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## **SECTION 6 WATER DEMAND MANAGEMENT MEASURES**

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### **6.1 INTRODUCTION**

Water conservation, often called demand-side management, can be defined as practices, techniques, and technologies, also known as demand management measures (DMM), which improve the efficiency of water use. Increased efficiency expands the use of the water resource, freeing up water supplies for other uses, such as population growth, new industry, and environmental conservation.

Water conservation is often equated with temporary restrictions on customer water use. Although water restrictions can be a useful emergency tool for drought management or service disruptions, as discussed in Section 7, water conservation programs emphasize lasting day-to-day improvements in water use efficiency.

The increasing efforts in water conservation are spurred by a number of factors: growing competition for limited supplies, increasing costs and difficulties in developing new supplies, optimization of existing facilities, delay reduction of capital investments in capacity expansion, and growing public support for the conservation of limited natural resources and adequate water supplies to preserve environmental integrity.

TMWD recognizes water use efficiency as an integral component of current and future water strategy for its service area. Through the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), 14 Best Management Practices (BMPs) have been established. The City of Torrance became signatory to the MOU in 1993.

TMWD actively implements the DMMs through policies, programs, rules, regulations and ordinances, and the use of devices, equipment and facilities that provide a significant reduction in water demand. TMWD has chosen to report its conservation program activities in the context of DMMs and a discussion of each of the 14 DMMs follows in Section 6.3. DMMs are consistent with the 14 BMPs.

### **6.2 DETERMINATION OF DMM IMPLEMENTATION**

TMWD has committed to a good faith effort in implementing the 14 cost-effective DMMs. "Implementation" means achieving and maintaining the staffing, funding, and in general, maintaining the priority levels necessary to achieve the level of activity called for in each DMM's definition.

Many of the DMMs are implemented by the City within their service area in coordination with Metropolitan in their regional conservation programs. The following section

presents TMWD's efforts in implementing the 14 DMMs, as well as projections for the next five years.

### **6.3 DEMAND MANAGEMENT MEASURES**

TMWD has continued to work with Metropolitan toward implementing the 14 cost-effective DMMs. These 14 DMMs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects that result in more efficient water use and conservation. As the regional wholesale agency, Metropolitan, as well as WBMWD, implements many of the DMMs on behalf of TMWD. The City's 2000 UWMP indicated thorough implementation of the DMMs. This element was updated on July 1, 2004 to include the most recent data and implementation schedule for the DMMs.

The following presents the most current DMM implementation efforts through 2005 and projections through 2010.

#### **DMM 1 – Residential Water Surveys for Single and Multi-Family Residential Customers**

Residential surveys have been conducted in the TMWD service area on an informal basis by customer request through a high water bill complaint or meter reading that indicated higher than normal usage. When such a request is made, TMWD staff review past billing records for the account in question and compare them with the current bill. They then visit the customer's residence and review the information with them. A copy of the historical water usage pattern (usually two years) is provided to the customer. If it appears that a significant recent increase has occurred, TMWD staff first looks for signs of a possible leak. They also question the customer about possible internal plumbing problems (leaking faucets, running toilets, etc) and make recommendations to reduce landscape irrigation where appropriate. All residential meters are equipped with a leak detector feature to indicate leakage in the system when all fixtures are closed. Meter accuracy tests are provided upon request to verify that recorded consumption is correct. In addition, indoor conservation kits and literature is provided to customers to inform them of current rebates on low water using fixtures and proper water use management.

In addition to the surveys performed in response to customer requests, TMWD will initiate a pro-active pilot residential survey program that will provide audits of a minimum of 10 households in 2006. These water use audits will provide a complete water use audit including leak detection, interior plumbing fixtures, water using appliances and exterior water use. Based on the success of the pilot program, this program will be expanded in future years. A water use audit guide will also be developed for the both single and multi-family residential customer during 2006, to enable customers to conduct their own water use audits.

TMWD also participates in Metropolitan’s Protector del Agua program, including landscape instructional classes to the residential sector. A portion of the classes focuses on residential landscape audits. Future Protector del Agua classes will provide additional emphasis on how customers can identify, quantify and control their outdoor water use. Based on the California Urban Water Conservation Council’s savings rates, set forth in the BMP Costs & Savings Study (December 2003), savings from untargeted intensive home surveys results in an average of 21 gpd per household (both single family and multi-family) total savings for future projections. Tables 6.3-1 and 6.3-2 below show the total historic and projected number of residential surveys and total water savings.

