



● **Board of Directors**  
***Water Planning and Stewardship Committee***

December 8, 2009 Board Meeting

---

9-2

**Subject**

---

Report on development of a Long-Term Conservation Program as part of Integrated Resources Plan Update

**Description**

---

California continues to face statewide water supply reliability challenges. Recent hydrologic and regulatory events have combined to threaten the reliability that Metropolitan and its member agencies have developed through the Integrated Water Resource Planning (IRP) efforts. Metropolitan continues to work throughout the state to develop solutions both in the short- and long-term.

An important component of this work is the update of the IRP. Conservation has been a cornerstone of Metropolitan's resource portfolio for many years, and today takes on an even more vital role in defining how the region's water agencies will ensure future water supply reliability.

During the development of the 1996 IRP, Metropolitan and its member agencies made a regional commitment to comply with the newly created Memorandum of Understanding Regarding Urban Water Conservation Best Management Practices (BMPs). The BMPs covered a wide range of areas for conservation development and water use efficiency, and formed the basis for the programmatic actions that shaped Metropolitan's Conservation Credits Program and other conservation efforts. Regional commitment to the BMPs was important not only for the water savings achieved, but also because the BMPs were a visible benchmark against which Metropolitan's progress in water stewardship could be measured.

A similar scenario exists today as Metropolitan considers the role of conservation and water use efficiency in the IRP Update. As a result of the current water supply issues, Governor Schwarzenegger declared a statewide water emergency and called on water agencies to cut urban per capita water use 20 percent by 2020. Commonly known and referred to as "20 by 2020," this declaration initiated a number of legislative initiatives that culminated in a bill that was approved by the state Legislature in November 2009. The 20 by 2020 law sets an aggressive water efficiency goal against which projects in Metropolitan's service area can be measured.

This letter is intended to accomplish two objectives. The first objective is to describe the considerations that the Board could take into account in setting a regional water use efficiency goal around the recent 20 by 2020 legislation. The second objective is to describe the process that staff is undertaking with its member and local agencies for developing the possible components of a Long-Term Conservation Program.

**Revising the IRP Conservation and Water Use Efficiency Goal Based on 20 by 2020**

Since the early 1990s, Metropolitan and its member agencies have earned national recognition as leaders in water conservation. The commitment to conservation is the foundation for the 1996 IRP, which considered conservation as a core water supply and established initial targets for regional conservation savings. Based on the significant progress made in indoor conservation, the savings target was subsequently increased in the 2004 IRP Update.

The 2004 IRP Update set a goal of 1.1 MAF of water savings by 2025. This targeted water savings is equivalent to the total combined demands of the cities of Los Angeles, San Diego, and San Francisco. Between 1990 and 2008, Metropolitan invested more than \$233 million in conservation incentives and has actively supported the establishment of and compliance with plumbing codes, conservation ordinances, and tiered water rates. Based on

these investments and water use efficiency requirements, Metropolitan and its member agencies have currently gained over 800 TAF of water savings, and are on track to surpass the 2004 IRP goal for 2025.

The passage of SB 7 in November 2009 set into law a call for a 20 percent reduction in per capita water use, which would translate into conservation and water use efficiency at greater levels than the 2004 IRP Update goal. Compliance with the 20 by 2020 legislation recognizes the value of past investments that have already achieved significant water savings and also provides for an opportunity to gain greater water use efficiencies through aggressive conservation and water recycling over the next ten years.

The 20 by 2020 law specifies compliance at the retail water use level. There are four compliance options in the 20 by 2020 legislation for member and local agencies to consider at the retail level. Two of the compliance options are not clearly defined at this point and will be further developed by the Department of Water Resources. The other two options, if chosen by the retail agencies, would result in total regional reductions in Metropolitan's service area of less than 20 percent. Staff performed a high level assessment at the member agency level to estimate the water savings that would be achieved by member agencies reducing their percapita water use to the minimum compliance levels under the law. While some agencies would have to reduce their percapita water use by 20 percent in order to comply with the law, others already have estimated percapita water use in the range of 149 gallons per capita per day, which is the regional standard percapita use specified by the law for the South Coast Hydrologic Region. These agencies would only be required to reduce their use by 5 percent. By summing up the agency-by-agency savings, staff estimates that regional water use reductions based on member agency compliance would equate to approximately 200,000 acre-feet in 2020.

Based on preliminary analysis, the IRP water use efficiency targets for 2025 could be increased by an additional 200,000 to 575,000 acre-feet. The lower estimate of 200,000 acre-feet reflects the assessment of member agency retail level compliance with the 20 by 2020 law. The upper estimate of 575,000 acre-feet reflects a regional approach of reducing a ten-year average of historical percapita water usage by 20 percent. Conservation options developed and implemented with a Long-Term Conservation Program can work in combination with recycled water development identified as part of the IRP Update to meet the greater water use efficiency levels described by the 20 by 2020 legislation. The upcoming IRP Update will incorporate the estimate of 200,000 acre-feet of additional water savings achieved by member agency compliance with the 20 by 2020 legislation. In addition, the options for the region to pursue an even higher water use efficiency goal will also be evaluated and brought forward for board consideration in revising the IRP target.

Ultimately, the IRP and the Long-Term Conservation Program will set forth the guiding policies, investment opportunities, strategic priorities, and implementation framework for meeting revised IRP water use efficiency targets. Working with the Board and member agencies, staff anticipates finalizing recommendations for a regional 20 by 2020 water use efficiency goal for board consideration, providing a conservation policy action plan for board review and consideration in March 2010, and to fully integrate that plan into the IRP Update.

### **Development of the Long-Term Conservation Program**

Staff has been approaching the development of the Long-Term Conservation Program on two fronts. The first is through a collaborative process with the member agencies and service area stakeholders to identify and analyze the potential components of a long-term program. The second is through a market study to gather information on retail level water-efficient device saturation and to identify opportunities for further market penetration.

#### *Collaborative Process*

In order to identify the potential conservation components that could be combined to form the Long-Term Conservation Program, staff has been working with the member agencies and service area stakeholders through two related collaborative processes. The first process is the IRP Technical Workgroups. In this process, stakeholders explored different avenues for increasing conservation and efficient water use in the future. A key deliverable from the IRP Technical Workgroup was an issue paper that provided recommendations for increasing conservation, as well as a comprehensive review of implementation issues and challenges that could come with different areas of emphasis in conservation. The Conservation Issue Paper is attached for reference ([Attachment 1](#)). The second process is through a series of workshops with the member agencies and retail agencies. This latter process built upon the ideas developed in the IRP Technical Workgroups, and added

valuable input from the member and retail agencies on additional conservation components and implementation approaches.

