

CHAPTER 8. DEMAND MANAGEMENT MEASURES

This chapter describes the available information on each of the City's water conservation programs as they relate to the fourteen Demand Management Measures (DMMs) included in the Urban Water Management Planning Act. As shown in other chapters of this UWMP, the DWR Guidebook for Preparation of a 2005 Urban Water Management Plan has several recommended tables for presenting the UWMP water supply and demand information. Likewise, DWR has several recommended tables for presenting the DMM information. However, the City has historically not tracked or reported its conservation program efforts in such detail. Therefore, there is currently insufficient data available to complete many of the DWR recommended DMM tables.

The City has, however, started reporting its water conservation activities using the California Urban Water Conservation Council (CUWCC) reporting website. A copy of the City's 2006 report is included in Appendix G of this UWMP.

This chapter describes the following:

- The Urban Water Management Planning Act DMMs and relationship to the CUWCC Best Management Practices (BMPs)
- The City's past and on-going water conservation programs and measures
- A description of the City's current and planned activities and budget allocations for each BMP/DMM
- Determination of DMM implementation
- Evaluation of any DMMs not being implemented
- Discussion of potential future DMMs being considered by the City

DEMAND MANAGEMENT MEASURES

The Urban Water Management Planning Act includes fourteen DMMs for urban water conservation. These fourteen measures include the following:

1. Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers
2. Residential Plumbing Retrofit
3. System Water Audits, Leak Detection and Repair
4. Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections
5. Large Landscape Conservation Programs and Incentives
6. High-Efficiency Washing Machine Rebate Programs
7. Public Information Programs

8. School Education Programs
9. Conservation Programs for Commercial, Industrial and Institutional Accounts
10. Wholesale Agency Programs
11. Conservation Pricing
12. Water Conservation Coordinator
13. Water Waste Prohibition
14. Residential Ultra-Low-Flush Toilet Replacement Program

These fourteen DMMs are the same as the fourteen Best Management Practices (BMPs) listed in the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The 1991 MOU originally listed sixteen BMPs for water conservation. In 1999, the MOU was revised to include fourteen BMPs, as listed above.

OVERVIEW OF PAST AND CURRENT WATER CONSERVATION PROGRAMS AND MEASURES

The City of Fresno (City) has a long history of water conservation. A letter dated June 20, 1917 from A.G. Wishon, General Manager of the Fresno City Water Company, to water customers stated that employees would patrol neighborhoods and take action against customers who wasted water. A copy of that letter is provided as Figure 8-1.

On January 1, 1956, the City adopted an ordinance prohibiting the wastage of water. This was one of the first such ordinances passed in California on a permanent basis. The ordinance included the following provisions:

Section 6-520. Use of Open Hose or Faucet; Wastage of Water¹

- (a) *The use of water by means of an open hose or open faucet for irrigation purposes is prohibited. All hose used for irrigation purposes shall have attached thereto a spray nozzle or sprinkling device.*
- (b) *Each consumer of water shall keep all connections, faucets, hydrants, pipes, outlets and plumbing fixtures tight and free from leakage, dripping or waste of water.*
- (c) *The willful waste of water supplied by the City Water Division is prohibited.*
- (d) *The Water Division shall turn off the water connection to any property where any provision of this section is being violated and shall not turn it on again until a fee of five dollars (\$5) for reconnection shall have been paid at the Water Division office in the City Hall.*

Water conservation in Fresno gained renewed emphasis during the 1976-77 drought. Conservation programs that were started then have continued and since 1981 have been supplemented with additional and expanded programs, as described in this chapter. Excerpts

¹ This Section of the City Municipal Code has been updated since it was first adopted in 1956. The latest version of Section 6-520. Wastage of Water is provided in Appendix F.

from the City of Fresno's current Municipal Code regarding water regulations and conservation provisions are included in Appendix F.

On December 11, 1991, the City became a signatory agency to the CUWCC's Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The purpose of the MOU was to expedite implementation of reasonable water conservation measures in urban areas and to establish appropriate assumptions for use in calculating estimates of reliable future water conservation savings.

Recently, the City also became a partner in the U.S. Environmental Protection Agency's (USEPA) WaterSense program. WaterSense is a voluntary partnership program sponsored by the USEPA with a mission to protect the future of the nation's water supply by promoting and enhancing the market for water-efficient products and services.

The City, as a United States Bureau of Reclamation (USBR) Central Valley Project (CVP) contractor, was required to prepare a Water Conservation Plan as part of their USBR water supply contract renewal in 2005. In May 2005, the City completed its Water Conservation Plan, outlining its current and planned water conservation programs. The Water Conservation Plan was approved by USBR in May 2005 and adopted by the Fresno City Council on July 19, 2005. The fourteen BMPs required by USBR, and outlined in the City's Water Conservation Plan, are the same as the fourteen CUWCC BMPs and Urban Water Management Planning Act DMMs described above. The City submits an annual report to the USBR summarizing the City's water conservation efforts. A copy of the latest report dated February 2007 is provided in Appendix G of this UWMP.

The information provided in this chapter is largely derived from the information provided in Section 4 of the City's 2005 Water Conservation Plan, with updates on recent City water conservation activities based on discussions with the City's Water Conservation Supervisor. A copy of Section 4 of the City's 2005 Water Conservation Plan is provided in Appendix H.

