

- **Board of Directors**  
**Water Planning, Quality and Resources Committee**

March 8, 2005 Board Meeting

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**9-3**

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**Subject**

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Report on Metropolitan's Five-Year Strategy for accomplishing conservation

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**Description**

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This letter provides the results of a collaborative process with the member agency managers and staff to develop a plan to guide development and implementation of future conservation programs over the next five years. The plan ([Attachment 1](#)) outlines the programs that will achieve the conservation target developed in the IRP Update, with the emphasis on the incentive-based conservation programs that will be implemented.

**Description of process**

At the request of member agency managers, staff organized a series of special meetings to develop a plan to guide implementation of conservation programs. Over a four-month period, meetings focused on:

1. Issue identification with member agencies
2. Review of current programs
3. Future program opportunities and evolution methods
4. Recommendations

**Description of plan and operable factors**

The conservation program was divided into three categories: (1) residential indoor, (2) landscape, and (3) commercial, industrial and institutional (CII). Historically, Metropolitan's conservation programs have been primarily residential indoor programs. As a result, most of the water savings identified in the recent IRP Update are from this category. Increased emphasis on landscape and CII programs could create significant areas of new savings.

Some of the highlights of the five-year plan are:

- Develop refinements to programs, such as retiring some device incentives, adding new devices brought on by technological advances, and evaluating incentive levels.
- Support state, federal and industry standards for water-efficient devices.
- Pursue grant funding and co-funding partnerships to support programs with synergistic benefits.
- Outreach to support and expand programs and public awareness.

These items would come forward to the Board for approval as they are developed consistent with the five-year plan.

The plan documents Metropolitan's strategy and approach for meeting the conservation target of 1.1 million acre-feet water savings by 2025 in the IRP Update. The process to develop new programs is outlined as part of the life cycle of a program. Conservation policy principles that were adopted by the Board in 2003 have been incorporated into the plan.

**Future Steps**

Plan implementation steps will be periodically updated in consultation with member agency staff. Updates will add an additional year of proposed advances. An annual conservation target will be compared to

accomplishments to determine if our approaches are successful or need improvements. Board approvals of new areas of expenditure will be sought periodically. Progress will be reported as part of the semiannual report to the Board on Local Resources and Conservation Programs.

**Policy**

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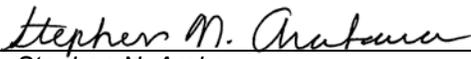
By Minute Item 45195, dated February 2003, the Board adopted policy principles regarding water conservation activities.

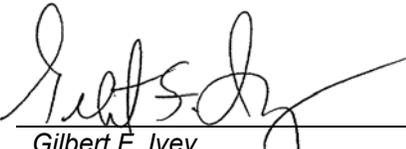
By Minute Item 45828, dated July 2004, the Board adopted the Integrated Water Resources Plan Update.

**Fiscal Impact**

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There is no impact on the FY 2004/05 budget and future revenue requirements will be assessed and included in future budgets.

	2/2/2005
Stephen N. Arakawa Manager, Water Resource Management	Date

	2/11/2005
Gilbert F. Ivey Interim Chief Executive Officer	Date

**Attachment 1 – Metropolitan’s Five-Year Strategy for Accomplishing Conservation**

BLA #2997

# The Metropolitan Water District of Southern California Five-Year Conservation Strategy Plan



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## **Executive Summary**

### **OVERVIEW**

Not long ago, Southern Californians endured the driest rainfall season in more than 100 years. Nonetheless, their water supply fared well. Why was the region able to withstand the drought conditions experienced in 2002? Southern California prepared well with a diverse supply portfolio complemented by a core of progressive water conservation achievements.

Integrated resource planning laid the foundation for the region's diverse water resource portfolio. As signatory to the *California Urban Water Conservation Council Best Management Practices Memorandum of Understanding*, Metropolitan's trend-setting conservation program provides the foundation of its integrated resource approach.

This report documents Metropolitan's near-term strategy for achieving conservation in coordination with its 26 member agencies through outreach to its 18 million constituents.

### **IRP GOALS**

In 2004, Metropolitan updated its Integrated Resource Plan with the goal of annually achieving 1.1 million acre-feet of region-wide conservation by 2025. This goal is to be achieved by sustaining pre-1990 conservation of 250,000 acre-feet, 550,000 acre-feet from compliance with plumbing codes and other laws, and 300,000 acre-feet from active program-based conservation. Overall, the region is accomplishing about 700,000 acre-feet annually at present.

### **INCENTIVE-BASED PROGRAMS**

Metropolitan's incentive based conservation program (also referred to as active program) is organized in three basic water-use categories:

- Residential indoor
- Landscape
- Commercial

Specific programs in each category provide financial incentives to promote retrofitting existing water-using devices with new models that use less water or to promote new water-efficient management practices. Regional conservation investments are founded on sound business practice where derived benefit must justify the cost. New actions are developed in close consultation with Metropolitan's member agencies and other stakeholders. Assistance from the U.S. Bureau of Reclamation (Bureau) and the state of California is especially valuable in assessing the merits of new devices and practices.

Current success is attributable to partnerships with Metropolitan's member agencies, which accomplish most of the actions with retail customers. Of the current regional savings of 700,000 acre-feet per year, Metropolitan's incentive-based programs are currently saving about

116,000 acre-feet per year of water. This document identifies a five-year block of programs and activities to advance active conservation toward 300,000 acre-feet annually by 2025.

Opportunities exist to reach out and partner in new areas with other entities that also derive a benefit from water conservation. Wastewater treatment agencies, energy providers, and watershed management authorities are potential partners benefiting from water conservation. In fact, in past partnerships Metropolitan has implemented conservation retrofits that save energy and water. Some member agencies that are also power utilities supplement Metropolitan's incentives to save energy and water.

## **RECENT ADVANCES**

Metropolitan continues to aggressively take steps toward new conservation opportunities and improved participation, and will continue to do so in the future. Recent advances include:

- Establishing a long-term Commercial, Institutional and Industrial regional program aimed at 17,500 retrofits per year
- Increasing incentives to achieve 9,000 gallons per year savings by retrofitting residential clothes washers with high-efficiency models with Water Factor of 6.0 or better
- Revamping existing large landscape program with attractive new options to receive incentives for improving irrigation efficiency
- Showcasing water-efficient devices and landscapes in model homes to encourage homebuyers and remodelers to be water efficient
- Testing the merits of synthetic turf
- Revising Protector del Agua landscape education program to inform greater numbers of interested people about new technologies and approaches
- Investigating 12 new innovative ideas for conservation
- Assessing the value of emerging weather-based irrigation controllers
- Upgrading water-use efficiency guidelines for lands annexed to Metropolitan's service area
- Simplifying administrative steps and aggressively marketing a program to save water by improving manufacturing process water use
- Providing creative advertisements and promotions that encourage voluntary replacement of turf with water-efficient California Friendly landscapes
- Participating in a statewide task force to assess upgrading municipal ordinances for landscape water-use efficiency

- Promoting Metropolitan's bewaterwise.com Web site, which helps homeowners create and maintain California Friendly landscapes by providing a variety of tools, information and reference database of about 1,500 plant species
- Renewing grant offerings for City Makeover and Community Partnering Programs
- Researching the effectiveness of toilet flappers sustaining expected water savings

## **PUBLIC OUTREACH**

Metropolitan is aggressively appealing to its public to rediscover Southern California's heritage of drought-tolerant plants and to be waterwise landscapers. Nurseries and botanic gardens are partnering in public outreach and education.