#### *Market Research Study*

To assist in developing the Program, staff initiated a market research study to gather information at the retail water customer level in the residential sector. The study is being conducted with Brierly and Partners, who are in the business of conducting web-based surveys for market research purposes. Brierly and Partners have established an extensive database roster of survey participants that span Metropolitan's service area. Successful responses from the survey participants will provide substantial insight into saturation of water-efficient devices in residential homes throughout the service area. The information from the surveys will be used to develop effective strategies to identify retrofit opportunities with significant water-savings potential.

#### **Potential Long-Term Strategy Components**

Staff, in conjunction with the member agencies and local retailers through the processes described above, has identified components that could be combined and implemented to form the Long-Term Conservation Strategy and meet the conservation component of the 20 by 2020 goal. The components developed thus far and the alternative implementation methods for each component are outlined in [Attachment 2](#).

Staff will refine the conservation component list with the member agencies and analyze the various implementation options available for each component, including the roles of the local retailers, member agencies, and Metropolitan. The components will be combined to form a Long-Term Conservation Program which will include a policy and action plan for Metropolitan and the member and retail agencies.

#### **Next Steps**

In conjunction with the IRP Update process, staff and the member agencies will continue developing the Long-Term Conservation Program. In the coming months, staff will provide a recommendation for board consideration for setting a regional water use efficiency goal based on the 20 by 2020 framework. It is anticipated that staff will present the final Long-Term Conservation Program recommendations for the Board's consideration in March 2010.

#### **Policy**

---

By Minute Item 47165, dated July 10, 2007, the Board authorized refinements to Metropolitan's water use efficiency programs.

By Minute Item 46773, dated August 15, 2006, the Board authorized upgrades to the commercial and landscape water efficiency programs.

By Minute Item 46486, dated December 13, 2005, the Board set the incentive amount at \$195/ acre-foot of water conserved not to exceed 100 percent of product cost or one-half of a program cost.

By Minute Item 45841, dated July 13, 2004, the Board adopted the Integrated Water Resources Plan Update.

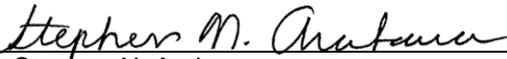
By Minute Item 45208, dated February 11, 2003, the Board adopted policy principles regarding water conservation activities

By Minute Item 37324, dated September 20, 1988, the Board adopted the Conservation Credits Program.

**Fiscal Impact**

---

None

  
\_\_\_\_\_  
Stephen N. Arakawa  
Manager, Water Resource Management

12/1/2009  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Jeffrey Kightlinger  
General Manager

12/1/2009  
\_\_\_\_\_  
Date

**Attachment 1 – IRP Technical Workgroup Conservation Issue Paper**

**Attachment 2 – Potential Water-Savings Actions and Alternative Implementation Methods**

BLA #6604  
Reference Number wrm12602407

# IRP Technical Workgroup Conservation Issue Paper – Draft 6, September 22, 2009

---

The purpose of this paper is to provide information on conservation activities, regulations, and potential to assist the member agencies Technical Oversight Committee and Board Steering Committee in their evaluation of resource packages in the 2009 Integrated Resources Plan (IRP) Update.

## **SUMMARY**

The Conservation workgroup pragmatically evaluated the current conservation program and organized program opportunities for implementation within the years 2014 and 2035. This is to minimize overlap of work done by the Program Advisory Committee which evaluates near-term program changes within the next five years. Overall, the workgroup recommends that the regional conservation program should move beyond the basic targets of the California Urban Water Conservation Council (CUWCC)'s Best Management Practices (BMPs) and begin focusing on programs that achieve extraordinary conservation in the coming years. Program recommendations have been grouped into the following three categories:

1. Recommendation for Metropolitan – modifications or additions that can be made to Metropolitan's current conservation program
2. Legislation – recommendations on legislation that the region should pursue or support
3. Education and Outreach – changes or additions that should be made to current regional and statewide programs

For each category, specific program recommendations or issues with implementation are discussed.

Specific challenges and strategies for implementation have been outlined. Several of the foreseen challenges focus on funding limitations and high cost of programs. Thus, a major recommendation from the workgroup is for the member agencies, Technical Oversight Committee, and Board Steering Committee to consider funding alternatives to the current incentives structure and limited grant funding.

## **BACKGROUND**

Since the early 1990's, Metropolitan and its member agencies (the region) have earned national recognition as leaders in water conservation. Commitment to conservation is reflected in the 1996 IRP, which considered conservation as a "core" water supply and established initial targets for regional conservation savings. The savings target was subsequently increased in the 2004 IRP Update. Table 1 shows the IRP conservation targets and estimated conservation savings.

1

**Table 1: Conservation Targets (Acre-Feet)<sup>1</sup>**

Category	FY 2003	2010	2020	2025
1996 IRP Target	571,000	738,000	882,000	N/A
2004 IRP Update Target	654,000	865,000	1,028,000	1,107,000
Conservation Savings (as of CY 2008) <sup>2</sup>	701,000	873,000	965,000	1,032,000

2

3 The region encourages water-use efficiency through research and development, financial incentives,  
4 programs to influence consumer behavior, education, new plumbing and compliance codes, support of  
5 legislation, and retail customer conservation through tiered pricing. Between 1990 and 2008,  
6 Metropolitan invested more than \$223 million in conservation incentives, saving an average of 120,000  
7 acre-feet annually.<sup>3</sup> In addition to Metropolitan's investments, member agencies and end users have  
8 also invested significant amounts through incentives matching, education, marketing, and independent  
9 local programs. Metropolitan has extended incentives to residential, commercial, and industrial sectors  
10 and public agencies to encourage the use of water-efficient technologies and business practices.  
11 Incentive-based programs are complemented by public outreach and education activities, many of them  
12 tied to the California Friendly marketing effort launched in 2006. In the first half of 2009, the public  
13 responded to a series of water use efficiency signals initiated by Metropolitan, local agencies, and the  
14 State that resulted in overwhelming interest and participation in Metropolitan's regional water  
15 conservation rebate programs.

16 Conservation programs offered by Metropolitan include:

- 17 • **SoCal Water \$mart** – one-stop shop for residential customers, landscape and building  
18 contractors to identify and apply for product rebates.
- 19 • **Water Savings Performance Program** – provides incentives for both landscape and water use  
20 efficiency and industrial process improvements up to 100 percent of the project cost.
- 21 • **Save-Water-Save-A-Buck Program** – provides rebates for water-saving plumbing fixtures,  
22 landscaping equipment, food-service equipment and targets multi-family dwellings for retrofits  
23 using high-efficiency washers and toilets, and rotating nozzles for pop-up spray heads
- 24 • **Innovative Conservation Program** – encourages research and development of new and creative  
25 ways to conserve water. Individuals and organizations can participate.