Table 8-1 lists the DMMs/BMPs and provides a brief description of the City's current and planned activities related to each DMM/BMP and current implementation status. Detailed descriptions of the City's DMM/BMP implementation are provided in the next section of this chapter.

DESCRIPTION OF DMM IMPLEMENTATION

10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

- (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:*
 - (A) Water survey programs for single-family residential and multifamily residential customers.*
 - (B) Residential plumbing retrofit.*
 - (C) System water audits, leak detection, and repair.*
 - (D) Metering with commodity rates for all new connections and retrofit of existing connections.*
 - (E) Large landscape conservation programs and incentives.*
 - (F) High-efficiency washing machine rebate programs.*
 - (G) Public information programs.*

Table 8-1. Overview of City's Current Water Conservation Activities

Urban Water Management Planning Act & CUWCC MOU		City Water Conservation Activities
DMM/BMP Number	DMM & BMP Description	
1	Water survey programs for single-family residential and multi-family residential customers	<ul style="list-style-type: none"> Interior and exterior water surveys are offered to and performed for single-family and multi-family residential customers upon request
2	Residential plumbing retrofit	<ul style="list-style-type: none"> Low-flow showerheads and faucet aerators are provided to City customers upon request and at public outreach events
3	System water audits, leak detection and repair	<ul style="list-style-type: none"> Leak detection pilot programs were conducted in 1998 and 2004 Reported leaks are responded to and repaired as quickly as possible A complete system audit will be performed once all customers are metered (by 2013)
4	Metering with commodity rates for all new connections and retrofit of existing connections	<ul style="list-style-type: none"> Multi-family Residential, Commercial, Institutional, Industrial and Irrigation connections have always been metered and billed based on consumption (uniform rate) Single-family Residential customers are currently not metered and are billed based on a flat rate. However, in accordance with SB229 and AB514, and the conditions of the CVP contract renewal, all connections, including single-family residential, are required to be metered and be billed at a metered rate by 2013. Metered billing to start in 2010 for single family residential customers with meters installed. The City has developed a residential water meter installation plan (installation to start in 2008, complete by 2013)(see Appendix D).
5	Large landscape conservation programs and incentives	<ul style="list-style-type: none"> Landscape water conservation surveys are offered to and performed for residential and business customers Permits are required for large landscapes which water more frequently than every other day Water Conserving Landscape Requirements are included in the City Municipal Code The City is considering a rebate program for installation of efficient irrigation timers
6	High-efficiency washing machine rebate programs	<ul style="list-style-type: none"> A PG&E rebate program is available to City residents In November 2007, the City implemented a high-efficiency washing machine rebate program.
7	Public information programs	<ul style="list-style-type: none"> The City has an extensive public information program which uses various media to inform customers about the importance of water conservation. The various media include: Television, Radio and Print Advertisements, Newsletters, Customer Billing Inserts, Community Outreach Events, Literature, Speakers Bureau and Water Education Tours
8	School education programs	<ul style="list-style-type: none"> The City has an extensive Water Education Program for K-12 and college students
9	Conservation programs for commercial, industrial and institutional (CII) accounts	<ul style="list-style-type: none"> Exterior water conservation surveys are offered and provided to business upon request or during routine monitoring Requirements for water conservation devices are included in the City Municipal Code City requesting a position for a CII water conservation representative.
10	Wholesale agency programs	<ul style="list-style-type: none"> The City serves only a small portion of the Pinedale County Water District (about 10 water connections) and the Berans Tract commercial area (via 2 water connections) on a wholesale basis. As such, the City is not considered to be a wholesale supplier.
11	Conservation pricing	<ul style="list-style-type: none"> Until the passage of AB514 in 2003, the City Charter prohibited the installation of water meters and reading of water meters for billing purposes for single-family residential uses. SB229 and AB514, and the CVP contract renewal requires that the City install meters on all connections and meter all water deliveries to customers by 2013 Multi-family Residential, Commercial, Institutional, Industrial, and Irrigation Customers are metered and are billed based on metered consumption (uniform rate). Single family residential metered billing to begin in 2010 for customers who have meters installed. A billing rate schedule for all metered connections will be developed in accordance with the metering plan (see Appendix D).
12	Water conservation coordinator	<ul style="list-style-type: none"> The City has a full-time Water Conservation Program Coordinator and support staff
13	Water waste prohibition	<ul style="list-style-type: none"> The City has a Water Waste Hotline and Reporting Form on City Website Water waste prohibition is included in the City Municipal Code
14	Residential ultra-low-flush toilet replacement program	<ul style="list-style-type: none"> The City implemented an ultra-low-flow toilet rebate program in March 2006.

- (H) School education programs.
 - (I) Conservation programs for commercial, industrial, and institutional accounts.
 - (J) Wholesale agency programs.
 - (K) Conservation pricing.
 - (L) Water conservation coordinator.
 - (M) Water waste prohibition.
 - (N) Residential ultra-low-flush toilet replacement programs.
- (2) A schedule of implementation for all water demand management measures proposed or described in the plan.

A description of the City's activities with respect to each DMM is provided below. Information was obtained from the City's 2005 Water Conservation Plan and the City's Water Conservation Supervisor.

In the past, the City has not filed annual reports with the CUWCC regarding water conservation activities. Specific reporting requirements for each DMM/BMP are outlined in Section 4 of the City's Water Conservation Plan, a copy of which is provided in Appendix H.

