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September 16, 2014

The Honorable City Council  
c/o Office of the City Clerk  
Room 395, City Hall  
Mail Stop 160

Attention: Councilmember Felipe Fuentes  
Chair, Energy and Environment Committee

Honorable Members:

Subject: Council File No. 14-0078-S1 (Council Motion) Made by Councilmember Gilbert A. Cedillo on Strategies, Methods, and Recommendations for Effective Drought Management and Water Conservation

This letter is in response to a Los Angeles City (City) Council Motion adopted July 2, 2014. The Council Motion requests the Los Angeles Department of Water and Power (LADWP) and Los Angeles Department of Public Works Bureau of Sanitation (LASAN), with assistance of the Chief Legislative Analyst, City Administrative Officer, Los Angeles Department of Building and Safety (LADBS), and Department of City Planning to report on strategies and methods being used to manage drought conditions in arid climates; and recommendations for implementing effective drought-management and water conservation strategies in our City and region.

## **I. Drought Management Strategies and Methods for Arid Climates**

Effective management of water resources in regions with arid climates requires both short-term response tools to address immediate dry conditions, and long-term planning to adapt communities to dry conditions and changing climate.

### **Short-Term Response**

Short-term response tools in urban environments typically focus on reducing water demand by encouraging, promoting, and/or requiring water conservation and water use efficiency measures. Short-term response measures in rural environments may include fallowing farmland, transferring water, implementing agricultural water-use efficiency

measures, or reallocating water from non-essential uses. Short-term response tools are often outlined in drought-response or emergency water conservation plans and implemented through regulation or ordinance.

One recent example of a short-term response tool is the California State Water Resources Control Board (SWRCB) Resolution No. 2014-0038, which adopted an emergency regulation for statewide urban water conservation. This SWRCB emergency regulation is intended to reduce outdoor urban water use by prohibiting and imposing fines on certain wasteful uses, such as washing down sidewalks and driveways; using hoses without shut-off nozzles to wash motor vehicles; and using potable water in fountains and water features that do not include recirculation systems. The regulation also requires large water agencies to activate Water Shortage Contingency Plans to a level where outdoor irrigation restrictions are mandatory. The SWRCB resolution was adopted July 15, 2014. The emergency regulation went into effect July 29, 2014, following approval by the State Office of Administrative Law, and will remain in effect for 270 days.

### **Long-Term Planning**

Long-term planning can incorporate many types of projects and programs. Capital projects to build or increase surface water or groundwater storage capacity, lower reservoir intakes, repair and upgrade infrastructure, or clean up contaminated groundwater supplies can be implemented. Programs can be developed to increase capture of stormwater to augment or offset potable water supplies, enhance conservation incentives, or promote recycled water use. Long-term efforts can also include the development, adoption, and implementation of new laws, regulations, ordinances, codes and standards.

The City's long-term planning document to address dry conditions and climate change is the LADWP's 2010 Urban Water Management Plan (UWMP). UWMP is prepared and adopted every five years, as required under the California Urban Water Management Planning Act (1984). The main goal of UWMP is to forecast future water demands and water supplies under average and dry year conditions; identify future water supply projects over a 25-year planning horizon, such as recycled water pipelines and stormwater capture facilities; report on water conservation best management practices (BMP); and provide strategies for single and multiple dry-year scenarios. LADWP is currently in the early stages of preparing the 2015 UWMP. The UWMP preparation process has become the mechanism for LADWP to regularly review, update, and report on both our short-term response tools and long-term water resource planning efforts.

LADWP and LASAN also collaborated on the City's 2006 Water Integrated Resources Plan (IRP). IRP sought to integrate water supply, water conservation, water recycling, and runoff management issues with wastewater facilities planning through a regional

watershed approach. This approach enlisted the public in the planning, design and development process at a very early stage to help guide the IRP's development. IRP resulted in a recommended alternative with multiple benefits to be implemented both in the short and long-term.

Both the 2010 UWMP and the 2006 Water IRP identify increased investments in local water resource development including water conservation, water recycling, stormwater capture, and remediation of groundwater contamination. These plans set a course to cut the City's average dependency on purchased imported water in half by 2035. LADWP is developing plans to accelerate this goal by up to 10 years.

The next step in the collaborative process started by the Water IRP is the One Water LA 2040 Plan (One Water LA). Phase I of One Water LA is currently underway with development of the "One Water" Vision and Objectives incorporating the input and engagement of all City Departments involved in water initiatives as well as stakeholders. This will be followed by the drafting of guiding principles with extensive stakeholder input and involvement. Second phase of the process consists of technical studies and continuing stakeholder collaboration for identification and comparison of projects policies and alternatives. The goal is to complete the One Water Plan within three to four years. More information regarding this initiative was provided in a report to the Energy and Environment Committee from LASAN dated March 27, 2014, (Council File No. 13-1336).

LADWP will continue to work with LASAN, other City departments, outside agencies, and the public to identify and implement cost-effective projects and programs to develop local water supplies and further reduce the City's dependence on purchased imported water.

## **II. Recommendations for Effective Drought Management and Water Conservation in the City**

Currently, the 2010 UWMP contains LADWP's most recent recommendations regarding drought management and water conservation for the City. As mentioned previously, LADWP prepares a UWMP every five years, as required by state law. LADWP staff is in the beginning stages of revising and updating the plan, which is due in 2015. This process will include multiple levels of review and stakeholder engagement. The 2010 UWMP is available on LADWP's Web site and can be downloaded using the following link:  
<http://www.ladwp.com/docs/QOELLADWP005416>

Key components of the City's overall response to dry conditions are described briefly in the following sections.