<sup>1</sup> These numbers use 1980 as the base year. Conservation targets are based on water savings from active devices and code-based measures. Estimates include savings from Metropolitan's active conservation programs, code-based (passive), system loss and unmetered, price-effect and pre-1990 conservation

<sup>2</sup> Conservation savings estimates were revised in September 2009 to account for changes in assumptions about new efficiency standards for clothes washing machines and irrigation controllers that were not implemented as expected.

<sup>3</sup> Metropolitan Water District of Southern California, *Annual Progress Report to the California State Legislature: Achievements in Conservation, Recycling and Groundwater Recharge, February 2009.*

- 1 • **Enhanced Conservation Program** – provides funding directly to Metropolitan’s member  
2 agencies to encourage new and creative approaches to implement urban water conservation.
- 3 • **Bewaterwise.com** – website portal that contains information on Metropolitan’s rebate  
4 programs and businesses and tips to save water.
- 5 • **California Friendly Landscape Irrigation Efficiency Training** – offers classroom and online  
6 training to professional landscapers and residents.
- 7 • **Community Partnering Program** – provides co-sponsorships to support water-related and  
8 community education projects, programs, and events.
- 9 **Support for Member Agency Programs** – several conservation programs are implemented by  
10 Metropolitan’s member agencies but receive technical and financial support from Metropolitan

11  
12 In addition to regional programs implemented by Metropolitan, the member agencies make substantial  
13 contribution to water conservation. Member and retail agencies may implement local water  
14 conservation programs within their respective service areas and receive Metropolitan incentives for  
15 qualified retrofits and other water saving actions. Typical projects include direct installation toilet  
16 projects, locally administered clothes washer programs, residential water audits, and work completed  
17 under state or federal grant programs. Many local agencies and member agencies use Metropolitan  
18 incentives as the basis for meeting cost-share requirements for state and federal grants.

19 The 2004 IRP Update set a goal of 1.1 MAF by 2025, if the BMPs were successfully implemented  
20 regionally. Towards that target, about 300,000 acre-feet would come from incentive-based  
21 conservation (also referred to as active conservation) with the remaining 800,000 acre-feet saved  
22 through the impacts of water rates and compliance with plumbing codes and other laws (also known as  
23 passive conservation). Even if all active conservation programs were to end after calendar year 2008,  
24 savings from active conservation programs completed to date provide a substantial contribution to  
25 overall water savings. See Figure 1 below.

26 Although the majority of projected conservation savings are expected to come from code-based  
27 conservation, active conservation programs play an important role in the subsequent adoption and  
28 success of code-based conservation measures. Devices that are supported through active conservation  
29 rebate programs can become code-based conservation if they are subsequently mandated in legislation  
30 or regulations. For example, high-efficiency showerheads had formerly been rebated by Metropolitan,  
31 with an assumption of a 3-year life. Due to changes in applicable plumbing codes, after 1992 the only  
32 replacement showerheads available became water-conserving. This is a case where Metropolitan had  
33 initiated water savings via incentives and now the plumbing code ensures and prolongs those savings  
34 from previously non-conserving fixtures.

35 Metropolitan recently adjusted its estimates for code-based savings by updating assumptions in its  
36 conservation model. Metropolitan staff had anticipated increased water use efficiency standards for  
37 high efficiency clothes washers (HECWs) and weather-based landscape irrigation controllers (WBICs) due  
38 to legislation and regulatory standards that were in place and modified the conservation model to  
39 incorporate these savings as passive conservation. However, as of 2009, the new standards for these  
40 devices have not been implemented. Without new codes under enforcement, it no longer makes sense

1 to assume those code-based savings in the model. Given the current administrative uncertainty  
 2 involving the water efficiency standards, a decision was made in September 2009 to delete the  
 3 code-based savings derived from these devices. This has resulted in a reduction in the expected  
 4 code-based conservation savings estimate for the region. As shown in Table 2 below, the combined  
 5 effect of the two adjustments has caused Metropolitan’s expected conservation savings to drop below  
 6 the 2004 IRP Update Targets for 2020 and 2025.

7

**Table 2: Adjustment of Conservation Savings (Acre-Feet)<sup>4</sup>**

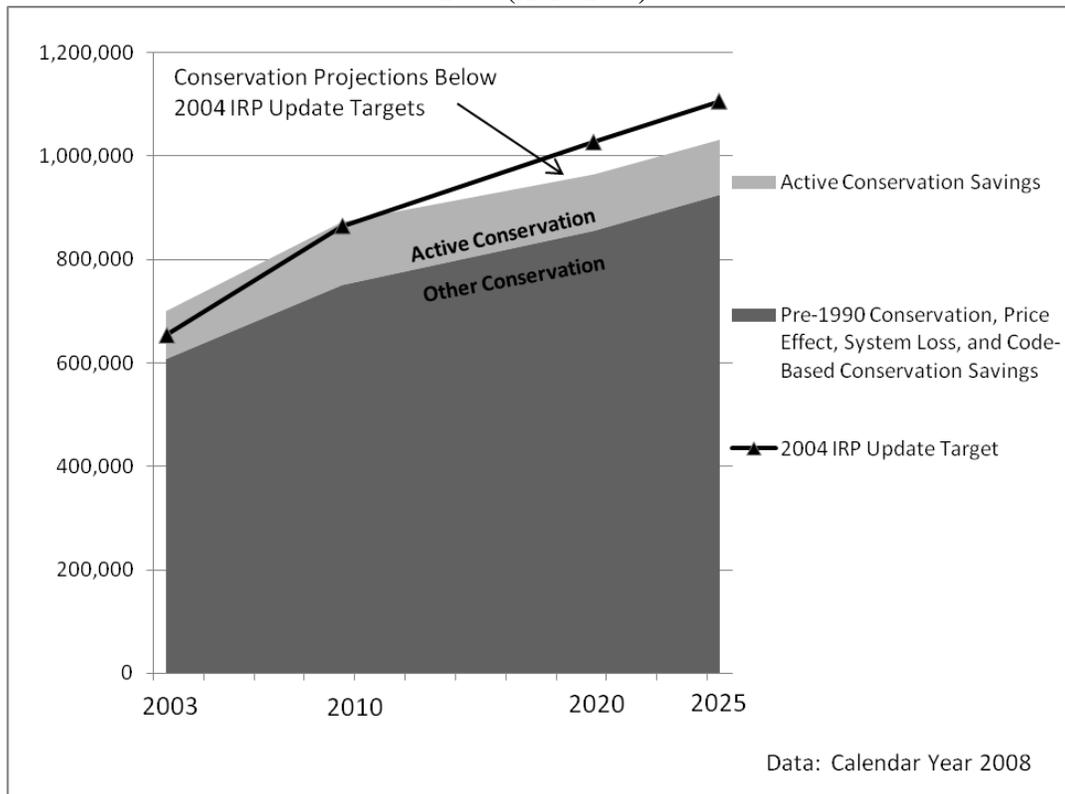
Conservation Savings	2010	2020	2025
Savings <i>with</i> HECW and WBIC Legislation	884,000	1,047,000	1,132,000
Savings <i>without</i> HECW and WBIC Legislation	873,000	965,000	1,032,000
2004 IRP Update Target	865,000	1,028,000	1,107,000

8

9

10

**Figure 1: Total Estimated Conservation without New Active Conservation after Calendar Year 2008 (Acre-Feet)**



11

<sup>4</sup> These numbers use 1980 as the base year. Conservation targets are based on water savings from active devices and code-based measures.