## **FIVE-YEAR STRATEGIC ACTION PLAN (2005-2009)**

A five-year span provides a manageable interval to plan and implement conservation actions targeting 2025 IRP Update goals. The plan will sustain successful programs and create new initiatives aimed at advancing active conservation from 116,000 acre-feet in 2005 to 145,000 acre-feet in 2009. The plan includes:

- A blueprint that describes the life cycle of an incentive program to retrofit devices from initiation through saturation
- Review of Metropolitan's existing incentive approach
- Transition plan for existing residential toilet replacement program to new manufacturing standards and technologies

As time progresses and new information and ideas come forward, the strategic plan will be updated to continuously maintain a fresh five-year outlook and approach.

## **Water Conservation Strategy**

### **INTRODUCTION**

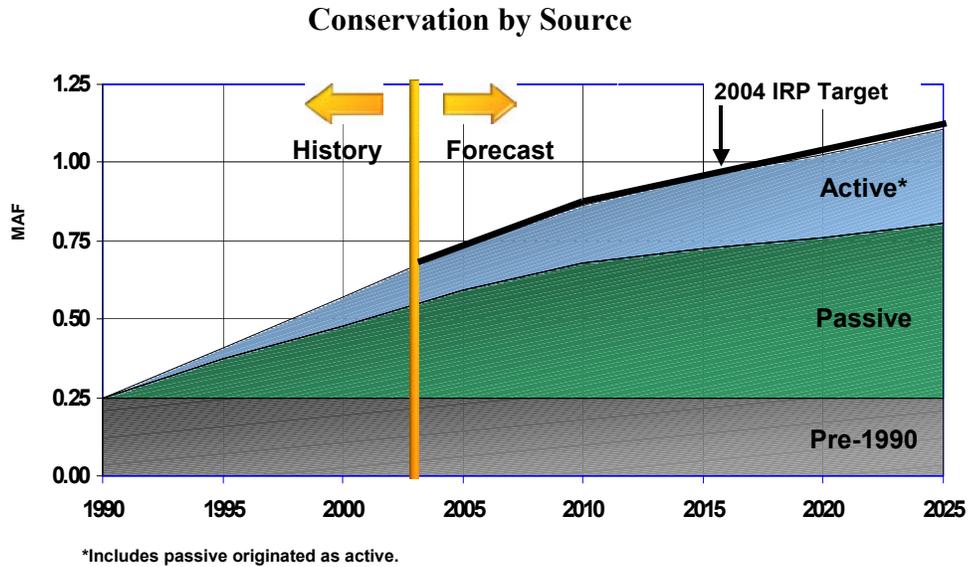
#### **Objective**

In July 2004, the Metropolitan Water District of Southern California's (Metropolitan) Board of Directors adopted the Integrated Water Resources Plan Update (IRP Update), which sets new cost-effective water supply targets for Southern California through 2025. The conservation target in the IRP Update is an estimate of what is necessary to meet the region's commitment to implement California Urban Water Conservation Best Management Practices for Urban Water Conservation Memorandum of Understanding.

This report documents Metropolitan's strategy and approach for meeting conservation targets established in the IRP Update. It also defines an implementation plan for meeting conservation goals and recommends regional program changes and enhancements to help improve overall water use efficiency within Metropolitan's service area. This report also describes existing board policy guidelines for the implementation of conservation under Metropolitan's Conservation Credit Program.

#### **Conservation Target**

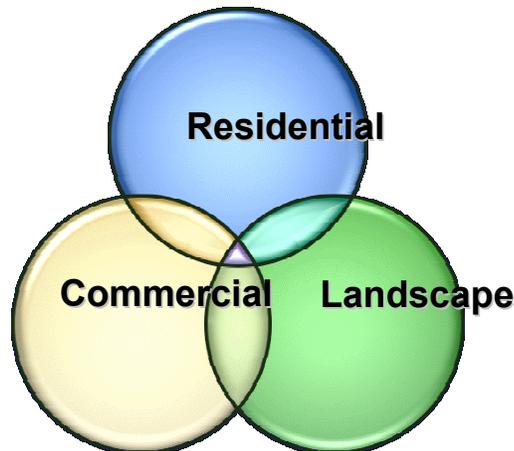
Metropolitan's conservation target in the IRP Update is based on demographic trends and an assessment of conservation programs that are deemed cost-effective. The target considers historical and forecasted data for housing and commercial development, remodeling rates, customer response to regulation and price, and prior success by water agencies in achieving water savings through financial incentives. Estimates of conservation are measured against a 1980 base-year accounting for both active (incentive program-based changes) and passive (regulatory compliance, consumer behavioral changes, and price response) water savings. The 1980 base year correlates with the water savings target in the IRP Update and recognizes the early accomplishments of Metropolitan and California in reducing water use through incentives and plumbing regulation.



The IRP Update conservation target is just over one million acre-feet in 2020 and about 1.1 million acre-feet in 2025. Metropolitan, in collaboration with its member agencies, plans to achieve the 1.1 million acre-feet savings target through 250,000 acre-feet of pre-1990 conservation, 550,000 acre-feet from plumbing code compliance and price response, and 300,000 acre-feet from active conservation incentive programs.

**Incentive-Based Conservation Categories**

Metropolitan’s active, incentive-based, conservation program is organized into three broad categories of water use: Residential Indoor, Landscape, and Commercial. While useful for segregating water uses, these categories overlap through common technologies and programs. Metropolitan provides financial incentives to retrofit existing high-water using devices, such as older toilets, with new models that use less water. Metropolitan also provides incentives for installing low-water use devices that exceed building standards in new homes and to encourage water-use efficiency improvements, such as landscape irrigation. Incentive-based actions are complemented by public education and outreach efforts.



As shown in the following table, Metropolitan and member agency co-funding efforts conserved approximately 97,000 acre-feet of annual water savings in 2003. Historically, implementation of conservation programs focused on Residential Indoor opportunities. Residential Indoor savings accounted for more than 90 percent of the total co-funded annual water savings. Based on past performance and program potential, the Residential Indoor, Landscape, and Commercial Programs are estimated to reach the 300,000 acre-feet regional target for active programs.

<b>Category</b>	<b>2003</b> (Acre-feet)	<b>2025</b> (Acre-feet)
Residential Indoor	87,666	134,585
Commercial	6,877	80,763
Landscape	2,263	85,563
<b>Total</b>	<b>96,806</b>	<b>300,911</b>

This report provides a strategy and implementation plan for the Metropolitan service area to achieve the water conservation savings target through implementation of cost-effective programs through participation of Metropolitan’s 26 member agencies and nearly 300 water retailers.

**Incentive Approach and Justification**

Through its Conservation Credits Program (CPP), Metropolitan provides financial incentives of \$154 per acre-foot of water saved or up to one-half project costs, whichever is less. This incentive rate is based on the value of conservation to defer new Metropolitan capital improvement projects and reduce operations and maintenance costs. The CCP is funded, in part, by collection of a water stewardship charge on every acre-foot of water sold by Metropolitan to its member agencies. During 2005, Metropolitan will initiate a review of its current incentive approach with the outlook of achieving water conservation targets identified in the IRP Update, in an optimal manner.

