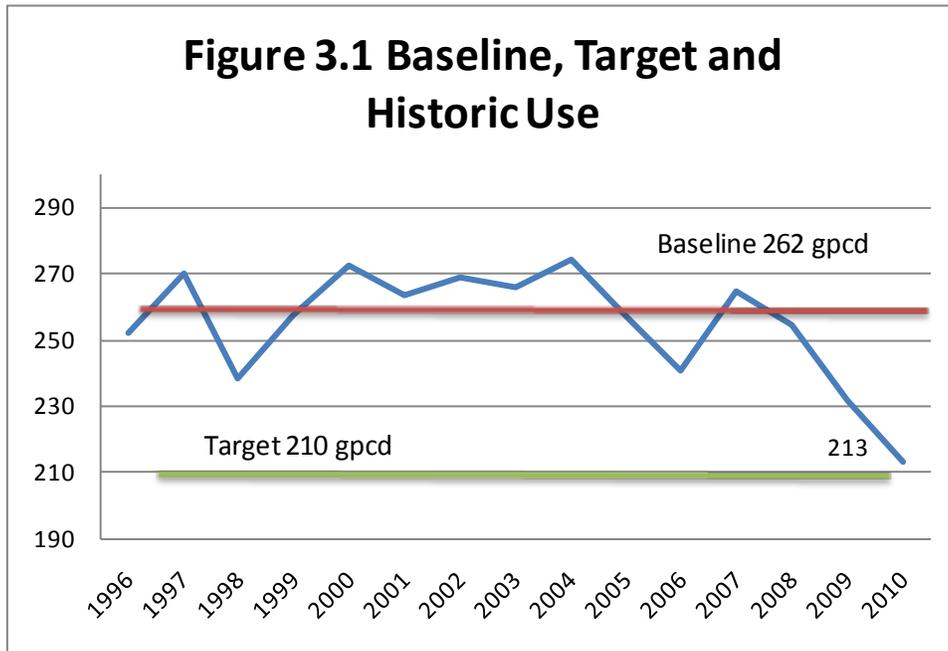


Figure3.1 Baseline, Target and Historic Use

Urban Water Use Target Method 3 Evaluation: 95 Percent of Hydrologic Region Target

The third method allows the water supplier to select 95 percent of the hydrologic region’s target as its target. The applicable Hydrologic Region for MPMWD is Region 2 – San Francisco Bay, with a **2020** regional target of 131 gpcd. This is illustrated in Figure 3.2.

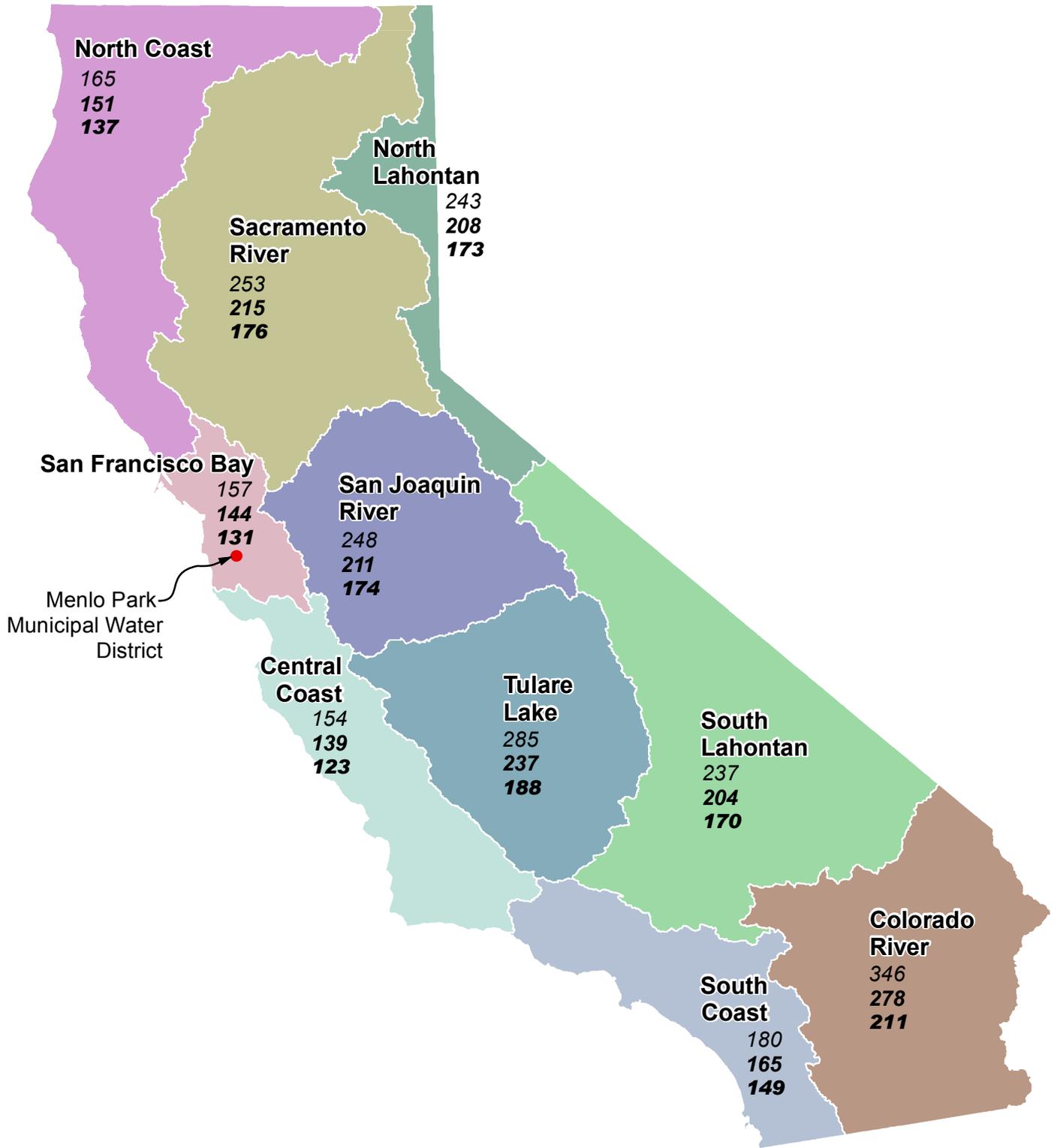
- Based on meeting the regional hydrologic target, the 2015 interim target is 193 gpcd
- Based on meeting the regional hydrologic target, the 2020 target is 124 gpcd

Maximum Allowable Target Check

SBx7-7 specified that the maximum allowable **2020** target that any agency can select is 95 percent of the previous five years’ use. The 5-year baseline was calculated in Table 3.3 (DWR Table 15) as 241 gpcd. Ninety-five percent of this is 230 gpcd. This is higher than the target computed under Method 1 or Method 3. MPMWD meets the maximum allowable target check.

Summary

Based on MPMWD’s historic population and use and the hydrologic target for the San Francisco Bay Region, it is most advantageous for MPMWD to use Method 1. Table 3.4 below summarizes MPMWD’s baseline and 2015 and 2020 targets under each methodology evaluated.

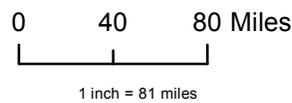


Legend

Statewide Conservation Goals

- 192 Baseline (1995-2005)
- 173 Interim Target (2015)
- 154 2020 Target

in gallons per capita per day



Sources: USDA: Aerial NAIP 2009 1 meter resolution; Humboldt County GIS: Parcels, BlueLine Streams.

Figure 3.2
Hydrologic Region Map

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Urban Water Management Plan



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**Table 3.4
Summary of Baseline and Target Analysis (gpcd)**

	2015			2020	
	Baseline	Target	Reduction required to meet Target	Target	Reduction required to meet Target
Method 1	262	236	-26	210	-52
Method 2	262	data not available for this analysis			
Method 3	262	193	-69	124	-138
Method 4	262	provisional method not evaluated			

Figure 3.3 illustrates the relationship between the Baseline, the Method 1 Targets, MPMWD’s historic water use and projections that will meet the targets.

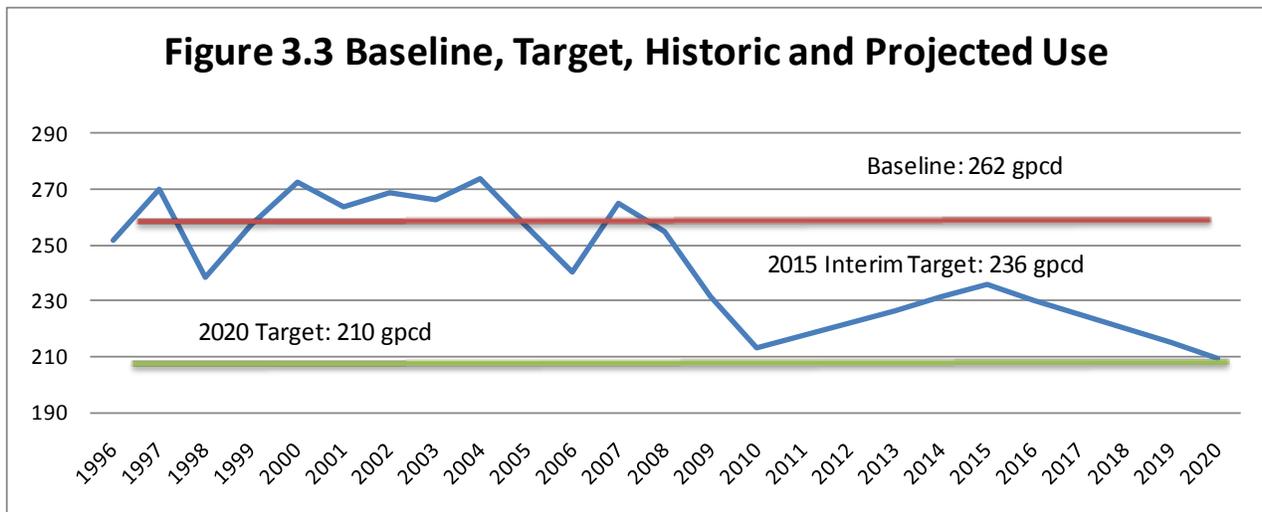


Figure3.3 Baseline, Target, Historic and Projected Use

3.1.3 Regional Targets

In early 2011, BAWSCA published a memorandum entitled “Interactive Spreadsheet for Preliminary Assessment of SB7 Targets and Estimated Water Savings Requirements Bay Area Water Supply and Conservation Agency, San Mateo California”. The document introduced and summarized a spreadsheet-based model that allows BAWSCA member agencies to assess the feasibility of forming a regional alliance or series of regional alliances to meet the SBx7-7 targets.

The preliminary analysis indicated that a regional alliance could be advantageous to all of BAWSCA’s members and could result in regional coordination around the most effective water use reduction strategies. The initial analysis indicates that this could be more effective than each of the BAWSCA member agencies working to comply with SBx7-7 individually.

MPMWD will continue to track the progress of a regional alliance. If the effort proceeds effectively, MPMWD may elect to participate in a regional alliance and modify its targets during the preparation of its 2015 UMWP.

3.2 WATER DEMANDS

3.2.1 Past and Current Water Deliveries

In accordance with DWR's guidance, 2005 water use by customer class is shown in Table 3.5 (DWR Table 3) which summarizes MPMWD billing data for the 2005 calendar year. Single-family customers were the largest single class using 36% of the total. Water use with multiple-family customers (apartments and condominiums) was 6%. MPMWD has a relatively large commercial and industrial base, which summed to 40% of total use. Public facility sites use was 7%. Landscape irrigation totals 8% of total use and includes only those sites with dedicated irrigation meters. This category includes a mix of residential, commercial, industrial, and public uses.

**Table 3.5 (DWR Table 3)
Water Deliveries — Actual, 2005 (AFY)**

Water Use Sectors	2005					% of Total
	Metered		Not Metered		Total Volume	
	# of Accounts	Volume	# of Accounts	Volume		
Single family	3378	1,453.0			1,453.0	36%
Multi-family	108	221.0			221.0	6%
Commercial	182	479.0			479.0	12%
Industrial	256	1,106.0			1,106.0	28%
Institutional/Governmental	31	282.0			282.0	7%
Landscape	113	337.0			337.0	8%
Agriculture	0	-			-	0%
Other	4.0	13.0	N/A	113	126.0	3%
Total	4072	3,891.0	0	113	4,004.0	100%
Total in MGD		3.47			3.57	

Notes:

1. Metered "Other" values reflect temporary meters.
2. Unmetered "Other" value reflects fire services and system losses.

2010 water use by customer class is shown in Table 3.6 (DWR Table 4). Single-family customers are again the largest single class using 35% of the total. From 2005 to 2010, MPMWD saw a significant increase in multi-family accounts and a corresponding increase in water use within this sector. Multi-family use increased from 6% to 10% of the total. The number of commercial and industrial customers was lower in 2010 than in 2005 and overall water use also went down, likely reflecting the impacts of the recession on business interests. In 2010, the commercial and industrial base usage sums to 36% of total use, public facility sites use 4% and landscape irrigation totals 13% of total use.

**Table 3.6 (DWR Table 4)
Water Deliveries — Actual, 2010 (AFY)**

Water Use Sectors	2010					% of Total
	Metered		Not Metered		Total Volume	
	# of Accounts	Volume	# of Accounts	Volume		
Single family	3390	1,171.0			1,171.0	35%
Multi-family	183	333.0			333.0	10%
Commercial	161	498.0			498.0	15%
Industrial	251	717.0			717.0	21%
Institutional/Governmental	36	151.0			151.0	4%
Landscape	121	436.0			436.0	13%
Agriculture	0	-			-	0%
Other	6.0	0.3	N/A	85	85.0	3%
Total	4148	3,306.3	0	84.7	3,391.0	100%
Total in MGD		2.95			3.03	

Notes:

1. Metered "Other" values reflect temporary meters.
2. Unmetered "Other" value reflects fire services and system losses.

3.2.2 Projected Water Deliveries

Projected water use has been developed by reviewing both land use projections for City and the per capita water use targets for MPMWD. As discussed earlier in this report, the MPMWD service area is largely built-out, particularly as it relates to residential development. Future water use patterns assume continued slow growth in the residential sector. However the service area does have the potential for some non-residential development. Regional planning estimates forecast employment growth of approximately 1% annually for the area.

2015 Water Deliveries

In order to project 2015 water deliveries, an annual growth factor of 0.07% per year is applied to single family residential accounts and an annual growth factor of 0.5% is applied to multi-family residential accounts. These factors are consistent with trends seen in MPMWD's billing data and with the "built-out" nature of the community. Commercial, Industrial and Irrigation accounts are assumed to return to 2005 levels. Institutional accounts are assumed to remain at a constant level.

In order to meet the water use targets, it is projected that average use in the residential sector will be reduced by 10% as a result of MPMWD's demand management efforts. Commercial, Industrial and Institutional use is assumed to return to 2005 levels and a 2% savings is predicted in the landscape class. With this set of projections, Single Family use will account for 28% of the total and multi-family use will account for 8%. Commercial and Industrial use will grow to 42%, which reflects the assumptions that growth will occur in these sectors as the economy recovers and that early demand management efforts will be targeted toward residential users. Institutional water use will account for 8% of the total. Irrigation will account for 11% of the total, again reflecting the assumption that some demand management efforts will be focused on this sector. This set of projections is illustrated in Table 3.7 (DWR Table 5).

**Table 3.7 (DWR Table 5)
Water Deliveries — Projected, 2015 (AFY)**

Water Use Sectors	2015					% of Total
	Metered		Not Metered		Total Volume	
	# of Accounts	Volume	# of Accounts	Volume		
Single family	3401	1,053.9			1,053.9	28%
Multi-family	187	299.7			299.7	8%
Commercial	182	479.0			479.0	13%
Industrial	256	1,106.0			1,106.0	30%
Institutional/Governmental	36	282.0			282.0	8%
Landscape	121	428.0			428.0	11%
Agriculture	0	-			-	0%
Other	5.0	2.7	N/A	93.6	96.3	3%
Total	4188	3,651.3	0	93.625	3,744.9	100%
Total in MGD		3.26			3.34	

Notes:

1. Metered "Other" values reflect temporary meters.
2. Unmetered "Other" value reflects fire services and system losses.
3. Data are in Fiscal Years

2020 Water Deliveries

In order to project 2020 water deliveries, an annual growth factor of 0.07% per year is applied to single family residential accounts and an annual growth factor of 0.5% is applied to multi-family residential accounts. Commercial, Industrial and Irrigation accounts are assumed to grow at 1% per year. Institutional accounts are assumed to remain at a constant level.

In order to meet the water use targets, it is projected that average use in the residential sector will be reduced by another 9% as a result of MPMWD's demand management efforts. Commercial, Industrial and Institutional are also assumed to be reduced by 9% as MPWMD's demand management efforts begin to focus on this sector. Landscape irrigation is assumed to be reduced by another 10%. This combination of water use reductions allows MPMWD to meet its 2020 per capita target.

This set of projections, illustrated in Table 3.8 (DWR Table 6), yields a similar use profile to 2015. Single Family use will account for 28% of the total and multi-family use will account for 8%. Commercial and Industrial use will remain at 42%. Institutional water use will account for 7% of the total. Irrigation will account for 12%.

**Table 3.8 (DWR Table 6)
Water Deliveries — Projected, 2020 (AFY)**

Water Use Sectors	2020					% of Total
	Metered		Not Metered		Total Volume	
	# of Accounts	Volume	# of Accounts	Volume		
Single family	3413	959.0			959.0	28%
Multi-family	192	272.7			272.7	8%
Commercial	191	431.1			431.1	13%
Industrial	269	995.4			995.4	29%
Institutional/Governmental	36	253.8			253.8	7%
Landscape	126	400.0			400.0	12%
Agriculture	0	-			-	0%
Other	5.0	2.7	N/A	85.0	87.7	3%
Total	4232	3,314.7	0	85.0	3,399.7	100%
Total in MGD		2.96			3.03	

Notes:

1. Metered "Other" values reflect temporary meters.

Water Deliveries beyond 2020

Because the water use targets will have been met in 2020, the water delivery projections beyond 2020 increase linearly with planned growth. An annual growth factor of 0.07% per year is applied to single family residential accounts and an annual growth factor of 0.5% is applied to multi-family residential accounts. Commercial, Industrial and Irrigation accounts are assumed to grow at 1% per year. Table 3.9 (DWR Table 7) illustrates this set of projections across the various demand classes in MPMWD’s service area.