**Table 6.3-1  
DMM 1 – Historic Water Survey Programs for Residential Customers**

TMWD	2001	2002	2003	2004	2005
# of Surveys (Single Family and Multifamily)	464	344	485	416	525
Water Savings (AFY)	11	9	11	10	12

**Table 6.3-2  
DMM 1 – Projected Water Survey Programs for Residential Customers**

TMWD	2006	2007	2008	2009	2010
# of Single Family Surveys	10	15	20	25	30
# of Multifamily Surveys	2	3	4	5	6
Projected Expenditures	\$5,000	\$7,000	\$10,000	\$12,000	\$15,000
Water Savings (AFY)	.28	.42	.56	.71	.85

It is anticipated that the program will continue to expand from present through 2010. Anticipated expenditures will be incorporated into the TMWD’s budget for future years.

**DMM 2 – Residential Plumbing Retrofits**

TMWD maintains an active program for the distribution of conservation kits consisting of showerhead flow restrictors, toilet tank displacement devices, dye tablets for use in detecting toilet leaks, and brochures on conservation measures. The kits are distributed free of charge to residents in the TMWD service area. The kits are provided at the City billing office, special public events, and educational presentations. Since 1977, TMWD has distributed over 55,000 of the water conservation kits.

Since 1991, TMWD has distributed low flow showerheads to single and multi-family customers, free of charge. Approximately 25,000 low flow showerheads have been distributed to residents throughout the City through Metropolitan's program. Beginning in 2003, TMWD began a new distribution program for ultra low flow showerheads. These showerheads are also free of charge, and are available through the City Utility Billing Office, special events, and public presentations. Beginning in 2006, TMWD will make updated interior water conservation kits, including water efficient faucet aerators, available to all residents throughout TMWD's service area.

In addition, developers are required to use low-water-use plumbing fixtures and appliances and highly encouraged to install drought resistant/low-water use landscapes. The use of recycled water for irrigation and industrial uses for those developments located by existing recycled water mains is also required.

Residential Plumbing retrofits result in 5.2-5.8 gallons per day (gpd) water saved for showerheads and 8 gpd with a leak (or .64 gpd overall) for leak detection tablets. As this rate, an estimate of water savings can be calculated using historical and projected unit amounts, as shown below in Tables 6.3-3 and 6.3-4.

**Table 6.3-3**  
**DMM 2 – Historic Residential Plumbing Retrofits**

TMWD	1992-2001	2002	2003	2004	2005	Cumulative
# of Single Family devices	16,000	25	700	1,000	1,000	18,725
# of Multifamily devices	9,000	25	250	350	400	10,025
Expenditures	\$30,000	\$200	\$3,800	\$5,400	\$6,000	\$45,400
Water Savings (AFY)	154	.3	6	8	9	180

**Table 6.3-4**  
**DMM 2 – Projected Residential Plumbing Retrofits**

TMWD	2006	2007	2008	2009	2010	Cumulative
# of Single Family devices	1,200	1,300	1,400	1,400	1,400	6,700
# of Multifamily devices	400	500	600	600	600	2,700
Expenditures	\$6,400	\$7,200	\$8,000	\$8,000	\$8,000	\$37,600
Water Savings (AFY)	10	11	12	12	12	57

### **DMM 3 – Distribution System Water Audits, Leaks Detection and Repair**

TMWD aggressively repairs main breaks, hydrant leaks or breaks, and meter leaks. A team of water service workers are available to permanently repair main or hydrant breaks, and promptly restore water service. Both proactive and “inform and response” approaches are utilized for water meter leaks. Meter leaks are investigated and repaired promptly.

TMWD has initiated a water main capital improvement program (CIP) to replace deteriorated water mains. Since 1993, TMWD has replaced approximately 50 miles of distribution system water mains. The CIP replaces 3 to 5 miles of water mains on an annual basis. As a result, the incidence of main breaks has declined by 60 percent; from 180 breaks in the early 1990’s to approximately 70 breaks at present. The long term goal is to reduce main breaks to less than 30 within the next 10 years.

TMWD replaces large water meters at a rate of approximately 30 to 40 per year. Large meters are systematically tested, calibrated and repaired to maintain optimal accuracy. Approximately 85 percent of TMWD’s water supply is delivered by gravity flow from Metropolitan transfer connections. Therefore, the system uses relief and regulating valves, which are regularly inspected and refurbished, to avoid over-pressurization of the system. In addition, TMWD maintains its 7,500 valves in the water system at least once every two to three years.

Unaccounted-for water and water auditing is regularly monitored by TMWD. TMWD’s goal is to reduce unaccounted-for water below the current average of approximately 8 percent to less than 7 percent by 2009 through implementation of a systematic water audit of the entire Municipal water system starting in 2006. TMWD’s systematic water audit process will identify, quantify and track all sources and uses of potable water through the distribution system. The audit process will focus on accounting for and minimizing “water losses” from various sources, including water production meters, system flushing, water main breaks, unmetered temporary water, wastewater uses, fire fighting, fire training exercises, and inaccurate end use metering. The program will be an ongoing activity incorporated into the water utility’s work processes.