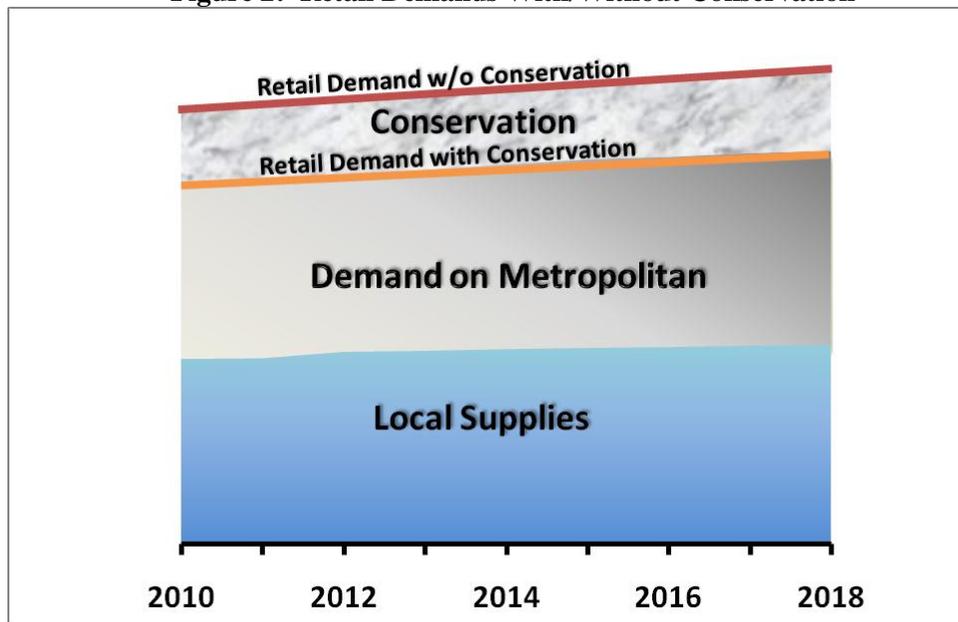
1 As shown above in Tables 1, Table 2, and Figure 1, the active and code-based programs currently in  
2 place are estimated to exceed the 2010 target but drop below the 2020 and 2025 targets set by the  
3 2004 IRP Update.

4 Figure 2 below is a conceptual illustration of how conservation savings help Metropolitan meet total  
5 retail demand by lessening total demands on the region. Given the IRP conservation targets,  
6 Metropolitan continues to support member agencies in developing cost-effective BMP-guided  
7 conservation programs and devising new programs.

8 It should be noted that the short-term effects of the recent economic downturn, including reduction in  
9 new housing and increase in foreclosures, do not affect Metropolitan's long-term projections of regional  
10 water conservation. The conservation model used by Metropolitan uses actual and projected  
11 population and housing data to calculate the amount of conservation that has been or will be achieved.  
12 The model does not provide an exact forecast of conservation at an exact point in the future; instead,  
13 the model provides an approximation of savings throughout the years the conservation programs have  
14 been and will be in existence. The actual quantity of savings may fluctuate as variables change, but the  
15 conservation model approximates the conservation savings in the long-run.

16

**Figure 2: Retail Demands With/Without Conservation**



17

18

19 The region is continually challenged with finding innovative and cost-effective ways to save more water.  
20 Obtaining additional active conservation savings is becoming increasingly difficult and expensive as  
21 "low-hanging fruit" opportunities in the region are exhausted, particularly as residential indoor water-  
22 saving devices approach market saturation in some areas. Future long-term savings potential will be  
23 increasingly derived from customized commercial, industrial, and landscape programs. However, it is  
24 important to acknowledge that the region is highly diverse and that different communities have

1 different levels of market saturation for indoor devices and program implementation. Areas with older  
2 housing stock may obtain more savings from indoor retrofits than areas with newer construction and  
3 more recent growth. New mandates such as the Governor's call for a 20 percent statewide water use  
4 reduction by 2020 ("20 by 2020"), various proposals from the California Department of Water Resources  
5 (DWR) and new legislation, which are detailed in this paper, pose new challenges for conservation and  
6 could result in new targets.

## 7 **RECOMMENDATIONS TO METROPOLITAN**

8 This section explains recommendations for Metropolitan's conservation program to encourage further  
9 conservation savings. The programs and devices considered in the section are for a long-term horizon  
10 through 2035.

### 11 **20 by 2020**

12 In 2008, Governor Schwarzenegger called for a statewide 20-percent reduction in urban water use by  
13 2020 as part of a comprehensive plan for the Bay Delta. This initiative, commonly called "20x2020", will  
14 be a major driver of future conservation programs as urban water suppliers implement programs to  
15 achieve required targets. The framework for achieving the 20-percent goal may be established through  
16 legislation or administrative action by DWR and may ultimately include both urban and agricultural  
17 water use. A comprehensive approach that encompasses multiple water use sectors will increase the  
18 long-term benefits of this initiative.

19 Urban water suppliers will be required to reduce water use on a per capita basis through enhanced  
20 conservation and increased water use efficiency. Solutions will include increased use of recycled water  
21 to offset potable demand. Although retail water suppliers may opt to comply on an individual basis, it  
22 will likely be more cost effective for agencies to collaborate on a regional basis, such as through  
23 Metropolitan's regional program.

24 As noted above, the Conservation workgroup recommends that the regional conservation program  
25 move beyond the basic BMP targets of the CUWCC MOU and focus on programs that achieve  
26 extraordinary conservation. Conservation limited to BMP implementation will not enable suppliers to  
27 achieve the 20x2020 targets. Metropolitan will need to work with the member agencies to establish  
28 2020 targets and milestones as required for compliance, with implementation through a comprehensive  
29 regional program designed to achieve these goals. The program will need to offer flexibility for the  
30 varying conditions across member agency service areas, such as demographics, land use and  
31 development, climate, commercial and industrial water use, as well as past investments in conservation  
32 and recycled water. It will also need to consider funding limitations discussed below.