**Table 3.9 (DWR Table 7)
Water Deliveries — Projected, 2025, 2030, and 2035 (AFY)**

Water Use Sectors	2025			2030			2035		
	Metered			Metered			Metered		
	# of Accounts	Volume	% of Total	# of Accounts	Volume	% of Total	# of Accounts	Volume	% of Total
Single family	3425	962.4	28%	3437	965.7	27%	3449	969.1	27%
Multi-family	197	279.6	8%	202	286.7	8%	207	293.9	8%
Commercial	201	450.9	13%	211	471.5	13%	222	493.1	14%
Industrial	283	1,041.0	30%	297	1,088.7	31%	312	1,138.6	31%
Institutional/Governmental	36	251.0	7%	36	248.0	7%	36	245.0	7%
Landscape	126	400.0	12%	126	400.0	11%	126	400.0	11%
Agriculture						0%			0%
Other		86.8	3%		88.6	2%		90.5	2%
Total	4268	3,471.7	100%	4309	3,549.2	100%	4352	3,630.2	100%
Total in MGD		3.10			3.17			3.24	

Notes:

1. Metered "Other" values reflect temporary meters.

3.2.3 Water Sold to Other Agencies

MPMWD does not sell water to other agencies. Table 3.10 (DWR Table 9) reflects this in DWR’s required format.

**Table 3.10 (DWR Table 9)
Sales to Other Water Agencies (AFY)**

Water Distributed	2005	2010	2015	2020	2025	2030	2035-opt
Total	0						

3.2.4 Actual and Projected “Other” Water Demands

MPMWD does not use water for saline barriers, groundwater recharge or conjunctive use and does not have access to a recycled water or raw water supply. Unaccounted for water and system losses have been included in the demand projections. Table 3.11 (DWR Table 10) reflects these facts in DWR’s required format.

**Table 3.11 (DWR Table 10)
Additional Water Uses and Losses (AFY)**

Water Use	2005	2010	2015	2020	2025	2030	2035-opt
Saline Barriers	0						
Groundwater Recharge	0						
Conjunctive Use	0						
Raw Water	0						
Recycled Water	0						
Unaccounted-for System Losses	System Losses and Water Sold through Temporary Meters Are Included in						
Other (define)	DWR Tables 3-7						
Total	0	0	0	0	0	0	0

3.2.5 Summary of Total Water Use

Total water use, including water losses, is projected to increase to 3,630 AFY in 2035 as shown in Table 3.12 (DWR Table 11). These use projections take into account both the per capita demand reductions required by SBx7-7 and planned growth in the MPMWD service area. The projected demands represent an increase of 7% above current water use but a decrease of 9% from 2005 levels and illustrate the simultaneous impacts of reducing per capita demand while still planning for growth in the service area.

**Table 3.12 (DWR Table 11)
Total Water Use (AFY)**

Water Use	2005	2010	2015	2020	2025	2030	2035-opt
Total Water Deliveries	4,004.0	3,391.0	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
Sales to Other Water Agencies	-	-	-	-	-	-	-
Additional Water Uses and Losses	-	-	-	-	-	-	-
Total	4,004.0	3,391.0	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
Total in MGD	3.57	3.03	3.34	3.03	3.10	3.17	3.24

3.2.6 Low-Income Water Use Projections

A new requirement for Urban Water Management Plans is a projection of water demands for lower income housing. In SBx7-7 lower income housing is defined as 80% of the City's median income, adjusted for family size. Because MPMWD's boundaries are not identical to the City's, estimates of lower income housing water demands are being made as a percentage of total demand based on the data included in the City's 2008 Draft Housing Element.

The Draft Housing Element indicates that in 2000 there were 12,140 housing units within the City and 3,770 of these units served residents with less than 80% of median income adjusted for family size.² This equates to 30% of the total residential units. Assuming that MPMWD's service area includes the same general percentages as the City, approximately 30% of overall residential water demand would be associated with low income units. Table 3.13 (DWR Table 8) presents this projection, which is included in the total projections above.

Table 3.13 (DWR Table 8)
Lower-Income Projected Water Demands (AFY)

Water Distributed	2015	2020	2025	2030	2035 - opt
Single-family residential	Note: Quantities are 30% of the total water demand.				
Multi-family residential					
Total	406.08	369.53	372.6	375.72	378.9
Total in MGD	0.36	0.33	0.33	0.34	0.34

3.3 WATER DEMAND PROJECTIONS FOR RETAILERS

MPMWD receives its wholesale water supply from SFPUC. Table 3.14 (DWR Table 12) below illustrates the water use projections provided to SFPUC.

Table 3.14 (DWR Table 12)
Retail Agency Demand Projections Provided to Wholesale Suppliers (AFY)

Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035-opt
San Francisco PUC	4,993.0	3,391.0	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
Total in MGD	4.46	3.03	3.34	3.03	3.10	3.17	3.24

3.4 WATER USE REDUCTION PLAN

As part of the 2010 UWMP Plan, all retail water suppliers are required to develop an implementation plan for compliance with SBx7-7. SBx7-7 requirements for the MPMWD provide an overall goal for community-wide water demand reduction. The state requirements refer to the metric on a per person (capita) amount of water demand per day, which is based on total water demand in the service area divided by number of days in the year, divided by the total number of persons served, presented in terms of gallons per capita per day.

The compliance with targets required by SBx7-7 is voluntary on behalf of each individual water customer, and the MPMWD will need to proceed with more conservation measures over time, if monitoring of

² Table 12, Draft Housing Element for Next Update of General Plan, 2008.

progress of the total annual water demand in the service area indicates that targets are not forecasted to be achieved.

MPMWD will be encouraging reductions in customer water demand mainly through its participation in BAWSCA's Water Conservation Implementation Plan (WCIP) which incorporates the 14 Demand Management Measures (DMMs) outlined in DWR's Guidebook³ and several additional conservation measures that BAWSCA member agencies have committed to undertake to help limit the overall demand placed on the SFPUC's system. This plan addresses all sectors and avoids placing a disproportional burden on any customer sector.

As discussed earlier in this section, MPMWD's water reduction plan includes an early focus on the residential sector and an increasing focus on the commercial and industrial sector after 2015. Over the course of the next 9 years, MPMWD may also strengthen some existing policies or adopt new policies to help achieve these targets. Compliance with some of these policies may not be voluntary, such as requirements to avoid wasteful practices.

Detailed descriptions of each of the water reduction plan elements are included in BAWCAS's WCIP (http://bawsca.org/docs/WCIP_FINAL_Report.pdf). A summary focused on MPMWD's compliance strategy is found in Section 6.

³ The DMMs coincide with the California Urban Water Conservation Council's (CUWCC) historical Best Management Practices. CUWCC had updated its best management practices and they are no longer identical to the DMMs.

SECTION 4 SYSTEM SUPPLIES

4.1 OVERVIEW

This chapter describes MPMWD’s existing and planned sources of water supply. The City obtains its primary water supply from the SFPUC. As a member of BAWSCA, it is also coordinating on future long-term water supply projects that could benefit the entire region. Finally, MPMWD is actively working to develop a groundwater supply that will add emergency supply reliability to its overall supply portfolio. Table 4.1 (DWR Table 16) provides a summary of the existing and planned water supply sources, which are discussed in detail in the remainder of this Section.

The projections presented in this table are conservative. While BAWSCA is working to develop and coordinate long term water supply strategies, their work is not far enough along to allow for a meaningful projection of future water supply. MPMWD will track progress on both of these efforts and report any changes and updates in its 2015 UWMP.

**Table 4.1 (DWR Table 16)
Water Supplies – Current and Projected (AFY)**

Water Supply Sources						
Water Purchased From:	Wholesaler Supplied Volume (yes/no)	2010	2015	2020	2025	2030
San Francisco Public Utilities Commission	Yes	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
Supplier-produced groundwater			-			
Transfers in			-	-	-	-
Exchanges In			-	-	-	-
Recycled Water						
Desalinated Water			-	-	-	-
BAWSCA Long Term Water Supply Strategy Projects			-	-	-	-
Total		4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
Total in MGD		4.46	4.46	4.46	4.46	4.46

4.2 SAN FRANCISCO PUBLIC UTILITIES COMMISSION REGIONAL SYSTEM

MPMWD receives water from the City and County of San Francisco’s Regional Water System (RWS), operated by the SFPUC. This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. The RWS is illustrated in Figure 4.1.

The amount of imported water available to the SFPUC’s retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to firm-up its water supplies.

The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. In practice, the local watershed facilities are operated to capture local runoff.

4.2.1 Water System Improvement Plan

In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has undertaken the Water System Improvement Program (WSIP), approved October 31, 2008. The WSIP will deliver capital improvements aimed at enhancing the SFPUC's ability to meet its water service mission of providing high quality water to customers in a reliable, affordable and environmentally sustainable manner. Many of the water supply and reliability projects evaluated in the WSIP were originally put forth in the SFPUC's Water Supply Master Plan (2000).

A Program Environmental Impact Report (PEIR) was prepared in accordance with the California Environmental Quality Act for the WSIP. The PEIR, certified in 2008, analyzed the broad environmental effects of the projects in the WSIP at a program level and the water supply impacts of various alternative supplies at a project level. Individual WSIP projects are also undergoing individual project specific environmental review as required.

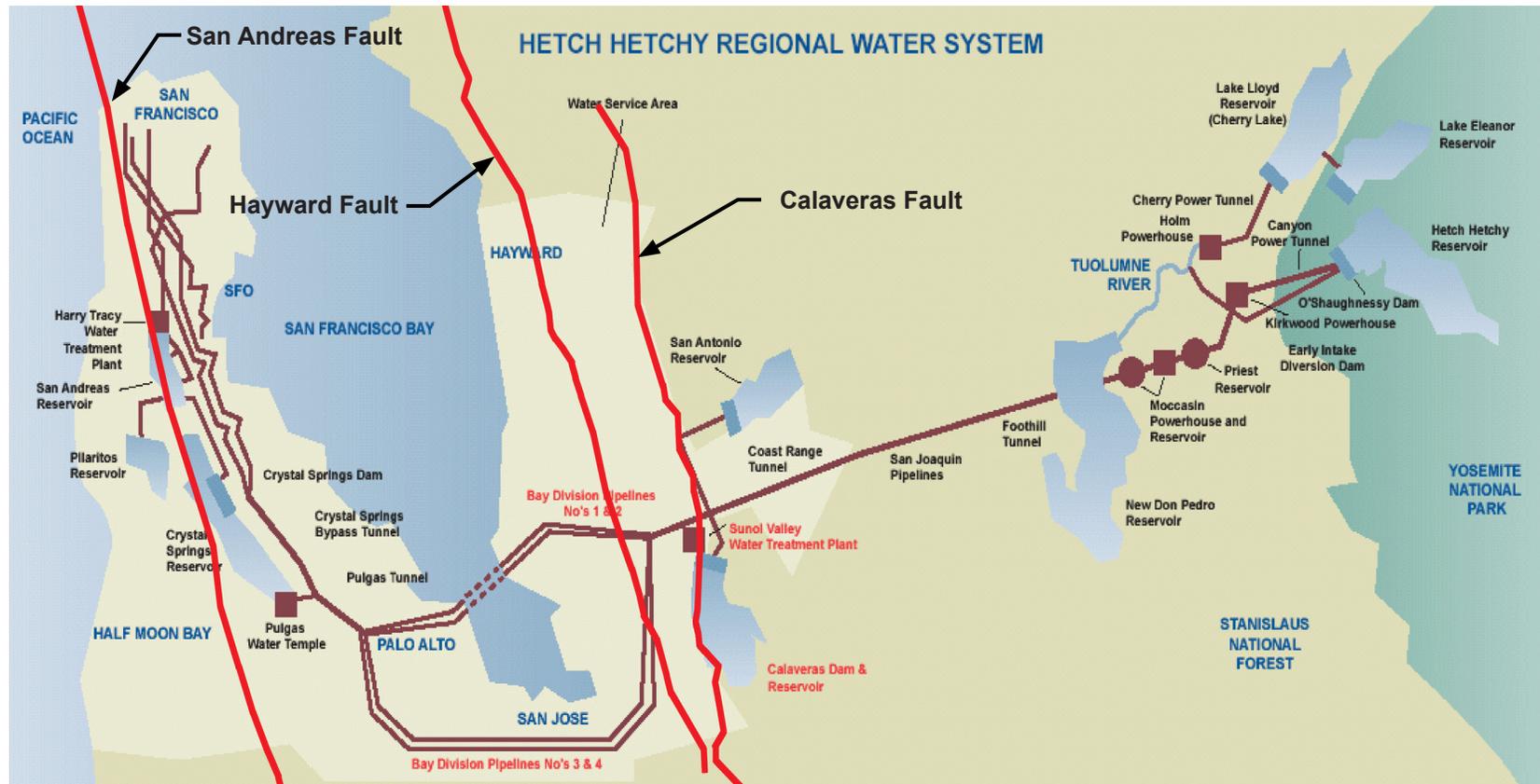
In approving the WSIP, the San Francisco Public Utilities Commission (Commission) adopted a Phased WSIP Variant for water supply that was analyzed in the PEIR. This Phased WSIP Variant established a mid-term water supply planning milestone in 2018 when the Commission would reevaluate water demands through 2030. At the same meeting, the Commission also imposed the Interim Supply Limitation which limits the volume of water that the member agencies and San Francisco can collectively purchase from RWS to 265 MGD until at least 2018. Although the Phased WSIP Variant included a mid-term water supply planning milestone, it did include full implementation of all proposed WSIP facility improvement projects to insure that the public health, seismic safety, and delivery reliability goals were achieved as soon as possible.

As of July 1, 2010, the WSIP was 27% complete overall with the planning and design work over 90% complete. The WSIP is scheduled to be completed in December 2015. WSIP projects are also illustrated in Figure 4.1.

4.2.2 2009 Water Supply Agreement

The business relationship between San Francisco and its wholesale customers is largely defined by the "Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County" entered into in July 2009 (WSA). The new WSA replaced the Settlement Agreement and Master Water Sales Contract that expired June 2009. The WSA addresses the rate-making methodology used by San Francisco in setting wholesale water rates for its wholesale customers in addition to addressing water supply and water shortages for the RWS. The WSA has a 25 year term.

In terms of water supply, the WSA provides for a 184 million gallon per day (MGD, expressed on an annual average basis) "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction to the extent and for the period made necessary by reason of water shortage, due to drought, emergencies, or by malfunctioning or rehabilitation of the regional water system. The WSA does not guarantee that San Francisco will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance. The SFPUC's wholesale customers have agreed to the allocation of the 184 MGD Supply Assurance among themselves, with each entity's share of the Supply Assurance set forth on Attachment C to the WSA. The Supply Assurance survives termination or expiration of the WSA and any agency's Individual Water Sales Contract with San Francisco.



Source: SFPUC, 2011

**Figure 4.1
Regional Water System &
Geologic Faults**

Menlo Park Municipal Water District
Urban Water Management Plan



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The Water Shortage Allocation Plan between the SFPUC and its wholesale customers, adopted as part of the WSA in July 2009, addresses shortages of up to 20% of system-wide use. The Tier 1 Shortage Plan allocates water from the RWS between San Francisco Retail and the wholesale customers during system-wide shortages of 20% or less. The WSA also anticipated a Tier 2 Shortage Plan adopted by the wholesale customers which would allocate the available water from the RWS among the wholesale customers.

4.2.3 Individual Supply Guarantees

In 2009, MPMWD along with 25 other Bay Area water suppliers signed the WSA with San Francisco, supplemented by an individual Water Supply Contract. These contracts, which expire in 25 years, provide for a 184 MGD (expressed on an annual average basis) Supply Assurance to the SFPUC's wholesale customers collectively. MPMWD's Individual Supply Guarantee (ISG) is 4.465 MGD (or approximately 4,993 acre-feet per year). Although the WSA and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely, as noted above in Section 4.2.2.

4.3 BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BAWSCA was created on May 27, 2003 to represent the interests of the 26 agencies that include cities, water districts, a water company, and a university, in Alameda, Santa Clara and San Mateo counties that purchase water on a wholesale basis from the San Francisco RWS. Collectively, the BAWSCA agencies are referred to as the Wholesale Customers.

BAWSCA is the only entity that has the authority to directly represent the needs of the wholesale customers that depend on the RWS. Through BAWSCA, the wholesale customers can work with SFPUC on an equal basis to ensure the RWS is rehabilitated and maintained and to collectively and efficiently meet local responsibilities.

BAWSCA has the authority to coordinate water conservation, supply and recycling activities for its agencies; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the regional water system; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes.

Compliance with the Urban Water Management Planning Act lies with each agency that delivers water to its customers. In this instance, the responsibility for completing a UWMP lies with the individual BAWSCA member agencies. BAWSCA's role in the development of the 2010 UWMP updates is to work closely with its member agencies and the SFPUC to maintain consistency among the multiple documents being developed.

4.3.1 Water Conservation Implementation Plan

In September 2009, BAWSCA completed the Water Conservation Implementation Plan (WCIP). The goal of the WCIP is to develop an implementation plan for BAWSCA and its member agencies to attain the water efficiency goals that the agencies committed to in 2004 as part of the PEIR for the WSIP (described in Section 4.2.1). The WCIP's goal was expanded to include identification of how BAWSCA member agencies could use water conservation as a way to continue to provide reliable water supplies to their customers through 2018 given the SFPUC's 265 MGD Interim Supply Limitation. The SFPUC imposed the Interim Supply

Limitation on October 31, 2008, to limit the volume of water that the BAWSCA member agencies and San Francisco can collectively purchase from the RWS to 265 MGD until at least 2018.