In addition, TMWD is beginning to convert its metering to a full scale automatic meter reading (AMR) system. Based on the success of the current pilot program, TMWD will convert all 26,000 metered services on a phased basis to full AMR systems, which will improve meter reading accuracy. This full scale program will also involve the systematic changeout of approximately one half of TMWD’s existing meters, which will improve accuracy and accountability of potable water supplies.

TMWD will also implement a pilot leak detection program for its distribution system beginning in 2007. Based on the results of the pilot survey, TMWD will determine if an ongoing leak detection program is cost effective and, if so, TMWD will implement a phased program beginning in 2008.

Additionally, TMWD implemented a Supervisory Control and Data Acquisition (SCADA) system in 2002, which enables TMWD staff to monitor and control the operation of system facilities at each location to maximize operational efficiency and performance. SCADA provides for faster response time to current malfunctions.

Tables 6.3-5 and 6.3-6 provides TMWD's current and projected water audit, leak detection and repair levels through 2010.

**Table 6.3-5**  
**DMM 3 – Historic System Water Audits, Leak Detection, and Repair**

TMWD	2001	2002	2003	2004	2005
% of Unaccounted Water	7%	7%	7%	7%	5%
Miles of Distribution Lines Replaced	5	5	4	4	4
Expenditures	\$2.5 million	\$2.5 million	\$2 million	\$2 million	\$2 million

**Table 6.3-6**  
**DMM 3 – Projected System Water Audits, Leak Detection, and Repair**

TMWD	2006	2007	2008	2009	2010
% of Unaccounted Water	7%	7%	6.5%	6%	6%
Miles of Distribution Lines Replaced	4	4	4	4	4
Expenditures	\$2 million				

The CUWCC has established a standard rate of water savings based on the repair of a distribution line as follows: a 1-inch crack in a distribution main at 100 psi can leak 57 gpm. Cost and savings depend on the age of infrastructure for the water system.

#### **DMM 4 – Metering with Commodity Rates**

TMWD has universal metering for water accounts in its service area. Customer usage is recorded on water meters and it has been determined that approximately 85 percent of water charges is related to the commodity rate. There are no unmetered service connections in the Municipal service area and construction meters are issued for the temporary use of Municipal water supplies.

In addition, all new construction with significant landscape irrigation demands is required to install a dedicated landscape meter. Beyond the meter retrofit program, landscape meters are installed in City parks and other facilities where current meters provide dual domestic and irrigation service. As TMWD replaces existing dual service meters, where feasible, these service connections will be converted to dedicated domestic and irrigation meters.

TMWD has a general policy to change out the meters every 15 years. Metering allows TMWD to conserve a total of 20 to 30 percent of the water demand overall, and up to 40 percent savings during peak demand periods, as estimated by the CUWCC's BMP Costs and Savings Study (December 2003). Table 5.1-2 in Section 5 shows the number of water service customers by sector between 2000 and 2005, and projections of customers through 2030. The number of service connections is anticipated to increase only slightly through 2030, consistent with the projected small increase in population. All service connections are metered.

#### **DMM 5 – Large Landscape Conservation Programs**

In FY 2004/05, TMWD supplied 7,045 AFY of recycled water for industrial and landscape irrigation purposes. This amount equals nearly 24 percent of TMWD's total water demands, saving an equal amount in potable water supplies. In the future, the recycled water system for landscape irrigation will be expanded over the next approximately 15 years and will supply 500 to 600 AFY of recycled water to City parks and other greenbelt areas. The ultimate build-out goal of the recycled water system will supply nearly 50 percent of landscape water requirements in the City by 2020. Recycled water is projected to consistently satisfy approximately 20 percent of TMWD's total water demand through 2030.

Upon request, TMWD will also provide large landscape water audits. Notably, Torrance has secured a \$20,000 grant from Metropolitan's City Makeover Grant program in the category of Small Parks and Gardens. The City's Community Services Department and Parks and Recreation Commission was recently awarded funding for the "Showcase of Native Gardens at Madrona Marsh Project." The project will transform a grass landscape adjacent to the Madrona Marsh Nature Center into a demonstration native plant landscape, using locally native plants that have been present in the area since the 1800s. The project will educate visitors about the historic relationships to visitors by providing environmental education, such as development and installation of interpretive panels, design and distribution of color brochures on water wise landscaping/irrigation, and

docent training for conducting tours. This project will be designed to provide resource materials to both commercial and residential customers. The adjacent Madrona Marsh Nature Center receives approximately 20,000 visitors annually, while the existing native plant garden receives over 100,000 visitors annually. Therefore, this project will educate a large number of visitors throughout the City and the surrounding region. The project will also show how irrigation water use may be reduced by 80 percent compared to water demand of current turf grass lawns. The demonstration landscape provides a variety of drought tolerant native California plants, intended to provide an impetus to encourage both commercial and residential customers to consider the advantages of installing water efficient landscapes.

