



## ● Report on Integrated Water Resources Plan Implementation

### Summary

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This report provides an update on progress made towards implementing the 2010 Integrated Water Resource Plan (IRP) Update during the first year since its adoption. This update includes a brief review of the IRP development process and the resulting IRP adaptive management approach, a summary of progress made towards achieving the nearer-term next steps that were identified in last year's action to adopt the IRP Update, and reporting on longer-term IRP targets, implementation triggers, and monitoring criteria

### Detailed Report

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#### Background

In 2010, staff completed a two year long IRP review process. The overall goal of this process was to evaluate and update Metropolitan's water resource development strategy. Under the policy direction and oversight of the specially created IRP Steering Committee, a comprehensive process of board, member agency, retail agency, and stakeholder involvement and technical workgroups was undertaken. The result of this process was a new IRP strategy that enables Metropolitan and its member agencies to manage future challenges while balancing investments with water reliability benefits. The 2010 IRP Update was adopted by the Board at the October 12, 2010 meeting.

#### IRP Adaptive Management Approach

The 2010 IRP Update set forth an adaptive management approach that guides Metropolitan towards its water resource development targets. This adaptive approach includes three components:

- **Core Resources Strategy** – The Core Resources Strategy consists of baseline efforts to manage future water supplies and demands based on “what we know today.” Metropolitan's core resources will meet demands in the future under a range of observed historical weather patterns and potential demographic scenarios. Under this strategy, Metropolitan and its member agencies will advance water use efficiency through conservation and recycled water, along with additional local supply development such as groundwater recovery and seawater desalination. Metropolitan will also work to stabilize traditional imported supplies from the Colorado River and Northern California.
- **Uncertainty Buffer** – The Uncertainty Buffer recognizes that the future will likely fall outside of the conditions assumed in the Core Resources Strategy. Challenges in the Delta, Colorado River, regulatory restrictions, economics, and climate change are all likely sources of future uncertainty. The 2010 IRP Update sets a goal for a range of “buffer” supplies that would be available to protect the region from potential shortages.
- **Foundational Actions** – Foundational Actions guide the region towards being prepared with alternative supply options for long-range planning. If the range of future conditions should prove to be greater than what can be managed through the Core Resources Strategy and the Uncertainty Buffer, alternatives would be called for implementation. The Foundational Actions lay the groundwork for potential alternative resource development, and include feasibility studies, technological research, and regulatory review.

#### First Year Progress Report

One year has passed since the Board adopted the 2010 IRP Update. In addition to the specific resource development targets set by the 2010 IRP Update, the action to adopt the IRP Update identified a number of next steps to be taken in the near-term. These next steps were intended to help move the region toward its long term goals. The next steps that were identified are:

- **Develop the Long-Term Conservation Plan** to help the region meet the goal of a 20 percent reduction in per capita water use by 2020.

## Board Report (Report on Integrated Water Resources Plan Implementation)

- Identify triggers that can be monitored and criteria that can be used as a basis for future project consideration.
- Review local project development plans and needs.
- Maintain a working inventory of potential local projects that can be considered for future implementation.
- Establish specific foundational actions that should be taken to improve development of alternative resources for consideration and approval by the Board.
- Re-establish collaborative workgroups to focus on specific resource development challenges.

This year's report shows the specific actions that have been taken over the past year as a result of the 2010 IRP Update, as well as some ongoing actions that contribute to the overall IRP implementation effort.

### **Reporting on IRP Targets and Actions**

The IRP Adaptive Management Approach identified specific targets for resource development that would help Metropolitan achieve supply reliability and manage future uncertainties. Development goals identified in the IRP Update include imported supplies from the Colorado River Aqueduct (CRA) system and the State Water Project (SWP), as well as local resources and water use efficiency. In addition to reporting on the specific resource targets, this report describes the foundational actions and steps towards developing implementation triggers and monitoring criteria that have been taken to date.

#### Colorado River Aqueduct

The IRP Update states that Metropolitan will develop programs on the CRA system to enable full Aqueduct deliveries during dry years. Metropolitan continues to work cooperatively with a wide variety of CRA interests to build partnerships and develop dry-year water supply programs on the CRA system.