Entities that derive benefit from water conservation efforts are logical partners in advancing urban water conservation initiatives. In addition to water suppliers who pay for conservation through Metropolitan’s rates, benefits extend to others including wastewater treatment agencies, energy providers, solid waste agencies, watershed management bodies, and regional and local governments. To achieve greater equity and progress in urban conservation, the region should explore partnerships for securing funding and motivating public change commensurate with respective benefits received.

**New and Emerging Opportunities**

There is growing evidence that Commercial and Landscape conservation programs may be able to produce more water savings than currently projected. New technologies, regional landscape awareness and opportunities for industrial process improvements could create new savings not currently reflected in Metropolitan’s forecasts. Metropolitan continues to evaluate emerging technologies and trends for inclusion in its approach.

Metropolitan's education program provides information to Southern California's primary and secondary students regarding water issues and conservation. Recently, Metropolitan sponsored a grant program with the Bureau for local college and university students to develop solutions to meet future water needs, spurring new interest in broad areas of study.

More recently, efforts are being jointly implemented with the building industry to market water efficiency to homebuyers and shoppers. In partnership with local, regional, and national home builders, and sponsored by the California Building Industry Association and USBR, these programs have the potential to influence the next generation of homebuyers and remodelers to consider water-efficient landscapes and devices.

Plumbing codes have long been a regulatory mechanism for improving water efficiency in new homes and businesses. New standards for plumbing fixtures that ensure water savings or allow the voluntary use of alternative devices can open up a whole new realm of water saving potential. Initially developed by the Los Angeles Department of Water and Power, and since adopted by some of Metropolitan's other member agencies, the Supplemental Purchase Specification, which requires a higher standard for flappers and tank capacity for ultra low-flush toilets, will help ensure continued water savings from a device over its lifetime. New alternatives, such as urinals that use little or no water and restaurant dish washing pre-rinse sprayheads, have created opportunities to incorporate water efficiency into plumbing codes with negligible cost impact to businesses.

Opportunities to use water rates to achieve water savings are also on the rise. With examples such as the Irvine Ranch Water District's increasing block rate structure and Metropolitan's tiered rates, the water industry has moved toward alternative ways to charge for water in an equitable manner that also encourages consumers to be water efficient. In a survey of retail water purveyors within Metropolitan's service area, all retail water purveyors use either an inclining block rate structure or a uniform rate structure, which are defined as conserving rates by the California Urban Water Conservation Council.

Innovative opportunities are placed in strategic context within this document; however, not all can be quantified for potential water savings at this time. For this reason, this plan also includes a section that describes the process of developing new conservation opportunities, which includes implementation from start to completion by saturation, regulatory requirement, market transformation, or sustaining water savings without the need for continued agency support.

### **Short-Term Water Supply Condition Responses**

Metropolitan has long-standing programs for providing financial incentives, public messages and legislation to increase water efficiency in California. Based on natural variation in water supply conditions, Metropolitan's program strategy includes flexibility. In years of low forecasted supplies, incentive budgets may increase, public messages may intensify, and legislative options may be advanced ahead of schedule.

**RESIDENTIAL INDOOR**

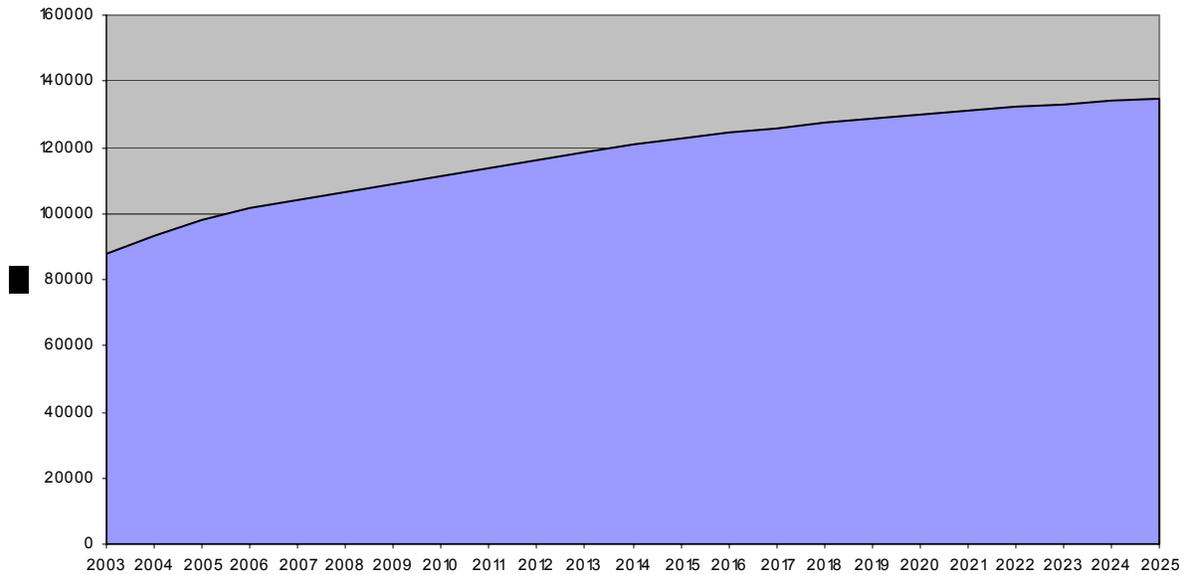
**Water Savings Target**

The Residential Indoor program target for water savings is about 135,000 acre-feet by 2025. Most of the projected increase in savings will come from dual-flush and other higher efficiency toilets, and to a lesser degree, from continuation of the Metropolitan’s current ultra-low flush toilet program.

The following table shows the estimated breakdown of water savings:

<b>Device</b>	<b>Units To-Date</b>	<b>Projected Units by 2025</b>	<b>Annual Water Savings in 2025</b>
ULFT	2,189,501	3,202,001	111,495
Dual-Flush Toilets	20	1,527,520	9,973
Survey	66,829	68,879	N/A
Showerhead	2,929,249	2,931,249	10,138
Aerator	23,411	40,911	N/A
Displacement Device	19,404	19,404	N/A
Flapper	1,795	3,095	28
HECW	63,654	188,654	2,951
Model Home Pilot	None	100	TBD
New Development	None	Unknown	Unknown
<b>Total</b>			<b>134,585</b>