DMM 1: Water Survey Programs for Single Family and Multi-Family Residential Customers

Corresponding BMP

- CUWCC BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Description

The City has few requests for single-family or multi-family interior water surveys. While the City does not have an aggressive media campaign for marketing surveys, it does include the information in outreach literature, website and through direct contact with customers at outreach events, tours and speakers bureau. If a request for an interior survey is received, staff is available to respond. There has been little interest in this service by single-family consumers probably because of low, flat-rate water charges. Multi-family residential customers have also shown little interest, probably due to low water rates. The City has staff available to provide interior water surveys to customers.

However, required City on-site inspections to qualify for water efficient toilet and clothes washer rebates have allowed the City an opportunity to enter customer dwellings. At that time, the City offers and performs an interior survey for willing single-family and multi-family residential customers. Water efficient hardware is also left for the resident, along with hose nozzles for the exterior and an offer to perform an exterior survey.

The City does, however, aggressively market and perform single-family and multi-family residential exterior water surveys, which has the highest water usage. This program is staffed with two Landscape Water Conservation Representatives. Surveys are offered and cost-effective measures are recommended. The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker's bureau, and the City's web site. A

majority of landscape surveys result from the City’s free irrigation controller setting program. At the time of the request, customers agree to an exterior survey also. During the exterior survey, City staff provide the following services:

- Landscape water-use surveys include consultation, irrigation system efficiency rating using “catch can” distribution uniformity method or in-depth valve observation method, measurement of turf and other landscaped area.
- Offer plant material tips.
- Irrigation controller setting and water budgeting recommendations with an evapotranspiration chart developed specifically for the region used to develop a written irrigation schedule for the customer.
- Offer to customer to perform interior survey.

To further enhance the exterior landscape program, staff has proposed that the City begin a pilot program in the future to offer rebates to rate payers to purchase updated and more efficient automatic irrigation timers.

Implementation Schedule

- Program Status:
 - On-going.
 - Offers for interior and exterior surveys made on an on-going basis to single-family and multi-family residential customers. Current focus is on exterior surveys.
 - The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker’s bureau, and the City’s web site.
 - Interior and exterior surveys also being offered in conjunction with on-going toilet rebate program.
- Rebates for efficient automatic irrigation timers: Proposed for the future.

Annual Budget/Expenditures

FY2005: Actual Budget: \$0

FY2006: Proposed Budget: \$6,000

FY2007: Proposed Budget: \$24,000

FY2008: Proposed Budget: \$43,000

DMM 2: Residential Plumbing Retrofit

Corresponding BMP

- CUWCC BMP 02: Residential Plumbing Retrofit

Description

The City provides free low-flow showerheads and faucet aerators to the City's rate payers. These items are distributed based on customer request and are also available during public outreach events and during interior surveys. Recently, fewer requests for showerheads have been received from customers. This is due to the efficiency standards requiring that only low-flow showerheads be sold in this country. Since 1993, the City has provided more than 120,000 showerheads to pre-1992 homes and currently more than 75 percent of pre-1992 homes have low-flow showerheads.

Implementation Schedule

Program Status: Distribution of plumbing retrofit kits are on-going, and provided upon customer request, during interior surveys, and at public outreach events

Annual Budget/Expenditures

FY2005: Actual Budget: \$0

FY2006: Proposed Budget: \$0

FY2007: Proposed Budget: \$0

FY2008: Proposed Budget: \$0

DMM 3: System Water Audits, Leak Detection and Repair

Corresponding BMP

- CUWCC BMP 03: System Water Audits, Leak Detection and Repair

Description

Because the City is not entirely metered, a complete system water audit is not possible at this time. However, the City routinely compiles and compares its water distribution system data to identify any major leaks in the system. In 1998, approximately 60 miles of water mains were tested through a pilot leak detection program. At that time, few leaks were found. Staff is available for the timely repair of all reported leaks.

The City is currently reviewing new leak detection technology. A limited study was conducted in 2004 in a small area of an older section of Fresno using Permalog. No leaks were detected at that time. A full water system audit will be conducted as soon as the City is fully metered, with older neighborhoods being a priority. The City's leak detection program will be enhanced with the onset of the meter installation program, which will begin in 2008, and will be completed by 2013 (see DMM No. 4).

Implementation Schedule

- Pilot leak detection programs: Conducted in 1998 and 2004
- System audit: To be conducted as soon as the City is fully metered

- Leak detection program: To become a priority once meter installation begins in 2008 (see DMM No. 4)

Annual Budget/Expenditures

Funding for this DMM is not included in the City’s Water Conservation budget. The budget for this DMM is included in the City’s Water Operations budget; however, the specific budget for the leak detection program is not available.

DMM 4: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Corresponding BMP

- CUWCC BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Description

The City’s multi-family residential, commercial, industrial, institutional, and irrigation water customers (18,531 accounts in FY2007, excluding fire protection connections) are metered and billed based on a standby charge plus a quantity charge based on water usage (see DMM No. 11).

The City’s single-family residential customers (106,457 accounts in FY2007), however, are not metered, and are billed based on a flat rate based on lot size. Table 8-2 provides a summary of the City’s total water service accounts in FY2007.