Based on the WCIP development and analysis process, BAWSCA and its member agencies identified five new water conservation measures, which, if implemented fully throughout the BAWSCA service area, could potentially save an additional 8.4 MGD by 2018 and 12.5 MGD by 2030. The demand projections for the BAWSCA member agencies, as transmitted to the SFPUC on June 30, 2010, indicate that collective purchases from the SFPUC will stay below 184 MGD through 2018 as a result of revised water demand projections, the identified water conservation savings, and other actions.

Several member agencies have elected to participate in the BAWSCA regional water conservation programs and BAWSCA continues to work with individual member agencies to incorporate the savings identified in the WCIP into their future water supply portfolios with the goal of maintaining collective SFPUC purchases below 184 MGD through 2018.

4.3.2 Regional Coordination on Demand Management

BAWSCA and its member agencies look for opportunities to work with other water agencies, including the SFPUC and the Santa Clara Valley Water District (SCVWD), and leverage available resources to implement water use efficiency projects. For example, in 2005, BAWSCA and the SFPUC entered into a Memorandum of Understanding (MOU) regarding the administration of a Spray Valve Installation Program. Through this MOU, BAWSCA and the SFPUC worked cooperatively to offer and coordinate the installation of water conserving spray valves to food service providers throughout the BAWSCA service area. In addition, BAWSCA participates in the Bay Area Efficient Clothes Washer Rebate Program, which is a residential rebate program offered by all of the major Bay Area water utilities. Through participation in this program, BAWSCA and its participating member agencies were the recipients of \$187,500 in Proposition 50 grant funds, which became available in Fiscal Year 2006/2007.

More recently, as part of the Bay Area Integrated Regional Water Management Plan, BAWSCA and the other major Bay Area water utilities submitted a Proposition 84 Implementation Grant Proposal in January 2011 to support regional water conservation efforts that offer drought relief and long-term water savings. The proposed project includes a package of water conservation programs to improve water use efficiency throughout the San Francisco Bay Area. The project provides direct funding, financial incentives (rebates), and/or subsidies for the implementation of programs that achieve reduced water demand, by all classes of water users: residential, and commercial, industrial and institutional. Four specific programs were selected for the project because they were determined to provide the most quantifiable and sustainable water savings, including: 1) Water-Efficient Landscape Rebates, Training and Irrigation Calculator, 2) High-Efficiency Toilet/Urinal Direct Install and/or Rebates, 3) High-Efficiency Clothes Washer Rebates, and 4) Efficient Irrigation Equipment Rebates.

BAWSCA and its member agencies will continue to partner with each other and the other Bay Area water utilities, as appropriate, to develop regional water conservation efforts that extend beyond local interests to examine costs, benefits and other related issues on a system-wide level. The goal is to maximize the efficient use of water regionally by capitalizing on variations in local conditions and economies of scale.

4.3.3 Long Term Reliable Water Supply Strategy

BAWSCA’s water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. A reliable supply of water is required to support the health, safety, employment, and economic opportunities of the existing and expected future residents in the BAWSCA service area and to supply water to the agencies, businesses, and organizations that serve those communities. BAWSCA is developing the Long-Term Reliable Water Supply Strategy (Strategy) to meet the projected water needs of its member agencies and their customers through 2035 and to increase their water supply reliability under normal and drought conditions.

The Strategy is proceeding in three phases. Phase I was completed in 2010 and defined the magnitude of the water supply issue and the scope of work for the Strategy. Phase II of the Strategy is currently under development and will result in a refined estimate of when, where, and how much additional supply reliability and new water supplies are needed throughout the BAWSCA service area through 2035, as well as a detailed analysis of the water supply management projects, and the development of the Strategy implementation plan. Phase II will be complete by 2013. Phase III will include the implementation of specific water supply management projects. Depending on cost-effectiveness, as well as other considerations, the projects may be implemented by a single member agency, by a collection of the member agencies, or by BAWSCA in an appropriate timeframe to meet the identified needs. Project implementation may begin as early as 2013 and will continue throughout the Strategy planning horizon, in coordination with the timing and magnitude of the supply need.

The development and implementation of the Strategy will be coordinated with the BAWSCA member agencies and will be adaptively managed to ensure that the goals of the Strategy, i.e., increased normal and drought year reliability, are efficiently and cost-effectively being met.

Table 4.2 (DWR Table 17) outlines the contractual wholesale water supplies that MPMWD has secured through SFPUC and BAWSCA.

**Table 4.2 (DWR Table 17)
Wholesale Supplies – Existing and Planned Sources of Water (AFY)**

Wholesale Sources	Contracted Volume ^a	2015	2020	2025	2030
San Francisco Public Utilities Commission	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
BAWSCA Long Term Strategy		-	-	-	-
Total	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
Total in MGD	4.46	4.46	4.46	4.46	4.46

^a Attachment C - Agreement for Water Supply between San Francisco PUC and Wholesale Customers dated July 2009

4.4 GROUNDWATER

MPMWD does not currently use groundwater but is currently evaluating several well sites in order to supplement its emergency potable and fire use water supply. The City anticipates permitting the supply as an “emergency supply” under California Department of Public Health’s rules, which means that the supply could be used for five (5) consecutive days and for less than 15 days per year. The City anticipates this supply would help it address short term service interruptions but would not provide long-term additional supply volume.

The following studies are among those that have informed this effort and that provide data for this Section:

- “Final Feasibility of Supplemental Groundwater Resources Development in Menlo Park and East Palo Alto,” August 2005, Todd Engineers (Feasibility Study)
- “Technical Memorandum: Site Screening and Selection Process, September 2010” (Emergency Supply TM)
- The “Technical Memorandum: Community Outreach Progress Report, September 2010”

4.4.1 Groundwater Management Plan

Because MPMWD does not currently use groundwater, it does not currently have a Groundwater Management Plan.

4.4.2 Description of Groundwater Basin

MPMWD overlies the Santa Clara Valley Groundwater Basin. It is also at the north end of the Santa Clara Valley Subbasin near the San Mateo Plan Subbasin within the San Francisquito Creek Watershed. Locally the groundwater basin is referred to as the San Francisquito Creek Subbasin or the San Francisquito Cone. These local references do not conform to DWR’s Bulletin 118 naming convention. Neither the larger Santa Clara Valley Basin nor the subbasins are adjudicated. Figure 4.2 illustrates the DWR’s mapped groundwater subbasins around Menlo Park.

As described in the “Final Feasibility of Supplemental Groundwater Resources Development in Menlo Park and East Palo Alto,” August 2005, Todd Engineers (Feasibility Study), the San Francisquito Creek crosses the basin and is defined by a 45-square mile watershed encompassing mountainous bedrock terrain and relatively flat alluvial fan deposits. The geology is composed of the coarse- and fine-grained alluvial deposits of San Francisquito Creek. The groundwater system includes a shallow aquifer and a deep aquifer beneath a laterally extensive confining clay layer. The deep aquifer consists of an upper and lower zone. The groundwater subbasin is as much as 1,000 feet thick in places. Pumping test and empirical transmissivity data indicate that development of a municipal supply in the study area is feasible. Storativity values indicate the shallow aquifer is unconfined and the deeper aquifer system is semi-confined.

On average, the thickness of water-bearing sediments range from more than 1,000 feet south of Palo Alto thinning to less than 400 feet at the northern end of the subbasin beneath Redwood City (Fio and Leighton, 1995; Water well drillers logs).

Under natural conditions, groundwater flow is from the edge of the basin near the bedrock uplands toward San Francisco Bay to the northeast. In the early 1900s this natural groundwater flow pattern was reversed when pumping and periodic drought reduced groundwater elevations to below sea level in the area. Lowered groundwater levels induced saline water from the San Francisco Bay inland into the aquifer system and also resulted in ground subsidence as the result of dewatering and compaction of clay layers within the aquifer.

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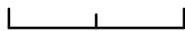


Cartography: RMR

Legend

 DWR Mapped Groundwater Basins

0 2.5 5 Miles



1 inch = 5 miles



Sources: USDA; Aerial NAIP 2009 1 meter resolution; Humboldt County GIS; Parcels, Blueline Streams.

**Figure 4.2
Groundwater Subbasin**

Menlo Park Municipal Water District
Urban Water Management Plan

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Groundwater extraction from the area declined significantly after the importation of Hetch Hetchy water supplies in the 1960s. As a result, groundwater elevations have been steadily increasing over much of the area. Currently, the groundwater gradient is toward the Bay. If groundwater gradients toward the Bay are maintained, intrusion of saline water from the Bay can be prevented under future development scenarios. The Feasibility Study indicates that the groundwater quality is acceptable for potable or irrigation uses with some wells exhibiting elevated concentrations of total dissolved solids, iron, manganese, and chloride. Treatment and/or blending with Hetch Hetchy sources would boost aesthetics for potable use.

4.4.3 Sufficiency of the Groundwater Basin

Current groundwater pumping in the basin is estimated to be 1,100 AFY. As noted above, the MPMWD does not currently pump any groundwater.

It is anticipated that during a drought or emergency reduction in Hetch Hetchy allocations, groundwater use will increase. It is estimated that future municipal and private groundwater use in the San Francisquito Subbasin during a drought or emergency Hetch Hetchy system-wide reduction could increase to approximately 6,640 AFY (6 MGD). This estimate includes current use, 800 AFY of projected pumping by the City of East Palo Alto and 4,840 AFY in projected emergency pumping by MPMWD, as discussed in Section 4.4.4 below. It is important to note that MPMWD envisions an emergency groundwater use only and therefore pumping will not be continuous.

In order to estimate the quantity of groundwater that can be sustainably developed from the San Francisquito Subbasin, a basic water balance under current pumping conditions was performed. It is estimated that annual recharge to the San Francisquito Groundwater Subbasin ranges from approximately 4,000 to 8,000 AFY (3.6 to 7.2 MGD). The total basin discharge under current conditions is estimated to be approximately 8,000 AFY (7.2 MGD). The water balance calculations show a balance between basin discharge and the higher end estimate of groundwater recharge. Additional groundwater resources can be developed. If additional groundwater resources are developed, groundwater levels will decline and less groundwater will discharge in the subsurface to the Bay. Regional management of groundwater extraction will be coordinated if planned projects and programs develop.

4.4.4 Planned Groundwater Supply Projects and Programs

The Feasibility Study indicates that there is some opportunity for groundwater supplement of potable water use. Based on review of water well driller logs and other data in the area, a properly designed and sited municipal well could be expected to yield between 300 and 1,800 gallons per minute (gpm) under sea level conditions at the time of the report. Regional use in the basin must be considered in determining maximum allowable yields that avoid depletion of groundwater resources and induction of salt water intrusion from the Bay.

The City developed the Emergency Water Supply Project, which is summarized in the “Technical Memorandum: Site Screening and Selection Process, September 2010” (Emergency Supply TM). The Project will construct two to three new wells at separate sites to supplement emergency potable and fire protection uses in MPMWD’s lower zone, which roughly corresponds to the eastern third of the City. Public opposition to storage reservoirs triggered public outreach efforts and the development of wells-only alternatives. Site selection for the wells was based on community acceptance and adequacy in meeting the identified required emergency supply of 4,840 AFY (3,000 gpm) at potable water standards. A general “favorable area” has been selected as optimal and a Preliminary Well Site Screening has been performed

which identified 13 potential sites. Next steps include Site Ranking and an Engineering and Hydrologic Evaluation.

The “Technical Memorandum: Community Outreach Progress Report, September 2010” documents efforts made for the Emergency Water Supply Project. Highlights of the program include multi-tiered strategies to share information and solicit input via regular and email notifications, an interactive website, and community meetings. Tables 4.3 and 4.4 outline historic and planned groundwater pumping.

**Table 4.3 (DWR Table 18)
Groundwater – Volume Pumped (AFY)**

Basin Name(s)	Metered or Unmetered ^a	2006	2007	2008	2009	2010
San Francisquito Creek Subbasin	NA	0	0	0	0	0
Total groundwater pumped		0	0	0	0	0
Groundwater as a percent of total water supply		0	0	0	0	0

**Table 4.4 (DWR Table 19)
Groundwater – Volume Projected to be Pumped (AFY)**

Basin Name(s)	2015	2020	2025	2030
San Francisquito Creek Subbasin	-	-	-	-
Total groundwater pumped	-	-	-	-
Percent of total water supply	0%	0%	0%	0%
* MPMWD is planning an "emergency" supply of 3,000 gpm				

4.5 TRANSFER OPPORTUNITIES

Securing water from willing sellers inside and outside of the Hetch Hetchy water system is theoretically possible.

Within the SFPUC system, it is possible to transfer water entitlements and/or banked water from among agencies. The Interim Water Shortage Allocation Plan (IWSAP) adopted by all BAWSCA agencies and SFPUC provides for voluntary transfers of water among BAWSCA agencies during periods when mandatory rationing is in effect on the San Francisco regional water system. Some BAWSCA agencies have the capacity to draw more heavily on local groundwater during dry years and thus may be willing to agree to transfer some portion of their San Francisco entitlement to other BAWSCA agencies willing to pay for this back up supply. This is a possible source of relief from rationing at levels more severe than those required in neighboring communities. Initial inquiries by MPMWD of other agencies have not produced any affirmative responses. It is not possible to rely on this potential source unless and until contracts are signed with one or more other BAWSCA agencies.

Securing water from willing sellers outside the BAWSCA service area is theoretically possible. State laws enacted in the 1980s allow for “wheeling” of water from willing sellers to willing buyers through transmission systems owned by third parties – such as the SFPUC’s San Joaquin pipelines. This is a more complex process and one that would require not only a contract with a water supplier (such as an irrigation agency), but also approval by the SFPUC. BAWSCA has the authority to plan for and acquire supplemental water supplies, to encourage water conservation and use of recycled water on a regional basis, and to assist in the financing of essential public works in a coordinated and cost-effective manner. BAWSCA’s Long Term Reliable Water Supply Strategy program allows for the analysis of the feasibility of water transfers.

Santa Clara Valley Water District may provide a particularly attractive transfer partner for MPMWD. Santa Clara Valley Water District delivers water to the neighboring Palo Alto Water System and a temporary or permanent interconnection may be possible.

Table 4.5 (DWR Table 20) summarizes transfer and exchange opportunities.

**Table 4.5 (DWR Table 20)
Transfer and Exchange Opportunities (AFY)**

Transfer Agency	Transfer or Exchange	Short Term or Long Term	Proposed Volume
SFPUC Contractor	Transfer	Short Term	0
BAWSCA Long Term Strategy	Potential for Transfer or Exchanges	Potential for Short or Long Term	0
Santa Clara Valley Water District	Potential Transfer	Short Term	0
Total			0

4.6 DESALINATED WATER OPPORTUNITIES

Desalination of ocean water or brackish water to obtain potable water supplies could be a possible future water source by regional agencies such as the SFPUC and BAWSCA. BAWSCA’s Long Term Reliable Water Supply Strategy program allows for the analysis of the feasibility of desalination. MPMWD has no plans for constructing a desalination plant.

4.7 RECYCLED WATER OPPORTUNITIES

This section describes the wastewater characteristics, flows, and treatment facilities that are proximate to the District’s service area. The UWMP Act requires the following items to be addressed for recycled water:

- Information on the recycled water supply including coordination with dischargers
- Description of the wastewater collection and treatment systems in the service area
- Quantity of treated wastewater that meets recycled water standards
- Recycled water currently being used in the service area
- Potential for recycled water use in the service area
- Actions to encourage recycled water use
- Plan for optimizing recycled water use.

4.7.1 Overview and Wastewater System Description

MPMWD is proximate to the service areas of two sanitary districts which are described below.

The West Bay Sanitary District (West Bay) collects wastewater from customers within Menlo Park, Atherton, East Palo Alto, Redwood City, Woodside, and unincorporated San Mateo and Santa Clara

Counties. MPMWD is within the District's service area. West Bay transports wastewater via main line trunk sewers to the Menlo Park Pumping Station located at the entrance to Bayfront Park. From there, wastewater is transported to the South Bayside System Authority (SBSA) Regional Treatment Plant, located at the eastern end of the Redwood Shores peninsula in Redwood City. The SBSA is permitted by the San Francisco Regional Water Quality Control Board (RWQCB) to discharge wastewater into San Francisco Bay. This plant is jointly owned and operated by West Bay and the cities of Redwood City, Belmont, and San Carlos as a joint powers authority and has an average daily dry weather flow of 6 MGD.

The East Palo Alto Sanitary District (East Palo Alto) serves portions of the Cities of East Palo Alto and portions of the City of Menlo Park, outside the MPMWD service area. Its collection system is comprised of 30 to 35 miles of gravity sewer mains, ranging from 6-inch to 24-inch diameter pipe. Wastewater collected in East Palo Alto's system is transported to the City of Palo Alto's Regional Water Quality Control Plant (PARWQCP), which has a dry-weather capacity of 40 MGD and a wet-weather capacity of 80 MGD. While the MPMWD is also located near the PARWQCP, it does not contribute flow to this facility.

Both SBSA and PARWQCP put their entire wastewater streams through primary, secondary, and post-secondary treatment in order to comply with requirements for discharge to San Francisco Bay. Both SBSA and PARWQCP treat some of their effluent to meet recycled water standards for unrestricted beneficial reuse per California Code of Regulations, Title 22. Both plants deliver highly treated wastewater for reuse in certain sections of their service area but not within MPMWD's service area. According to State Water Board Survey data (2009), approximately 410 AFY of SBSA's water is recycled in Redwood City and 635 AFY of PARWQCP's water is recycled in Palo Alto and Menlo Park. PARWQCP recycled water project has been recently expanded and will deliver 1500 AFY by 2015, as customers are brought on-line.

