

**City of San Diego
Public Utilities Department**

**SAN DIEGANS
WASTE
NO WATER**

**Water Conservation Update
Fiscal Year 2011**

Defeating the Drought

Fiscal Year (FY) 2011 started with the City of San Diego and the State of California in a drought condition. The City had been in a Level 2 Drought Alert Condition since June 1, 2009. A Level 2 Drought Alert means mandatory conservation is required from every water customer.

However, on March 30, 2011, Governor Jerry Brown declared California's drought over. Significant rainfall and snowpack had dramatically improved water supply conditions, and the State's reservoirs were all at above average levels.

Locally, San Diego received almost 12 inches of rain as of March 29, 2011, compared to the annual average of 10.77 inches. The Metropolitan Water District of Southern California (MWD) reported that Diamond Valley Lake was almost full, using abundant rain conditions throughout the State to substantially replenish that reservoir. Precipitation in the Colorado River Basin was recorded at 119 percent of average, which helped replenish reservoir levels at Lake Mead and Lake Powell.

Because of the improved supply conditions, on April 12, 2011, the MWD Board of Directors voted to lift water allocations imposed by Drought Level 2. The San Diego County Water Authority (CWA) Board voted on April 28, 2011, to end water shortage allocations and lift the call for mandatory water use restrictions. Subsequently, on May 24, 2011, the San Diego City Council voted to rescind Level 2 Drought, and Mayor Sanders signed and approved the resolution on May 26, 2011.



Drought Response “San Diegans Waste No Water”

San Diegans reduced their water consumption 14 percent since the City had implemented mandatory water use restrictions in June 2009. During FY2011, the Water Conservation Section demonstrated exceptional commitment and capability in communicating water supply issues to the public by developing the *San Diegans Waste No Water* public involvement, education and outreach campaign.

With the local water supply conditions improving, the main communication objectives of the campaign were to make water conservation personal and less authoritarian. Throughout this ongoing campaign, the Water Conservation Section reinforced San Diegans commitment to the wise use of water in a manner consistent with its long-term goals of water management. While an increase in conservation may have been caused by this sense of urgency, the community's positive response to the shortage is a

foundation for creating and maintaining a San Diego lifestyle that exhibits environmental stewardship to protect and maintain vital natural resources.

Using existing resources and strategic advertising media buys to target single-family homeowners, adults over 35 years old, and people with an interest in landscaping and home improvements, the Section employed the following methods to spread the word about water use issues to customers directly.



- A new Metropolitan Transit System (MTS) trolley wrap was developed and is still in use. The advertising is running on the Orange, Blue and Green lines, taking advantage of high visibility at large community events, such as: conventions, Comic-Con, Padres and Charger games.
- In addition to the trolley wrap, eight MTS buses with “king kong” advertising wraps are still running in each of the eight city council districts.
- Speaker’s Bureau presentations were made to public groups including 54 community fairs and 11 speaking engagements to service and social clubs.

- May “Water Awareness Month” activities took place at Home Depot, book sellers Borders and Barnes & Nobles, and City libraries.
- Press releases included the campaign slogan and website, Facebook and Twitter references.
- Public service announcements were carried on City TV, Cox Media’s cable channels, MetroTraffic and KPBS.

The campaign earned several awards in FY2010 and also garnered the following awards in FY2011:

“2011 EARTH Award”
from the San Diego Earthworks

“Silver Anvil Award of Excellence for Community Relations”
from the Public Relations Society of America (San Diego/Imperial Counties – Bernays)

Background on the Water Conservation Section

In 1985, the San Diego City Council officially established the City’s Water Conservation Section to reduce San Diego’s dependency upon imported water. Today, the Water Conservation Section directly accounts for almost 35,000 acre-feet (AF) of water savings each year. One AF of water equals 325,851 gallons, or enough water to cover an area of land about the size of a football field one foot deep. Depending on use, one AF of water can supply two average California homes with a year’s worth of water for all indoor and outdoor needs. This savings has been achieved by creating a water conservation ethic, adopting programs, policies and ordinances designed to promote water conservation practices, and implementing comprehensive public information and education campaigns.