### 33 **Future Program Structure**

34 In light of external factors that may affect future conservation opportunities, such as legislation, rates,  
35 and water supply uncertainties, Metropolitan should continue to reassess its existing conservation  
36 programs to present a focused and tactical approach to conservation that avoids free ridership, provides  
37 good customer service and continues to facilitate market transformation, while keeping program costs  
38 at reasonable levels. Metropolitan should continue to play an important role in regional education and  
39 public outreach, legislative advocacy and provide technical assistance within the scope of Metropolitan's

1 expertise. As of August 2009, Metropolitan’s Board of Directors is contemplating the role of  
2 Metropolitan in conservation. The Board has asked Metropolitan staff to explore different funding  
3 options, including the feasibility of a revolving fund loan program. Metropolitan works with its member  
4 agencies through the Program Refinement Project Advisory Committee (PAC) and the Member Agency  
5 Managers to help Metropolitan to transition and modify conservation programs to meet the needs of  
6 both Metropolitan and member agencies for regional benefits.

7 A major issue is to what extent conservation programs should be funded and administered on a regional  
8 or local basis. There were different viewpoints that were expressed, including the view that  
9 Metropolitan should rely on its member agencies to provide local conservation-based rate structures,  
10 AMI and other improvements to local infrastructure, and customer incentives. There were others that  
11 supported the benefits of a regional approach. Currently, conservation is primarily implemented at the  
12 regional scale, with Metropolitan, working with its member agencies, as the lead in designing and  
13 administering programs. Some member and retail agencies run their own local conservation programs  
14 independently of Metropolitan. Some of the reasons why the conservation program came to be a  
15 regional program are:

- 16 • **Cost Impacts** – direct local funding for conservation programs has direct impacts on local  
17 budgets and rate structures. Individual agencies within the region have different levels of  
18 resources and infrastructure available to implement and sustain conservation programs within  
19 their service areas. The regional program helps some agencies to fund conservation efforts  
20 through their imported supply purchases from Metropolitan.
- 21 • **Economies of Scale** – regional conservation programs have benefitted from economies of scale  
22 for region-wide administration and consistency of programming and educational messages. In  
23 addition, regional funding mechanisms have facilitated leveraging of conservation funding by  
24 investor-owned utilities that are regulated by the California Public Utilities Commission (CPUC).  
25 In its 2005 Water Action Plan, the CPUC established a policy objective for investor-owned water  
26 utilities to “strengthen water conservation programs to a level comparable to those of energy  
27 utilities”.<sup>5</sup> Retail public water utilities have aligned their incentive programs with Metropolitan’s  
28 regional programs for more effective consumer responses. Lastly, the regional program reduces  
29 the duplication of efforts across member agency service areas.

30 Whether conservation programs are administered on a regional or local scale, it is essential that the  
31 region continue to invest in conservation in order to meet California Water Code requirements,  
32 legislation such as 20x2020, and IRP resources targets, as well as to maintain eligibility for State funding  
33 opportunities through compliance of AB 1420 demand management measures (DMMs).

### 34 **Funding**

35 Throughout the existence of Metropolitan’s conservation program, Metropolitan and member agencies  
36 have provided incentives that are directly passed onto the consumer conserving the water. However,  
37 there are several areas where water agencies can make upgrades or repairs to their distribution systems

---

<sup>5</sup> California Public Utilities Commission. *Water Action Plan*. December 15, 2005. pp. 7-11.

1 that may increase water-use efficiency, but in ways that are not exactly quantifiable or that vary with  
2 water supply conditions.

3 Programs that contribute to water conservation but have not been incentivized under existing programs  
4 include meter upgrades, rate structures, new billing and data collection systems and distribution system  
5 repairs (details on these programs are provided below.) Thus, the workgroup recommends that  
6 Metropolitan consider funding alternatives or technical assistance in addition to the current incentives  
7 structure.

8 In addition, the workgroup recommends that Metropolitan continue to work with state and federal  
9 governments to secure and leverage funding opportunities for the region. Long-term planning has  
10 helped position Metropolitan to adapt to changing fiscal circumstances and new water management  
11 directives by the California Legislature. Voters have approved three statewide water bonds in recent  
12 years – Proposition 13 in 2000, Proposition 50 in 2002 and Proposition 84 in 2006. State support for  
13 local water projects has increasingly focused on providing matching funds for regions with detailed  
14 water management plans. Effective January 1, 2009, AB 1420 (2007, Laird) requires implementation of  
15 Demand Management Measures (DMMs) in order for urban water suppliers to be eligible for water  
16 management grants and loans. On the federal side, the American Recovery and Reinvestment Act of  
17 2009 has provided a one-time boost in federal funding available for water conservation investments.

18 Metropolitan should continue to work with state and federal agencies such as the U.S. Bureau of  
19 Reclamation and the U.S. Environmental Protection Agency to ensure that technical and financial cost-  
20 sharing assistance opportunities continue to be made available for agencies in Metropolitan’s service  
21 area. Metropolitan can assist member agencies to ensure compliance with state and federal criteria in  
22 order to seek as much funding for the region as possible.

### 23 *Water Accounting Program*

24 Recently, the California Urban Water Conservation Council (CUWCC) acknowledged the need for more  
25 accurate water system audits and added more stringent requirements that retailers and wholesalers  
26 must meet through Best Management Practice (BMP) 1.2: System Water Audits, Leak Detection and  
27 Repair<sup>6</sup>. For some agencies, the initial task of a system audit may be financially burdensome. For even  
28 more agencies, the repairs or upgrades recommended by the audits are outside of their financial  
29 capabilities.

30 Metropolitan can assist member agencies by providing technical and/or financial assistance for member  
31 agencies on the implementation of water audits.

### 32 *Water Budgeting*

33 Water budgets, especially when paired in conjunction with the real-time data collection capabilities of  
34 automated meter infrastructure (AMI) (discussed in next section), offer significant potential for demand  
35 side management. Most agencies in the Metropolitan service area have inclining block rate structures  
36 to discourage excessive water use. However, most agencies do not have water budgeting systems and

---

<sup>6</sup> BMP 1.2 (as of December 10, 2008) is formerly BMP 3 as amended September 30, 1997.

1 software to profile and analyze their customers' accounts for usage and trends. Water agencies without  
2 water budgeting systems may have difficulty tracking different funds and accounting for various  
3 customer circumstances in water use. This lack of data and analytical capacity leaves agencies less able  
4 to equitably or effectively implement measures such as peak seasonal demand rates, excessive use  
5 charges, and drought surcharges. High cost of the development and management of water budgeting  
6 software is a major impediment for agencies, as is limited staff and billing software restrictions and  
7 limitations.