- **Dry-Year Storage** – This year, Metropolitan is on track to store about 200,000 acre-feet in Lake Mead's Intentionally Created Surplus (ICS) account, increasing Metropolitan's total amount of ICS credits to nearly 450,000 acre-feet. Metropolitan has also sought and received approval from the U.S. Bureau of Reclamation (USBR) to store additional supplies in Lake Mead in 2012. In addition, hydrologic conditions on the CRA system have improved dramatically over the past year; current estimates show about a 60 percent chance of surplus water in 2013. Metropolitan is working to make the most of the favorable conditions on the CRA system to bolster storage in the Lake Mead ICS account. Water stored in Lake Mead ICS can be drawn out in future years to supplement dry-year supplies and achieve full Aqueduct deliveries if needed.
- **Storing ICS in surplus years** – At the time the terms describing conditions when ICS water can be stored in Lake Mead were negotiated, the states had concerns about storing water and taking delivery of surplus in the same year. Because of the successful track record of Metropolitan to implement conservation programs to reduce California's demands, the Colorado River stakeholders have agreed to allow Metropolitan to store conserved water in Lake Mead and take delivery of surplus at the same time. This option will provide Metropolitan with significant operational flexibility, and make the Lake Mead storage program even more valuable than it was when initially implemented.
- **Binational Water Management Discussions** – Metropolitan, along with the other Colorado River Basin states, are working with the governments of the United States and Mexico to develop a binational water management proposal, which would include conditions in which Mexico would take shortages, have access to surplus, and be able to store water in Lake Mead. Of importance to Metropolitan, the proposal also contains provisions in which water agencies in the United States could partner with agencies in Mexico to develop conservation programs, with the conserved water being made available to both countries. If approved, Mexico could be a potential partner with Metropolitan to develop future conservation projects.
- **Bard Pilot Fallowing Program** – Metropolitan and Bard Water District (Bard) have developed concepts for a one-year pilot land fallowing program that, if approved and implemented, could provide Metropolitan with up to 15,000 acre-feet in a given year. Implementation of the pilot program could lead

## Board Report (Report on Integrated Water Resources Plan Implementation)

to the development of a longer-term water conservation program with Bard. If pursued, such a program would add to the diversity and reliability of Metropolitan's CRA supply programs.

### State Water Project

Based on the IRP Update target for SWP supply development, Metropolitan will pursue improvements in the Delta to restore supplies to historical levels of reliability. Metropolitan's Bay-Delta Initiatives Program continues to make significant progress in advancing water supply recovery efforts in the Delta. Metropolitan is currently engaged in a wide range of efforts that support both near and long-term Delta goals.

- Legal Actions – As a result of legal actions taken to date, Metropolitan has already seen a number of successes in reducing near-term impacts to Delta water supplies. Late last year, U.S. District Court Judge Wanger invalidated the 2008 biological opinion (BiOp) for Delta smelt and directed the federal government to revise it. In August of this year, Judge Wanger also ruled to enjoin enforcement of Fall X2 flow restrictions, this action will reduce impacts to Metropolitan's SWP supplies. In September 2011, Judge Wanger issued another ruling similar to the Delta smelt ruling issued last year, which invalidated parts of the 2009 Salmonid BiOp.
- Emergency Preparedness – Metropolitan continues to facilitate and expedite plans for placement of emergency preparedness stockpiles in the Delta; these measures will be included as a part of the Department of Water Resources (DWR) draft Delta Flood Emergency Preparedness, Response and Recovery Program. In addition, Metropolitan has worked with state and federal agencies on Bacon Island levee improvements. The goal of both of these activities is to create emergency freshwater pathways that will be used in the event of a major earthquake.
- Habitat Restoration – Metropolitan staff supported efforts to restore habitat through the Lower Yolo Habitat Restoration Project and the Suisun Marsh Tule Red Project. Both of these projects are located in areas of the Delta ecosystem that make them a high priority for providing near-term fishery benefits.
- Science Program – Metropolitan was closely involved in the development and funding of two scientific studies. The first evaluated the relationship between changing nutrient loading into the Delta and historical changes in the populations of key Delta species. The second developed a lifecycle model of endangered Delta smelt populations. These studies support Metropolitan's ongoing efforts to use science-based analysis in the development of new Delta policies.
- Bay Delta Conservation Plan (BDCP) – The overall objective of the BDCP is to restore and protect Delta water supply, water quality, and ecosystem health. The BDCP represents a joint effort of state, federal, regional, and local water agencies, state and federal fish agencies and environmental organizations. A working draft of the BDCP was released in November 2010; Metropolitan is currently working with the other parties to finalize a public draft by June 2012.
- Delta Habitat Conservation and Conveyance Program (DHCCP) – The goal of the DHCCP is to assess potential habitat restoration and water conveyance options that support and enhance the health of the Delta. Metropolitan has provided essential ongoing engineering support to the DHCCP.
- Delta Stewardship Council (Council) – The mission of the Council is to achieve the coequal goals of providing a more reliable water supply for California, and protecting, restoring, and enhancing the Delta ecosystem. Metropolitan participates in Council meetings, and coordinates with other water contractors to review draft Council documents.
- Water Quality – Metropolitan worked with other water agencies to successfully advocate stricter limits related to the renewal of the Sacramento Regional County Sanitation District (SRCSA) discharge permit. SRCSA operates the largest wastewater treatment plant in the Central Valley which potentially contributes to degradation of water quality in the Delta.