San Diego is located in a semi-arid coastal environment that averages only 10 inches of rainfall annually. San Diego imports most of its water and purchases it from the CWA. Only 10-20 percent of San Diego's water is of local origin, collected as runoff in the City's nine reservoirs.

The City recently completed its *2010 Urban Water Management Plan* (Plan). The Plan builds upon the previously approved *2005 Urban Water Management Plan*, *City of San Diego Long-Range Water Resources Plan (2002 – 2030)* and the *Strategic Plan for Water Supply (1997 – 2015)*. These documents set water savings goals of 32,000 AF by 2010; 40,000 AF by 2020 and 46,000 AF by 2030. Additionally, the State of California is switching to an updated method of measuring water savings that uses a gallons per capita per day (gpcd) methodology. Senate Bill SBx7-7 calls for a statewide 20 percent reduction in urban per capita water use by 2020.

A New Water Conservation Program for FY2011

Outdoor Water Conservation Rebates

The Water Conservation Section received a Proposition 50 Integrated Regional Water Management (IRWM) Plan Grant in the amount of \$1.1 million dollars for the City's "Irrigation Hardware Giveaway and Cash for Plants" Project. Local match funding of \$200,000 was provided by the City's Stormwater Pollution Prevention Program and \$178,000 of "in kind" services from the Water Conservation Section.



Titled "Outdoor Water Conservation Rebates," this grant project provides commercial and residential customers with three rebates to promote outdoor water conservation: Smart Controllers (weather based irrigation controllers), Micro-Irrigation, and Sustainable Landscape-Turf Replacement. The goal is to conserve potable water while also reducing pollutant-laden dry weather urban runoff flows into sensitive receiving waters.

In FY2011, the grant project achieved: 13 smart controllers installed; 15,257 square feet of high application irrigation systems converted to micro-irrigation; 28,282 square feet of high water use turf replaced with sustainable low water use landscapes. The rebates are available to eligible single-family, multi-family and commercial customers on a first-come, first-served basis. Annual water savings for FY2011 is estimated to be 4,355 gallons per day (gpd). It is anticipated that the program will continue to grow in FY2012 as multiple applications were in process at the end of FY2011.

Ongoing Conservation Programs and Initiatives

To meet established goals, the Water Conservation Section integrates new programs into existing programs, all focused on achieving water savings. The following outlines ongoing programs and initiatives.

Water Waste Investigations

Water Conservation Section staff respond to water waste complaints generated by citizens throughout the Department's service area. As part of the drought response, the Section added additional temporary staff to assist with the large volume of complaints received during the fiscal year in association with Level 2 Drought, however these positions were eliminated at the end of FY2011, when the drought was rescinded.



To resolve water waste issues, City staff contact the property owner or manager and work to eliminate water waste issues and associated hazards. Water waste complaints can vary drastically. A typical example would be a broken sprinkler head which is wasting up to 20 gallons per minute (gpm) and flooding adjacent properties and streets. In FY2011, over 2,754 water waste complaints were resolved at an estimated 60 gallons per day per complaint. This translates to estimated water savings of 165,240 gpd.