Table 4.6 (DWR Table 21) and 4.7 (DWR Table 22) illustrates the existing and planned wastewater flows, existing and planned and recycled water deliveries and existing and planned alternative disposal methods.

Table 4.6 (DWR Table 21)
Recycled Water – Wastewater Collection and Treatment (AFY)

Type of Wastewater	2005	2010	2015	2020	2025	2030
SBSA wastewater collected & treated in service area ^a	16,800	16,900	17,689	18,479	19,268	20,058
SBSA volume that meets recycled water standard	100%	100%	100%	100%	100%	100%
PARWQCP wastewater collected & treated in service area ^b	24,000	24,091	27,286	28,678	30,141	31,995
PARWQCP volume that meets recycled water standard	100%	100%	100%	100%	100%	100%

^a SBSA Conveyance System Master Plan, April 2011 (Winzler & Kelly) Table 2.3. 2007 baseline is used for 2005 and 2010 estimates. Estimates based on ADWF

^b 2010 flows based on PARWQCP data on 2010 average flows. PARWQCP has just begun the master-planning process. A 1% growth rate is assumed for future projections

Table 4.7 (DWR Table 22)
Recycled Water – Non-Recycled Wastewater Disposal (AFY)

Method of Disposal	Treatment Level	2010	2015	2020	2025	2030
SBSA disposal to SF Bay ^a	Tertiary	16,490	17,279	18,069	18,858	19,648
PARWQCP disposal to SF Bay ^b	Tertiary	23,456	25,786	27,178	28,641	30,495
Total		39,946	43,065	45,247	47,499	50,143

^a SBSA projected flows less 410 AFY recycling in Redwood City (2009 State Water Board Survey)

^b PARWQCP flows less 635 AFY in 2010 and 1500 AFY thereafter. (personal communication with on planning projections by Palo Alto)

4.7.2 Recycled Water Use – Existing and Planned

In 2004, MPMWD evaluated the potential for using recycled water to reduce potable water demands. This study identified 144 parcels in the service area as potential recycled water use sites using about 800 acre-feet per year. However some of these users including St. Patrick’s Seminary and the Veterans Administration Hospital, partially or wholly use groundwater for irrigation to supplement Hetch Hetchy Water. A total of 136 of the 144 parcels had estimated recycled water demands of less than 10 acre-feet per year (0.01 MGD), and the total recycled demand of the 136 parcels totaled about 261 acre-feet per year (0.23 MGD). The total estimated demand of these 12 potential users is 664 acre-feet per year (0.59 MGD) or about 83% of the total demand.

Based on “order-of-magnitude” cost estimates, MPMWD does have some relatively large potential recycled water users, but they are located far from the recycled water supply. Currently, there is not sufficient demand around the Sharon Heights Golf Course to serve that area cost-effectively. Neighboring Redwood City has a recycled water program that could extend transmission mains to Woodside Road and Highway 101, which would allow MPMWD to re-evaluate services to sites such as the proposed Facebook campus on Bayfront Expressway. Table 4.8 (DWR Table 23) is a summary of the initial evaluation of recycled water potential.

Table 4.8 (DWR Table 23)
Recycled Water – Potential Future Use (AFY)

User Type	Description (demand in AFY)	Feasibility ^a	2015	2020	2025	2030
Landscape irrigation	233.6	Not feasible economically				
Total			0	0	0	0

^a Technical and economic feasibility

4.7.3 Comparison of Previously Projected and Actual Use

In 2005, MPMWD did not use any recycled water. The 2005 UWMP reported that the single largest impediment to recycled water use was distance between the identified large users and the existing recycled water transmission facilities. This has not changed. Table 4.9 (DWR Table 24) presents the comparison between projected and actual use in DWR’s format.

Table 4.9 (DWR Table 24)
Recycled water — 2005 UWMP Use Projection Compared to 2010 Actual (AFY)

User Type	2010 Actual Use	2005 Projection for 2010
Agricultural irrigation	0	0
Landscape irrigation	0	0
Commercial irrigation	0	0
Golf course irrigation	0	0
Wildlife habitat	0	0
Wetlands	0	0
Industrial reuse	0	0
Groundwater recharge	0	0
Seawater barrier	0	0
Geothermal/Energy	0	0
Indirect potable reuse	0	0
Other (type of use)	0	0
Total	0	0

4.7.4 Promoting Recycled Water Use

To encourage customers to convert to recycled water, the MPMWD will consider the incentives outlined in Table 4.10 (DWR Table 25) below.

Table 4.10 (DWR Table 25)
Methods to Encourage Recycled Water Use (AFY)

Actions	Projected Results				
	2010	2015	2020	2025	2030
Pay for design of customer retrofits					
Establish a grant or loan program to pay for retrofits					
Charge lower rates for recycled water					
Provide on-going technical assistance to users					
Continue to be proactive in public education	X	X	X	X	X

4.8 FUTURE WATER PROJECTS

Future water projects that will impact supplies in the MPMWD service area include:

- San Francisco Public Utilities Commission Water Supply Improvement Program (WSIP) projects as described in Section 4.2 above and scheduled to be complete by 2030;
- Projects that may develop through BAWSCA’s long-term water supply strategy as described in Section 4.3 above, and scheduled to be identified and completed by 2018; and
- Local groundwater development projects, as described in Section 4.4 above scheduled to be completed by 2020.

Table 4.11 (DWR Table 26) illustrates the anticipated new yield from each of these supplies. Because the BAWSCA effort is still in the scoping stage, MPMWD does not yet fully understand the potential water supply yield that may come from this project.

**Table 4.11 (DWR Table 26)
Future Water Supply Projects (AFY)**

Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal Year Supply	Single-Dry Year Supply	Multiple-Dry Year		
						Year 1	Year 2	Year 3
Local Groundwater	2015	2020	safe groundwater yield					
BAWSCA Long-Term Strategy	2010	2018	scoping is still underway					
Total				-	-	-	-	-

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SECTION 5

WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

This section provides a description of the overall reliability of MPMWD’s water supply. It compares the water demand information developed in Chapter 3 and the water supply information developed in Chapter 4 under DWR’s required range of hydrologic conditions including the Normal, Single Dry Year and Multiple Dry Year scenarios. This section also describes the City’s water shortage contingency and drought planning as required by Water Code Section 10632.

5.1 SUMMARY OF SUPPLY

MPMWD’s current water supply is provided by SFPUC. The WSA serves as the legal agreement between MPMWD and SFPUC for this supply. Potential reductions are related to hydrology, environmental concerns and the overall condition of San Francisco’s RWS. As described in Chapter 4, SFPUC is undertaking an extensive program to enhance system reliability in the future. Table 5.1 (DWR Table 29) summarizes the factors that could currently result in supply inconsistencies for MPMWD. These factors are expected to be mitigated over the period described in this UWMP.

Table 5.1 (DWR Table 29)
Factors Resulting in Inconsistency of Supply

Water Supply Sources	Specific Sources Name (if any)	Limitation Quantification	Legal	Environmental	Water Quality	Climatic	Additional Information
San Francisco PUC		4,993.0	x	x			

5.2 RELIABILITY OF THE SAN FRANCISCO PUC SUPPLY

As discussed in Section 4, SFPUC has conducted extensive planning and policy work around its water supply. This section provides a specific description of how this work impacts the reliability of MPMWD’s supply.

5.2.1 Tier One Drought Allocations

In July 2009, in connection with the WSA, the wholesale customers and San Francisco adopted a Water Shortage Allocation Plan (WSAP) to allocate water from the regional water system to retail and wholesale customers during system-wide shortages of 20% or less (the “Tier One Plan”). The Tier One Plan replaced the prior Interim Water Shortage Allocation Plan, adopted in 2000, which also allocated water for shortages up to 20%. The Tier One Plan also allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. In addition, water “banked” by a wholesale customer, through reductions in usage greater than required, may also be transferred. The Tier One Plan, which allocates water between San Francisco and the wholesale customers collectively, distributes water based on the level of shortage as outlined in Table 5.2.

Table 5.2
Tier 1 Reductions

Level of System Wide Reduction in Water Use Required	Share Available	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan will expire in 2034 at the end of the term of the Water Supply Agreement, unless extended by San Francisco and the wholesale customers.

5.2.2 Tier Two Drought Allocations

The wholesale customers have negotiated and adopted the “Tier Two Plan”, the second component of the WSAP which allocates the collective wholesale customer share among each of the 26 wholesale customers. This Tier Two allocation is based on a formula that takes multiple factors for each wholesale customer into account, including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the wholesale customers collectively will be allocated among them in proportion to each wholesale customer’s Allocation Basis, expressed in MGD, which in turn is the weighted average of two components. The first component is the wholesale customer’s Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain wholesale customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all wholesale customers’ Allocation Bases to determine each wholesale customer’s Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the wholesale customers collectively under the Tier One Plan, by the wholesale customer’s Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the wholesale customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer will also change. However, for long-term planning purposes, each wholesale customer shall use as its Allocation Factor, the value identified in the Tier Two Plan, when adopted.

The Tier Two Plan will expire in 2018 unless extended by the wholesale customers.

5.2.3 Climate Change

The issue of climate change has become an important factor in water resources planning in the State, and is frequently being considered in urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. As described by the SFPUC in its Final Water Supply Availability Study for the City and County of San Francisco, dated October 2009, there is evidence that increasing concentrations of greenhouse gasses have caused and will continue to cause a rise in temperatures around the world, which will result in a wide range of changes in climate patterns. Moreover, there is evidence that a warming trend occurred during the latter part of the 20th century and will likely continue through the 21st century. These changes will have a direct effect on water resources in California, and numerous studies have been conducted to determine the potential impacts to water resources. Based on these studies, climate change could result in the following types of water resource impacts, including impacts on the watersheds in the Bay Area:

- Reductions in the average annual snowpack due to a rise in the snowline and a shallower snowpack in the low and medium elevation zones, such as in the Tuolumne River basin, and a shift in snowmelt runoff to earlier in the year;
- Changes in the timing, intensity and variability of precipitation, and an increased amount of precipitation falling as rain instead of as snow;
- Long-term changes in watershed vegetation and increased incidence of wildfires that could affect water quality;
- Sea level rise and an increase in saltwater intrusion;
- Increased water temperatures with accompanying potential adverse effects on some fisheries and water quality;
- Increases in evaporation and concomitant increased irrigation need; and
- Changes in urban and agricultural water demand.

According to the SFPUC (2009), other than the general trends listed above, there is no clear scientific consensus on exactly how climate change will quantitatively affect the state's water supplies, and current models of water systems in California generally do not reflect the potential effects of climate change. Initial climate change modeling completed by the SFPUC indicates that about seven percent of runoff currently draining into Hetch Hetchy Reservoir will shift from the spring and summer seasons to the fall and winter seasons in the Hetch Hetchy basin by 2025. This percentage is within the current inter-annual variation in runoff and is within the range accounted for during normal runoff forecasting and existing reservoir management practices. The predicted shift in runoff timing is similar to the results found by other researchers modeling water resource impacts in the Sierra Nevada due to warming trends associated with climate change.

The SFPUC has stated that based on this preliminary analysis, the potential impacts of climate change are not expected to affect the water supply available from the San Francisco RWS or the or the overall operation of the RWS through 2030.

The SFPUC views assessment of the effects of climate change as an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. To refine its climate change analysis and expand the range of climate parameters being evaluated, as well as expand the timeframes being considered, the SFPUC is currently undertaking two additional studies. The first utilizes a newly calibrated hydrologic model of the Hetch Hetchy watershed to explore sensitivities of inflow to different climate change scenarios involving changes in air temperature and precipitation. The second study will seek to utilize state-of-the-art climate modeling techniques in conjunction with water system modeling tools to more fully explore potential effects of climate change on the SFPUC water system as a whole. Both analyses will consider potential effects through the year 2100.

5.2.4 2018 Interim Supply Limitation

As part of its adoption of the WSIP in October 2008, discussed separately herein, the Commission adopted a water supply element, the Interim Supply Limitation (ISL), to limit sales from San Francisco RWS watersheds to an average annual of 265 million gallons per day (MGD) through 2018. The wholesale customers' collective allocation under the ISL is 184 MGD and San Francisco's is 81 MGD. Although the wholesale customers did not agree to the ISL, the WSA provides a framework for administering the ISL.

BAWSCA has developed a strategy to address each of its member agencies' unmet needs flowing from the ISL through its Water Conservation Implementation Plan and the Long-term Reliable Water Supply Strategy, described in Section 4.

5.2.5 Interim Supply Allocations

The Interim Supply Allocations (ISA) refers to each individual wholesale customer's share of the Interim Supply Limitation. On December 14, 2010, the Commission established each agency's ISA through 2018. In general, the Commission based the allocations on the lesser of the projected fiscal year 2017-18 purchase projections or Individual Supply Guarantees. The Interim Supply Allocations are effective only until December 31, 2018 and do not affect the Supply Assurance or the Individual Supply Guarantees, both discussed in Section 4. MPMWD's Interim Supply Allocation is 4.4 MGD.

As stated in the Water Supply Agreement, the wholesale customers do not concede the legality of the Commission's establishment of the Interim Supply Allocations and Environmental Enhancement Surcharge, discussed below, and expressly retain the right to challenge either or both, if and when imposed, in a court of competent jurisdiction.

5.2.6 Environmental Enhancement Surcharge

The Commission plans to establish the Environmental Enhancement Surcharge concurrently with the budget-coordinated rate process. This surcharge will be unilaterally imposed by SFPUC on individual wholesale customers, and SFPUC retail customers, when each agency's use exceeds their Interim Supply Allocation and when sales of water to the wholesale customers and San Francisco retail customers, collectively, exceeds the Interim Supply Limitation of 265 MGD.

The SFPUC is in the process of developing the methodology and amount of this volume-based charge. The Environmental Enhancement Surcharge will become effective beginning fiscal year 2011-12.

5.2.7 Reliability of the Regional Water System

The SFPUC’s WSIP provides goals and objectives to improve the delivery reliability of the RWS including water supply reliability. The goals and objectives of the WSIP related to water supply are listed in Table 5.3.

**Table 5.3
WSIP Program Goals**

Program Goal	System Performance Objective
<p>Water Supply – <i>Meet customer water needs in non-drought and drought periods</i></p>	<ul style="list-style-type: none"> - Meet average annual water demand of 265 million gallons per day (mgd) from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018. - Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. - Diversify water supply options during non-drought and drought periods. - Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

The adopted WSIP had several water supply elements to address the WSIP water supply goals and objectives. The following provides the water supply elements for all year types and the dry-year projects of the adopted WSIP to augment all year type water supplies during drought.

Water Supply – All Year Types

The SFPUC historically has met demand in its service area in all year types from its watersheds. They are the:

- Tuolumne River watershed
- Alameda Creek watershed
- San Mateo County watersheds

In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. The adopted WSIP retains this mix of water supply for all year types.

Water Supply – Dry-Year Types

The adopted WSIP includes the following water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year:

- Restoration of Calaveras Reservoir capacity
- Restoration of Crystal Springs Reservoir capacity
- Westside Basin Groundwater Conjunctive Use
- Water Transfer with Modesto Irrigation District (MID) / Turlock Irrigation District (TID)

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

Projected SFPUC System Supply Reliability

The SFPUC has provided a projection of water supply reliability, *Projected System Supply Reliability Based on Historical Hydrologic Period from 2/22/10 letter from P. Kehoe*, which is included in Appendix C. This presents the projected RWS supply reliability under a range of hydrologic conditions. This table assumes that the wholesale customers purchase 184 MGD from the RWS through 2030 and the implementation of the dry-water water supply projects included in the WSIP. The numbers represent the wholesale share of available supply during historical year types per the Tier One Water Shortage Allocation Plan. This table does not reflect any potential impact to RWS yield from the additional fishery flows required as part of Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project.

Impact of Recent SFPUC Actions on Dry Year Reliability of SFPUC Supplies

In adopting the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project, the SFPUC committed to providing fishery flows below Calaveras Dam and Lower Crystal Springs Dam as well as bypass flows below Alameda Creek Diversion Dam (ACDD). The fishery flow schedules for Alameda Creek and San Mateo Creek represent a potential decrease in available water supply of an average annual 3.9 MGD and 3.5 MGD, respectively for a total of 7.4 MGD average annually. These fishery flows could potentially create a shortfall in meeting the SFPUC demands of 265 MGD and slightly increase the SFPUC’s dry-year water supply needs. If a shortfall occurs, it is anticipated at the completion of construction of both the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements project in approximately 2015 and 2013, respectively when the SFPUC will be required to provide the fishery flows.

The adopted WSIP water supply objectives include (1) meeting a target delivery of 265 MGD through 2018 and (2) rationing at no greater than 20 percent system-wide in any one year of a drought. As a result of the fishery flows, the SFPUC may not be able to meet these objectives between 2013 and 2018 without (1) a reduction in demand, (2) an increase in rationing, or (3) a supplemental supply. The following describes these actions.

Reduction in Demand

The current projections for purchase requests through 2018 remain at 265 MGD. However, in the last few years, SFPUC deliveries have been below this level, as illustrated in Table 5.4 below. If this trend continues, the SFPUC may not need 265 MGD from its watersheds to meet purchase requests through 2018. As a result, the need for supplemental supplies of 3.5 MGD starting in 2013 and increasing to 7.4 MGD in 2015 to offset the water supply loss associated with fish releases may be less than anticipated.

**Table 5.4
Recent Delivery Trends from SFPUC's Regional Water System (MGD)**

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Total Deliveries (mgd)	247.5	257	254.1	243.4	225.2

Reference: SFPUC FY09-10 J-Table Line 9 “Total System Usage” plus 0.7 mgd for Lawrence Livermore National Laboratory use and 0.4 mgd for Groveland. No groundwater use is included in this number. Unaccounted-for-Water is included.