**Residential Water Savings Target**

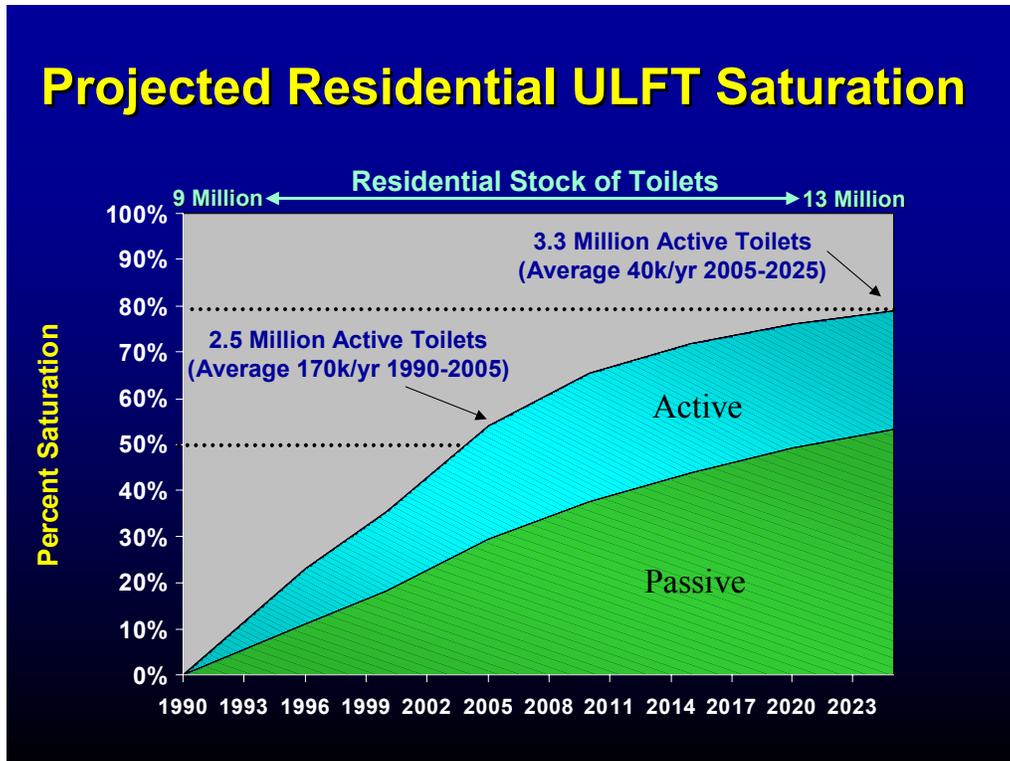


Total residential indoor conservation is targeted to increase from a current level of 88,000 acre-feet to nearly 135,000 acre-feet by 2025.

**Ultra-low flush toilet program**

<b>Device</b>	<b>Incentive Amount</b>
Ultra-low flush toilet	\$60
Dual-flush toilet	\$80
Upgrade from ULFT to Dual-flush	\$20

Metropolitan has funded ULFT programs since 1988. In 1992, federal legislation was enacted requiring 1.6 gallons per flush (gpf) toilets as the standard for toilets sold in the United States. Metropolitan forecasts 50 percent saturation of ULFTs in its service area by 2005 and 80 percent by 2025. Much of the increase in saturation would occur through compliance with 1992 federal legislation. As saturation increases, Metropolitan’s ULFT incentive program is projected to end by 2025.



Because of projected ULFT saturation through retrofit programs and natural replacement over time, ULFT program evolution will be evaluated to revitalize and extend water savings potential. One evolutionary example is outlined below; however, a final recommendation will be developed in consultation with the member agencies.

*Example:*

The first step would fund only toilets that meet higher standards beyond the current plumbing code. Toilet specifications developed by the Los Angeles Department of Water and Power have also been adopted by San Diego County Water Authority. As part of this step, an appropriate incentive to promote one-gallon per flush (gpf) toilets should also be developed. The second step would be to provide funding only for toilets that exceed the 1.6 gpf standard. This action would result in revising incentive rates in a stepped process as shown in the following table:

Retrofit Device	Potential Step 2 Incentive Amount
Ultra-low flush toilet	Not funded
Dual-flush toilet	\$80
Upgrade from ULFT to Dual-flush	\$20
One gallon per flush	To be determined

The final step would fund dual-flush and one gpf toilets and only pay for incremental water savings.

<b>Retrofit Device</b>	<b>Potential Step 3 Incentive Amount</b>
Ultra-low flush toilet	Not funded
Dual-flush toilet	\$20
Upgrade from ULFT to Dual-flush	\$20
One gallon per flush	To be determined

An approach to address evolution of the ULFT program will be developed in consultation with member agencies and will be presented for board consideration in 2005 as part of a comprehensive refinement to the Commercial and Residential Indoor programs.

**Residential indoor survey program**

Metropolitan financially supports residential water-use surveys conducted by the member agencies with the following incentives:

<b>Activity/Retrofit Device</b>	<b>Incentive Amount</b>
Single family survey	\$12.50
Low-flow Showerhead	\$5.00
Toilet Flapper	\$4.50
Toilet Displacement Device	\$3.00
Aerator	\$1.00

Some items, including low-flow showerheads, aerators, and toilet displacement devices, have reached saturation levels or are no longer applicable as a result of retrofit programs and natural replacement. Consequently, Metropolitan support for residential surveys should be phased out and replaced by incentives designed for outdoor surveys. Outdoor surveys could support new landscape initiatives, such as the weather-based irrigation controller program. This approach conforms to proposed revisions to meet Best Management Practice (BMP) 1, Residential Water Surveys, which may be replaced with BMP 15. BMP 15 is proposed as a Residential Outdoor BMP. Phasing out the residential indoor survey program would be considered as part of a comprehensive upgrade to the Residential Indoor program presented to the Board in 2005.

**High-efficiency clothes washer program**

To date, Metropolitan has retrofitted over 100,000 residential clothes washers. Metropolitan began providing incentives for high-efficiency clothes washers in 1995.

<b>Retrofit Device</b>	<b>Incentive Amount</b>
High-Efficiency Clothes Washer – Water Factor 6.0	\$60

Metropolitan provided \$35 per clothes washer based on estimated water savings typical of units with water factor 8.5. Water factor represents the amount of water needed to clean a standard load of laundry. Participation was low prior to increasing the incentive with non-Metropolitan and member agency funding. Starting in 1999, Metropolitan partnered for two years with Southern California Edison which added an incentive of \$50-\$100. Metropolitan received a CALFED grant in 2002 to provide an additional \$90 per high-efficiency clothes washer for a total incentive of \$125 per washer. As a direct result of grant funding, program participation increased from an average of 4,000 units per year to 20,000 units per year. At the end of the CALFED grant and while awaiting a second grant, the Board approved a temporary increase in Metropolitan’s funding to \$110 per HECW. In 2004, Metropolitan received Proposition 13 grant funding to provide an additional \$75 per HECW for a total incentive of \$110 per washer. This grant will likely be exhausted by June 30, 2005. Staff is working with the member agencies to seek additional grant funding and has submitted an application for Proposition 50 grant funding.

In November 2004, Metropolitan’s HECW base incentive was increased to \$60 per unit, targeting washers that save about 9,000 gallons per year. This incentive is based on an average water factor of 6.0, which will be required for Metropolitan incentive funding beginning July 1, 2005. In addition, the Board authorized bridge funding of an additional \$50 per unit for a total of \$110 per unit through December 31, 2005, when grant funds should become available if Metropolitan’s Proposition 50 application is selected for funding.

Legislation may take effect in 2007 and 2010 making only HECWs available for purchase in California. To be enforceable, California must receive an exemption from the Department of Energy (DOE), otherwise the federal standard preempts the state standard. DOE exemption would further Metropolitan’s service area conservation achievements. The California Energy Commission leads the effort to obtain the DOE exemption.

**Pilot Model Home Program**

Metropolitan’s pilot model home program promotes the installation of innovative, water-efficient landscapes and devices in model homes to stimulate public interest. Incentives are provided to builders for the incremental cost of equipping model homes with water-efficient fixtures and landscapes that exceed current codes. Fixtures include: dual-flush toilets or pressure assisted one gpf toilets; high-efficiency clothes washers (meeting California’s 2010 standard), weather-based irrigation controllers, and California Friendly landscaping. The following is a breakdown of the incentives available to builders for each participating model home:

<b>Device/Feature</b>	<b>Incentive per unit</b>	<b>Maximum</b>
Dual-Flush or Pressure-Assisted one gallon Toilets	\$100	\$300
High-Efficiency Clothes Washer	\$400	\$400
Weather-Based Irrigation Controller	\$200	\$200
California-Friendly Landscaping (2,000 sq.ft. max.)	\$0.80 per sq ft	\$1,600
<b>Total</b>		<b>\$2,500</b>

A permanent program could be devised as a tool to influence and promote indoor and outdoor retrofits to save water if pilot program results prove beneficial.