The “Torrance Hometown Heritage Landscape Project” is a landscape conservation project that is in the planning stage and will be implemented as soon as funding is secured. The Project will consist of several broadly themed full-scale landscape design areas, with each area reflecting a low water use native plant material and state of the art irrigation techniques. The project will also contain an interpretive center for the public to gain information on plant materials, landscape design, irrigation systems, and site maintenance to provide business and residential customers with necessary resource materials for low-water using landscape conversion. Grant funding for this effort will be sought from Metropolitan, USBR, and DWR and other potential sources. Project implementation is contingent upon such additional sources of funding.

TMWD participates in Metropolitan’s regional irrigation efficiency programs. Metropolitan provides sponsorship and performance-based funding for these programs to offset the cost to the customer. The Protector Del Agua (PDA) Water Efficient program is offered at a nominal cost. In addition, the PDA Professional Program has been recently redesigned and offers information for the landscape professional on water management, state of the art irrigation systems, enhanced landscape practices, and practical ideas to improve their bottom line. The Program allows landscapers to stay abreast of the policy and activities of the water agencies, and proper cultural practices within their industry.

TMWD is in the process of implementing a water efficient irrigation controller retrofit program for irrigation throughout various City parks and street medians. This program, called the Water Efficient Evapotranspiration (ETo) Controller Program, is sponsored by Metropolitan and will involve the change out of antiquated controllers in many of the largest Parks in the City with water efficient units that are remotely monitored and controlled from a central location to maximize irrigation efficiency.

In Section 5, Table 5.1-2 shows the number of landscape accounts by sector between 2000 and 2005, and projections of customers through 2030. The number of landscape accounts is projected to remain consistent, at 18 total service connections, from 2005-2030.

### DMM 6 – High-Efficiency Washing Machine Rebate Programs

TMWD will be implementing a rebate program for the installation of approved high efficiency washing machines (HEWM) for City residents. The program will be implemented in early 2006. Projected participation is anticipated to be 200 rebates per year through 2010. The program will be jointly promoted with TMWD’s existing conservation rebate and distribution programs.

The water savings can be estimated at an average of 85 to 109 gallons per week per machine, with 14.4 to 28.7 gpd/machine for single family residences. Based on CUWCC estimates, the mean savings of 5,085.6 gallons per year may be applied to each HECW. Table 6.3-7 below shows estimated water savings based on this rate of savings.

**Table 6.3-7  
DMM 6 – Projected High-Efficiency Washing Machine Rebates**

TMWD	2006	2007	2008	2009	2010	Cumulative
\$ per rebate	\$90	\$90	\$90	\$90	\$90	n/a
# of HEWM rebates per year	200	200	200	200	200	1,000
Expenditures	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$90,000
Water Savings (AFY)	1,139	1,139	1,139	1,139	1,139	5,695

### DMM 7 – Public Information Programs

TMWD disburses a variety of water conservation brochures and pamphlets at the Civic Center Complex, public libraries, the Torrance Billing Office and to the public upon request. Bill inserts providing tips for conserving water are also periodically included in the mail to educate the residents. TMWD also provides speakers to local community groups, service clubs, and schools upon request regarding water conservation and water related topics. During specific times at the Civic Center and the City’s public libraries, exhibits are displayed which portray water conservation and supply management activities. Cable Television Programs are another way the City promotes water conservation by showing water related films and PSA announcements. In the event one cannot get to a television, the Torrance Library has a substantial inventory of water conservation and water related videos that can be checked out. In 2005, the City Library initiated a water resource program to acquire and disseminate publications and videos on water related topics. Newspapers and magazines such as the *Daily Breeze*, *Easy Reader*, and the City’s *Recreation Reporter* also supply information about water conservation.

Furthermore, TMWD continues to promote water conservation by active relationship with the public. For one, TMWD actively participates in City and Civic events such as

City Yard Day, City Health Fair, and Chamber of Commerce Expo, Earth Day Events, Library sponsored events and other community fairs and expos. Secondly, TMWD, in coordination with Metropolitan, provides tours of the CRA, SWP, and the Diamond Valley Lake. In addition, TMWD and other City staff attend water conferences and seminars to stay informed about water conservation and supply management programs. Further, TMWD periodically provides presentations on water subjects to various civic and homeowner groups.

Metropolitan's Protector del Agua program offers classes in landscape design, maintenance and irrigation systems to professionals and residents. An extension of the program was offered in Spring 2004 and Fall 2005 to residential sectors as well as being integrated into the courses offered under the Parks and Recreation Department. The residential PDA program will be offered at least once a year, and the next session will be in the spring of 2006.