### Local Resources Augmentation

The IRP Update sets a target for roughly 100,000 acre-feet of new local resource development. Metropolitan continues to work with the member agencies to develop innovative and collaborative ways to achieve this goal.

## Board Report (Report on Integrated Water Resources Plan Implementation)

- Local Resource Development Strategy Task Force (LRDS) – Metropolitan staff and the member agencies are currently engaged in the LRDS process. The goals of the LRDS process are to (1) identify program improvements and alternative mechanisms to support development of local resources and (2) to investigate approaches that are most cost-effective and sustainable. The LRDS Task Force is in the early stages of identifying different approaches to encourage local resource development.

### Water Use Efficiency

In accordance with the IRP Update, Metropolitan is working with the member agencies to develop 580,000 acre-feet of new water use efficiency that will reduce Metropolitan's service area per capita water use by 20 percent. The 2009 20x2020 Water Conservation Act (20x2020) states that water use efficiency can be achieved through a combination of conservation savings and/or recycled water supplies. The target set in the IRP Update goes beyond what would be achieved through minimum retail-level compliance with 20x2020, and reaffirms the region's commitment to water use efficiency.

The 580,000 acre-feet of development is an estimate of the acre-foot equivalent of a full 20 percent reduction in water use at the regional level. It is based on the water use efficiency efforts needed to take the region from an estimated current baseline of 177 Gallons Per Capita per Day (GPCD) to 158 GPCD in 2015 and to the ultimate goal of 141 GPCD in 2020. It is anticipated that the actual numerical targets and GPCD goals will be revised as official estimates of historical and projected population in the service area incorporate findings from the 2010 U.S. Census. In addition, there is a significant amount of ongoing work to resolve the issue of normalizing actual demands for weather impacts, economic impacts, and population changes. Metropolitan continues to work with DWR to develop a methodology to adjust for these factors. Future reporting on implementation of the IRP Update will include tracking towards the 20 percent reduction in water use, and GPCD estimates that incorporate changes in data and normalization methods.

Metropolitan and the member agencies have been, and are currently engaged in, a wide range of conservation related activities to help move the region towards achieving its water use efficiency goals. Additional information on many of these activities can be found in the October 2011 Semiannual Report on Local Resources, Conservation, and Desalination Programs.

- Long Term Conservation Plan – In August 2011, the Board adopted the Long-Term Conservation Plan. The Long-Term Conservation Plan identifies the strategies and actions for achieving the water use reduction goals outlined in the IRP Update. Staff will continue to work with the member and retail agencies to implement the Long-Term Conservation Plan.
- California Urban Water Conservation Council (CUWCC) – The goal of the CUWCC is to integrate urban water conservation best management practices into the planning and management of California's water resources. Metropolitan is an active participant in CUWCC and staff has previously served on its Board.
- California Building Standards Legislation - In January 2011, the California Green Building Standards Code (CALGreen) became mandatory for the design and construction of most buildings within the state. CALGreen requires that buildings achieve a minimum 20-percent reduction in indoor water use and that smart irrigation controllers be used. Metropolitan provided input to the Building Standards Commission during code development and hosted a workshop for the Building Standards Commission to present CALGreen to water agencies throughout the state. In addition, Metropolitan successfully collaborated with the California Municipal Utilities Association to include water use efficiency expertise on two code advisory committees for the California Building Standards Commission. As a result, the Green Building Committee and the Plumbing, Electrical, Mechanical, and Energy Committee now have designated positions for a local government water use efficiency official. This will ensure that water use efficiency is considered when changes to the state's building codes are evaluated.
- Replacing Inefficient Fixtures Legislation – In 2009, Metropolitan co-sponsored legislation requiring that property owners replace inefficient plumbing fixtures, including toilets, urinals, showerheads, and faucets. SB 407 (Padilla, 2009) requires single-family residential properties to be in compliance by 2017 and multi-family and commercial properties to be compliant by 2019.