**New Development Program**

Metropolitan recently adopted incentives for new development to install highly efficient fixtures that exceed current water use efficiency standards. Incentives are based on incremental water savings in excess of building codes and standards. Incentives include:

<b>New Development Device</b>	<b>Incentive Amount</b>
New construction high-efficiency clothes washer	\$35
New construction dual-flush toilets	\$20
New construction weather-based irrigation controllers	\$65

Other opportunities to promote installation of water-efficient devices in new development will be explored with manufacturers, building industry and stakeholders.

**Relationship of Residential Indoor Program to BMPs**

The Residential Indoor Program addresses the following BMPs:

- BMP 1 Residential Water Surveys: Water survey program for single-family residential and multi-family residential customers, including both indoor and outdoor components.
- BMP 2 Residential Plumbing Retrofit: Residential plumbing retrofit, including low-flow showerheads (rated 2.5 gpm or less), toilet displacement devices (as needed), toilet flappers (as needed) and faucet aerators (rated 2.2 gpm or less).
- BMP 6 High-Efficiency Washing Machines: High-efficiency clothes washer rebate program for units meeting water factor 9.5 or less.
- BMP 14 Residential ULFT Replacement: Residential ultra-low flush toilet (1.6 gallons or less) replacement programs in single-family and multi-family residences.

**Summary**

Metropolitan will reach or exceed its residential indoor water savings target of 135,000 acre-feet in 2025 by continuing to support indoor residential conservation through toilet retrofits, surveys, and clothes washers. Through its residential indoor program, Metropolitan supports its member agencies in complying with BMP 1, BMP 2, BMP 6, and BMP 14. Metropolitan's proposed program enhancements would also support new and emerging technologies, including dual-flush toilets, one gallon per flush toilets, and high-efficiency clothes washers. Metropolitan's pilot model home program and new development program represent significant opportunities for additional residential savings. Voluntary advances by the building industry, manufacturers and homeowners complemented by strategic legislative efforts are pathways to encourage higher-efficiency devices in the residential indoor and outdoor sectors.

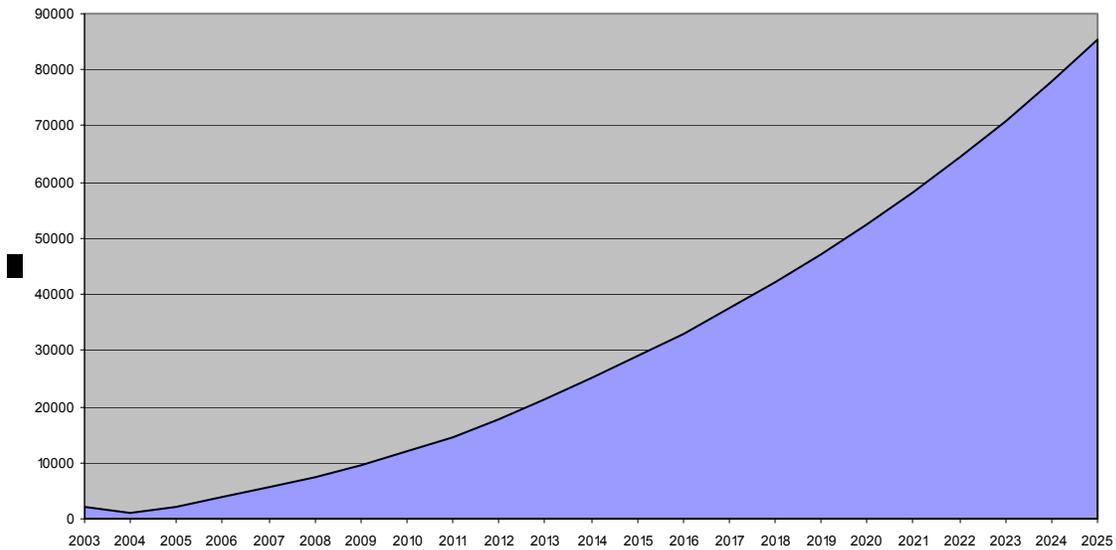
**LANDSCAPE**

**Water Savings Target**

The Landscape program target for water savings is about 85,000 acre-feet by 2025.

The graph below shows the projected water savings forecast.

**Landscape Water Savings Target**



The table below shows the projected water savings forecast by program component.

<b>Program Components</b>	<b>Units to Date</b>	<b>Projected Units by 2025</b>	<b>Annual Water Savings in 2025</b>
Water Use Accountability	0	130,304**	52,121
Measured Water Savings	0	5,280***	4,224
Commercial WBICs	0	29,500	23,580
Residential WBICs	138	136,138	5,638
Landscape Surveys (discontinued)*	0	0	0
Irrigation Evaluation w/o Timer*	0	0	0
Irrigation Evaluation w/Timer*	0	0	0
<b>Total</b>			<b>85,563</b>

\* This historical (pre-2005) program component relied on changing end-user behavior without feedback to motivate on-going conservation. Resultant savings had limited persistence and are considered expired by 2005.

\*\* Acres under management

\*\*\* Acre-feet saved.

**Landscape Program Overview**

Metropolitan has funded residential and large landscape audits since 1993, retrofit of landscapes with centralized irrigation controllers since 1998, and rebates for weather-based irrigation controllers (WBIC) since 2002. The Board authorized upgrades to the large landscape program in September 2004.

Metropolitan currently funds residential landscape efficiency through outdoor audits and weather-based irrigation controller rebates. Metropolitan also funds commercial and institutional (CI) landscapes through four conservation program components:

1. Water Use Accountability
2. Measured Water Savings
3. Commercial and Institutional WBIC rebates
4. Professional Protector del Agua landscape irrigation training

These programs complement Metropolitan’s long-standing recycled water irrigation program.

**Residential outdoor audit program**

Metropolitan funds residential outdoor audits conducted by the member agencies with the following incentives:

Device	Incentive Amount
Irrigation evaluation without Timer	\$8
Irrigation evaluation with Timer	\$18

Audits provide customers with recommended irrigation schedules and suggested improvements for irrigation systems. This program will also be used to promote the installation of WBICs and California Friendly landscapes.

**Residential Weather-Based Irrigation Controller Rebate**

Metropolitan funds weather-based irrigation controllers with the following incentives:

Device	Incentive Amount
Residential WBIC (less than one acre)	\$65 plus \$5.50 per station over 12 stations
Residential WBIC (one acre or larger)	\$500 per acre

Metropolitan provides incentives for single-family residences to install WBICs. For residential sites less than one acre, Metropolitan provides \$65 plus \$5.50 per station over 12 stations. For residential sites one acre or larger, Metropolitan provides \$500 per acre of irrigated landscape.

**WBIC Grant Program**

Metropolitan also received a \$1.8 million state grant to provide significantly higher incentives for weather-based irrigation controllers on a test basis to assess water use savings.