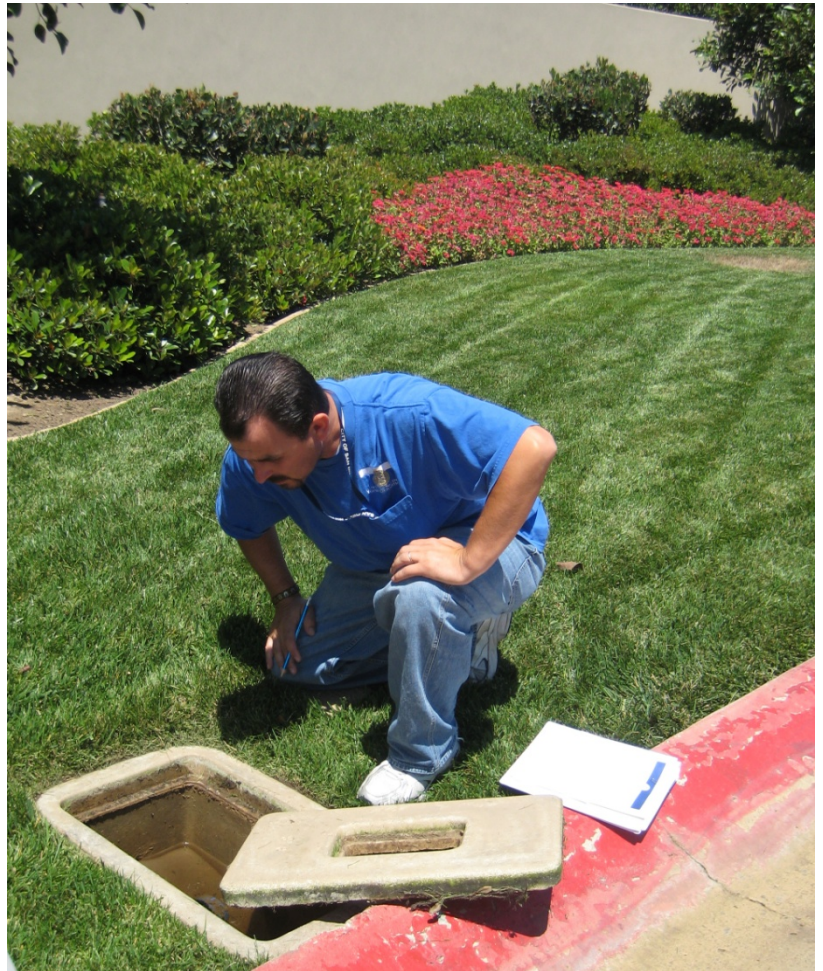
Commercial Landscape Survey Program (CLSP)

Commercial properties can receive a free audit on the irrigation system, water-saving recommendations and a water use budget. In FY2011, Water Conservation staff performed: 9 CLSP surveys, 18 multi-family audits, and land area measurements (LAMs) for 1,135 properties via the following programs.

Residential Interior/Exterior Water Surveys

This program offers residential customers an interior and exterior water use survey of their home. To date, over 45,000 surveys have been completed. San Diego's residential survey program is one of the largest ongoing water survey programs in the nation.

The Water Conservation Section first implemented the Residential Water Survey Program in July of 1992. During a scheduled survey appointment, a trained water surveyor meets with a residential customer for approximately one hour, reviews how to read the meter and use the leak detector, measures the flows of all interior water use appliances, identifies leaks and provides conservation tips. The surveyor then performs a landscape evaluation including identification of up to 26 potential problems or sources of water waste, and provides an irrigation schedule specific to the soil type, plant material and micro-climate zone where the customer lives. A typical participating household can reduce water consumption by an estimated 13 to 28 percent.



This program is well received by residents who appreciate the complimentary service and assistance.

The Residential Survey Program accounts for water savings of approximately 60 gallons per day (gpd) for each survey. In FY2011, the Section completed 1,070 surveys at single-family residences.

Enhanced Multi-Family Survey Efforts

In FY2011, an emphasis was placed on reaching out to our multi-family customers with more than seven units. A Multi-Family Program was developed that provided a survey of the exterior landscape and a demonstration of how to measure and document an interior survey of water fixtures (showers, toilets, faucets, washing machines, dishwashers, water heaters, etc). The property manager was trained to read the meter, look for leaks and measure fixture flow (gpm). Property managers are eligible to receive a summary report of interior and exterior conditions plus projections of water use and free low flow fixtures upon receipt of data on each unit.

The program was presented to members of the San Diego County Apartment Owners Association and letters sent out to an initial 100 potential multi-family sites. Eighteen properties were visited encompassing 1,188 units. Property managers proved to be enthusiastic in learning about the landscape and how to survey the interiors, however, they were not highly responsive in completing the requested documentation. Detailed information was returned to the City for 299 units. Smaller multi-family properties receive surveys through our Residential Survey Program. An additional 192 multi-family properties were visited singly through the Residential Survey Program.