Through Metropolitan's External Affairs Group, conservation-related activities are offered to the public, including residents of TMWD's service area. The programs include the Speaker's Bureau, which provides speakers for organizations, service clubs, churches, and businesses and other community groups and associations. An estimated 15,000 to 20,000 people attend the presentations annually. The Community Relations program organizes and conducts an average of 80 Board Director-sponsored inspection trips for Metropolitan's distribution system annually for elected officials, community leaders and members of the public. Approximately 3,000 people learn about Metropolitan's conservation and water management policies and practices each year through these trips. The education curriculum and program activities engage an average of 150,000 students per year. Metropolitan's Media and Publications group conducts editorial briefings and media field trips, assembles press packet; prepares and disseminates news releases, speeches, videos, fact sheets, brochure, articles and editorials describing water management objectives and programs. The government relations sector provides elected officials, public agencies, businesses and organizations with information about Metropolitan's water management objectives and programs.

Tables 6.3-8 and 6.3-9 summarize TMWD's public information program activity as described above.

**Table 6.3-8  
DMM 7 – Historic Public Information Programs**

Program	2001	2002	2003	2004	2005
Paid Advertising			X	X	X
Public Service Announcement	X	X	X	X	X
Bill inserts / Newsletters / Brochures	X	X	X	X	X
Bill showing water usage in comparison to previous year's usage	X	X	X	X	X
Demonstration Gardens			X	X	X
Special Events, Media Events	X	X	X	X	X
Speaker's Bureau				X	X
Program to coordinate with other government agencies, industry and public interest groups and media	X	X	X	X	X
Expenditures	\$1,000	\$22,000 <sup>(1)</sup>	\$2,000	\$3,000	\$4,000

<sup>(1)</sup> Includes \$20,000 expenditures for Native Plant Garden at Madrona Marsh Nature Center.

**Table 6.3-9  
DMM 7 – Projected Public Information Programs**

Program	2006	2007	2008	2009	2010
Paid Advertising	X	X	X	X	X
Public Service Announcement	X	X	X	X	X
Bill inserts / Newsletters / Brochures	X	X	X	X	X
Bill showing water usage in comparison to previous year's usage	X	X	X	X	X
Demonstration Gardens <sup>(1)</sup>	X	X	X	X	X
Special Events, Media Events	X	X	X	X	X
Speaker's Bureau	X	X	X	X	X
Program to coordinate with other government agencies, industry and public interest groups and media	X	X	X	X	X
Expenditures	\$40,000 <sup>(2)</sup>	\$10,000	\$10,000	\$10,000	\$10,000

<sup>(1)</sup> Includes \$10,000 expenditure for development of the water efficient landscape project, Madrona Marsh Nature Center.

<sup>(2)</sup> Includes \$30,000 expenditure for development of an additional water efficient landscape project.

**DMM 8 – School Education Programs**

Through Metropolitan, water education programs are available to the City’s elementary through high schools. Programs are either supplemental or curriculum-based which include classroom presentation, audio-visual programs, hands-on activities, take-home materials for students, and workbooks. The following provides a summary of the programs offered: Admiral Splash for Grade 4 (started in 1983), All About Water for grades K-3 (started in 1991), Geography of Water for grades 4-8 (started in 1993), Water Politics for grades 9-12 (started in 1994), Water Ways for grade 5 (started in 1995), Water Quality for grades 7-12 (started in 2001), Water Works for grades 7-12 (started in 2001), and Water Times for grade 6 (started in 2005).

In 2001, a multi-faceted program called Living Wise was presented to the Torrance Unified School District by TMWD and two other City departments. The program meets state education framework requirements and concentrates on water education, water resource management and conservation, along with energy and other resource conservation in other sectors. A pilot program for Living Wise was initiated in partnership with the Southern California Edison (SCE) Company in the Spring 2005. If the State Public Utilities Commission approves SCE’s funding request, TMWD plans to partner with SCE to provide this program to Torrance schools on an on-going basis. Tables 6.3-10 and 6.3-11 below show the estimated number of students participating in the school education program in TMWD’s service area.

**Table 6.3-10**  
**DMM 8 – Historic School Education Programs**

Grade	Number of Students (2001- 2005)
4 <sup>th</sup> – 6 <sup>th</sup>	2,900
Actual Expenditures	\$115,000

**Table 6.3-11**  
**DMM 8 – Projected School Education Programs**

Grades	Number of Students				
	2006	2007	2008	2009	2010
4 <sup>th</sup> – 6 <sup>th</sup> [1]	1,000	1,000	1,000	1,000	1,000
Expenditures	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000

[1] \$45 per student. Prior to 2005, \$40 per student. Program cost will be split with Southern California Edison, depending on approval from the Public Utilities Commission.