<b>Irrigation Controller Stations</b>	<b>State Grant</b>	<b>Additional MWD</b>
Up to 12	\$160-235	\$65
13 - 24	\$550-1,150	\$5.50 per station
25 or greater	\$1,100-1,700	\$5.50 per station

**CI Landscape Program**

<b>Program Components</b>	<b>Required Training</b>	<b>Incentive Amount</b>	<b>Maximum Amount Payable</b>
Water Use Accountability	MWD provided	\$2.50/acre/month	5 years/site up to ½ program cost
	Agency provided	\$3.50/acre/month	5 years/site up to ½ program cost
Measured Water Savings	MWD provided	\$115/acre-foot	5 years up to ½ project cost
	Agency provided	\$154/acre-foot	5 years up to ½ project cost
Commercial WBICs	N/A	\$500/acre	Up to ½ project cost

The new CI Landscape program provides agencies with the flexibility to choose from three components that best fit specific landscape sites.

1. Water Use Accountability: Metropolitan provides incentives to improve landscape water management practices via educational training and timely water use reports. Agencies provide landscape owners, managers, and maintenance personnel with reports comparing water use to actual site water budgets. Water use update reports are generated each billing cycle to measure and guide irrigation adjustments toward optimal water use. Participants are provided landscape water management training either by Metropolitan or the agency. A dedicated landscape meter is not necessary to participate in this program component.

Metropolitan provides incentives to reimburse agencies for up to 50 percent of their program costs. Incentives are \$2.50 or \$3.50 per acre per month of irrigated landscape under management, the rate depending upon whether Metropolitan or the agency provides the training.

2. Measured Water Savings: Metropolitan provides incentives to upgrade landscape irrigation equipment based on verified water savings. In addition, landscape water management training is provided to participants. A dedicated landscape meter is required for this pay-for-performance component.

Incentives are \$154 or \$115 per acre-foot of verified savings, rate depending upon whether the agency or Metropolitan provides the training. Incentives are paid for up to five years or one-half the project cost.

3. Commercial and Institutional WBIC Rebate: Metropolitan provides an incentive of \$500 per acre of irrigated landscape for WBICs. Incentives shall not exceed 50 percent of project upgrade costs. A dedicated landscape meter is not required to participate in this program component. As described in the prior residential text, additional grant-funded incentives are also available for a limited time.

These three options have recently been initiated and administrative improvements would be made as experience is gained.

### **Professional Protector Del Agua**

Metropolitan provides classes on a variety of subjects related to efficient landscape water management. Agencies can provide equivalent training via their own staff or program vendor to meet program requirements. An agency must decide whether to use Metropolitan training or provide training equivalent to Professional Protector Del Agua at the outset of their program.

### **Rate Structure**

BMP 11 requires the implementation of conservation pricing for retail water agencies. Conservation pricing includes rates designed to recover the cost of providing service and/or rates based on metered water use. The concept is that high-volume water users create disproportionate requirements for capital improvements and operating costs and should pay corresponding rates for those higher utility expenditures. Conservation pricing could have the following characteristics: fixed rate regardless of the quantity used (uniform rates); increased rate as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; or rates based upon the long run marginal cost or cost of adding the next capacity unit to the system. Few agencies have non-compliant declining block rate structures, while many agencies are adopting increasing block rates. In a survey of retail water purveyors within Metropolitan's service area, all retail water purveyors use either an inclining block rate structure or a uniform rate structure, which meets the requirement of BMP 11 for conservation pricing.

The California Urban Water Conservation Council's 1994 report titled, "Setting Urban Water Rates for Efficiency and Conservation," provides information on innovative ways to price urban water service.

Further exploration into the benefits of conservation rate structures at the retail level and appropriate regional support should be conducted through a Metropolitan/member agency collaboration.

### **Relationship of Landscape Program to BMPs**

The Landscape Program addresses the following BMPs:

- BMP 1            Residential Water Surveys: Water survey program for single-family residential and multi-family residential customers, including both indoor and outdoor components.
- BMP 5:            Large Landscape Conservation Programs and Incentives: Creation of landscape water budgets, periodic reporting of actual water use versus water budget, incentives to upgrade irrigation systems, and landscape conservation education.
- BMP 11:          Conservation Pricing for Metered Accounts: Establish customer water charges based on use and schedule for implementation.
- BMP 15:          (Proposed) Residential Outdoor: Residential outdoor programs, including outdoor surveys, water budgets, and other water conserving activities.

### **Summary**

Metropolitan's upgraded landscape program provides agencies and end-users with options to best meet their preferences and needs. Each option provides incentives and features derived from pilot program study results implemented by member agencies. Because these programs and products are new, they will be evaluated for adequacy and improvements.

Metropolitan estimates that by 2025, 85,000 acre-feet will be conserved through its existing and upgraded landscape programs. Additional water savings will be achieved through our regional advertising campaign and recycled water use.

**COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL**

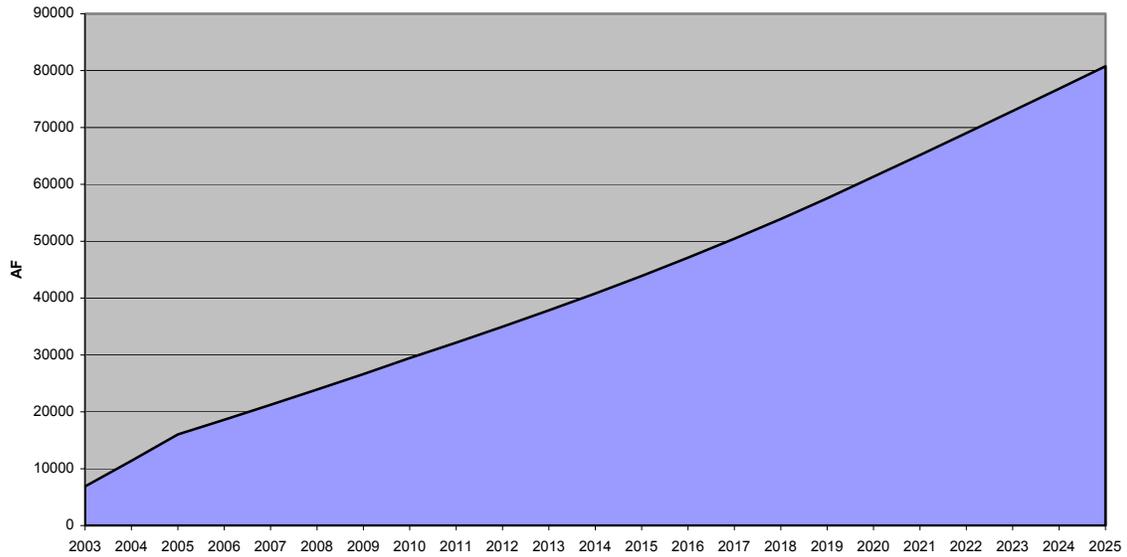
**Water Savings Target**

The Commercial, Industrial and Institutional Program target for water savings is about 80,000 acre-feet by 2025. Almost 80 percent of 2025 water savings are expected to come from CII high-efficiency clothes washers, cooling tower controllers, ULFTs and pre-rinse spray valves.