Table 8-2. Summary of City Water Accounts in Fiscal Year 2007^(a)

Customer Type	Total		Total Accounts
	Metered	Unmetered	
Single-Family Residential	1	106,447	106,448
Multi-Family Residential	7,527	137	7,664
Commercial/Institutional ^(b)	8,037	15	8,052
Industrial	99	0	99
Landscape Irrigation	2,867	0	2,867
Fire Protection ^(c)	0	2,516	2,516
Total	18,531	109,115	127,646
% of Total	14.5%	85.5%	100%

(a) Source: City of Fresno HTE Revenue Report. Data shown for FY07 ending 06/30/07.

(b) Institutional includes schools and municipal connections.

(c) Includes fire protection connections for multi-family residential, commercial/institutional and industrial customers.

Until recently, Article XII, Section 1225 of the City's Charter has prohibited the installation or required installation of water meters at single-family residential connections, and the billing of single-family residential water consumption at a metered rate. All new single-family residential connections (installed after January 1, 1992) have been provided with a meter box and/or meter in accordance with State Water Code Section 525 (adopted by Senate Bill 229 (SB 229) in 1991); however, based on the City Charter, all single-family residential customers are currently billed based on a monthly flat rate according to lot size. A discounted flat rate is also provided for single-family residential customers who are senior citizens.

However, in 2003, Assembly Bill 514 (AB 514) was signed into law. Among other provisions, AB 514 enacted Water Code Section 111 that requires an urban water supplier that receives water from the Federal Central Valley Project to: (1) install water meters on all service connections to residential and non-agricultural commercial buildings located within its service area on or before January 1, 2013; and (2) charge customers for water based on the actual volume of deliveries, as measured by a water meter, on and after March 1, 2013. Compliance with this statute is one of the conditions of the City's USBR Water Supply Agreement renewal.

The requirements of SB 229 and AB 514 have superseded Article XII, Section 1225 of the City's Charter, because these state laws address a subject matter of statewide concern. Also, the State Legislature has declared that these requirements supersede and preempt all conflicting enactments of charter cities, including charter provisions.

The City has developed a meter installation plan and schedule to install meters on all existing customer properties without meters, and charge metered rates, on or before 2013 (metered billing will begin in 2010 for single family residential customers with meters installed). Meter retrofit installations are scheduled to start in 2008. A copy of the meter installation plan and schedule is provided in Appendix I.

Implementation Schedule

- Metering and Billing at Commodity Rates: On-going for multi-family residential, commercial, industrial, institutional, and landscape irrigation customers. To start in 2010 for single family residential customers already metered.
- Single-Family Residential Metering Program: Scheduled to begin in 2008 and be completed by 2013.

Annual Budget/Expenditures

Funding for this DMM is not included in the City's Water Conservation budget. The budget for this DMM is included in the City's Water Operations budget and will come from the Capital Improvement Program and bonds; however, the specific budget for the metering with commodity rates program is not available.

DMM 5: Large Landscape Conservation Programs and Incentives

Corresponding BMP

- CUWCC BMP 05: Large Landscape Conservation Programs and Incentives

Description

The City has a Large Landscape Conservation Program which is staffed with two Landscape Water Conservation Representatives. Landscape surveys are offered and cost-effective repair or enhancement measures are recommended. The City primarily reaches its customers through routine field monitoring, advertising in billing inserts, conservation literature, speakers bureau, tours, web site, and public outreach events. The City is in the process of identifying landscape meter accounts which serve one acre or more of landscape area. Requesting large accounts are surveyed annually and an irrigation schedule is developed within approved time frames in conjunction with the large landscape water permit program. The City is a resource to customers developing annual water budgets.

To further enhance the exterior landscape program, staff has proposed that the City begin a pilot program to offer rebates to rate payers to purchase updated and more efficient automatic irrigation timers.

The City has also adopted water conserving landscape requirements which are specified in the City Municipal Code (Section 6-522. Water Efficient Landscape Standards). These requirements define standards and procedures for the design, installation and management of landscapes in order to utilize available plant, water, land and human resources to the greatest benefit of the people of the City. A copy of the water conserving landscape requirements is provided in Appendix F.

The City is also a supporting partner in the Clovis Botanical Gardens, which serve as a demonstration garden for water conserving landscaping in the region. The City has a park strip demonstration garden at its facilities. The City has also received a grant to develop a demonstration xeriscape median island on a major street.

Implementation Schedule

- Landscape Surveys: On-going
- Water permits for large landscape accounts: On-going
- Rebate program for efficient automatic irrigation controllers: Proposed for the future.
- Water Conserving Landscape Requirements: On-going per City Municipal Code (Section 6-522. Water Efficient Landscape Standards)

Annual Budget/Expenditures

FY2005: Actual Budget: \$70,205
 FY2006: Proposed Budget: \$70,000
 FY2007: Proposed Budget: \$70,000
 FY2008: Proposed Budget: \$70,000

DMM 6: High-Efficiency Washing Machine Rebate ProgramsCorresponding BMP

- CUWCC BMP 06: High-Efficiency Washing Machine Rebate Programs

Description

In November 2007, the City implemented a high-efficiency clothes washer rebate program. Residential customers may receive a \$100 rebate for purchasing a qualifying high-efficiency clothes washer. Clothes washers qualifying for the rebate must quality as an EnergySTAR labeled appliance and meet the Consortium for Energy Efficiency (CEE) Standards for energy and water consumption standards with a Water Factor (WF) of 6.0 or less.