## **DMM 9 – Commercial, Industrial and Institutional Programs**

TMWD actively participates in the Commercial, Industrial and Institutional (CII) Program, which Metropolitan is sponsoring along with its member agencies. The program primarily contains financial rebates to achieve water efficiency for commercial and industrial customers. These programs include:

- Cooling Tower Conductivity Controller Rebate Program – A \$500 installation rebate is offered to commercial and industrial customers who install conductivity controllers that would save 800,000 gallons of water per year.
- Commercial ULF Toilets and Urinals Rebate Program – A \$60 rebate is offered for each replaced water-saving toilet or urinal that would save 30 to 50 gallons per day.
- Commercial High Efficiency Washer Rebate Program – A \$100 rebate is offered to commercial and industrial customers who install a high efficiency washing machine that would save 150,000 gallons of water per washer per year.
- Pre-Rinse Sprayer Rebate Program – A \$50 rebate is offered to commercial and industrial customers who install a high efficiency pre-rinse kitchen sprayer that would result in saving 75,000 gallons of water annually per sprayer.
- Dual Flush Toilet Rebate Program – An \$80 rebate will be offered to commercial and industrial customers who install dual flush toilets in their business that would save 2,250 gallons of water per year per unit.
- Water Broom Rebate Program – A \$100 rebate will be provided to commercial and industrial customers who purchase a water-pressurized broom and replace old hose nozzles. A pilot program funded by TMWD will be initiated with various departments of the City, the Torrance Unified School District and several business customers. These brooms result in a savings of 50,000 gallons per location per year.
- X-ray Film Processor Recirculating System Rebate Program – A \$2,000 rebate will be received by hospitals and medical facilities with X-ray machines by retrofitting the X-ray machines with water saving film processor recirculating system. This retrofit would save 1 MG of water a year.
- Process Rebate Program – As much as a \$154 per AF rebate is offered to eligible commercial and industrial customers who are able to demonstrate water savings by a change in an internal process.
- Smart Controllers for Irrigation Rebate Program – Rebates incentives vary by agency. The weather-based “smart” controller is available to avoid over-watering and excessive run-off by scheduling the amount of irrigation based on the type of landscape and current weather conditions.

TMWD also has an extensive recycled water program, in which TMWD currently meets approximately 24 percent of its total water demand from recycled supplies. Industrial

customers such as the Exxon-Mobile Oil Refinery and Toyota Motor Corporation actively utilize the recycled water program and over 96 percent of recycled supplies are for industrial application. Recycled water is projected to consistently supply 20 percent of TMWD's demand through 2030.

TMWD is in the process of developing an information campaign called, "Get Green" to its business sector on water recycling and conservation of resources. The first brochure was mailed to all businesses in the City in late spring of 2005. A portion of the multi-part brochure is devoted to business sector water conservation awareness, and focuses on the CII program and Metropolitan's new Industrial Process program. The Industrial Process Improvement Program offers financial assistance to local industries to encourage investment in water-saving process improvements. The Program is open to all public and private commercial and industrial users within Metropolitan's service area. Financial assistance is provided for documented water savings derived from projects implemented under the program that meet the minimum qualifying criteria.

Additional publications will be targeted at various business sectors, including restaurants, health care, industrial, office buildings, and the hotel/motel industry. These publications will be developed and distributed to these sectors over the next year and a half to two years.

The CII Rebate Program provides a total of 17.8-20.3 percent median and 17.9-29.2 percent mean in savings on an annual basis. The number of commercial and industrial accounts are shown in Table 5.1-2 of Section 5. The number of service connections per sector between 2000 and 2005, and projections of customers through 2030 are included.

### **DMM 10 – Wholesale Agency Assistance Programs**

As TMWD's wholesale agency, Metropolitan actively provides assistance through implementation of conservation programs within TMWD's service area, as well as guidance for TMWD staff in implementation of a variety of conservation programs, as described throughout this section. Metropolitan provides water surveys, residential retrofits, system audits, landscape programs, HEWM rebate, public information and outreach, CII programs, and the assistance of multiple Conservation Coordinators.

### **DMM 11 – Conservation Pricing and Billing Procedures**

The first goal of any rate structure is to generate sufficient revenues to maintain efficient and reliable utility operations, and the second is fairness in the allocation of utility service costs. Generally, it is possible to satisfy both of these goals in a rate structure that encourages water conservation or penalizes excessive water use. Designing water rates must include the following: 1) determination of the water utility's total annual revenue requirements for the period for which the rates are to be in effect, 2) determination of service costs by allocation of the total revenue requirements to the basic water system cost components and distribution of these costs to the various customer classes in

accordance with service requirements, and 3) design water rates to recover the cost of service from each class of customer.