The following table shows the estimated water savings:

<b>Device</b>	<b>Units To-Date</b>	<b>Projected Units by 2025</b>	<b>Annual Water Savings in 2025</b>
High-Efficiency Clothes Washers	13,073	189,073	21,933
Cooling Tower Controllers	562	6,012	13,467
Ultra-Low Flush Toilet	39,903	802,138	21,658
Pre-Rinse Valves	10,603	40,603	9,095
Surveys (discontinued)	650	650	N/A
Water Brooms	689	17,189	2,630
Urinals	1,784	69,987	3,849
X-ray Processing	101	451	1,443
Dual Flush	218	63,738	2,167
Industrial Process	1	45	4,500
Flush Valve Kit (no longer doing)	601	851	21
<b>Total</b>			<b>80,763</b>

**Commercial Water Savings Target**



**CII Program**

The CII program includes three major customer sectors – commercial, industrial and institutional. Items rebated through the CII Program are:

<b>Retrofit Device</b>	<b>Incentive Amount</b>
ULFT (Gravity & Flush Valve)	\$60
Dual-flush toilet	\$80
Upgrade from ULFT to Dual-flush	\$20
Urinals	\$60
Pre-Rinse Spray Valve	\$50
High-Efficiency Clothes Washer	\$100
Waterbroom	\$100
Cooling Tower Controller	\$500
X-Ray Film Processor Recirculating System	\$2,000

Metropolitan has funded CII retrofits since 1997. Prior to 1997, Metropolitan conducted approximately 1,000 CII water-use surveys. These surveys provided valuable information to establish the CII program. The current CII program was authorized in 1997 and includes two components:

1. Menu Component: fixed rebates for common fixture retrofits or installations
2. Process Component: customized financial incentives for water-use process improvements on a pay-for-performance basis typically applied to manufacturing.

In 1999, Metropolitan partnered with member agencies on a regional pilot device-retrofit program for business. Metropolitan issued an RFP for region-wide vendor services to market, manage and pay rebates. This pilot was very successful compared to previous programs managed by individual member agencies. Based on the success of this model, a vendor-administered regional program began in 2004. The vendor works for Metropolitan and businesses are provided convenient one-stop shopping incentive services.

Member agencies that wish to manage their own commercial program remain eligible to receive device incentives under the CII Program.

New rebates for devices may be added as data is substantiated through the Innovative Conservation Program (ICP) or other sources.

- a. **Zero Water Consumption Urinals:** Currently, Metropolitan provides \$60 per unit for installation of one gpf and waterless urinals. Analysis of water savings from zero consumption urinals should be conducted to determine if rebate levels are appropriate. Acceptance of the technology at local levels may be accelerated through legislation or regulation.
- b. **Tiered Cooling Tower Controller Rebate:** Currently, Metropolitan offers \$500 per unit for installation of cooling tower controllers regardless of size and/or type of controller. Incremental water savings based on tower size and controller type should be assessed.
- c. **ULFTs:** Currently, Metropolitan offers \$60 per unit for ULFTs installed in the CII sector. This amount will be reevaluated specific to CII applications. As the residential program develops new rebate levels for higher efficiency toilets, those higher rebates may be incorporated into the CII program.

**Industrial Process Improvement Program**

Metropolitan’s Industrial Process Improvement program provides incentives to industrial customers to improve the water efficiency of their processes.

<b>Improvement Device</b>	<b>Current 2004 Incentive Amount</b>
Industrial Process Improvements	\$154 per acre-foot of water saved or ½ the cost of the project, whichever is less

Metropolitan has offered incentives to industrial customers since 1997. There was low participation because of program complexity and difficulty in sector marketing. Based on focus

group input, Metropolitan's Board authorized improvements to the IPI program in 2004 that include:

- a. Partial payment up front
- b. Streamlined application process
- c. Outside vendor services for technical advice
- d. No project minimum size limits

These improvements are designed to encourage water efficiency improvements by individual operators within their facilities. Additionally, Metropolitan has initiated partnering opportunities with local sanitation districts to help market the program. USBR will provide funding to explore using a vendor to regionally administer the IPI program.

### **Relationship of CII Program to BMPs**

The CII Program addresses the following BMPs:

BMP 9 The CII Program addresses Sections b and d of BMP 9. Section b outlines the "Three-Year Interim ULFT Program", which accelerates the replacement of existing high-water-using toilets with ultra-low-flush (1.6 gallon or less) models. Section d addresses "Conservation Performance Targets". CII programs will achieve annual water use savings equal to 10 percent of baseline CII use over a 10-year period.

### **Summary**

The CII Program is functioning with a strong response. The IPI is a new approach that is expected to increase customer response. The overall commercial effort is on track for achieving the IRP-related target of 80,000 acre-feet per year savings.

The four major sources of commercial water-savings will be HECWs, cooling tower controllers, ULFTs and pre-rinse spray valves. Pre-rinse spray valve installations increased significantly with grant funding from the California Public Utilities Commission to install approximately 30,000 devices that save energy and water. HECWs and ULFTs are being installed in high volumes.

The industrial component has been recently modified to increase activity with results still outstanding. Co-funding, co-marketing, and internal/external technical assistance will be pursued in the next fiscal year to increase industrial water conservation activity and water savings.

Legislation and new plumbing code standards could also contribute to water savings. As local and state agencies adopt standards to make it easier to install new technologies, market penetration of these products such as water free urinals, dual flush toilets and waterbrooms will increase. Legislation prescribing water efficiency standards for pre-rinse spray valves and other technologies should be considered.

## **OUTDOOR CONSERVATION OUTREACH EFFORT**

In November 2002, the Board authorized a \$2.3 million campaign to educate consumers on the need to conserve water including advertising, education, and public/community outreach elements to foster a new landscape ethic referred to as “heritage gardening.” Metropolitan partnered with several different agencies to develop parallel programs. In October 2004, the Board allocated an additional \$3.2 million to extend the advertising campaign and create a public action campaign to educate consumers on efficient landscape design and irrigation. The following is a description of each program element:

### **Advertising Campaign**

The region-wide advertising campaign was based on research that homeowners typically irrigate their landscapes at twice the amount of water needed to remain healthy. The challenge was to raise awareness of residential over-watering and promote new tools – the watering index and calculator available online – that would be helpful to homeowners to determine how much water to use.

The campaign ran for three separate periods from August to October 2003, December to February 2004, August to November 2004 and is scheduled to run year-round beginning in March 2005. Radio, online and outdoor advertising in multiple languages used clever and whimsical approaches to educate residents about smarter water use, driving listeners and viewers to the [bewaterwise.com](http://bewaterwise.com) Web site for more information.

### **Bewaterwise.com**

This Web site helps homeowners create and maintain a California Friendly landscape by providing a variety of tools and information such as the watering index and calculator, and database of 1,500 native and California Friendly plants. [Bewaterwise.com](http://bewaterwise.com) has hosted as many as 3,000 visitors a day during high volume periods, and receives an average of 1,000 visitors a day.

### **City Makeover Program**

Established in 2002, this competitive grant program provides funding to cities and public agencies for new native and California Friendly landscapes in prominent public locations. More than 40 agencies and cities applied in the first year. Eleven projects were selected for funding, with five winners receiving \$75,000 each and six receiving \$20,000 each. Deadline for applying for the current cycle of funding is March 30, 2005.

### **Community Outreach**

Metropolitan continued to build broad-based community support with the engagement of key stakeholders and opinion leaders through twice-yearly Heritage Landscape Forums. Attendees included Monrovia Nurseries, Village Nurseries, Valley Crest Companies, more than 25 cities including Los Angeles and San Diego, and representatives from the building industry, green industry and local public agencies.

**Retailer Outreach**

Metropolitan collaborated with retailers to encourage the inclusion of native and California Friendly plants in their product mix, and to join the advertising campaign by providing outdoor water conservation education through material distribution and classes. Twenty retailers committed to carrying native and California Friendly plants and displaying the campaign's banner and plant tags. Outreach efforts to retailers will enlist more partners.