Increase in Rationing

The adopted WSIP provides for a dry year water supply program that, when implemented, would result in system-wide rationing of no more than 20 percent. The PEIR identified the following drought shortages during the design drought: 3.5 out of 8.5 years at 10 percent rationing and 3 out of 8.5 years at 20 percent. If the SFPUC did not develop a supplemental water supply in dry years to offset the effects of the fishery flows on water supply, rationing would increase during dry years. If the SFPUC experiences a drought between 2013 and 2018 in which rationing would need to be imposed, rationing would increase by approximately 1 percent in shortage years. Rationing during the design drought would increase by approximately 1 percent in rationing years.

Supplemental Supply

The SFPUC may be able to manage the water supply loss associated with the fishery flows through the following actions and considerations:

- Development of additional conservation and recycling
- Development of additional groundwater supply
- Water transfer from MID and/or TID
- Increase in Tuolumne River supply
- Revising the Upper Alameda Creek Filter Gallery Project capacity⁴
- Development of a desalination project

Meeting the Level of Service Goal for Delivery Reliability

The SFPUC has stated a commitment to meeting its contractual obligation to its wholesale customers of 184 MGD and its delivery reliability goal of 265 MGD with no greater than 20 percent rationing in any one year of a drought. In Resolution No. 10-0175 adopted by the Commission on October 15, 2010, the Commission directed staff to provide information to the Commission and the public by March 31, 2011 on how the SFPUC has the capability to attain its water supply levels of service and contractual obligations. This directive was in response to concerns expressed by the Commission and the Wholesale Customers regarding the effect on water supply of the instream flow releases required as a result of the Lower Crystal Springs Dam Improvement Project and the Calaveras Dam Replacement Project. In summary, the SFPUC has a projected shortfall of available water supply to meet its Level of Service goals and contractual obligations. The SFPUC has stated that current decreased levels of demand⁴ keep this from being an immediate problem, but that in the near future, the SFPUC must resolve these issues. Various activities are underway by the SFPUC to resolve the shortfall problem. SFPUC staff will report back to the Commission by August 31, 2011 to provide further information on actions to resolve the shortfall problem.

⁴ The adopted WSIP included the Alameda Creek Fishery Enhancement project, since renamed the Upper Alameda Creek Filter Gallery (UACFG) project, which had the stated purpose of recapturing downstream flows released under a 1997 California Department of Fish and Game MOU. Implementation of the UACFG project was intended to provide for no net loss of water supply as a result of the fishery flows bypassed from ACDD and/or released from Calaveras Dam. At the time the PEIR was prepared, the UACFG was described in the context of recapturing up to 6300 AF per year. The UACFG will undergo a separate CEQA process in which all impacts associated with the project will be analyzed fully.

5.3 WATER QUALITY CONSTRAINTS

The quality of SFPUCs water supply is very high. MPMWD’s water deliveries are regulated by the California Department of Health Services (DHS), which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed Maximum Contaminant Levels (MCLs). The quality of existing and planned supply sources over the next 25 years is expected to be adequate. Surface and groundwater water will continue to be treated to drinking water standards, and no water quality deficiencies are foreseen to occur in the next 25 years. Table 5.5 (DWR Table 30) summarizes the current and projected water supply changes due to water quality in DWR’s required format.

Table 5.5 (DWR Table 30)
Water Quality – Current and Projected Water Supply Impacts

Water source	Description of condition	2010	2015	2020	2025	2030	2035 - opt
San Francisco PUC		0	0	0	0	0	0

5.4 SUPPLY AND DEMAND COMPARISONS

5.4.1 Definition of Dry Years and SFPUC Deliveries during Dry Years

Based on the supply reliability history and projections developed by SFPUC, the single- and multiple-dry years for the San Francisco RWS can be defined as outlined in Table 5.6 (DWR Table 27).

Table 5.6 (DWR Table 27)
Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Average Water Year	Those not shown below	
Single-Dry Water Year	1961, 1977 and 1988	Average Year followed by one or more dry years
Multiple-Dry Water Years	1989-1993	Single dry year followed by multiple dry years

SFPUC has translated these dry year projections into reductions to the total 184 MGD water supply available to the BAWSCA member agencies. SFPUC’s projections indicate that a 10% system-wide reduction in supply will occur in a single-dry year and a 20% system-wide reduction will occur in multiple-dry years. This is slightly higher than the mathematical relationship between predicted “average” and “dry years” and reflects some ability to manage dry conditions through system storage. SFPUC’s total projections are presented in Table 5.7 (DWR Table 28) along with the calculated reductions that MPMWD could experience when wholesale supplies are reduced.

Table 5.7 (DWR Table 28)
SFPUC Reliability – Historic Conditions

Water Supply Sources	Average/Normal Water Year Supply	Single-Dry Water Year	Multiple-Dry Water Years		
			Year 1	Year 2	Year 3
San Francisco PUC (to customers, MGD)	184.0	152.6	152.6	132.5	132.5
Percent of Average/Normal Year		83%	83%	72%	72%
MPMWD supply (AFY)	4,993.0	4,140.9	4,140.9	3,595.5	3,595.5
Percent of Average/Normal Year		83%	83%	72%	72%

5.4.2 Supply and Demand Comparisons

Comparisons of supply and demand under Normal, Single-Dry and Multiple-Dry Years are included in Tables 5.8 (DWR Table 32) through 5.10 (DWR Table 34). MPMWD could experience slight shortages in multiple dry years. However if MPMWD successfully meets its gpcd targets and growth patterns are as expected, water conservation could go a long way to mitigating these shortages. Local groundwater could help alleviate these shortages.

**Table 5.8 (DWR Table 32)
Supply and Demand Comparison – Normal Year (AFY)**

	2015	2020	2025	2030	2035-opt
Supply Totals	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
Demand Totals	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
Difference (supply minus demand)	1,248.1	1,593.3	1,521.4	1,443.8	1,362.8
Difference as % of Supply	25%	32%	30%	29%	27%
Difference as % of Demand	33%	47%	44%	41%	38%

**Table 5.9 (DWR Table 33)
Supply and Demand Comparison – Single Dry Year (AFY)**

	2015	2020	2025	2030	2035-opt
Supply Totals	4,140.9	4,140.9	4,140.9	4,140.9	4,140.9
Demand Totals	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
Difference (supply minus demand)	396.0	741.2	669.3	591.7	510.7
Difference as % of Supply	10%	18%	16%	14%	12%
Difference as % of Demand	11%	22%	19%	17%	14%

**Table 5.10 (DWR Table 34)
Projected Supply & Demand Comparison during Multiple Dry Year Periods (AFY)**

		2015	2020	2025	2030	2035-opt
Multiple Dry Year - First Year Supply	Supply Totals	4,140.9	4,140.9	4,140.9	4,140.9	4,140.9
	Demand Totals	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
	Difference (supply minus demand)	396.0	741.2	669.3	591.7	510.7
	Difference as % of Supply	10%	18%	16%	14%	12%
	Difference as % of Demand	11%	22%	19%	17%	14%
Multiple Dry Year - Second Year Supply	Supply Totals	3,595.5	3,595.5	3,595.5	3,595.5	3,595.5
	Demand Totals	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
	Difference (supply minus demand)	(149.4)	195.8	123.9	46.3	(34.7)
	Difference as % of Supply	-4%	5%	3%	1%	-1%
	Difference as % of Demand	-4%	6%	4%	1%	-1%
Multiple Dry Year - Third Year Supply	Supply Totals	3,595.5	3,595.5	3,595.5	3,595.5	3,595.5
	Demand Totals	3,744.9	3,399.7	3,471.7	3,549.2	3,630.2
	Difference (supply minus demand)	(149.4)	195.8	123.9	46.3	(34.7)
	Difference as % of Supply	-4%	5%	3%	1%	-1%
	Difference as % of Demand	-4%	6%	4%	1%	-1%

5.5 WATER SHORTAGE CONTINGENCY AND DROUGHT PLANNING

This section provides information required by Water Code Section 10632. MPMWD has authority within Sections 7.34 and 7.38 of the City's Municipal Code to require water rationing and water conservation and to enforce penalties. MPMWD has also developed an independent Water Shortage Contingency Plan. While this Plan was developed in 1993 and some of information regarding customer counts and finances is dated, the Plan does clearly establish stages of actions and monitoring procedures. Information from the Municipal Code and the Water Shortage Contingency Plan is summarized here. The Municipal Code sections are included as Appendix D of this UWMP.

5.5.1 Actions in Response to Water Supply Shortages (Water Code 10632(a))

Water Code Section 10632(a) requires a description of the actions to be undertaken by the urban water supplier in response to water supply shortages of up to 50%. This section also requires the water supplier to outline the specific water supply conditions that are applicable at each stage of action.

MPMWD currently has one strategy for managing water supply reductions: authorized mandatory demand management measures. As it brings its groundwater supply on-line, MPMWD will add important redundancy and flexibility to its system. Each of these strategies is outlined below.

Description of Actions to be Taken

The City Council has the authority to declare a water shortage emergency. Emergencies are declared in four stages with specific reduction methods used for each stage. Table 5.11 (DWR Table 35) summarizes the consumption reduction methods that MPWMD has the authority to use.

**Table 5.11 (DWR Table 35)
Water Shortage Contingency – Rationing Stages^a to Address Water Supply Shortages**

Stage No.	Water Supply Conditions	% Shortage
1 Ongoing	Water Waste Prohibitions including	NA
	Repair of defective irrigation systems	
	No flooding of gutter, driveways and streets	
	Restaurant water served on request	
	Water use for cooling must be recycled	
	Prohibition against sidewalk and building washing	
2 Voluntary	Increase in public information budgets	up to 20%
	Increased enforcement of the water waste prohibition	
	Restaurant water served on request	
	10% reductions across all customer classes	
3 Mandatory	All Stage 2 Prohibitions and	25% to 35%
	No new or expanded irrigation systems	
	Prohibition against noncommercial vehicle washing	
	Prohibition against filling swimming pools and using ornamental fountains	
	Limited new water service connections	
	Prohibition against use of potable water for construction dust control	
	Controls on groundwater use	
30% reductions for residential, commercial, industrial & public customers		
45% reducing in dedicated irrigation accounts		
4 Mandatory	All Stage 2 and 3 Prohibitions	40 to 50+%
	50% reductions for residential, commercial, industrial & public customers	
	75% reducing in dedicated irrigation accounts	

^a One of the stages of action must be designed to address a 50 percent reduction in water supply.

Supply Reliability & Flexibility (after 2020)

Tables 5.8 through 5.10 above illustrate that water supply is generally sufficient to meet demands under all hydrologic conditions. Once MPMWD’s supply comes on-line, it will have additional ability to manage catastrophic short-term interruptions through use of groundwater, potentially blended with available SFPUC water.

5.5.2 Minimum Water Supply for the Next 3 Years

The minimum water supply available during the next three years during a multiple year drought is illustrated in Table 5.12 (DWR Table 31) below.

**Table 5.12 (DWR Table 31)
Supply Reliability – Current Water Sources (AFY)**

Water Supply Sources	Average/Normal Water Year Supply	Multiple-Dry Water Year Supply		
		2011	2012	2013
San Francisco PUC	4,993	4,141	3,596	3,596
	-			
	4,993	4,141	3,596	3,596
Percent of Normal Year		83%	72%	72%

5.5.3 Catastrophic Supply Interruption Plan (Water Code Section 10632(c))

MPMWD benefits from two levels of emergency planning: planning by SFPUC and its own emergency planning work. Each agency's planning efforts are described below.

5.5.3.1 San Francisco PUC

Planning, Training and Exercise

Following San Francisco's experience with the 1989 Loma Prieta Earthquake, the SFPUC created a departmental *SFPUC Emergency Operations Plan (EOP)*. The *SFPUC EOP*, originally released in 1992, and has been updated on average every two years. The latest plan update will be released in the spring of 2011. The *EOP* addresses a broad range of potential emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's Emergency Operations Plan, prepared by the Department of Emergency Management and most recently updated in 2008. Specifically, the purpose of the SFPUC EOP is to describe the department's emergency management organization, roles and responsibilities and emergency policies and procedures.

In addition, SFPUC divisions and bureaus have their own EOPs that are in alignment with the SFPUC EOP and describe each division's/bureau's specific emergency management organization, roles and responsibilities and emergency policies and procedures. The SFPUC tests its emergency plans on a regular basis by conducting emergency exercises. Through these exercises the SFPUC learns how well the plans will or will not work in response to an emergency. Plan improvements are based on exercise and sometime real world event response and evaluation. Also, the SFPUC has an emergency response training plan that is based on federal, state and local standards and exercise and incident improvement plans. SFPUC employees have emergency training requirements that are based on their emergency response role.

Emergency Drinking Water Planning

In February 2005, the SFPUC Water Quality Bureau published a *City Emergency Drinking Water Alternatives* report. The purpose of this project was to develop a plan for supplying emergency drinking water in the City after damage and/or contamination of the SFPUC raw and/or treated water systems resulting from a major disaster. The report addresses immediate response after a major disaster. Since the publication of this report, the SFPUC has implemented a number of projects to increase its capability to support the provision of emergency drinking water during an emergency. These projects include:

- Public Information and materials for home and business
- Designation and identification of 67 emergency drinking water hydrants throughout San Francisco
- Purchase of emergency related equipment including water bladders and water bagging machines to help with distribution post disaster
- Coordinated planning with City Departments, neighboring jurisdictions and other public and private partners to maximize resources and supplies for emergency response

With respect to emergency response for the SFPUC Regional Water System, the SFPUC has prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan (ERRP)*, completed in 2003 and updated in 2006. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond to and recover from a major RWS seismic

event, or other major disaster. The ERRP complements the other SFPUC emergency operations plans at the Department, Division and Bureau levels for major system emergencies.

The SFPUC has also prepared in an SFPUC-Suburban Customer Water Supply Emergency Operations and Notification Plan. The plan was first prepared in 1996 and has been updated several times – most recently in July of 2010. The purpose of this plan is to provide contact information, procedures and guidelines to be implemented by the following entities when a potential or actual water supply problem arises: the SFPUC Water Supply and Treatment Division (WS&TD), Water Quality Bureau (WQB), and SFPUC wholesale customers, BAWSCA, and City Distribution Division (CDD – considered to be a customer for the purposes of this plan). For the purposes of this plan, water quality issues are treated as potential or actual supply problems.

Power Outage Preparedness and Response

SFPUC's water transmission system is primarily gravity fed, from the Hetch Hetchy Reservoir to the City and County of San Francisco. Within San Francisco's in-city distribution system, the key pump stations have generators in place and all others have connections in place that would allow portable generators to be used.

Although water conveyance throughout the RWS would not be greatly impacted by power outages because it is gravity fed, the SFPUC has prepared for potential regional power outages as follows:

- The Tesla disinfection facility, the Sunol Valley Water Treatment Plant, and the San Antonio Pump Station, have back-up power in place in the form of generators or diesel powered pumps. Additionally, both the Sunol Treatment Plant and the San Antonio Pump Station would not be impacted by a failure of the regional power grid because it runs off of the SFPUC hydro-power generated by the RWS.
- Both the Harry Tracy Water Treatment Plant and the Baden Pump Station have back-up generators in place.
- Additionally, as described in the next section, the WSIP includes projects which will expand the SFPUC's ability to remain in operation during power outages and other emergency situations.

Capital Projects for Seismic Reliability and Overall System Reliability

As discussed previously in Section 4, the SFPUC is also undertaking a WSIP in order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply.

As illustrated in Figure 5.1, the WSIP includes several projects located in San Francisco to improve the seismic reliability of the in-city distribution system, as well as many projects related to the SFPUC RWS to address both seismic reliability and overall system reliability. All WSIP projects are expected to be completed by 2016.

In addition to the improvements that will come from the WSIP, San Francisco has already constructed the following system interties for use during catastrophic emergencies, short-term facility maintenance and upgrade activities, and in times of water shortages:

- A 40 MGD system intertie between the SFPUC and the Santa Clara Valley Water District (Milpitas Intertie); and
- One permanent and one temporary intertie to the South Bay Aqueduct, which would enable the SFPUC to receive State Water Project water.
- The WSIP includes intertie projects, such as the EBMUD-Hayward-SFPUC Intertie. The SFPUC and EBMUD have completed construction of this 30 MGD intertie between their two systems in the City of Hayward, as part of the WSIP.

The WSIP also includes projects related to standby power facilities at various locations. These projects will provide for standby electrical power at six critical facilities to allow these facilities to remain in operation during power outages and other emergency situations. Permanent engine generators will be provided at four locations (San Pedro Valve Lot, Millbrae Facility, Alameda West, and Harry Tracy Water Treatment Plant), while hookups for portable engine generators will be provided at two locations (San Antonio Reservoir and Calaveras Reservoir).

5.5.3.2 MPMWD

In accordance with the Emergency Services Act, MPMWD has developed an Emergency Operation Plan (EOP). This EOP guides response to unpredicted catastrophic events that might impact water delivery including regional power outages, earthquakes or other disasters. The EOP outlines standard operating procedures for all levels of emergency, from minor accidents to major disasters. Table 5.13 provides a summary of the actions included in the EOP for specific catastrophic effects.

In the seismic evaluation for MPMWD, there was a recommendation to install salt water standpipes at regular intervals, along its San Francisco Bay Frontage, to allow for additional fire fighting capacity. MPMWD has not pursued the recommendation at this time, because the Menlo Park Fire Department has not identified this area as in need of additional fire protection. MPMWD will re-evaluate this recommendation if substantial land use changes are proposed for this area.