The City's current Rate Structure provides customers with a uniform commodity rate. Every quantity of water used by the customer is charged at the same commodity rate except for discounts provided to low income Torrance seniors and disabled customers.

TMWD also maintains water use records and water bills on a continuous basis for approximately 26,000 customer accounts for five years. These documents supply current and previous customer consumption data, necessary information to monitor customer usage and various conservation efforts.

TMWD will be actively investigating the development and implementation of a conservation-based water rate structure. The study will assess a number of factors, including alternative rate designs, inclining block rate structures, baseline rates, cost of service, impacts on customers and realization of water management and water conservation objectives.

#### **DMM 12 – Conservation Coordinator**

TMWD has assigned a Senior Administrative Analyst as its full-time Conservation Coordinator to implement conservation programs within its service area. The Conservation Coordinator also works collaboratively with cities and water agencies within the region, including Metropolitan's Conservation Coordinator, to enhance conservation efforts.

#### **DMM 13 – Water Waste Prohibition**

The City Council of Torrance passed Ordinance No. 3320, which authorized the Water Conservation Program and Water Waste Prohibitions during times of water shortage. The ordinance is arranged into five phases, in which City Council declares a specific phase to enact during an emergency. During each phase, all water customers are to abide to conservation requirements as approved by the City Council. Details of this program are described in Section 7 of this plan.

#### **DMM 14 – Residential Ultra-Low-Flush Toilet (ULFT) Program**

The ULFT program involves the use of an ULFT toilet which uses 1.6 gallons of water per flush or less as opposed to old toilets that use at least 5 gallons per flush. In 1992, the City's Plumbing code requires that all new construction sites must have ULFT toilets to reduce water. In order to promote the installation of ULFT's, TMWD, along with Metropolitan, currently sponsors both ULFT residential and commercial/industrial rebate programs. A \$50 rebate is offered to all residents of the City who replace their old toilets with 1.6 gallon or less ULFTs. This will result in annual water saving of 1,500 gallons

per ULFT. In addition, TMWD previously sponsored a ULFT distribution program in the 1990's that replaced nearly 4,000 old water consuming toilets with ULFT's.

Tables 6.3-12 and 6.3-13 provide historic and projected number of residential ULFT rebates within TMWD's service area and the associated expenditures and water savings through 2010.

**Table 6.3-12**  
**DMM 14 – Historic Single Family Residential ULFT Replacement Program**

<b>TMWD</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Cumulative</b>
# of ULFT Rebates – Single Family	n/a	n/a	290	246	175	711
# of ULFT Rebates – Multi-Family	n/a	n/a	46	40	25	111
Expenditures – Single Family	n/a	n/a	\$27,000	\$24,000	\$19,000	\$70,000
Expenditures – Multi-Family	n/a	n/a	\$4,000	\$3,500	\$2,500	\$10,000
Actual Water Savings (AFY)	n/a	n/a	1.5	1.3	0.9	3.7

**Table 6.3-13**  
**DMM 14 – Projected Single Family Residential ULFT Replacement Program**

<b>TMWD</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Cumulative</b>
# of ULFT Rebates – Single Family	200	225	250	270	300	1,025
# of ULFT Rebates – Multi-Family	50	75	100	125	150	500
Expenditures – Single Family	\$18,000	\$20,000	\$23,000	\$25,000	\$27,000	\$113,000
Expenditures – Multi-Family	\$4,500	\$7,000	\$9,000	\$11,000	\$13,500	\$45,000
Actual Water Savings (AFY)	1.2	1.4	1.6	1.8	2	8

### **Additional Water Conservation Project(s)**

Metropolitan proposed four water conservation programs for funding under the DWR Water Use Efficiency Grant Program for FY 2004/05. The programs and the status of funding are listed as follows:

- Residential High Efficiency Clothes Washer Rebate Program - The Residential High Efficiency Clothes Washer Rebate Program offers rebates toward the purchase of water- and energy-saving clothes washing machines, which will reduce the demand on water imported from the Bay Delta by 12,275 AFY. This 2-year program was funded at \$1.66 million.
- California Friendly Communities - The program will result in CALFED Benefits, which include avoiding Bay Delta diversions. California Friendly Communities is a grant program in which cities receive funding to transform their landscape to increase water conservation. A maintenance plan, enhanced irrigation and controllers, and landscaping techniques are exercised through this program. This program received \$424,150 in funding for 1,650 valves for multi-family residences.
- High-Efficiency Toilet Rebate Program – A rebate is given to customers who purchase a new High Efficiency Toilet. The toilet uses a minimum of 20% less water than standard toilets and will supply 41 AFY of water savings. This program was funded at \$1.0 million for a total of 10,000 ULFTs.
- Online/Web-Based Irrigation Efficiency Training – This program will provide two class courses for residential and professional participants, as well as educate individuals about water use, efficiency training, and educational programs. DWR funded one residential series class and two classes from the professional course for a total of \$77,500.