**Additional Education Tools**

A number of educational tools have been developed to support the outreach campaign. They include a heritage gardening guide CD-ROM that contains a database of native and California Friendly plants with information on their care and maintenance. More than 100,000 CD-ROMS have been distributed.

An Expert Hotline was launched to provide the public with one-on-one technical information on native plant care and maintenance. Funded by Metropolitan, native plant experts from Rancho Santa Ana Botanic Garden will answer questions and provide resources for homeowners, landscape architects and maintenance professionals and others, as well as develop educational materials for [bewaterwise.com](http://bewaterwise.com).

A special edition of Metropolitan's public access program "Straight from the Tap" featured native and California Friendly plants. The program generated interest and call-ins for additional information. A "How To" segment is now being produced to track the conversion of a typical Southern California residential landscape to a water-efficient landscape.

## **LIFE CYCLE OF A PROGRAM**

Metropolitan offers a large variety of programs that are in various stages of implementation. The following summary is an explanation of these stages and examples of programs in each stage:

### **Identify conservation goals**

Metropolitan identified its goals for cost-effective conservation consistent with established BMPs through a collaborative process. Programs are designed to meet the water savings goals outlined in the IRP Update.

### **Identify and evaluate conservation incentives and program options**

Metropolitan identifies potential regional programs through several avenues including its Innovative Conservation Program (ICP), local pilot programs, and technical investigations using grants or in cooperation with other agencies, such as California Urban Water Conservation Council.

The ICP encourages the investigation and development of creative and new ways to conserve water. The first ICP grant cycle was completed in 2002. Two devices identified for retrofit incentives under the first ICP include the recirculating X-ray film developer used in hospitals and a pressurized water broom. Both have been incorporated into the Regional CII Rebate Program. Current ICP projects include a water-efficient landscape incentive program, synthetic turf demonstration project, a commercial food-steamers water savings study, and residential point-of-use hot water devices.

One example of a local pilot is the Municipal Water District of Orange County's Pilot Landscape Performance Certification Program, which became a component of Metropolitan's recently adopted large landscape incentive program upgrades.

Through grants, Metropolitan is studying a number of programs, including the installation of weather-based irrigation controllers, installation of synthetic turf in municipal and public lands, and industrial recirculation processes. The California Urban Water Conservation Council and Metropolitan, as one of six partnering agencies, recently completed a study of how toilet flapper longevity affects long-term water savings of toilet retrofits. In studies of statewide or national significance, Metropolitan favors working through CUWCC and key agencies in other parts of California to obtain broad consensus on findings.

### **Regional pilot**

Before being formally adopted as a permanent conservation credits program, a regional pilot program would be offered uniformly to all member agencies unless grant-funding constrains scope to determine feasibility and cost-effectiveness. An example would be the CII rebate program, which evolved from a regional pilot. For devices tested through the ICP or a local pilot project, the device found to be worthwhile may be added to an existing program upon board approval in lieu of a regional pilot stage. An example would be the inclusion of waterbrooms to the CII program.

**Program Implementation**

The next stage occurs when a program is approved by the Board and included in the conservation credits program. The CII program is just entering this stage with the new long-term regional program. The ULFT program has been in this phase for several years and is completing this phase. The low-flow showerhead has gone through the entire cycle and is essentially complete. During program implementation, administrative adjustments are made as experience is gained.

**Mature Program**

In this stage, a program may encounter saturation, changes in technology or other factors that affect the program. The ULFT program has been in the implementation stage for years and has moved into the mature program stage. Some areas are reaching saturation and new technologies like dual-flush toilets and one-gallon per flush toilets have entered the marketplace as the next opportunity.

**Ramp down and closeout**

When a program successfully accomplished its goal to the point of diminishing economic return on investment, it is ready for ramp down and closeout. For Metropolitan, this phase may be further into the future than for individual member agencies since Metropolitan continues to provide program support until the region reaches saturation. Individual agencies may have different levels of progress. With ULFTs, some individual agencies may have reached this phase while others have not. Metropolitan will work with its member agencies to develop a appropriate plan for ramp down and closeout of each program. Funding for closed out programs can be redirected to new programs as they enter formative stages.

**CONCLUSIONS AND FIVE-YEAR STRATEGIC ACTION PLAN (2005–2009)**

The 2004 IRP Update sets new water supply targets for Southern California through 2025, including a target of 1.1 million acre-feet for conservation. This report documents Metropolitan’s strategy approach to meeting the conservation target of 300,000 acre-feet from water savings linked to active conservation incentive programs.

This report recommends continuation of Metropolitan’s active, incentive-based conservation, which is categorized into three complementary program areas: Residential Indoor, Landscape, and Commercial targets.

Over the next five years the region should manage conservation activities to achieve the following savings by the end of 2009:

<b>Current Active Conservation</b>		
	<b>2005</b>	<b>2009</b>
Residential Indoor	97,926	108,760
Commercial	16,041	26,645
Landscape	2,261	9,620
<b>Total</b>	<b>116,228</b>	<b>145,025</b>

As a result of recommendations discussed with member agencies, the following specific actions should be pursued in the upcoming five-year period to support achieving year 2009 water savings targets:

1. Residential Indoor Program
  - a. Consider toilet flapper replacement program and modify water savings estimates if not implemented
  - b. Establish incentive for dual-flush and one gallon per flush toilets
  - c. Evaluate ULFT program evolution and define new ULFT standards
  - d. Phase out residential indoor surveys
  - e. Obtain federal support of California HECW standards
  - f. Pursue State Proposition 50 grant for HECWs
  - g. Complete and evaluate model home pilot program

2. Landscape Program

- a. Encourage voluntary irrigation and landscaping practices through public outreach
- b. Participate in statewide task force reviewing state model landscape ordinance and related actions
- c. Complete grant program and reassess benefits of WBICs
- d. Review conservation based rate structure benefits
- e. Revise PDA to reach greater audiences
- f. Implement, assess and refine new commercial/institutional programs for large landscapes
- g. Create residential outdoor audit program linked to WBICs and PDA
- h. Evaluate synthetic turf options

3. Commercial Program

- a. Establish incentive for zero-water consumption and ultra-low flush urinals
- b. Establish tiered incentive for cooling tower controllers
- c. Support legislation and new plumbing code standards for water-efficient devices
- d. Pursue co-funding, co-marketing and internal/external technical assistance
- e. Evaluate IPI program marketing
- f. Implement, assess and refine CII program

4. New technologies, approaches, public outreach and incentive review

- a. Outreach to building industry for voluntary actions
- b. Influence public to adopt improved landscape efficiencies
- c. Explore new retrofit incentives based on Innovative Conservation Program, pilots and other inputs
- d. Seek favorable legislation on water-efficient standards
- e. Conduct pilot programs to assess new approaches and emerging technologies with assistance of outside grants

- f. Use California Urban Water Conservation Council resources to conduct technical evaluations of statewide and nationwide application
  - g. Review incentive cap of \$154/acre-feet up to one-half project cost policy and alternative methods of motivating water-efficient practices and installations by the public
5. Establish equitable expectations and commitments
- a. Ensure new BMPs and CALFED expectations are fair and uniformly applied
  - b. Create partnerships with other beneficiaries (e.g., sanitation agencies, solid waste organizations)
  - c. Support use of water meters for all urban retail deliveries and billing

Strategies for reaching the targets presented in this paper will be continually evaluated and adjusted with a revised five-year outlook prepared periodically.