**Table 5.13
Preparation Actions for Catastrophes**

Possible Catastrophe	Summary of Actions
Earthquake	Shut-off isolation valves and use of spare piping for ruptured mains
	Storage supplies for service interruption
	Portable and emergency generators available for facilities
	Procedures for assessing water quality, notifying public and disinfecting system
Flooding	Portable and emergency generators available for facilities
	Storage supplies for service interruption
	Procedures for assessing water quality, notifying public and disinfecting system
Toxic Spills (interrupts Agency Supply)	Use of local groundwater
	Procedures for assessing water quality, notifying public and disinfecting system
Fire	Storage supplies for fire flows
	Mutual aid plans and responders identified
	Portable and emergency generators available for facilities
Power outage or grid failure	Portable and emergency generators available for facilities
Severe Winter Storms	Portable and emergency generators available for facilities
Hot Weather	Portable and emergency generators available for facilities



- 1. San Joaquin Pipeline System
- 2. Rehabilitation of Existing San Joaquin Pipelines
- 3. Tesla Treatment Facility
- 4. Lawrence Livermore Water Quality Improvement
- 5. Calaveras Dam Replacement
- 5. Calaveras Reservoir Upgrades
- 5. San Antonio Backup Pipeline
- 6. SWWTP Expansion & Treated Water Reservoir
- 7. Upper Alameda Creek Filter Gallery
- 8. Alameda Siphon #4
- 8. San Antonio Pump Station Upgrade
- 9. New Irvington Tunnel
- 10. BDPL No. 4 Condition Assessment PCCP Sections
- 11. Seismic Upgrade of BDPL Nos. 3 & 4
- 12. BDPL Nos. 3 & 4 Crossover/Isolation Valves
- 13. BDPL Reliability Upgrade - Tunnel
- 13. BDPL Reliability Upgrade - Pipeline

- 13. BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2
- 14. BDPL Nos. 3 & 4 Crossovers
- 15. SFPUC / EBMUD Intertie
- 16. Pulgas Balancing - Inlet/Outlet Work
- 16. Pulgas Balancing - Discharge Channel Modifications
- 16. Pulgas Balancing - Structural Rehabilitation & Roof Replacement
- 16. Pulgas Balancing - Modifications of the Existing Dechlorination Facility
- 17. Crystal Springs Pipeline No. 2 Replacement
- 18. Lower Crystal Springs Dam Improvements
- 19. New Crystal Springs Bypass Tunnel
- 20. Adit Leak Repair - Crystal Springs/Calaveras
- 21. Crystal Springs/San Andreas Transmission Upgrade
- 22. HTWTP Long-Term Improvements
- 23. HTWTP Short-Term Improvements - Demo Filters
- 23. HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters
- 24. Capuchino Valve Lot Improvements

- 25. Peninsula Pipelines Seismic Upgrade
 - 26. Baden and San Pedro Valve Lots Improvements
 - 27. Regional Groundwater Storage and Recovery
 - 28. San Andreas Pipeline No. 3 Installation
 - 29. Sunset Reservoir - North Basin
 - 30. University Mound Reservoir - North Basin
- WSIP Project in Various Locations**
- Standby Power Facilities - Various Locations
 - Pipeline Repair & Readiness Improvements
 - SCADA System - Phase II
 - System Security Upgrades
 - Cross Connection Controls
 - Programmatic EIR
 - Habitat Reserve Program
 - Watershed Environment Improvement Program

Source: SFPUC



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Menlo Park Municipal Water District
Urban Water Management Plan

Figure 5.1
WSIP System Reliability
Projects

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5.5.4 Prohibitions, Penalties & Consumption Reduction (Water Code Section 10632 (d)-(f))

The Municipal Code specifies prohibitions and penalties that MPWD can enforce. These are summarized in Tables 5.14 (DWR Table 36) and 5.15 (DWR Tables 37 and 38) below.

**Table 5.14 (DWR Table 36)
Water Shortage Contingency – Mandatory Prohibitions**

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Washing of sidewalks, walkways, driveways, parking lots and other hard-surfaced areas by direct hosing, except in specific circumstances	Permanent Prohibition
The escape of water through breaks or leaks within the customer’s plumbing or private distribution system	Permanent Prohibition
Irrigation in a manner or to an extent which allows excessive runoff	Permanent Prohibition

**Table 5.15 (DWR Table 37 and 38)
Water Shortage Contingency – Consumption Reduction Methods, Penalties & Charges**

Consumption Reduction Method	Stage When Method Takes Effect
Personal Contact with Customers	Any Stage
Excess Water Use Charges	Any Stage
Installation of Flow Restricting Devices	Any Stage
Charges for Installation and Removal of Flow Restricting Devices	Any Stage
Discontinuance of Water Service and Charges for Reactivation	Any Stage

5.5.5 Effect on Revenues and Expenditures (Water Code Section 10632(g))

Table 5.16 below illustrates the impacts of a 50% reduction in SFPUC supplies in 2015 and 2030. The most challenging situation for MPMWD to manage would be a 50% reduction SPFUC supplies. MPMWD could be required to employ demand management techniques that achieved a 33% reduction in water delivered. When water deliveries are reduced, MPMWD also experiences reduced revenue from water rates.

**Table 5.16
Supply Reduction Analysis**

	2015			2030		
	20%	30%	50%	20%	30%	50%
SFPUC Supply	3994.4	3495.1	2496.5	3994.4	3495.1	2496.5
Local Groundwater Supply	0	0	0	0	0	0
Supply totals	3,994	3,495	2,497	3,994	3,495	2,497
Demand totals (no action taken)	3,745	3,745	3,745	3,549	3,549	3,549
Difference	249	-250	-1,248	445	-54	-1,053
Difference as a % of demand	6.7%	-6.7%	-33.3%	12.5%	-1.5%	-29.7%

This reduced revenue would be balanced by some reduction in costs, since MPMWD would be purchasing less water from SFPUC. In addition, MPMWD would have the option of deferring planned capital

expenditures and utilizing its capital and/or operating fund reserves. MPMWD manages its Water Enterprise Fund to an emergency capital reserve target defined as 4 months of operations and maintenance costs plus \$1 million in emergency capital reserves.

In order to understand the potential impacts of supply reduction on revenues and expenditures, MPMWD has analyzed the effects of near term 50% reduction in water delivered since it would require reduced sales. For the purpose of this analysis, data from MPMWD’s 2010 Final Rate Study (Bartle Wells & Associates) has been used. The rate study includes a 10 year cash flow projection with detail on fixed and water consumption revenues and operational and purchased water costs. With a significant water delivery reduction, water consumption revenues would decrease and purchased water costs would decrease. Table 5.17 below illustrates the estimated water consumption revenue and water purchased costs for Fiscal Year 2010-11, 2014-15 and 2019-20 and reduces the consumption revenue by 33% and the purchases water costs by 50% to model the reduced delivery scenario.

Table 5.17
Water Shortage Contingency – Effect of Reduced Water Sales on Budget Costs & Revenues

	Fiscal Year 2010-11	Fiscal Year 2014-15	Fiscal Year 2019-20
Water Revenues			
Budgeted Water Consumption Revenue	\$ 4,147,000	\$ 7,493,000	\$ 9,130,000
With 33% Reduction in Revenue	\$ 2,778,490	\$ 5,020,310	\$ 6,117,100
Water Expenses			
Budgeted Purchase Water Costs	\$ 3,461,000	\$ 5,617,000	\$ 6,400,000
50% Reduction in Purchased Water Costs	\$ 1,730,500	\$ 2,808,500	\$ 3,200,000

Table 5.18 carries these expenditure and revenue reductions through the anticipated cash flow and indicates that MPMWD can manage reductions in water sales.

Table 5.18
Water Shortage Contingency – Effect of Reduced Supply on Revenues & Expenditures

	2010-11	2014-15	2019-20
Total Beginning Fund Balance	\$ 11,845,000	\$ 4,035,000	\$ 9,875,000
Revenues			
Fixed Meter Revenues	\$ 815,000	\$ 1,503,000	\$ 1,878,000
Water Consumption Revenues	\$ 2,778,490	\$ 5,020,310	\$ 6,117,100
Miscellaneous	\$ 30,000	\$ 30,000	\$ 30,000
Interest	\$ 237,000	\$ 81,000	\$ 198,000
Totals	\$ 3,860,490	\$ 6,634,310	\$ 8,223,100
Expenditures			
Salaries, wages, benefits, operations	\$ 1,277,000	\$ 1,485,000	\$ 1,796,000
Purchased Water	\$ 1,730,500	\$ 2,808,500	\$ 3,200,000
Services	\$ 725,000	\$ 858,000	\$ 792,000
Capital Outlay	\$ 147,000	\$ 179,000	\$ 228,000
Net Transfers	\$ 169,000	\$ 205,000	\$ 261,000
Totals	\$ 4,048,500	\$ 5,535,500	\$ 6,277,000
Water Capital Surcharge	\$ 690,000	\$ 776,000	\$ 921,000
Capital Expenditures	\$ -	\$ 800,000	\$ 2,000,000
Ending Fund Balance	\$ 12,346,990	\$ 5,109,810	\$ 10,742,100

5.5.6 Water Shortage Contingency Ordinance (Water Code 10632(h))

As noted above, MPMWD has adopted a Water Shortage Contingency Plan and has codified its authority for implementing the plan in Section 7.34 of the Municipal Code.

5.5.7 Mechanisms for Determining Actual Reductions (Water Code Section 10632(i))

MPMWD's supply turnouts are all equipped with water meters. In addition, each customer is metered. Most non-residential and multi-family landscape irrigation is metered separately from indoor use. MPMWD contracts to have meters read on a monthly basis and is able to document both demand reductions and atypically high water use. MPMWD contacts individual customers to resolve issues related to atypically high water use.

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SECTION 6

DEMAND MANAGEMENT MEASURES

Demand management measures (DMMs) are water conservation measures. The DMMs listed in the UWMP Act correlate to the California Urban Water Conservation Council's (CUWCC) original Best Management Practices for water conservation (BMPs). The 2010 UWMP Guidebook uses the terms DMMs and BMPs interchangeably. The purpose of this section is to provide a description of MPMWD's water conservation programs that are currently implemented, those that are planned and how they correspond to the water use reduction plan meant to achieve the SBx7-7 2015 and 2020 water use targets. This discussion is drawn from BAWSCA's WCIP which provides a comprehensive analysis of the regional conservation program.

6.1 BAWSCA AND DEMAND MANAGEMENT

As discussed throughout this UWMP, MPMWD is a member of the Bay Area Water Supply and Conservation Agency and through that agency participates in a well developed regional program that focuses on a wide range of innovative conservation strategies. In 2008, BAWSCA began the preparation of its WCIP. This in depth effort outlined current planned conservation strategies for each of its member agencies and had two primary goals:

- To develop an implementation plan for BAWSCA and its member agencies to attain the water efficiency goals that the agencies committed to achieving in 2004 as part of the Program Environmental Impact Report for SFPUC's Water System Improvement Program
- To identify how BAWSCA member agencies could use water conservation as way to continue to provide reliable water supplies to their customers through 2018 given the 184 MGD Interim Supply Limitation.

The WCIP included an analysis of 32 existing demand management measures that expand on the original 14 DMMs defined by the CUWCC. It also included an analysis of five "New Measures" defined during the development of the WCIP. The analysis was performed using the proprietary DSS model. Performance of each of BAWSCA's member agencies, including MPMWD was modeled in the DSS.

The analysis was performed using the proprietary *Demand Side Management Least Cost Planning Decision Support System* or DSS Model, which prepared thirty year total water demand projections at a very detailed level. This enables a more accurate assessment of the impact of water efficiency programs on demand. For water conservation measure evaluations, the DSS Model also performed a benefit cost analysis using net present value and benefit-to-cost ratio as economic factors.

From this analysis, BAWSCA and its member agencies developed "Core" and "Subscription" conservation activities. BAWSCA undertakes these activities on behalf of its members which result in coordinated, regional messaging and implementation regarding water conservation. BAWSCA has and continues to work to secure grant funding to assist in this work. Through the WCIP development process, MPMWD committed to undertaking thirteen of the WCIP measures as part of the overall regional conservation strategy. While the WCIP did not focus specifically on SBx7-7 compliance, it provides both the policy framework and analytical basis for BAWSCA member agencies to implement demand management programs and track their progress with respect to goals. The complete WCIP can be found at http://bawasca.org/docs/WCIP_FINAL_Report.pdf.

6.2 SUMMARY OF DEMAND MANAGEMENT PROGRAMS COMPLETED OR BEING IMPLEMENTED

Table 6.3, at the end of this section, lists the DMMs outlined in the 2010 UWMP Guidebook and BAWSCA’s comparable measures. Measures highlighted in blue are currently being implemented by MPMWD. The other measures will be used, as necessary, as part of MPMWD’s strategy for complying with conservation goals. The chart also lists the costs of each measure. Appendix E includes the complete “Description of Conservation Measures” from the WCIP. While MPMWD is not a CUWCC signatory, the table illustrates that through the BAWSCA programs, MPMWD will implement the DMMs outlined in the 2010 UWMP Guidebook.

6.3 ABILITY TO ACHIEVE THE TARGETS WITH THE DEMAND MANAGEMENT PROGRAM

The fourth column of Table 6.1 below presents the water savings necessary to meet the specified SBx7-7 targets that were described in Section 3-1 of this UWMP. This water saving, combined with the water use listed in the third column adds up to the total demand predicted for each year.

**Table 6.1
Estimated Water Savings Needed to Meet SBx7-7 Targets**

Year	Use in Gallons per Capita per Day (gpcd)	Use in Million Gallons per Day (MGD)	SBx7-7 Target compared to 2006 demand*
2015	236	3.32	Estimate 0.09 MGD savings needed through conservation programs
2020	209	2.95	Estimated 0.46 MGD savings needed through conservation programs

* MPMWD experienced historically low water demands between 2007 and 2010 due to economic factors, drought conditions, followed by abnormally wet conditions and increased awareness regarding water conservation. MPMWD expects an increase from 2010 demand, but not to the extent previously experienced over the past 15 years. For planning purposes, 2006 data is used as the baseline from which to determine future water savings.

Estimates are based on 2006 demand of 240 gpcd or 3.41 MGD with a population of 14,000

The latest 2009 DSS Model developed specifically for MPMWD, provides MPMWD with the estimated savings that it will achieve by participating in the WCIP. The DSS Model also includes estimated water savings resulting from additions or modifications to California State Building Codes such as CalGreen and plumbing code revisions. These changes are estimated to result in 0.13 MGD of savings by 2020. When this amount is subtracted from the 0.46 MGD of savings needed to achieve MPMWD’s target, the remainder of 0.33 MGD represents the savings that need to be achieved through conservation programs. Savings from conservation pricing, metering with commodity rates and water waste prohibitions are not included in this total. If MPMWD implemented all measures in Table 6.3, the savings projected by its DSS model would be approximately 1.5 MGD. This is more savings than is required by SBx7-7, and gives MPMWD the opportunity to select the most cost effective measures to meet its targets. Table 6.2 illustrates the strategy mix that MPMWD’s model indicates will allow it to meet its targets.

Table 6.2
Estimated Water Savings from Conservation Programs

Strategy	MGD Savings achieved by Strategy	2015 Target Analysis		2020 Target Analysis	
		Savings Required to meet Target (MGD)	% Achieved by Strategy	Savings Required to meet Target (MGD)	% Achieved by Strategy
State Building Code Changes	0.13	0.09	> 100%	0.46	28%
State Building Code Changes, Current Programs and one or two additional programs	0.25	0.09	> 100%	0.46	54%
State Building Code Changes , Current Programs and selected additional water conservation measures from Table 6.3 that will allow MPMWD to meet its target	0.46	0.09	> 100%	0.46	100%

MPMWD will use BASWCA’s regional reporting process to document its progress toward achieving both its commitment to the SFPUC process and its SBx7-7 targets. In 2014 its strategy will be re-evaluated to ensure continued compliance.