#### **6.4 WATER USE EFFICIENCY PROGRAM SCHEDULING AND METHODS TO EVALUATE EFFECTIVENESS**

TMWD will continue to work cooperatively with Metropolitan to implement cost-effective DMMs within the City's service area. The methods to evaluate effectiveness are shown in Table 6.4-1.

**Table 6.4-1  
Water Use Efficiency Demand Management Measures Practices  
Implementation Schedule and Methods to Evaluate Effectiveness**

<b>DMM</b>	<b>Implementation Schedule</b>	<b>Methods to Evaluate Effectiveness</b>
<b>1. Residential Surveys</b>		
a. Pilot Survey	7/06 to 12/06	Degree of customer acceptance /participation. Potential savings per survey.
b. Water Use Audit Guide Development and distribution of guide	7/06 to 12/06	Degree of customer participation. Potential water savings in the TMWD service area.
c. PDA Residential Water Efficient Classes	Ongoing One session per year	Attendance/community interest.
<b>2. Residential Plumbing Retrofits</b>		
a. ULF Showerhead	Ongoing since 1991	Approximately 2,000 distributed annually, depending on degree of customer demand. Potential water savings in the TMWD service area.
b. Interior Conservation Kit distribution program	Pilot Program initiated in 2005 Full implementation anticipated in 2006	Distribution based on customer acceptance and demand. Potential water savings per customer.
<b>3. Distribution System Audits, Leak Detection and Repair</b>		
a. Systematic water audit of system	Initiate 2006	Reduction in unaccounted-for water loss. Reliable accounting for all major uses of water.
b. AMR Metering	Initiated in 2005 5-year phased program	Reductions in meter inaccuracies and unaccounted-for water. Success of leak detection notification feature.
<b>4. Metering with Commodity Rates</b>	Fully metered system, including temporary services	
<b>5. Large Landscape Conservation Program</b>		
a. Use recycled water for greenbelt irrigation	Initiated in 1995 Recycled water system expansion on a phased basis by 2020	Decrease in imported water demand.

DMM	Implementation Schedule	Methods to Evaluate Effectiveness
b. Madrona Marsh Nature Center Water Efficient Demonstration Landscape Project	Completion 2006	Requests for brochures/information packets and tours of landscape. Level of customer acceptance.
c. Development of Resources materials for large landscape customers	Completion 2007	Number of requests for information packets.
d. PDA water efficient Landscaping Classes for landscape professionals	One session every two years beginning in 2007	Attendance/acceptance by landscape professionals.
e. Retrofit of Water Efficient Landscape Controllers in City Parks/Medians	Initiate pilot program 2006; implement first phase in 2007	Water reduction at each location. Degree of acceptance by Parks personnel.
<b>6. High Efficiency Washing Machine Rebate Program</b>	Implement first half in 2006	Degree of participation. Quantifiable water savings.
<b>7. Public Information/Outreach Programs</b>	Ongoing	Degree of participation by residents.
a. Participate in a minimum of four community events per year.	Ongoing	n/a
b. Annual inspection tours of Colorado River facilities and bi-annual tours of state water project facilities.	Ongoing	n/a
c. Speakers Bureau to local community groups	Ongoing	n/a
d. PDA water efficient landscape classes	Ongoing – Next Session Spring 2006.	n/a
e. Newspaper articles/conservation ads	Ongoing	n/a
f. Local City cable programs on water conservation/resources	Expand in 2006	n/a
<b>8. School Education Programs</b>		
a. Living Wise in-school education program	Pilot program initiated in Spring 2005; partner with SCE beginning Spring 2006	Degree of participation. Satisfaction survey of teachers.
b. Metropolitan sponsored in-school educational programs	Ongoing	Degree of participation. Satisfaction survey from teachers.

<b>9. Commercial, Industrial and Institutional Program (CII)</b>		
a. Standard CII	Ongoing	Extent of participation. Water savings.
b. Metropolitan Industrial Process Improvement Program	Initial brochure distributed Spring 2005	Extent of participation
<b>10. Wholesale Agency</b>	n/a	n/a
<b>11. Conservation Pricing</b>	Investigate conservation based pricing options starting 2006	Water savings. Degree of customer acceptance.
<b>12. Conservation Coordinator</b>	Ongoing - Senior Administrative Analyst	Response from community members on coordinator assistance.
<b>13. Waste Water Prohibitions</b>	In place	Reduction in water use.
<b>14. ULFT Program</b>		
a. Rebate program	Ongoing since 2003 Enhance marketing campaign 2006	Quantifiable water savings. Continued customer demand.