Water Conserving Municipal Code – Emergency Water Regulations

In March of 2008, the CWA approved a Model Drought Ordinance designed to improve consistency between its member agencies when responding to regional water supply shortages. This model ordinance specifies and clarifies behavioral restrictions on the use of water in the event consumer demand reductions become necessary in order to meet an anticipated reduction in supplies. The model ordinance includes four different demand reduction targets at 10%, 20%, 40% and greater than 40% levels which provide a basis for action by the CWA and provide a framework for county retail agencies to respond in unison. On December 2, 2008, the San Diego City Council officially approved an ordinance revising the City's Emergency Water Regulations SDMC 67.38. Subsequently, on November 27, 2009, additional modifications were approved based on feedback from citizens. Further changes that establishes a 72 hour timeline for repairing water leaks, is currently routing.

Water Conserving Municipal Code – Plumbing Retrofit Upon Resale

The concept of an ordinance that would require the retrofitting of properties upon change of property ownership or bathroom alteration was first discussed by the City Manager's Water Conservation Advisory Committee in the spring of 1990. By March 14, 1991, San Diego had an ordinance which required the installation of ultra-low flush toilets (ULFTs) in all new construction. In addition, the City Council requested that the then City Manager develop a separate ordinance requiring the replacement of existing toilets with ULFTs when remodeling a bathroom or upon change of property ownership. Over 125,000 certificates of compliance with San Diego Municipal Code (SDMC) 147.04 have been filed since its inception, with 3,354 certificates completed in FY2011.



SoCal Water\$mart Rebates for Single Family Dwellings

The MWD and its member agencies, including the City of San Diego, offer a limited number of rebates each year on high efficiency toilets (HETs), high-efficiency clothes washers (HEWs), smart controllers or weather-based irrigation controllers (WBICs), rotating sprinkler nozzles and synthetic turf. Funds for these rebates are limited. Customers can contact SoCal Water\$mart by phone at 1-888-376-3314 or via the internet at <http://socialwatersmart.com/index.php>.

City customers received incentives for: 368 HETs (38 gpd per fixture), 5,314 HEWs (28 gpd per fixture), 2,541 rotating sprinkler nozzles (which use 20 percent less than conventional spray heads), 1,552 square feet of synthetic turf, and 48 WBICs. Water savings from efficient toilets, which were initially incentivized in the early 90s, is now over 10 million gallons per day (MGD).

Save A Buck Rebates for Commercial, Industrial, Institutional and Multi-Family Properties

The MWD also coordinates its Save A Buck rebate program for Commercial, Industrial, Institutional (CII) and multi-family properties. Save A Buck offers cash rebates on a wide variety of water-saving technologies including HETs and urinals, WBICs for outdoor landscaping as well as many industry specific water conserving devices. In FY2011, incentives for City of San Diego customers were provided for: 438 CII toilets/urinals, 71 WBICs, 9,373 rotating nozzles and 12 cooling tower controllers. Total savings for these devices is 88,218 gpd.



Water Conservation Film Contest

The Water Conservation Section kicked off its 3rd Annual Water Conservation Film Contest, titled “San Diegans Waste No Water” in the Spring of 2011. This contest was open to 11th and 12th grade high school students and all college students in the cities of San Diego, Coronado and Imperial Beach. The film contest created an opportunity to engage students directly about the importance of conserving water, allowing the creativity of the students to inspire the rest of our community to use water more efficiently.

All contest entrants were recognized, and the finalists' films were shown at a special “Red Carpet Premiere” on Wednesday, May 18, 2011, at the IMAX Theater at the Reuben H. Fleet Science Center in Balboa Park. At the premiere, the winning film was announced and a prize pack donated by local businesses, attractions and cinemas, valuing approximately \$1,000, was

awarded to the two filmmakers, Michelle Puentes and Sergio Duarte from Southwestern College. Their film was also featured this summer at AMC Mission Valley 20, AMC Plaza Bonita 14 and Edwards Mira Mesa Stadium 18 with a total of 17,136 showings.