PG&E also has a rebate program which the City's water customers may be eligible for, depending on what type of washing machine they purchase. For a \$35 rebate (Level 1), the clothes washer must have a Modified Energy Factor (MEF) of 1.42 to 1.59 and a Water Factor (WF) of 9.5 or lower. For a \$75 rebate (Level 2), the clothes washer must have a MEF of 1.60 or greater and a WF of 8.5 or lower.

The City also participates in the State of California's Flex Your Power (FYP) program. A letter of support for the FYP program was sent by the City at the request of the California Urban Water Conservation Council. In April 2004, the California Water Awareness Campaign and the Flex Your Power energy efficiency program joined together to promote water and energy efficient appliances. Centered around Earth Day, over 40 water agencies, including the City of Fresno, participated in the project by choosing local non-profit organizations to receive new EnergySTAR clothes washers and dryers. Information on the City's high-efficiency clothes washer and toilet rebate programs are listed on the Flex Your Power webpage.

Implementation Schedule

- PG&E Rebate Program: On-going
- City Rebate Program: Started in November 2007
- City support of California's Flex Your Power Program: On-going

Annual Budget/Expenditures

FY2005: Actual Budget: \$0

FY2006: Proposed Budget: \$0

FY2007: Proposed Budget: \$0

FY2008: Proposed Budget: \$0

DMM 7: Public Information Programs

Corresponding BMP

- CUWCC BMP 07: Public Information Programs

Description

The City's water conservation public information program is managed in-house with the assistance of a contracted public relations firm. The firm's services include strategic planning, creative concepts, public relations, marketing, promotion, research, advertising, media placement, production and design, copy writing, event production and marketing and online services.

The City's public information program has many components including multi-media campaigns (paid and public service advertising); customer billing inserts; literature; public outreach activities, speakers bureau and inter-agency partnerships. Many of the City's water conservation materials are provided in three languages: English, Hmong and Spanish. Bilingual City conservation employees who speak these languages are also available.

The City is a member of the Central Valley Water Awareness Committee (CVWAC), which is comprised of several cities, water utilities, irrigation districts and other groups in the Central Valley. The CVWAC was created to increase the public's understanding of how water is treated, managed and delivered to customers. The City participates in Water Awareness Month activities through its affiliation with the CVWAC.

In the past, the City has informally kept records of these related public information activities. In 2005, the City began keeping formal and accurate records of these activities for submittal to the CUWCC.

Implementation Schedule

- Paid Advertising: On-going
- Public Service Announcements: On-going
- Water Bill Inserts, Newsletters and Brochures: On-going
- Special Events, Media Events: On-going
- Speaker's Bureau: On-going

Annual Budget/Expenditures

FY2005: Actual Budget: \$200,000

FY2006: Proposed Budget: \$200,000

FY2007: Proposed Budget: \$200,000

FY2008: Proposed Budget: \$200,000

DMM 8: School Education Programs

Corresponding BMP

- CUWCC BMP 08: School Education Programs

Description

The City works with schools in the Fresno customer service area through its School Education Program. The Water Education Coordinator is a certified teacher on contract with the City, who has developed the program and is available for presentations to students, teachers and community groups. Some of these education programs are recorded for future use.

In the 2003/04 school year, 23 school presentations were made, reaching 659 students. One teacher workshop was also conducted.

The Water Education Coordinator is also attending Environmental Education Initiative (EEI) workshops in regard to the statewide curriculum. The first three of four phases have been completed, designing and pilot testing grade-level curricula aligned with state teaching standards.

Implementation Schedule

- School Outreach Program: On-going

Annual Budget/Expenditures

FY2005: Actual Budget: \$45,811

FY2006: Proposed Budget: \$45,600

FY2007: Proposed Budget: \$45,600

FY2008: Proposed Budget: \$45,600

DMM 9: Conservation Programs for Commercial, Industrial and Institutional Accounts

Corresponding BMP

- CUWCC BMP 09: Conservation Programs for Commercial, Industrial and Institutional Accounts

Description

The City rarely receives a request regarding interior water conservation surveys for CII accounts. The City does not currently have qualified staff for this program and cannot respond to requests. The City does conduct exterior surveys for CII accounts upon request, or as a result of routine monitoring.

The City does have an ordinance which requires water conservation devices on water-cooled refrigeration units and evaporative coolers, which are primarily associated with CII accounts. The provisions of the ordinance have been incorporated into the City Municipal Code (Section 6-519. Water Conservation Device Required). A copy of the pertinent sections of the Municipal Code are provided in Appendix F.

Implementation Schedule

- Commercial, Industrial and Institutional Water Use Surveys: Requesting staff position or during routine monitoring
- Requirements for Water Conservation Devices: On-going per City Municipal Code (Section 6-519. Water Conservation Device Required)
- Exterior Surveys conducted: On-going

Annual Budget/Expenditures

FY2005: Actual Budget: \$16,384

FY2006: Proposed Budget: \$8,000

FY2007: Proposed Budget: \$15,000

FY2008: Proposed Budget: \$15,000

DMM 10: Wholesale Agency Programs

Corresponding BMPs

- CUWCC BMP 10: Wholesale Agency Programs

Description

The City functions primarily as a retail water purveyor for the City of Fresno water service area. The City does provide water on a wholesale basis to two limited areas within the City's water service area:

- Portion of Pinedale County Water District east of Highway 41, and
- Berans Tract area.