## Board Report (Report on Integrated Water Resources Plan Implementation)

- Model Water Conservation Ordinance –Metropolitan and the member agencies worked to together to develop and implement a model water conservation ordinance. Staff continues to provide guidance to the member and local agencies as well as the public on ordinance implementation strategies.
- State Model Water Efficient Landscape Ordinance – Metropolitan participated in the development of the State Model Water Efficient Landscape Ordinance. Staff supplied comments to DWR and provided outreach to the member agencies.
- Performance Standards for Weather Based Irrigation Controllers (WBIC) – Metropolitan staff helped identify elements necessary for the California Energy Commission to consider when developing performance standards for energy and water as described in the 2006 Water Efficient Landscape Ordinances Assembly Bill 1881.
- Smart Irrigation Controller Study – With support from the USBR, Metropolitan conducted a pilot weather based “Smart Irrigation Control Program” that installed and monitored sprinkler controllers. In addition, Metropolitan was recently awarded a \$60,000 grant from USBR to evaluate the long-term water savings of this technology.

In addition to the conservation activities outlined above, Metropolitan has also been involved in a number of activities related to recycled water development in the service area.

- State Water Resources Control Board (SWRCB) Recycled Water Policy – Metropolitan partnered with other stakeholders to expand use and streamline permitting of water recycling processes and also commented on constituents of emerging concern and salt/nutrient plan implementation.
- WateReuse Research Foundation – Staff serves on the Board, which conducts applied research on behalf of the water and wastewater community for the purpose of advancing the science of water reuse, recycling, reclamation, and desalination.
- WateReuse Association – Metropolitan is an active member of the Association that participates in a variety of legislative/regulatory activities including the legislative/regulatory committee; Title 22 and water softener workgroups. Metropolitan hosted the National Legislative Committee Planning Session to coordinate federal legislation, funding, and education for new congressional members. Staff was elected as the Los Angeles Chapter Vice-President and provides regular legislative and regulatory updates. Staff hosted chapter meeting and facilitated discussions between local Health Department, DPH, and regulated community on dual-plumbing and hose bib requirements.
- Landscape Irrigation Permit for Recycled Water – Metropolitan provided comments to the SWRCB and requested changes to the permit to clarify the permit process, monitoring requirements, and irrigation prohibitions.
- Los Angeles Regional Water Quality Control Board Water Reclamation Requirements – Metropolitan supported an amendment to existing recycled water requirements that would ease the approval for projects that use recycled water for groundwater recharge.
- Water Recycling Legislation – Metropolitan supported SB 918 requiring Department of Public Health (DPH) to adopt uniform water recycling criteria for indirect potable reuse and surface water augmentation. The Bill expands recycled water use by allowing treatment technologies to be combined in ways to meet water quality standards that best optimizes a project and its costs.

### Foundational Actions

The IRP Update also identified foundational actions that could be taken to advance the development of supplies in the areas of recycled water, seawater desalination, stormwater, and graywater. The following provides a summary of the major foundational actions that have already been completed or are currently underway. These foundational actions put Metropolitan and the service area in better position for future development of these resources.

- Regional Indirect Potable Reuse Study – Metropolitan and the County Sanitation Districts of Los Angeles County (LACSD) collaborated to assess the potential for augmenting potable supplies with highly

## Board Report (Report on Integrated Water Resources Plan Implementation)

purified effluent from LACSD's Joint Water Pollution Control Plant in Carson. In March 2010, Metropolitan's Board of Directors authorized a Memorandum of Understanding with LACSD for a joint study of regional indirect potable reuse (IPR). The conceptual feasibility of IPR is currently being assessed by Metropolitan and LACSD.