Water Conservation Poster Contest

The entire San Diego City Council celebrated the creative efforts of the winners of the 11th Annual Water Conservation Poster Contest in the City Council Chambers on May 3, 2011. The ceremony honored the 19 outstanding student artists who won this year's contest and included their proud teachers and family members.



Held each year by the City of San Diego Public Utilities Department, the poster contest provides a focal point for teachers to talk with their students about the importance of using water wisely. This year's "San Diegans Waste No Water" theme gave thousands of students the opportunity to artistically illustrate meaningful water conservation and recycled water messages by creating original artwork. All students who enter the contest receive a certificate of participation. Nineteen winners receive prizes and will have their artwork featured in a calendar, on the City's website, and displayed at various public venues including the San Diego County Fair.

The Public Utilities Department then made another splash in partnership with the San Diego Watercolor Society. The winning posters from the 2011 Children's Water Conservation Poster Contest were on exhibit alongside original watercolor paintings reflecting the "Shortfall" theme at the Watercolor Society's Gallery in the Naval Training Center Promenade at Point Loma's Liberty Station. To kick off the month-long exhibit, a special reception was held on Friday, June 3, 2011, at the Watercolor Society's Showcase Gallery. The event again honored the 19 winners out of the thousands of students who submitted posters to the 2011 contest. During the reception, student artists and member artists were recognized during an awards ceremony. Awards and prizes were given out by the Watercolor Society and the City of San Diego Public Utilities Department.

Water Conservation Garden on the Campus of Cuyamaca College

The Water Conservation Garden is a state-of-the-art demonstration garden that operates as an educational center for San Diego County residents. The Garden hosts events, festivals, plant sales and classes, including “Ms. Smarty Plants.” Ms. Smarty Plants takes children on a fun, interactive journey through plant adaptations, the water cycle, conservation, animal habitats and more. The Garden also offers a beautiful collection of California-Friendly landscaping and other water wise gardening techniques.

The four-and-a-half acre site includes multiple educational exhibits, a 350 seat amphitheatre, over 360 trees, and 100,000 square feet of water wise landscaping. Encouraging homeowners, developers and landscape professionals to use California-Friendly landscaping, efficient irrigation design and appropriate maintenance can drastically reduce the outdoor water use by 30 - 70 percent.



The Garden is a not-for-profit corporation focusing on education, and supported by earned income and contributions of six member agencies, including the City of San Diego. The Water Conservation Garden’s Spring Garden Festival “Conservation in Bloom” was held on Saturday, April 9, 2011, and had over 4,800 attendees, including members of the aforementioned San Diego Water Color Society, who held their monthly “paint out” in the

garden led by accomplished watercolorist Chuck McPherson. Approximately one-third of the Garden’s visitors and participants are residents of the City of San Diego.

The Public Utilities Department contributes to the Garden through an annual assessment and sends delegates to the Garden Board, Marketing Committee and Facilities Committee. At major events, the Department staffs information tables and assists with promoting and facilitating events.

California-Friendly Landscape Contest

The City of San Diego Public Utilities Department participated in the regional 2011 *Water Agency California-Friendly Landscape Contest*. The Best in District winner was Robert Smith who received a \$250 gift certificate to a local nursery at the award ceremony at the Water Conservation Garden on May 21, 2010.

California Irrigation Management Information System (CIMIS) Stations

One of the keys to effectively managing irrigation for commercial nurseries and agricultural customers is accurate weather information. Weather patterns (solar radiation, wind, rain, relative humidity) have a direct impact on the watering needs for turf, trees, shrubs and other plants. The City of San Diego partners with the California Department of Water Resources (DWR) to calibrate and maintain three CIMIS weather

stations. CIMIS stations are passive data loggers that gather accurate weather data to create and track evapotranspiration (ET) values. ET provides the quantitative data needed to accurately determine plant watering needs. Real-time weather data can be used to determine appropriate watering schedules for central control irrigation systems and conventional controllers. The advantage of CIMIS is that it is a



Robert Smith City of San Diego



recognized standard and the equipment calibration is performed regularly. City staff, working in conjunction with the DWR, provide local support for the three CIMIS stations located in the maritime, central and coastal weather bands of San Diego. The data from these stations is used to develop water budgets used in the Commercial Landscape Survey Program. Data from the University of California, Berkeley, shows water reduction of 13 percent when CIMIS data is used, which equals 75,000 gpd for the City's agricultural customers, nurseries and commercial sites.