The City provides water on a wholesale basis to a small number of customers located within the portion of the Pinedale County Water District which lies east of Highway 41. This area of Pinedale east of Highway 41 consists of approximately 28 water service connections (two metered and 26 unmetered) which are essentially cut off from the remaining Pinedale system by Highway 41 and have no other water supply. These customers are billed by Pinedale, which in turn pays the City for providing the water supply.

The City also provides water on a wholesale basis to the Berans Tract area, a County island. The City serves this area via two water connections from the City.

These wholesale water service arrangements are considered to be a relatively minor part of the City’s overall water system operations. Therefore, for purposes of DMM 10, the City is not considered to be a water wholesaler. As such, wholesale agency programs are not considered applicable to the City.

Implementation Schedule

Not applicable to City.

Annual Budget/Expenditures

Not applicable to City.

DMM 11: Conservation Pricing

Corresponding BMP

- CUWCC BMP 11: Conservation Pricing

Description

As described for DMM 4, only about 14 percent of the City’s customer accounts are metered and billed based on usage. This is primarily because the City Charter has, until recently, prohibited the metering of single-family residential accounts. For the City’s unmetered single-family residential customers, the City currently bills a flat monthly water rate based on lot size as shown in Table 8-3.

Table 8-3. City of Fresno Water Rates for Unmetered Services (Single-Family Residential Only)^(a)

Customer Type	Water Service Charge (Flat Rate, per month)
Single-Family Residential	
First 6,000 square feet or less of lot size	\$18.59
Each additional 100 square feet	\$0.185
Single-Family Residential (Senior Citizen)	
First 6,000 square feet or less of lot size	\$16.72
Each additional 100 square feet	\$0.166

^(a) Source: City of Fresno Master Fee Schedule Amendment #458 (May 2007), Amend Effective 09/01/07.

For the City’s metered customers (including multi-family residential, commercial, industrial, institutional and irrigation), the City has a water rate structure which includes a monthly standby charge based on water meter size, and a uniform monthly quantity use charge based on actual monthly water use (see Table 8-4).

Table 8-4. City of Fresno Water Rates for Metered Services^(a,b)

Water Meter Size	Water Service Charge = Standby Charge + Quantity Charge	
	Monthly Standby Charge, \$	Quantity Charge
¾ inch or smaller	8.16	<ul style="list-style-type: none"> • Each 100 cubic feet (HCF) = \$0.606 • Each 1,000 gallons = \$0.809
1-inch	10.99	
1 ½ inch	15.36	
2-inch	22.03	
3-inch	36.65	
4-inch	51.24	
6-inch	80.50	
8-inch	124.36	
10-inch	146.21	

^(a) Source: City of Fresno Master Fee Schedule Amendment #458 (May 2007), Amend Effective 09/01/07.

^(b) Includes multi-family residential, commercial, institutional, industrial, and landscape irrigation customers.

The City is currently preparing a rate study, and will prepare future rate studies, which will consider the need for future rate increases, future conversion from flat rates to metered rates for single-family connections, and future conversion from uniform metered rates to increasing block rates for all metered connections in accordance with the requirements of AB514.

The City’s sewer service rates have varying structures based on customer type as summarized in Table 8-5.

Implementation Schedule

- **Single-Family Residential Accounts:** Until recently, metering of single-family residential accounts has been prohibited by the City Charter; all single-family residential accounts are currently billed based on a flat monthly rate. In accordance with the City’s Metering Plan (see DMM No. 4), all single-family residential accounts will be metered by 2013, and will be billed based on actual water consumption.
- **All Other Accounts:** Currently billed based on actual water consumption based on uniform rate structure.
- **Metered Billing Rate Structure for All Service Connections with Meters:** Will be developed in accordance with Metering Plan (see DMM No. 4).

Table 8-5. City of Fresno Wastewater Rate Structure by Customer Type^(a)

Customer Type	Sewer Service Charge Structure/Rate
Single-Family Residential	Flat Rate/Month: \$17.67/month
Single-Family Residential (Senior Citizen)	Flat Rate/Month: \$15.90/month
Multi-Family Residential	Flat Rate/Month Per Unit: \$17.67/month for first unit \$11.87/month for each additional unit
Schools	Flat Rate Per Student Per Year (based on average daily attendance):
Kindergarten/Elementary	\$10.948/student/year
Middle	\$16.989/student/year
Senior High	\$20.491/student/year
Parochial	\$5.923/student/year
College	\$7.305/student/year
Industrial	Uniform Rate per HCF of:
High Industrial	Metered Potable Water Used (per HCF)
(Sewage effluent of 25,000 gpd or higher or Biochemical Oxygen Demand (BOD) greater than 265 mg/L or Total Suspended Solids (TSS) greater than 300 mg/L)	or
Low Industrial	Metered Sewage Effluent (per HCF)
	+
	BOD/pound (for High Industrial Customers only)
	+
	Total Suspended Solids (TSS/pound) (for High Industrial Customers only)
	Rates vary for High and Low Industrial Customers
	A minimum monthly charge applied to Low Industrial Customers
Commercial	Uniform Rate per HCF of:
High Commercial	Metered Potable Water Used (per HCF)
(BOD or TSS greater or equal to 501 mg/L)	or
Medium Commercial	Metered Sewage Effluent (per HCF)
(BOD or TSS from 201 to 500 mg/L)	Rates vary for High, Medium and Low Commercial Customers
Low Commercial	A minimum monthly charge applied to All Commercial Customers
(BOD or TSS from 0 to 200 mg/L)	

^(a) Source: City of Fresno Master Fee Schedule Amendment #458 (May 2007), Fees Effective 07/01/07.