- Assessment of Existing Seawater Desalination Integration Practices - Metropolitan implemented a study to proactively understand the applicable considerations associated with integrating desalinated seawater into existing systems. The study consisted of two major components, 1) a survey of major seawater desalination projects from around the world to assess integration issues and strategies associated with water quality and plant/system operations, and 2) a bibliography of select references with information applicable to seawater desalination integration practices. The final report of this study has been drafted and is currently under review.
- Desalinated Water Integration Testing Plan – Metropolitan performed a preliminary literature review and drafted a testing plan to analyze the impacts of introducing desalinated seawater into Metropolitan's treated water distribution system. The overall goal of the Desalinated Water Integration Testing Plan is to develop water quality and blending guidelines for accepting desalinated seawater into Metropolitan's distribution system and optimizing the distribution facility requirements to meet operational needs. Although this program will be using West Basin demonstration plant permeate, the testing will have broad application to other proposed seawater desalination projects.
- Integration Study for the West Basin Seawater Desalination Program – West Basin initiated a Master Plan study to evaluate siting, sizing, and integration options for a full-scale seawater desalination project. The study includes an assessment of the potential for integrating desalinated water into Metropolitan's regional distribution system. Metropolitan and West Basin have entered into a Memorandum of Understanding (MOU) to support this analysis. Under the MOU, Metropolitan will provide planning and engineering support for the plant sizing analysis, conveyance and pumping feasibility studies, and water quality and operational considerations.
- CalDesal Activities –CalDesal was formed to become a unified voice for desalination in California; Metropolitan is one of the founding members. Since its inception, Metropolitan staff has participated with CalDesal in testifying before the State Water Resources Control Board (SWRCB) and the Ocean Protection Council (OPC). Both the SWRCB and the OPC are publishing documents that could severely limit the ability of entities to develop desalination projects. Metropolitan's testimony stressed the importance of maintaining the option for desalination as a part of Metropolitan's water supply portfolio. Metropolitan is also supporting legislation that would direct the SWRCB to form a committee to examine the potential for streamlining the permitting process for desalination projects.
- Southern California Water Committee (SCWC) Stormwater Task Force – Metropolitan is participating in the SCWC Stormwater Task Force. The focus of the task force is to improve the region's ability to capture additional stormwater for water supply. The task force participants include flood control agencies, water districts, groundwater basin managers, cities, environmental organizations, building industry and individuals. The task force is developing recommendations for implementation of the Municipal Separate Storm Sewer Systems (MS4) permits that are consistent with groundwater recharge for water supply. The group is also working to facilitate better coordination with the US Army Corps of Engineers for increased stormwater retention behind dams in the region for downstream groundwater recharge.

### Triggers and Monitoring Criteria

Staff is currently working with the RAND Corporation on a Robust Decision Making (RDM) methodology. The goal of RDM is to establish triggers and monitoring criteria which will provide guidance on the timing and implementation of future projects, and inform future decision making under uncertainty. The RDM methodology involves using a large ensemble of resource modeling scenarios to identify key areas of vulnerability in the IRP Update adaptive management approach. Specific triggers and monitoring criteria can then be developed to track future conditions against the key vulnerabilities.

## Board Report (Report on Integrated Water Resources Plan Implementation)

Once implementation triggers have been established, changes and trends in the monitoring criteria can be developed and tracked. For example, if the RDM process identified climate warming as one of the key vulnerabilities of Metropolitan's adaptive management approach, one of the triggers for implementing foundational actions might be a 3°C average statewide temperature increase. Once the temperature increase is identified as a specific trigger, annual statewide average temperatures and long-term temperature trends can be monitored and reported on, and also incorporated as part of the decision criteria for the timing of implementation of future projects.

RAND will provide a report to staff on the RDM analysis by the end of the year. Once final results have been received and reviewed by staff, an information item will be brought to the Board. In the future, reporting on IRP Update implementation will include descriptions of the specific vulnerabilities and triggers that are identified through the RDM process.

### **Next Steps**

Staff will continue to provide the Board with annual updates on the implementation status of the 2010 IRP Update. As additional projects and programs are developed and implemented, more specific tracking of water supplies against IRP goals will be provided. Staff will also provide the Board with an update on the RAND RDM analysis, and incorporate information into future annual updates.