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Table 6.3
WCIP and DMM Summary Comparison

BAWSCA Measure	Corresponding DMM	MPMWD Commitment through UWMP and/or 2004 EIR	Current Measure (Highlighted Blue) or Potential Additional Measure to Meet SBx7-7	Target Sector	Penetration Goal Based on No. of accounts in 2020	Estimated Implementation Schedule	Estimated Cost to MPMWD
1 Residential Water Surveys	1. Residential Water Surveys	No	Potential Measure	Residential	536 accounts or 15% of targeted accounts	2012-2020	\$130/account + 25% marketing and administration
2 Residential Retrofit	2. Residential Retrofit	Yes	Currently Implementing	Residential	2,703 accounts or 75% of targeted	Ongoing	\$11/account+10% marketing and administration
	3. System Water Leaks & Detection						
	4. Metering with Commodity Rates	Yes	Currently Implementing	Residential	All	Ongoing	Low
3 Large Landscape Conservation Audits	5. Large Landscape Efficiency	No	Semi-Implemented	Irrigation	20 accounts or 15% of targeted accounts	Ongoing	\$800/acre + 30% marketing and administration
4 Water Budgets		Yes	Semi-Implemented	Commercial with Irrigation	133 accounts or 90% of targeted accounts	Ongoing	\$200/account + 15% overhead
5 Clothes Washer Rebates	6. Clothes Washer Rebates	No	Currently Implementing	Residential	540 accounts or 15% of targeted accounts	Ongoing	\$75/fixture + 30% marketing and administration
6 Public Information Program	7. Public Information Programs	Yes	Currently Implementing	All	All	Ongoing	\$2/account/year
	8. School Information Programs						
7 Commercial Water Audits	9. Commercial Programs	No	Potential Measure	Commercial and Irrigation	50 high water using accounts or 10% of targeted accounts	2012-2020	\$3,000/account + 50% marketing and administration
	11. Conservation Pricing	Yes	Currently Implementing	All	All	Ongoing	Low
	12. Conservation Coordinator	Yes	Currently Implementing	All	NA	Ongoing	Included in marketing and administration costs for each program
	13. Water Waste Prohibition	Yes	Currently Implementing	All	All	Ongoing	Low
9 High Efficiency Toilet Rebate	14. Residential Toilet Retrofit Programs	No	Currently Implementing	Residential	All	Until 2015	\$75/fixture + 25% marketing and administration
11 Home Leak Detection & Repair	1. Residential Water Survey	No	Potential Measure	Residential	721 accounts or 20% of targeted	2012-2020	\$200/account + 25% marketing and administration
12 Rebates for 6/3 dual flush or 4 liter toilets	14. Residential Toilet Retrofit Programs	No	Potential Measure	Residential	901 accounts or 25% of targeted accounts	2012-2020	\$100/fixture +25% marketing and administration
13 ET Controller Rebates and Rain Sensor Rebates	2. Residential Retrofit	No	Potential Measure	All	487 accounts or 25% of targeted accounts	2012-2020	\$150/account + 50% marketing and administration
14 Xeriscape education & staff training @ retail stores		Yes	Currently Implementing	All	300 homeowners per year	Ongoing	\$300/class. Ten classes per year + 10% overhead
15 Homeowner Irrigation classes		No	Currently Implementing	Residential	200 homeowners per year	Ongoing	\$300/class. Ten classes per year + 10% overhead
16 Promote Water Efficient Plantings @ new homes		No	Currently Implementing	Residential	341 accounts (10% of new homes)	Ongoing	\$100/account + 20% marketing and administration
18 Incentives for retrofitting submetering		No	Potential Measure	Multifamily	46 multifamily accounts or 25% of targeted accounts	2012-2020	\$1,000/account +25% marketing and administration
19 Require submetering multifamily units		No	Potential Measure	Multifamily	172 accounts or 90% of targeted accounts	2015-2020	\$10/unit +10% marketing and administration
20 MF Efficient clothes washers		No	Currently Implementing	Multifamily	96 accounts or 50% of targeted accounts	2015-2020	\$200/washer + 25% overhead and administration
21 Enforce WELL		No	Currently Implementing	All	70% of new installations	Ongoing	\$50/new account + 15% overhead and administration
22 Restaurant low flow spray nozzles	9. Commercial Programs	Yes	Currently Implementing	Commercial	75% of restaurants & hospitals	Ongoing	\$200 per site + 15% overhead
27 Replace inefficient process equipment	9. Commercial Programs	No	Potential Measure	Commercial	46 accounts or 10% or targeted accounts	2014-2020	\$1,000/account + 15% marketing and administration
28 Require 0.5 gal/flush urinals in new buildings	9. Commercial Programs	No	Potential Measure	Commercial	70% of new accounts	2012-2020	\$25/ new commercial account + 10% marketing and administration
29 Financial incentive for complying with water budget	5. Large Landscape Efficiency	No	Potential Measure	Irrigation	94 accounts or 75% of targeted accounts	2015-2020	500/account + 10% marketing and administration
30 Financial incentive for irrigation/water efficient landscape upgrades	5. Large Landscape Efficiency	No	Potential Measure	All	400 accounts or 10% of targeted accounts	2011-2020	\$500/account + 25% marketing and administration
32 City building water reduction goals	9. Commercial Programs	Yes	Currently Implementing	Public	50% of city departments (10% indoor and 15% outdoor water savings)	ongoing	\$2500 per account + 15% overhead
NM-1 High Efficiency toilet rebate goals	14. Residential Toilet Retrofit Programs	No	Potential Measure	All	900 accounts or 25% of targeted accounts	2015-2020	\$150/fixture + 15% overhead
NM-2 Education & training programs for residential landscape efficiency	7. Public Information Programs	No	Currently Implementing	Residential	300 homeowners per year	Ongoing	\$950 per class. 3 classes per year + 50% overhead
NM-5 Rebates for high efficiency washing machines	6. Clothes Washer Rebates	No	Potential Measure	Residential	1,260 accounts or 35% of targeted accounts	2015-2020	\$200/fixture +20% overhead
NM-6 New building indoor water use efficiency	No Comparable DMM	No	Potential Measure	All	75% of new accounts	2010-2020	\$100/account + 5% overhead
NM-7 New building landscape water efficiency	No Comparable DMM	No	Currently Implementing	All	65% new accounts	Ongoing	\$25 per account + 5% overhead

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RICHARD CLINE
MAYOR

KIRSTEN KEITH
MAYOR PRO TEM

ANDREW COHEN
COUNCIL MEMBER

KELLY FERGUSSON
COUNCIL MEMBER

PETER OHTAKI
COUNCIL MEMBER

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ENGINEERING DIVISION
701 LAUREL STREET
MENLO PARK, CA 94025-3483

www.menlopark.org

February 9, 2011

**Subject: Urban Water Management Plan Update
City of Menlo Park Municipal Water District**

Dear Community Member:

This is to notify you that the City of Menlo Park Municipal Water District will be reviewing and updating its Urban Water Management Plan in 2011. We invite you to participate in this process.

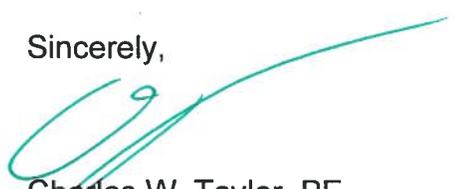
The updated Plan will be made available for public review, followed by a 30-day comment period and a public hearing before the City Council later this year.

If you would like to learn more about the current Plan, the schedule for considering changes to it, or how to participate in the process, please visit:

<http://www.menlopark.org/departments/pwk/UrbanWaterMP.html>

Please click, "Subscribe to UWMP Updates" if you would like to receive email notifications.

Sincerely,


Charles W. Taylor, PE
Engineering Services Manager

RICHARD CLINE
MAYOR

KIRSTEN KEITH
MAYOR PRO TEM

ANDREW COHEN
COUNCIL MEMBER

KELLY FERGUSSON
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MENLO PARK, CA 94025-3483

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February 9, 2011

**Subject: Urban Water Management Plan Update
City of Menlo Park Municipal Water District**

Dear Agency:

This is to notify you that the City of Menlo Park Municipal Water District will be reviewing and updating its Urban Water Management Plan in 2011. We invite your agency's participation in this process.

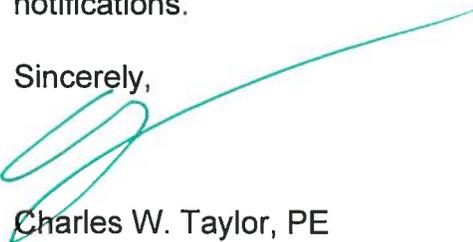
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Sincerely,


Charles W. Taylor, PE
Engineering Services Manager

Appendix B
Public Hearing Agendas Materials and Resolution of
Adoption



NOTICE OF HEARING TO RECOMMEND THAT THE MENLO PARK CITY COUNCIL ADOPT THE 2010 URBAN WATER MANAGEMENT PLAN AND SBX7-7 BASELINE METHOD ONE (URBAN WATER USE TARGETS)

California law requires that, in conjunction with the update to the Menlo Park Municipal Water District's Urban Water Management Plan, the community be given an opportunity to give input on the urban water use target, its method of determining the water use target and any impacts to the local economy. The proposed Plan is available for public review at <http://www.menlopark.org/departments/pwky/UrbanWaterMP.html>

NOTICE IS HEREBY GIVEN that the City Council of the City of Menlo Park will hold a Public Hearing to adopt the 2010 Urban Water Management Plan and SBX7-7 Baseline Method One and water use targets for 2015 and 2020.

NOTICE IS HEREBY FURTHER GIVEN that the City Council will hold this Public Hearing on Tuesday, the 14th day of June, 2011, at 7:00 p.m. in the Menlo Park City Council Chambers, Civic Center at 701 Laurel Street, Menlo Park, California, at which time and place interested persons may appear and be heard.

Any person interested may appear at the public hearing and be heard on any matter related to this matter.

Visit the City's website at www.menlopark.org for City Council, public hearing, agenda, and staff report information.

Dated: May 26, 2011

MARGARET S. ROBERTS, MMC, City Clerk

Published in THE ALMANAC on June 1 and June 8, 2011.



NOTICE OF HEARING TO RECOMMEND THAT THE MENLO PARK CITY COUNCIL ADOPT THE 2010 URBAN WATER MANAGEMENT PLAN AND SBX7-7 BASELINE METHOD ONE (URBAN WATER USE TARGETS)

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Any person interested may appear at the public hearing and be heard on any matter related to this matter.

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Dated: May 26, 2011

MARGARET S. ROBERTS, MMC, City Clerk

Published in THE ALMANAC on June 1 and June 8, 2011.

RESOLUTION NO. 6009

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENLO PARK APPROVING THE 2010 URBAN WATER MANAGEMENT PLAN AND BASELINE DETERMINATION METHOD FOR STATE REQUIRED WATER CONSERVATION GOALS

WHEREAS, the Urban Water Management Planning Act, Water Code section 10610 *et seq.*, requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to prepare an Urban Water Management Plan ("Plan"), the primary function of which is to describe and evaluate reasonable and practical efficient water uses and conservation activities; and

WHEREAS, the Urban Water Management Planning Act requires periodic review of the Plan at least once every five years, followed by any amendments or changes to the Plan that are indicated by the review; and

WHEREAS, the City, an urban water supplier operating the Menlo Park Municipal Water District, circulated a revised urban water management plan for public review titled "2010 Urban Water Management Plan" and a properly noticed Public Hearing regarding said Plan was held by the City Council on June 14, 2011; and

WHEREAS, Senate Bill x7-7 (SBx7-7) requires that all water districts have a target to reduce their per capita water usage incrementally by 10% by the year 2015 and by 20% by the year 2020; and

WHEREAS SBx7-7 lays out methods that water districts may use to calculate a baseline from which to reduce their water use and establish target reductions for 2015 and 2020.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Menlo Park:

SECTION 1. The 2010 Urban Water Management Plan is hereby adopted.

SECTION 2. The City Manager is hereby authorized and directed to file the Plan with the California Department of Water Resources within thirty (30) days after its adoption.

SECTION 3. The City Manager is hereby authorized to cause implementation of the Plan, as amended.

SECTION 4. The Council finds that, pursuant to Water Code section 10652, adoption of the Plan is not subject to the California Environmental Quality Act.

SECTION 5. The SBx7-7 Method One is hereby adopted for calculating baseline water usage for the 2010 Urban Water Management Plan.

I, Margaret S. Roberts, City Clerk of the City of Menlo Park, do hereby certify that the above and foregoing Council Resolution was duly and regularly passed and adopted by the City Council of the City of Menlo Park at a meeting held by said Council on the fourteenth day of June 2011, by the following vote:

AYES: Cline, Cohen, Fergusson, Keith, Ohtaki

NOES: None

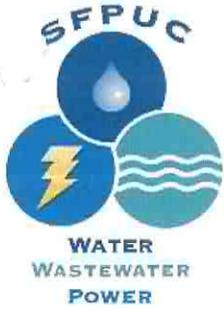
ABSENT: None

ABSTAIN: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Menlo Park this fourteenth day of June 2011.



Margaret S. Roberts, MMC
City Clerk



SAN FRANCISCO PUBLIC UTILITIES COMMISSION

1145 Market St., 4th Floor, San Francisco, CA 94103 • Tel. (415) 554-3271 • Fax (415) 554-3161 • TTY (415) 934-5770



March 31, 2011

Nicole Sandkulla
Senior Water Resources Engineer
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 302
San Mateo, CA 94402

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MAYOR

FRANCESCA VIOTOR
PRESIDENT

ANSON MORAN
VICE PRESIDENT

ANN MOLLER CAEN
COMMISSIONER

ART TORRES
COMMISSIONER

VINCE COURTNEY
COMMISSIONER

ED HARRINGTON
GENERAL MANAGER

Dear Nicole,

Attached please find additional information through 2035 on the Regional Water System's supply reliability for use in the Wholesale Customer's 2010 Urban Water Management Plan updates. The SFPUC has assessed the water supply reliability under the following planning scenarios:

- Projected Single dry-year supply for 2010
- Projected Multiple dry-year supply beginning 2010; and
- Projected supply reliability for years 2010-2035.

Table 1 summarizes deliveries to the Wholesale Customers for projected single dry-year supply for 2010 and projected multiple dry-year supply beginning 2010.

With regards to future demands, the SFPUC proposes to expand their water supply portfolio by increasing the types of water supply resources. Table 2 summarizes the water supply resources assumed to be available by 2035.

Concerning allocation of supply during dry years, the Water Shortage Allocation Plan ("Plan") was utilized to allocate shortages between the SFPUC and the Wholesale Customers collectively. The Plan implements a method for allocating water among the individual Wholesale Customers which has been adopted by the Wholesale Customers. The Plan was adopted pursuant to Section 7.03(a) of the 1984 Settlement Agreement and Master Water Sales Contract and has been updated to correspond to the terminology used in the June 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County.

Finally, the SFPUC estimated the frequency and severity of anticipated shortages for the period 2010 through 2035. For this analysis, we assumed that the historical hydrologic period is indicative of future events and evaluated the supply reliability assuming a repeat of the actual historic hydrologic period 1920 through 2002. The results of this analysis are summarized in Table 3.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact me at (415) 554-0792.

Sincerely,

A handwritten signature in blue ink that reads "Paula Kehoe". The signature is written in a cursive style with a long horizontal flourish at the end.

Paula Kehoe
Director of Water Resources



Table 1
Projected Deliveries for Three
Multiple Dry Years

	2010	One Critical Dry Year	Deliveries during Multiple Dry Years in mgd		
			Year 1	Year 2	Year 3
System-Wide Shortage in Percent	0%	10%	10%	20%	20%
Wholesale Allocation (mgd)	184.0	152.6	152.6	132.5	132.5

Table 2
UWMP Studies: Water Supply
Reliability
Water Supply Options for Years 2010
through 2030

	2010	2015	2020	2025	2030	2035
Crystal Springs Reservoir (20.28bg)		x	x	x	x	x
Westside Basin Groundwater afa		8,100	8,100	8,100	8,100	8,100
Calaveras Reservoir Recovery (31.5 bg)		x	x	x	x	x
Districts' Transfer afa		2240	2240	2240	2240	2240

Table 3: Projected System Supply Reliability Based on Historical Hydrologic Period

Allocation by Year	Wholesale Demand in mgd					
	184.0	184.0	184.0	184.0	184.0	184.0
Projected Wholesale Allocation in mgd						
Delivery for Fiscal Year	2010	2015	2020	2025	2030	2035
1920	184.0	184.0	184.0	184.0	184.0	184.0
1921	184.0	184.0	184.0	184.0	184.0	184.0
1922	184.0	184.0	184.0	184.0	184.0	184.0
1923	184.0	184.0	184.0	184.0	184.0	184.0
1924	184.0	184.0	184.0	184.0	184.0	184.0
1925	154.6	184.0	184.0	184.0	184.0	184.0
1926	184.0	184.0	184.0	184.0	184.0	184.0
1927	184.0	184.0	184.0	184.0	184.0	184.0
1928	184.0	184.0	184.0	184.0	184.0	184.0
1929	184.0	184.0	184.0	184.0	184.0	184.0
1930	184.0	184.0	184.0	184.0	184.0	184.0
1931	184.0	184.0	184.0	184.0	184.0	184.0
1932	132.5	152.6	152.6	152.6	152.6	152.6
1933	184.0	184.0	184.0	184.0	184.0	184.0
1934	184.0	184.0	184.0	184.0	184.0	184.0
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1953	184.0	184.0	184.0	184.0	184.0	184.0
1954	184.0	184.0	184.0	184.0	184.0	184.0
1955	184.0	184.0	184.0	184.0	184.0	184.0
1956	184.0	184.0	184.0	184.0	184.0	184.0
1957	184.0	184.0	184.0	184.0	184.0	184.0
1958	184.0	184.0	184.0	184.0	184.0	184.0
1959	184.0	184.0	184.0	184.0	184.0	184.0

Delivery for Fiscal Year	2010	2015	2020	2025	2030	2035
1960	184.0	184.0	184.0	184.0	184.0	184.0
1961	152.6	184.0	184.0	184.0	184.0	184.0
1962	132.5	152.6	152.6	152.6	152.6	152.6
1963	184.0	184.0	184.0	184.0	184.0	184.0
1964	184.0	184.0	184.0	184.0	184.0	184.0
1965	184.0	184.0	184.0	184.0	184.0	184.0
1966	184.0	184.0	184.0	184.0	184.0	184.0
1967	184.0	184.0	184.0	184.0	184.0	184.0
1968	184.0	184.0	184.0	184.0	184.0	184.0
1969	184.0	184.0	184.0	184.0	184.0	184.0
1970	184.0	184.0	184.0	184.0	184.0	184.0
1971	184.0	184.0	184.0	184.0	184.0	184.0
1972	184.0	184.0	184.0	184.0	184.0	184.0
1973	184.0	184.0	184.0	184.0	184.0	184.0
1974	184.0	184.0	184.0	184.0	184.0	184.0
1975	184.0	184.0	184.0	184.0	184.0	184.0
1976	184.0	184.0	184.0	184.0	184.0	184.0
1977	152.6	184.0	184.0	184.0	184.0	184.0
1978	136.2	152.6	152.6	152.6	152.6	152.6
1979	184.0	184.0	184.0	184.0	184.0	184.0
1980	184.0	184.0	184.0	184.0	184.0	184.0
1981	184.0	184.0	184.0	184.0	184.0	184.0
1982	184.0	184.0	184.0	184.0	184.0	184.0
1983	184.0	184.0	184.0	184.0	184.0	184.0
1984	184.0	184.0	184.0	184.0	184.0	184.0
1985	184.0	184.0	184.0	184.0	184.0	184.0
1986	184.0	184.0	184.0	184.0	184.0	184.0
1987	184.0	184.0	184.0	184.0	184.0	184.0
1988	152.6	184.0	184.0	184.0	184.0	184.0
1989	132.5	152.6	152.6	152.6	152.6	152.6
1990	132.5	152.6	152.6	152.6	152.6	152.6
1991	132.5	132.5	132.5	132.5	132.5	132.5
1992	132.5	152.6	152.6	152.6	152.6	152.6
1993	136.2	132.5	132.5	132.5	132.5	132.5
1994	184.0	184.0	184.0	184.0	184.0	184.0
1995	154.6	184.0	184.0	184.0	184.0	184.0
1996	184.0	184.0	184.0	184.0	184.0	184.0
1997	184.0	184.0	184.0	184.0	184.0	184.0
1998	184.0	184.0	184.0	184.0	184.0	184.0
1999	184.0	184.0	184.0	184.0	184.0	184.0
2000	184.0	184.0	184.0	184.0	184.0	184.0
2001	184.0	184.0	184.0	184.0	184.0	184.0
2002	184.0	184.0	184.0	184.0	184.0	184.0

Appendix D
Section 7.34 and 7.38 of the
Menlo Park Municipal Code

Chapter 7.34 WATER RATIONING

Sections:

- [7.34.010](#) Emergency declared—Rationing instituted.
- [7.34.020](#) Definitions.
- [7.34.030](#) Application.
- [7.34.040](#) Regulations and restrictions for all customers.
- [7.34.050](#) Allotment.
- [7.34.060](#) Exceptions.
- [7.34.070](#) Water use in excess of allocation—Remedies and charges.