Annual Budget/Expenditures

None.

DMM 12: Water Conservation Coordinator

Corresponding BMP

- CUWCC BMP 12: Water Conservation Coordinator

Description

The City has a full-time Water Conservation Supervisor and eight permanent support staff. The water conservation coordinator and water conservation staff address the water conservation needs for the City of Fresno.

Water Conservation Supervisor (Position created August 1988): Nora Laikam

Support Staff:

- One Staff Assistant
- Two Water Conservation Representatives
- Two Landscape Conservation Representatives
- One Administrative Clerk
- One Education Coordinator (contracted)
- Four seasonal temporary employees hired from April to November

Implementation Schedule

- Water Conservation Coordinator and Support Staff: On-going

Annual Budget/Expenditures

FY2004: Water Conservation Staffing Budget: \$373,416

DMM 13: Water Waste Prohibitions

Corresponding BMP

- CUWCC BMP 13: Water Waste Prohibition

Description

The City prohibits water waste through ordinances found in the City Municipal Code (Section 6-520. Wastage of Water) (see Appendix F). The City has a water waste hotline and a reporting form on the City website, and keeps records of water waste violations. The ordinance prohibits gutter flooding and single-pass cooling systems in new connections.

Two Water Conservation Representatives monitor customer water waste through field operations. Communication to the City's diverse customer base is always taken into consideration, so representatives are bilingual, speaking English and either Hmong or Spanish. During the hot season, temporary Water Conservation Representatives are hired to monitor late night and early morning over watering. A seasonal temporary Administrative Clerk is also hired to keep up with the additional paperwork generated.

The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker's bureau, and the City's web site.

Implementation Schedule

- Water waste prohibitions: On-going per City Municipal Code (Section 6-520. Wastage of Water)
- Additional drought restrictions: Would be enacted by the City if water supply conditions required additional conservation measures (see Chapter 9. Water Shortage Contingency Plan).

Annual Budget/Expenditures

FY2005: Actual Budget: \$145,039
 FY2006: Proposed Budget: \$145,000
 FY2007: Proposed Budget: \$145,000
 FY2008: Proposed Budget: \$145,000

DMM 14: Residential Ultra-Low Flush Toilet Replacement Programs

Corresponding BMP

- CUWCC BMP 14: Residential Ultra-Low-Flush Toilet Replacement Program

Description

In March 2006, the City implemented a residential ultra-low-flush toilet replacement rebate program. This program encourages the installation of ultra-low-flush toilets in older homes by offering a rebate for each replaced toilet. Up to a \$75 rebate is available from the City. The program requires a pre-inspection and may require a post-inspection. As of June 2007, the City has received over 300 applications and replaced over 600 toilets.

Implementation Schedule

- Residential Ultra-Low Flush Toilet Retrofit Program: On-going

Annual Budget/Expenditures

FY2005: Actual Budget: \$0

FY2006: Proposed Budget: \$17,400

FY2007: Proposed Budget: \$87,000

FY2008: Proposed Budget: \$180,000

DETERMINATION OF DMM IMPLEMENTATION

10631. (f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

10631. (f)(4) 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 supplier's ability to further reduce demand.

As discussed above, the City has been actively implementing the DMMs to the extent permissible by the City Charter, and as staffing and financial resources allow. In FY2005, the total budget for water conservation programs was \$540,465. This budget is projected to increase over the next few years as the City expands its water conservation programs.

Because the City's single-family residential water customers are not metered, individual water savings by single-family residential customer are not possible to determine. However, based on the City's annual water production, the City calculates its water conservation savings each month, by comparing current per capita water use to the previous year's per capita water use and 1985 per capita water use (a pre-drought year).

Figure 8-2 shows the estimated annual per capita water use for the last 19 years (1989 through 2007) indicating that per capita water consumption has varied somewhat over the last 19 years, but has averaged about 300 gallons per capita per day (gpcd). Figure 8-2 also shows that over the last five years per capita water use has decreased from 332 gpcd to 300 gpcd, and has been as low as 287 gpcd in 2006, which may be due to the City's expanded water conservation program over the last several years. It is anticipated that per capita water use may decrease even more in the future as the City implements its residential water meter program and customers become more aware of the water they actually use.

EVALUATION OF DMMS NOT CURRENTLY IMPLEMENTED

10631 (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation.

As shown above in Table 8-1, the City currently has programs in place for most of the DMMs. The only DMMs which are not currently fully implemented are DMM 3 (System Water Audits, Leak Detection and Repair), DMM 4 (Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections), DMM 9 (Conservation Programs for Commercial, Industrial, and Institutional Accounts), and DMM 11 (Conservation Pricing). However, as described in this chapter and as summarized below, each of these DMMs is scheduled for future implementation.