8 Water budgets by individual household and by customer class, taking into account factors such as  
9 household size, landscape size, and historical use, would enable water agencies to implement water  
10 pricing schemes that can be calibrated more precisely and equitably than with simple tiered rates. In  
11 times of drought, water budgets identify inefficient water users and allow the agency to target those  
12 customers without having to unfairly increase rates or decrease allocations for all customers. Additional  
13 revenue created from "penalty" rates can be used to fund more conservation programs. However,  
14 assistance will likely be needed for many small retail water agencies (5,000 to 20,000 connections) that  
15 do not have the staffing levels the larger agencies are able to provide.

16 DWR and the CUWCC identified the "Hybrid Per Capita/Percentage" rationing allocation method as a  
17 preferred method for rationing residential water use in that it recognizes factors such as lot size, historic  
18 use and economics, and is flexible and provides customers with the greatest control over how they use  
19 their fixed allocation.<sup>7</sup> However, this method requires additional staff and sophisticated computer  
20 systems to operate.

21 Additionally, the CUWCC, through its BMP 5 large landscape program, asks agencies to develop water  
22 budgets for all dedicated landscape meters and the majority of the commercial mixed use meters within  
23 their service area. At this time, the CUWCC promotes using water budgets no more than 70% of annual  
24 average ETo (reference evapotranspiration). This is consistent with the State of California's updated  
25 Model Water Efficient Landscape Ordinance (AB 1881), which is discussed later in this paper.

26 Irrigated area measurements are foundational to providing irrigation performance reporting and  
27 implementing budget based tiered rate structures. As a readily available resource, DWR has infrared  
28 aerial imagery that is accessible to water agencies. This imagery can be overlaid with parcel boundary  
29 data to establish irrigated area measurements. Calculations can be automated to substantially reduce  
30 the costs of acquiring area measurements. DWR's imagery coupled with future imagery would allow  
31 Metropolitan and member agencies to quantify long term changes or trends in urban landscaping, such  
32 as decreases in the use of turf and increases in the use of California Friendly landscaping.

33 Metropolitan can partner with member agencies to assist local agencies with the development of water  
34 budgets and increasing demand management capacity. Metropolitan might provide technical assistance  
35 and consider funding mechanisms to member agencies that seek help with implementing water

---

<sup>7</sup> California Department of Water Resources Office of Water Use Efficiency and Transfers, *Urban Drought Guidebook: 2008 Updated Edition*, 2008. Prepared in cooperation with U.S. Bureau of Reclamation and California Urban Water Conservation Council

1 budgeting systems, including assistance with landscape area measurements. For example, Metropolitan  
2 could hold facilitated training workshops and gather standardized parcel information for the region.  
3 Metropolitan could also help build on other computerized water budgeting efforts, such as the San  
4 Diego County Water Authority's WaterSmart Target program.

### 5 *Water Rates and Pricing*

6 With imported water costs rising, most of Metropolitan's member agencies are increasing their rates.  
7 Many of the member agencies are using a variety of rate structures, which keep the agency revenue-  
8 neutral and at the same time promote and encourage water conservation. These rate structures range  
9 from water budget based rates to highly tiered water rates. It is likely that rates will play an important  
10 role in meeting the IRP goals in the future. While water rates are within the purview of each retail  
11 agency, assessment of the effectiveness of the rates and sharing information on rate structures will lead  
12 to the adoption of more water-conserving rates. Metropolitan could lead an investigation to analyze  
13 and evaluate different types of water pricing and rate structures being used by member agencies and  
14 make the findings and recommendations available to retail agencies.

### 15 *Automated Meter Infrastructure (AMI)*

16 An advanced utility billing system, Automated Meter Infrastructure (AMI) is a smart technology that  
17 provides online usage data on a real-time basis for both the utility and individual customers. Meter  
18 readers automatically transmit data to network towers based on a program schedule. Towers can be  
19 mounted on utility infrastructure, such as Supervisory Control And Data Acquisition (SCADA) antennas  
20 and water towers to maximize range. The data has significant water conservation potential. Typical  
21 water consumption savings associated with AMI range from 6-15%. Water savings are primarily  
22 achieved by identifying and repairing leaks, as well as customer behavior changes in response to water  
23 usage information. When operating in conjunction with water budgets, AMI can greatly increase the  
24 analytical capability of water agencies' demand management and assess the effects of conservation  
25 programs and water pricing on consumer behavior. This technology is evolving at a rapid rate. While  
26 initial costs may be high, meter retrofits pay for themselves over the long run through efficiencies in  
27 meter reading and billing. Eastern Municipal Water District recently estimated costs to retrofit its water  
28 meters to AMI at approximately \$220 per unit.

29 Metropolitan could encourage AMI by advocating for state grant funding to be made eligible for AMI  
30 projects and obtaining outside funding for member agency pilot programs. Metropolitan can also serve  
31 as a clearinghouse for sharing of updated information on AMI as member agencies move toward this  
32 technology.

### 33 *Region-wide Saturation Study of Indoor Plumbing Fixtures*

34 The workgroup recommends that Metropolitan conduct a region-wide market saturation study of  
35 indoor plumbing fixtures for residential and commercial buildings to assess the effectiveness of  
36 conservation programs and the remaining active conservation potential for different areas of the region.  
37 Data gathered from the survey could be used to help agencies prioritize conservation funding strategies  
38 as well as improve conservation models and water budgeting assumptions. This data would also help  
39 provide targeted funding to areas where the most water conservation could be achieved.

## 1 **Outdoor Conservation**

2 Over the years, Metropolitan's conservation programs have heavily focused on indoor water-savings,  
3 exhausting opportunities to achieve additional water-savings in that sector. Meanwhile, outdoor water  
4 consumption has only recently been addressed. Graywater systems are discussed in a separate Issue  
5 Paper for Graywater. Recommendations to increase outdoor conservation programs are detailed  
6 below:

### 7 ***Bundle Incentives***

8 To increase the participation in incentives programs, Metropolitan can bundle several outdoor  
9 conservation rebates and offer increased financial rebates for additional devices installed. For example,  
10 homeowners who install one device would only be given the basic incentive value, but they would also  
11 be eligible for an extra amount for each additional device, on top of the incentive amount for each  
12 device. An outdoor bundle can include:

- 13 • Plants (e.g. turf removal)
- 14 • Irrigation system upgrades (rotating nozzles, controllers, etc.)
- 15 • Cisterns
- 16 • Permeable surfaces
- 17 • Synthetic turf

### 18 ***Model Gardens***

19 The workgroup also suggested that Metropolitan should continue to support water conservation  
20 gardens that are associated with member agencies through Metropolitan's Community Partnering  
21 Program (CPP). This program might find increased support and acceptance through school garden  
22 programs.