7.34.010 Emergency declared—Rationing instituted.

- (a) A water shortage emergency condition prevails within the area served by Menlo Park municipal water department (hereafter called the water department) and throughout the city.
- (b) The San Francisco water department, at the direction of the San Francisco public utilities commission, has requested that all resale customers, including the water department immediately institute a revised water rationing program designed to effect further reduction in water usage.
- (c) The rules, regulations and restrictions set forth in this chapter are intended to conserve groundwater and the water supply of the water department for the greatest public benefit with particular regard to domestic use, sanitation and fire protection.
- (d) The specific uses prohibited or restricted by this chapter are nonessential, if allowed would constitute wastage of groundwater and the water department water, and should be prohibited pursuant to the water department power under Water Code Section [350](#) et seq., Water Code Section [71640](#) et seq., and the common law.
- (e) The actions taken hereinafter are exempt from the provisions of Sections [21000](#) et seq., of the Public Resources Code as a project undertaken as immediate action necessary to prevent or mitigate an emergency pursuant to Title 14, California Administrative Code Section 15269. (Ord. 821 § 1, 1991).

7.34.020 Definitions.

For the purpose of this chapter, the following terms, phrases, words, and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

- A. The "water department" is an agency of the city, a municipal corporation.
- B. "Customer" means any person using water supplied by the water department.
- C. "Director" means the director of public works of the city.
- D. "Person" means any person, firm, partnership, association, corporation, company, or organization of any kind.

E. The "water rationing plan" means any current water rationing plan adopted by resolution of the city council. (Ord. 821 § 2, 1991).

7.34.030 Application.

The provisions of this chapter shall apply to all customers using water, both in and outside the city. (Ord. 821 § 3, 1991).

7.34.040 Regulations and restrictions for all customers.

(a) Broken or defective plumbing, sprinkler, watering or irrigation systems which permit the escape or leakage of water shall be repaired.

(b) No new irrigation services will be permitted and additional water will not be allowed for expansion of existing irrigation facilities.

(c) No use of water shall be allowed which results in flooding or runoff in gutters, driveways, or streets.

(d) A hose without a positive shutoff valve shall not be used for washing cars, buses, boats, trailers or other vehicles, nor for washing building structures or parts thereof.

(e) Filling of any existing or new swimming pools with water is prohibited.

(f) Sidewalks, walkways, driveways, patios, parking lots, tennis courts or other hard-surfaced areas shall not be cleaned using water from hoses or by use of water directly from faucets or other outlets.

(g) A water service connection for new construction shall not be allowed, except as provided in the water plan.

(h) The use and operation of decorative water fountains shall be discontinued.

(i) Restaurants shall serve water to customers only on request.

(j) Potable water shall not be used for consolidation of backfill, dust control or other nonessential construction purposes.

(k) Water used for cooling must be recycled to the extent possible.

(l) Groundwater may be used for the purposes mentioned in subsections (b), (d), (e), (h) and (j) only to the extent that recycled or reclaimed water is not available and such use has been approved by the San Mateo public health department.

(m) Verified water waste as determined by the department will serve as prima facie evidence that the allocation assigned to the water account is excessive; therefore the allocation will be subject to review and possible reduction, including termination of service. (Ord. 821 § 4, 1991).

7.34.050 Allotment.

The director shall allot water to customers of the water department in accordance with the water rationing plan. (Ord. 821 § 5, 1991).

7.34.060 Exceptions.

Consideration for exceptions regarding allotments of water or any of the regulations and restrictions set forth herein shall be as follows:

- (1) In the case of a rationing allocation, it must be shown that the allocation is not sufficient to meet public health or safety needs. In the case of water use restrictions, it must be shown that there are no alternatives to the use of water from the Menlo Park water system.
- (2) A written application for exceptions shall be made to the water department;
- (3) Appeals must be based on a documented change in circumstances.
- (4) Water use under this exception procedure must be efficiently used without waste.
- (5) Appeals of rationing allocations determined to contain false information shall result in a reduction in the allocation and the installation of a flow-restricting device in the service line of the customer.
- (6) Approval of exceptions may require verification that all appropriate conservation measures are in place and may require an on-site conservation inspection prior to approval.
- (7) Denials of applications may be appealed to the director of public works whose decisions will be final.
- (8) The only grounds for granting such applications are: prior to granting permission for an exception, the water department must be satisfied that all practical water conservation measures have been adopted by the applicant. (Ord. 821 § 6, 1991).

7.34.070 Water use in excess of allocation—Remedies and charges.

- (a) Excess Water Uses Charge. Charges for excess water consumption shall be as set forth in the water rationing plan.
- (b) Installation of Restricting Device. The city may, after one written warning, install a flow-restricting device on the service line of any customer observed by its personnel to be violating any of the regulations or exceeding water allocations hereinabove set forth. In the event that further violations occur, the water department may discontinue service.
- (c) Charges for Installation And Removal of Flow-Restricting Devices. Charges for the installation and removal of flow-restricting devices shall be as stated in the water rationing plan. The first installation shall be for a minimum of five (5) days. The second installation shall be for a minimum of ten (10) days.
- (d) Discontinuance of Water Services and Charges for Reactivation of Service. Continued water consumption in excess of the allotment may result in the discontinuance of water service by the water department. Charges for reactivating service shall be as stated in the water rationing plan. (Ord. 821 § 7, 1991).

This page of the Menlo Park Municipal Code is current through Ordinance 973, passed December 14, 2010.

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Chapter 7.38 WATER CONSERVATION

Sections:

- 7.38.010 Findings and determinations.
- 7.38.020 Definitions.
- 7.38.030 Regulations and restrictions on water use.

7.38.010 Findings and determinations.

The city council finds and determines that:

- (1) The rules, regulations and restrictions set forth in this chapter are intended to conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation and fire protection.
- (2) The specific uses prohibited or restricted by this chapter are nonessential and if allowed would constitute wastage of water and should be prohibited pursuant to the water department power under Water Code Section 350 et seq., Water Code Section 71640 et seq., and the common law. (Ord. 849 § 1, 1993).

7.38.020 Definitions.

For the purpose of this chapter, the following terms, phrases, words and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

- (1) "Water department" means an agency of the city.
- (2) "Customer" means any person using water within the city.
- (3) "Director" means the director of engineering services of the city.
- (4) "Person" is any person, firm, partnership, association, corporation, company or organization of any kind. (Ord. 849 § 2, 1993).

7.38.030 Regulations and restrictions on water use.

It is resolved by the city council that in order to conserve the water supply for the greatest public benefit, and to reduce the quantity of water used by the city's customers, that wasteful use of water should be eliminated. Customers of the city shall observe the following regulations and restrictions on water use:

- (1) Broken or defective plumbing, sprinkler, watering or irrigation systems which permit the escape or leakage of water shall be repaired.
- (2) No use of water shall be allowed which results in flooding or runoff in gutters, driveways or streets.
- (3) A hose without a positive shut-off valve shall not be used for washing cars, buses, boats, trailers or other vehicles, nor for washing building structures or parts thereof.
- (4) A hose without a positive shut-off valve shall not be used for washing sidewalks, walkways,

driveways, patios, parking lots, tennis courts or other hard-surfaced areas.

(5) Restaurants shall serve water to customers only on request.

(6) Water used for cooling must be recycled to the extent possible. (Ord. 849 § 3, 1993).

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Table 3-3. Description of Conservation Measures Selected for Further Evaluation

Conservation Measure	Measure Description
MEASURES INCLUDED IN THE 2004 STUDY	
1. Residential Water Surveys	Provide indoor and outdoor water surveys to existing Single-Family and Multi-Family residential retail customers with high water use; provide customized report to homeowner.
2. Residential Retrofit	Provide owners of pre-1992 homes with retrofit kits that contain easy-to-install low flow showerheads, faucet aerators, and toilet tank retrofit devices.
3. Large Landscape Conservation Audits	Provide free landscape water audits to all public and private irrigators of landscapes larger than one acre with separate Irrigation accounts upon request.
4. Water Budgets	Provide a monthly irrigation water use budget as information on the water bill for all irrigators of landscapes larger than one acre with separate Irrigation accounts.
5. Clothes Washer Rebate	Provide a rebate on a new water efficient clothes washer for homeowners.
6. Public Information Program	Provide public education to raise awareness of conservation measures available to retail customers. Programs could include poster contests, speakers to community groups, radio and television time, and printed educational material such as bill inserts, etc.
7. Commercial Water Audits	Provide a free water audit to high water use Commercial accounts that evaluates ways for the business to save water and money.
8. Ultra low flow (ULF) Toilet and Urinal Rebates	Provide rebates to pre-1994 businesses with high use fixtures for commercial ULF toilets (1.6 gal/flush) and commercial ULF urinals (1.0 gal/flush).
9. Residential ULF Toilet Rebate	Provide a rebate to homeowners to replace an existing high volume toilet with a new water efficient toilet.
10. Require 1.6 gal per flush toilets to be installed at the time of sale of existing buildings	Work with the real estate industry to require a certificate of compliance be submitted to the water utility verifying that a plumber has inspected the RSF or RMF property and efficient fixtures were either present or installed at the time of sale, before close of escrow.
11. Home Leak Detection and Repair	Use leak detection equipment to determine whether and where leaks are occurring on the premises and provide a plumber to the retail customer to repair leaks for free.
12. Rebates for 6/3 dual flush or 4 liter toilets	Provide a rebate or voucher for the retrofit of a 6/3 dual flush, 4-liter or equivalent very low water use toilet. Rebate amounts would reflect the incremental purchase cost and would be in the range of \$50 to \$100 per toilet replaced.
13. Evapotranspiration (ET) Controller Rebates	Provide a rebate for the latest state of the art irrigation controllers with on-site temperature sensors or a signal from a central weather station that modifies irrigation times at least weekly (preferably daily) as the weather changes.
14. Xeriscape education and staff training at retail garden/irrigation supply houses	Sponsor training for staff of stores where plants and irrigation equipment is sold to educate sales people about the benefits of native (low water use) plants, efficiently irrigated.
15. Homeowner irrigation classes	Sponsor classes at stores where irrigation equipment is sold or other suitable venues on selection and installation of efficient equipment (drip irrigation, smart controllers, low volume sprinklers, etc.) and proper plant.

Table 3-3. Description of Conservation Measures Selected for Further Evaluation

Conservation Measure	Measure Description
16. Promote water efficient plantings at new homes	Provide information for planting water-efficient landscaping, including avoiding strip turf sections that are difficult to water efficiently and using native plants that do not require supplemental watering. Information would be provided in brochures with the water bill, or mailed. Informational displays at Water Utility offices and nurseries could also be provided.
17. Incentives for replacement of clothes washers in coin-operated laundries	Provide incentives to apartment and coin-op laundry managers to retrofit or use efficient clothes washers. The rebate would either go to the manager or the washing machine leasing company.
18. Incentives for retrofitting sub-metering	Rescind any regulations that prohibit sub-metering of multi-family buildings and encourage sub-metering through water audits and direct mail promotions, and/or incentives to building owners.
19. Require sub-metering multifamily units	Require all new multi-family units to provide sub-meters on individual units. To help reduce financial impacts on tenants, regulations would be adopted that specify acceptable methods of metering and billing.
20. Rebate efficient clothes washers	Provide a rebate to new apartment complexes over a certain size with a common laundry room equipped with efficient washing machines.
21. Enforce landscape requirements for new landscaping systems (turf limitations / regulations)	Enforce existing requirements on use of native or low-water-using plants for landscaping purposes. Proof of compliance would be necessary to obtain a water connection on all new Multi-Family Residential and commercial projects. Non-compliers would face a surcharge on their water bill until they complied.
22. Restaurant low flow spray rinse nozzles	Provide free installation of 1.6 gallon per minute (gpm) spray nozzles for the rinse and clean operation in restaurants and other commercial kitchens.
23. Focused water audits for hotels/motels	Provide free water audits to hotels and motels covering bathrooms, kitchens, ice machines, cooling towers and irrigation system schedules.
24. WAVE Program (US EPA) for hotels	Provide hotels with information about the US EPA's WAVE program. This program encourages hotels to do their own water audit and then analyze their water use with the software provided. The software identifies water saving projects and computes paybacks. Hotels that agree to participate in the program also agree to install cost-effective water conserving equipment.
25. Hotel retrofit (w/financial assistance)	Following a free water audit offer participating hotels a rebate for identified water saving. Provide a rebate schedule for certain efficient equipment such as air-cooled ice machines for hotels that don't participate in an audit.
26. Award program for water savings by businesses	Sponsor an annual awards program for businesses that significantly reduce water use. Provide a plaque, presented at a lunch with the mayor.
27. Replace inefficient water using equipment	Provide a rebate for a standard list of water efficient equipment including icemakers, efficient dishwashers, cooling towers to replace once through cooling, irrigation controllers, and certain process equipment.
28. Require 0.5 gal/flush urinals in new buildings	Require new buildings be fitted with 0.5 gal/flush urinals.
29. Financial incentives for complying with water use budget	Link a landscape water budget to a rate schedule that penalizes the account holder for exceeding its water budget and rewards them for using less than the budget.
30. Financial incentives for irrigation upgrades	Provide rebates for selected types of irrigation equipment upgrade.

Table 3-3. Description of Conservation Measures Selected for Further Evaluation

Conservation Measure		Measure Description
31.	Require dedicated irrigation meters for new accounts	Require new accounts with a substantial amount of irrigated landscape have dedicated landscape meters and are charged on a separate rate schedule that recognizes the high peak demand placed on the system by irrigators.
32.	Water Utility / City Department water reduction goals	Provide water use reduction goals for metered City and County accounts and offer audits and employee education.
ADDITIONAL/NEW MEASURES INCLUDED IN THE 2008 STUDY		
NM-1	High-efficiency Toilet Rebates	HET rebate program for to replace high flow toilets. It assumes the rebate goal will be approximately 1 percent of <u>all</u> toilets each year. For budgeting purposes this is similar to having one toilet rebate for approximately 3 percent of the year 2010 RSF, RMF and CII accounts.
NM-2	Education/Training External Water Use Efficiency	Combination of three types of training classes: (1) Xeriscape, (2) Homeowner Irrigation, and (3) Promotion of Water Efficient Plants. Assume all savings are implemented for RSF accounts. Number of accounts affected is computed on a regional basis and then divided among service areas. REGIONALLY: 20 class sites, 4 class/year/site, 50 attendees/class, 1 affected-account/attendee. $20 \times 4 \times 50 \times 1 = 4000$ affected accounts.
NM-5	High-efficiency Washer Rebates	HEWs rebate program for 27 percent of residential accounts over 9 years.
NM-6	New Development Indoor Regulations	Require developers to install the following devices where applicable: (1) HET; (2) High-efficiency Clothes Washer; (3) Energy Star Dishwasher; (4) High-efficiency Faucets and Showerheads; (5) Efficient Hot Water Delivery System; (6) Multifamily submetering. These requirements are similar but slightly more stringent than both EPA's Water Sense for New Homes and EBMUD's current new connection regulations adopted in 2007.
NM-7	New Development Outdoor Regulations	Agency adopts ordinance to require developers to install the following devices/systems where applicable for landscaping around any new building: (1) Efficient landscaping with either a turf limit (such as no more than 40 percent) or a water budget approach (such as design to achieve 60 percent of ETo); (2) State of the art irrigation controller (may be a weather adjusting controller in the future). These requirements are a blend of both EPA's Water Sense for New Homes and EBMUD's current new connection regulations adopted in 2007.
	School Education – Resource Action Programs	

Table I-2 Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.2
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.2.2 Table 1.2 Appendix A
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 1.3.1 Appendix B
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 1.3.1
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Section 1.3 Appendix B
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Section 1.3.1 Appendix B
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 1.3.2 Table 1.3

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 1.3.1
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 1.3.1
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.3
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Section 2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2 Table 2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.2
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 3.1
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Section 1.3.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Section 6 MPMWD reports through BAWSCA's regional system
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.2
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.3 Table 3.14
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 3.2.6 Table 3.13
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 4.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 4.4
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Section 4.4.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
16	Describe the groundwater basin.	10631(b)(2)		Section 4.4.2
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Section 4.4.2
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 4.4.3
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 4.4.3
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 4.4.4
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.5
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 4.8 Table 4.11
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.6
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 4.7

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 4.7.1
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 4.7.1 Table 4.6 and 4.7
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 4.7.2
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 4.7.2 Table 4.8
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 4.7.3 Table 4.9
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 4.7.4 Table 4.10
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 4.7.2
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING ^b				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 3.1 Water Use Targets, Section 4.2 SFPUC Interim Supply Limitation, Section 4.4 Groundwater Development, Section 6 DMMS

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 5.2
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Not applicable
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.5
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.5.2
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.5.3
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.5.4 Table 5.14
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.5.4 Table 5.15
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.5.4 Table 5.15
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.5.5
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Section 5.5.6 Appendix D

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.5.7
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Section 5.3
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 5.4
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measure is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 6
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 6
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Section 6
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	NA MPMWD is not a CUWCC signatory. MWMWD does report to BAWSCA

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.