Public Education, Information and Community Outreach

Water Conservation staff members actively participate in community fairs or events, or as individual speakers to community groups, providing informational brochures on the various programs and promoting both simple and highly technical conservation measures. In FY2011, Water Conservation staff attended 54 events and made 11 public speaking presentations. As an example of an event, the Water Conservation Section has participated in EarthFair at Balboa Park since the early 1990s. This year, the Section included QR Codes at EarthFair so that visitors could reach internet documents via their mobile phone, rather than choosing paper copies and brochures.



The Water Conservation Section continues to maintain its interactive educational display at the Reuben H. Fleet Science Center in Balboa Park. The exhibit, entitled “*San Diego's Water, from Source to Tap,*” details the long journey our water makes to reach our faucets and the technology involved in providing water to the City. The exhibit is part of the Science Center's TechnoVation collection, showcasing local technological achievements. The exhibit is expected to reach an annual audience of 2.1 million people. The project was created in partnership with the CWA and made possible through a grant from the Hans and Margaret Doe Charitable Trust.

Jr. Lifeguards

The City of San Diego Junior Lifeguard program provides a fun and safe aquatic education to the youth of San Diego with an emphasis on developing confidence, mental and physical fitness along with respect for others and the coastal environment. In cooperation with “Think Blue San Diego,” the City of San Diego Public Utilities Department, Water Conservation Section participated in two, one-day events that are dedicated to promoting environmental awareness. Over 550 Junior Guards cycled

through seven booths each day and participated in educational activities regarding recycling, watershed/water pollution awareness and water conservation. At the end of the session, each participant received a backpack containing additional information supporting the important messages delivered throughout the day.

WaterSmart

Through a program sponsored by the San Diego County Water Authority and the Grossmont-Cuyamaca Community College District, the City of San Diego has been assigned Landscape Auditor Interns to support various water conservation activities. As outlined in a Memorandum of Agreement, typical duties performed by the interns can include such tasks as measuring landscaped areas on the ground or via GIS tools, residential home surveys, assisting with large landscape surveys, preparing reports and water budgets, inspecting and assisting customers with WBICs, inspecting new developments for installation of HETs and California Friendly landscaping and assisting at community events. A main focus of the work performed at the City of San Diego has been the use of the web-based program, WaterSmart Target, developed by the San Diego County Water Authority, that measures landscapes using aerial measurements and infrared imagery. Water budgets are created specifically for a property and is based on the location, square footage, and type of plant material that exists at that site. The program is capable of comparing actual and projected consumption and a three year average consumption to the water budget for these irrigation-only accounts. To date, over 650 irrigation-only accounts have had water budgets created with the use of this program by interns.

Conservation Programs Under Development

To meet future water savings goals, the Water Conservation Section continues to develop new programs focused on achieving the additional needed water savings. The following outlines new programs and initiatives under development.



Rain Barrel Rebates

The Water Conservation Section is looking to again team up with the Storm Water Pollution Prevention Program to include rain barrels as an item that can receive a rebate through the “Outdoor Water Conservation Rebate Program.” Storm Water will provide funding for rebates and staff time, while Water Conservation will manage the operations of the program.

Rain barrels are used to collect rainwater from hard surfaces such as household rooftops. When citizens install a rain barrel at their home, they are helping to maintain a healthy urban watershed by reducing the demand on the potable water system, while also reducing the amount of wet weather runoff that is collected and sent into the public storm water system.