### 23 ***Industrial Process Improvement Program for Small Projects***

24 To increase conservation, Metropolitan may consider revising its Industrial Process Improvement  
25 Program to offer simplified criteria for small-scale programs. Under current rules, final payment is made  
26 only after a 12-month monitoring period. The 12-month monitoring requirement may discourage small  
27 businesses from attempting minor but collectively significant processes or irrigation system  
28 improvements. Tiered monitoring criteria thresholds could be based on water saved or total project  
29 cost.

## 30 **LEGISLATION**

31 This section explains suggested policy directions to increase water conservation that Metropolitan can  
32 pursue through legislation. The programs considered in the section are for a long-term horizon through  
33 2035.

### 34 ***Water Saving Device Standards***

35 Metropolitan can pursue legislation for standards in water savings devices, such as

- 36 • 1.5 gallon-per-minute (gpm) showerheads
- 37 • clothes washers

- 1 • dishwashers
- 2 • dipwells

3 For showerheads, focus should be on new construction and on limiting the number of showerheads in  
4 each shower. Workgroup members raised concerns that older homes without mixing valves have risk  
5 for scalding if the showerhead flow is less than 2 gpm. Moreover, retrofits of 1.5 gpm showerheads may  
6 have limited cost effectiveness and water savings potential due to successful market saturation of 2.2  
7 gpm showerheads in the Metropolitan service area.

### 8 **Water Conservation Trading/Transfers Market (Interstate, Statewide, Regional)**

9 Through legislative efforts, Metropolitan can provide leadership to establish innovative water  
10 conservation markets. Some water suppliers have accomplished significant water conservation to date,  
11 and for them reducing additional increments of per capita consumption have substantial marginal costs.  
12 Other water suppliers still have low hanging fruit opportunities available. Markets could take advantage  
13 of the differential in relative cost effectiveness of additional conservation within the Metropolitan  
14 service area, between regions in California (e.g. Central Valley vs. Southern California), and possibly  
15 between states (e.g. Las Vegas investment in desalination/conservation within Metropolitan's service  
16 area in return for use of Colorado River water).

17 A case of a successful market program that has increased water use efficiency is in South Australia,  
18 where users of the Murray-Darling River system participate in an open water market. Water is bought  
19 and sold at varying prices depending on needs. A website-based system allows consumers to sell  
20 unused water or ask for increased water supplies anywhere along the river system. Farmers who  
21 participate in the water market have an incentive to increase on-farm water use efficiency to not only  
22 decrease overhead costs associated with crop yield but also to allow for the opportunity to sell  
23 remaining water supplies.

### 24 **Model Ordinance to Prohibit Wasteful Water Devices (Regional or Statewide)**

25 Metropolitan could promote regional or statewide adoption of a model ordinance to prohibit wasteful  
26 water devices. Widespread adoption of a consistent ordinance across jurisdictions would facilitate  
27 education, compliance, and enforcement for consumers, regulators, and industry. The Workgroup  
28 commented that a model ordinance would be more effective as a general rule on "water features"  
29 rather than be focused on specific devices.

## 30 **EDUCATION AND OUTREACH**

31 This section explains educational programs that Metropolitan can pursue to encourage water  
32 conservation. The programs considered in this section are for a long-term horizon through 2035.  
33 Metropolitan should refocus its conservation program on regional efforts that benefit all member  
34 agencies, such as regional education and public outreach, legislative advocacy, and provide technical  
35 assistance within the scope of Metropolitan's expertise.

### 36 **Consumer Awareness of "Water Sense" Label**

37 Metropolitan could promote efforts to increase consumer brand-name awareness of the U.S. EPA's  
38 Water Sense label. The WaterSense label identifies a water-efficient product as having been

1 independently tested and certified to meet WaterSense criteria for efficiency and performance.  
2 Strategy for promoting WaterSense could be modeled after the success of the U.S. EPA's Energy Star  
3 Program. Public awareness of the Energy Star label grew to more than 70 percent in 2008, an increase  
4 of about 20 percentage points over the previous five years. In many major markets where local utilities  
5 and other organizations use Energy Star to promote energy efficiency to their customers, public  
6 awareness of Energy Star was even higher, averaging nearly 80 percent.<sup>8</sup> The WaterSense label is newer  
7 than the EnergyStar label and has yet to reach a high-level of consumer awareness.

8 An example of a successful water efficiency product labeling program can be found in Australia. Water  
9 Efficiency Labeling and Standards (WELS) is Australia's water efficiency labeling scheme for water-using  
10 appliances. The label carries two pieces of information to help the consumer to compare products – a  
11 star rating (scores range from one to six) and a figure for water consumption per use or water flow per  
12 minute.

13 Metropolitan has the ability to promote the WaterSense label through increased education and  
14 participation considering the size of its service area and market reach.

### 15 **Partnerships to Increase Awareness of Landscape and Plumbing Standards**

16 As Metropolitan makes progress in pursuing conservation-related legislation, it should seek partnerships  
17 to inform industry and the public on the latest programs and standards. For example, organizations that  
18 hold training workshops, such as Green Plumbers, CA Landscape Contractors Association, and the Center  
19 for Irrigation Technology, could be provided with material for a teaching module on California Friendly  
20 Landscaping. Metropolitan should continue support for the California Friendly Landscape Training  
21 Program to inform residential customers.

### 22 **Collaboration with Regulatory Agencies**

23 The workgroup suggested that Metropolitan may assist in promoting collaboration with regulatory  
24 agencies at the local and state levels such as cities and counties, the Regional Water Quality Control  
25 Boards, the State Water Resources Control Board, and the CA Public Utilities Commission (CPUC), as well  
26 as other types of agencies such as wastewater and stormwater entities. For example, CPUC approval is  
27 needed for Metropolitan to go beyond pilot projects with investor owned utilities for embedded water  
28 savings. There is unmet potential for strategic coordination of water-energy incentives (e.g. one-stop-  
29 shop-combined rebate integrated with BeWaterWise.com) that reward energy and gas utilities for  
30 saving water and mitigating peak water demands.

31 Implementation of the AB 32 Global Warming Solutions Act of 2006 (2006, Nunez), which requires the  
32 state to reduce its greenhouse gas emissions to 1990 levels by 2020, establishes a growing nexus  
33 between water and energy efficiency policy considerations. This will necessitate a higher level of  
34 collaboration among water agencies and the CA Air Resources Control Board than was customary in the  
35 past.

---

<sup>8</sup> 2008, April 10, "Public Awareness of Energy Star Surges, Helps to Fight Climate Change", U.S. Environmental Protection Agency Press Release. Accessed 3/2/09. Available online at <http://yosemite.epa.gov/opa/admpress.nsf/dc57b08b5acd42bc852573c90044a9c4/e68659035c18a32885257427004d39f2!OpenDocument> .