The only DMM not being implemented by the City is DMM 10 (Wholesale Agency Programs), as the City is not considered to be a wholesale water provider; as such, this DMM does not apply to the City.

DMM 3 (System Water Audits, Leak Detection and Repair)

Because the City is not currently fully metered, full implementation of DMM 3 is not possible at this time. The City’s distribution system operations staff, including permanent shift employees (weekends and after hours), respond to and repair any reported leaks as quickly as possible. The City has performed some leak detection pilot studies in small areas of the City and very few leaks have been found. A full water system audit and a more extensive leak detection program will be implemented once the City is fully metered.

DMM 4 (Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections) and DMM 11 (Conservation Pricing)

Full implementation of DMMs 4 and DMM 11 have, until recently, been restricted by the City Charter, which prohibited metering of single-family residential connections. However, as discussed in DMM 4 above, SB 229 and AB 514, and the renewal of the City’s CVP Water Supply Contract, requires that all connections be metered and billed a metered rate by 2013. The City has developed a residential metering plan to install meters on all single-family residential connections. Implementation is scheduled to begin in 2008, with completion in 2013 (see implementation schedule provided in Appendix I). Implementation of this metering plan will meet the conditions of the CVP contract renewal, meet the requirements of SB 229 and AB 514, and fulfill the requirements of DMM 4 and DMM 11.

DMM 9 (Conservation Programs for Commercial, Industrial, and Institutional Accounts)

The City is requesting a position for a CII Water Conservation Representative. Once the position is authorized, the position will be filled to allow for CII water conservation activities to proceed.

As Table 8-6 indicates, there are no DMMs which are planned for non-implementation (with the exception of DMM 10 as described above which is not applicable to the City).

Table 8-6. Non-Implemented Demand Management Measures (DWR Table 16)

Non-Implemented Demand Management Measures	Reason
DMM 10: Wholesale Agency Programs	Not applicable to City as it is not considered to be a wholesale water provider

POTENTIAL FUTURE DEMAND MANAGEMENT MEASURES

As part of its efforts to increase water conservation within the City, the City Water Division is considering several other potential future water conservation measures. These potential future measures are summarized in Table 8-7.

It is unclear how much additional water could be saved as a result of these potential future water conservation methods, as it is unclear at this time how much funding will be available to implement the future programs and how many customers may participate. However, the City will strive to continue and improve its water conservation programs as the budget allows.

Table 8-7. Potential Future Water Conservation Measures

BMP/DMM Number	Measure Name	Proposed Implementation Date
BMP/DMM 1: Water Survey Programs for Single- and Multi-Family Residential	Xeriscape Landscape Rebate for New Homes	FY 2009/10
BMP/DMM 2: Residential Plumbing Retrofit	Retrofit Upon Resale Ordinance	2013
	Hot Water Recirculation System Rebate	FY 2008/09
BMP/DMM 3: System Water Audit, Leak Detection and Repair	Prioritized Leak Detection Program	2013
	Complete Water System Audit	2013
BMP/DMM 4: Metering with Commodity Rates	Residential Water Metering Program (see discussion above under Current and Planned Water Conservation Measures)	To start in 2008 and be completed by 2013
	Billing with Commodity Rates (see discussion above under Current and Planned Water Conservation Measures)	To start in 2010
BMP/DMM 5: Large Landscape Conservation Programs and Incentives	Programmable Irrigation Controller Rebate	FY 2008/09
	Weather-Based Irrigation Controller Rebate	FY 2009/10
	Turf Replacement Rebate	TBD
BMP/DMM 9: Conservation Programs for Commercial, Industrial and Institutional (CII) Accounts	CII Water Conservation Representative (Contract)	FY 2009/10
	Identification of Largest CII Water Users and Potential Water Conservation Measures	FY 2009/10
	CII Washing Machine Rebate Program	FY 2009/10
	CII Toilet Replacement Program	FY 2009/10
BMP/DMM 11: Conservation Pricing	Implementation of Tiered (Increasing Block) Water Rate Structure	After 2010
BMP/DMM 12: Water Conservation Coordinator	Join California Urban Water Conservation Council (CUWCC)	FY 2009/10 or sooner

FRESNO CITY WATER COMPANY

CORNER H AND TULARE STREETS

W. G. KERCKHOFF, PRES.
A. C. EALCH, VICE PRES.
A. G. WISHON, GEN'L MGR.

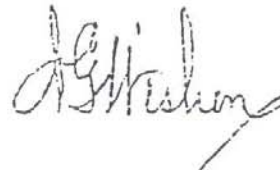
FRESNO, CAL.
June 20, 1917

Water Consumers:

In order that we may have ample pressure during the critical months of June, July and August for fire purposes and also for domestic use, all irrigation must be done with a sprinkler only, and not with an open butt hose, that has the effect of reducing the pressure in the locality where used. Use a sprinkler under pressure in any use of water through a hose.

We have Inspectors out, checking up all water waste, and those who persist in the waste of water or persist in an offense against the Company's rules will be served through a meter only. We urgently ask for the kindly co-operation of the Company's consumers. The Fresno City Water Company is serving more water per capita than is served to any other city in America. We have at all times tried to be liberal with our service, but there is a limit beyond which we cannot and should not go in such service.

FRESNO CITY WATER COMPANY,



General Manager

ACW:EPE

Figure 8-2. City of Fresno Historical Per Capita Water Consumption