Proper water conservation techniques and rain barrels assist the City's Storm Water Pollution Prevention Program. When excess irrigation water flows out of landscapes, it flows directly into storm drains. Everything that flows down into a storm drain goes untreated directly into canyons, creeks, bays, lagoons and ultimately the ocean. Irrigation runoff water carries pesticides, fertilizers, motor oil, pet waste and silt. The Clean Water Act prohibits disposal of wastes and pollutants into creeks, bays, lakes and oceans. Such pollutants have harmful effects on recreational areas, waterways and wildlife. Use of rain barrels and the diversion of rooftop runoff from the storm drain to landscaped areas can help reduce storm water pollution.

Water-Wise Business Survey

A Water-Wise Business Survey is a new free service that will be implemented in FY2012. The survey offers all City of San Diego Public Utilities Department commercial, industrial and institutional customers with a customized review of their water usage, including an on-site visit to identify areas where water use efficiencies can be achieved and effectively implemented. Recommendations can help customers use water more efficiently and save energy.

Conclusion

In FY2011, the Water Conservation Section developed an award winning public information and community outreach campaign that helped defeat California's recent drought. The Section is now focused on long-term water conservation savings needed to meet Senate Bill SBx7-7, which calls for a statewide 20 percent reduction in urban per capita water use by 2020.

The attached spreadsheet outlines estimated water savings and how each program contributes to City-wide water savings. The spreadsheet does not take into account transitory water savings achieved by temporary behavior patterns, such as recent Drought Level 2 irrigation restrictions.

The programs outlined here undergoes periodic reevaluation to ensure the realization of forecasted savings.

Additionally, changes in water conservation technologies require reassessment of long-range water conservation plans. Because of these changes, this document is reviewed and revised at the end of each fiscal year to provide an ongoing assessment and status update, redirecting or enhancing efforts as necessary.



**20 x 2020* ...
Building the
Momentum**

**New statewide law that requires urban water suppliers to reduce per person water consumption 20 percent by 2020.*

Water Conservation Implementation Plan

Program Title	2007 ACTUAL	2008 ACTUAL	2009 ACTUAL	2010 ACTUAL	2011 ACTUAL
Retired Water Conservation Programs	10,056,926	10,056,926	10,056,926	10,056,926	10,056,895
SDMC 147.04 (w/o City incentives)*	3,153,408	3,224,496	3,274,080	3,361,224	3,441,720
ULFTs/HETs/Urinals (gpd)	9,881,787	9,990,819	10,045,723	10,214,671	10,258,182
CII Incentives (gpd)	902,645	1,064,560	1,172,875	1,177,763	1,189,304
Residential Water Survey Program (gpd)**	1,326,809	1,398,869	1,484,669	1,561,049	1,561,049
Enhanced Multi-Family Survey Program (gpd)					71,280
CIMIS Station Program (gpd)	85,000	90,000	90,000	90,000	90,000
Residential HEW Washers (gpd)	405,423	584,103	668,895	731,039	878,578
CLSP & WRLD Water Budgets (gpd)	1,947,427	2,023,229	2,108,501	2,112,652	2,114,614
Water Waste Investigations (gpd)	115,492	137,932	207,892	515,512	680,752
Enhanced Public Education (gpd)	250,000	250,000	300,000	300,000	300,000
MWD CLIP/Irrigation Controllers (gpd)	0	2,480	59,337	290,686	332,699
Synthetic Turf Incentive (gpd)			42,501	50,572	50,766
Rotating Nozzles (gpd)			11,191	23,936	66,479
Prop 50 IRWMP Grant Rebates					4,356
Total Gallon Savings Per Day	28,124,917	28,823,414	29,522,590	30,486,030	31,096,675
Total Gallon Savings Per Year	10,265,594,705	10,520,546,110	10,775,745,350	11,127,401,020	11,350,286,232
Total Acre Feet Savings Per Year	31,504	32,286	33,070	34,149	34,833

* Passive water savings included starting in 2005 to be consistent with CWA stats and the City's own 2005 Urban Water Management Plan.

** Residential Water Survey Program water savings has plateaued, with new surveys replacing water savings lost from surveys that occurred years ago.