1 In February 2008, Governor Schwarzenegger wrote to the California State Senate outlining key elements  
2 of a comprehensive solution to the Sacramento-San Joaquin Delta; the first element on the Governor's  
3 list is "a plan to achieve a 20 percent reduction in per capita water use statewide by 2020" in  
4 comparison to 2008 water use levels. As state policy puts increasing emphasis on water conservation,  
5 with more and more timetables, targets, and mandates for local agencies, it becomes increasingly  
6 important for water agencies within the region to have coordinated and effective conservation  
7 strategies. Recent examples of state policy directions with water conservation implications are the  
8 Governor's 20x2020 Initiative, AB 1420, and AB 1881. AB 1420 (2007, Laird) requires urban water  
9 suppliers to implement Demand Management Measures (DMMs) in order to be eligible for water  
10 management grants and loans, effective January 1, 2009. AB 1881 (2006, Laird) requires local agencies,  
11 by January 1, 2010, to adopt the state's Updated Model Water Efficient Landscape Ordinance or  
12 equivalent or it will be automatically adopted by statute. The bill also requires the CA Energy  
13 Commission, in consultation with DWR, to adopt, by regulation, performance standards and labeling  
14 requirements for landscape irrigation equipment.

15 Metropolitan can work with member agencies to have region-wide compliance with state laws and  
16 coordinate conservations programs to optimize regional savings and streamline reporting requirements.

## 17 **SUMMARY OF RECOMMENDATIONS**

### 18 **Recommendations for Metropolitan**

#### 19 ***General***

- 20 1. Continue to reassess the existing conservation programs to ensure that they present a focused  
21 and tactical approach to conservation that avoids free ridership, provides good customer service  
22 and continues to facilitate market transformation, while keeping program costs at reasonable  
23 levels
- 24 2. Metropolitan should continue to play an important role in regional education and public  
25 outreach, legislative advocacy and provide technical assistance within the scope of  
26 Metropolitan's expertise
- 27 3. Continue to work with federal and state agencies for technical and financial assistance  
28 opportunities

#### 29 ***Financial Assistance to Member Agencies***

- 30 4. Assist member agencies with the cost of conducting water system audits
- 31 5. Assist local agencies with start-up costs to develop water budgets
- 32 6. Bundle conservation incentives programs
- 33 7. Continue support for water conservation gardens through Metropolitan's Community  
34 Partnering Program
- 35 8. Streamline Water Savings Performance Program criteria for small-scale projects

#### 36 ***Technical Assistance to Member Agencies***

- 37 9. Offer technical assistance to member agencies seeking help with implementing water budgeting  
38 systems and build on other existing water budget efforts

- 1        10. Lead an investigation to analyze and evaluate different types of water pricing and rate  
2            structures and make findings available to member agencies
- 3        11. Encourage AMI by advocating for state grant funding to be made eligible for AMI projects and  
4            serving as a clearinghouse for technical information on AMI
- 5        12. Conduct a region-wide market saturation study of indoor plumbing fixtures for both residential  
6            and commercial sectors

#### 7        **Legislation**

- 8        13. Pursue legislation for standards in water saving devices
- 9        14. Encourage legislation to establish regional or statewide water conservation transfer markets
- 10       15. Support regional or statewide adoption of a model ordinance to prohibit wasteful water devices

#### 11       **Education and Outreach**

- 12       16. Promote efforts to increase brand-name awareness of the U.S. EPA's Water Sense label
- 13       17. Partner with professional associations to inform industry and the public.
- 14       18. Collaborate with regulatory agencies to coordinate programs and policies
- 15       19. Work with member agencies to have region-wide compliance with state laws and to coordinate  
16            conservation programs (such as 20 by 2020) to optimize regional savings and streamline  
17            reporting requirements.

18

## 19       **ACKNOWLEDGEMENTS**

20       Thank you to all the active participants of the Conservation Technical Workgroup for their participation  
21       input and direction. Following is a list of the workgroup members:

Sally Flowers	Central Basin MWD
Penny Falcon	City of Los Angeles
Helen Stratton	EMWD
Diana Leach	Golden State Water Company
Edwin DeLeon	Golden State Water Company
Lisa Perales	IEUA
Marv Shaw	IEUA
Fiona Sanchez	Irvine Ranch WD
Robert Estrada	LADWP
Joe Berg	MWDOC
Nancy Long	Pasadena WP
George Hunt	City of Santa Ana
Tom Dix	City of Santa Ana
Meena Westford	SDCWA
Toby Roy	SDCWA
Cindy DeChaine	Three Valleys MWD
Elise Goldman	West Basin MWD
Gus Meza	West Basin MWD

Leighanne Reeser      West Basin MWD  
Tim Barr                Western MWD

1

2    Additionally, information on the Technical Workgroup progress and the Issue Paper was shared with all  
3    Member Agency Mangers, and the following:

Don Calkis	Anaheim
Jarred Ross	Anaheim
Rick Shintaku	Anaheim
Mary Forrest	Burbank WP
Ron Kruse	City of Brea
Nathan Adams	City of San Clemente
Patti Genter	City of Upland
Chad Blais	City of Fullerton
Albert Frias	Golden State Water Company
Jimmie Cho	Las Virgenes MWD
Randal Orton	Las Virgenes MWD
Justin Scott-Coe	Monte Vista WD
MaryAnn Melleby	Monte Vista WD
Andy Zuniga	Oxnard Water
Tammie Myers	Park Water Company
Kathy Keller	Victorville Water

4

Long-Term Conservation Plan

Potential Areas of Focus and Implementation Strategies

Area of focus		Applicable Implementation Strategy				
		Legislation	Technical Support	Financial Assistance	Incentive	Education & Outreach
<b>Outdoor Residential</b>						
	WBIC standards	X				
	Model Landscape Ordinance	X				
	Device-based program		X		X	
	Turf Removal				X	X
	Prohibited Use Ordinances	X				X
	Water Rates		X			X
<b>Indoor Residential</b>						
	HECW standards	X				
	Universal Retrofit	X				
	Device-based program		X		X	
	Leak Detection		X	X		X
	Prohibited Use Ordinances	X				X
	Water Rates		X			X
<b>Commercial, Industrial, Institutional</b>						
	Pay for Performance				X	
	Plumbing Codes	X	X			
	Building Codes	X	X			
	Device-based program		X		X	
	Water Rates		X			X
	Universal Retrofit	X				
	Prohibited Use Ordinances	X				X
	Sub-metering	X	X			
	Leak Detection		X	X		X
<b>Large Landscape</b>						
	WBIC Standards	X				
	Model Landscape Ordinance	X				
	Device-based program		X		X	
	Turf Removal				X	X
	Water Rates		X			X
	Leak Detection		X	X		X