## **Short-Term Response**

### Metropolitan Water District of Southern California (MWD) – Water Supply Allocation Plan

MWD is the largest water wholesaler for domestic and municipal uses in Southern California. As one of 26 member agencies, LADWP purchases water from MWD to supplement its supplies from local sources and the Los Angeles Aqueduct. LADWP previously worked closely with MWD in developing a plan for allocating MWD water supplies during periods of shortage. On February 12, 2008, the MWD Board adopted its Water Supply Allocation Plan (WSAP). LADWP supported the adoption of this plan to equitably allocate shortages among its member agencies based on need with adjustments for growth, local investments, and changes in supply conditions, demand hardening, and water conservation programs. Severe penalty is imposed for member agencies using more than their allocated MWD supplies.

In response to the 2009 regulatory restrictions on water supplies from Northern California, the MWD Board implemented the WSAP on April 14, 2009, for the first time, and supply deliveries to the member agencies were reduced by 10 percent between July 1, 2009, and June 30, 2011. Los Angeles was able to reduce demands to remain within its allocation of water from MWD.

In the current drought, more than 75 percent of the City's water is purchased from MWD. If the extreme prolonged drought conditions continue into 2015, MWD may need to allocate supplies to its member agencies in accordance with the WSAP. Accordingly, MWD has been in discussions with member agencies recently on possible modifications to the WSAP allocation formula in preparation for possible implementation next year if dry conditions continue and storage reserves are further depleted. To protect the interest of City ratepayers, LADWP will continue to engage in these discussions to evaluate any proposed modifications to the WSAP formula through a comprehensive and collaborative process to ensure proposed adjustments are equitable, recognize the City's extraordinary conservation efforts, and contribute to a more efficient and effective allocation of MWD supplies.

### Emergency Water Conservation Plan Ordinance Implementation

Every five-years as part of the UWMP process, LADWP develops and submits to the State of California the City's water shortage contingency plan. The Los Angeles City Municipal Code Chapter XII, Article I, Emergency Water Conservation Plan Ordinance (Ordinance) is the City's water shortage contingency plan. The Ordinance specifies conservation phases and actions that can be implemented in response to dry-year conditions causing water supply shortages. Below is a summary of the conservation phase and associated actions

that the City is currently taking in response to Governor Brown's Drought State of Emergency Declaration:

The City has been implementing and enforcing Phase II of the Ordinance since 2009. As a result, LADWP customers have achieved reductions in total water use of over 13 percent since the prior dry period of 2007. Through continued implementation of Phase II, the City will remain in compliance with requirements of SWRCB's new emergency regulation for statewide urban water conservation discussed previously.

Phase II prohibits wasteful uses, and restricts outdoor landscape irrigation. Prohibited wasteful water uses and practices include the following:

- Water leaks left unattended
- Outdoor irrigation between the hours of 9:00 a.m. to 4:00 p.m.
- Outdoor irrigation resulting in water flow leaving the property
- Outdoor irrigation during rain events
- Car washing with a hose, unless an automatic shut-off device is attached
- Water served to customers in eating establishments, unless requested
- Outdoor irrigation with non-conserving nozzle sprinkler systems for more than one 8-minute cycle per watering day
- Outdoor irrigation with conserving nozzle sprinkler systems for more than two 15-minute cycles per watering day
- Large landscape irrigation systems without automatic shutoff rain sensors
- Washing paved surfaces (sidewalks, walkways, driveways, or parking areas) unless using an LADWP-approved water conserving spray cleaning device
- Water for decorative fountains, ponds, or lakes unless the water is part of a recirculating system
- Installation of single-pass cooling systems in buildings requesting new water service

- Installation of non-recirculating systems in new commercial laundry facilities
- Installation of non-recirculating systems in new conveyor car washes
- Daily towel and linen service, unless requested by hotel and motel guests

Phase II also bans landscape irrigation on days other than Monday, Wednesday, or Friday for odd-numbered street addresses and Tuesday, Thursday, or Sunday for even-numbered street addresses.

To ensure customers are aware of and follow the Ordinance, LADWP has ramped up active enforcement of Phase II restrictions, with a primary focus on educating customers on prohibited uses and outdoor watering restrictions. Citations are given to customers that continue to waste water after LADWP has reached out to them. Under enforcement, failure to comply is subject to penalties, which can range from a written warning for a first violation to monetary fines and water service restrictions or shutoff for continued non-compliance. LADWP hired four full-time staff to implement the Ordinance, and will use additional water conservation staff as needed. The implementation team is called the Water Conservation Response Unit, or the "Water CRU." To increase visibility and promote water conservation, Water CRU staff drive City vehicles that are wrapped with informative water conservation messaging.

#### Media Campaign

Another short-term response measure is LADWP's effort to increase customer awareness of Ordinance requirements and the on-going dry conditions. Since Governor Brown declared a State of Emergency due to the drought in January 2014, LADWP has expanded the water conservation media campaign to remind customers about Phase II requirements under the Ordinance. Specifically the campaign focuses on the ongoing three-day per week outdoor landscape irrigation restrictions, and the LADWP's financial incentive program for California friendly landscaping, called "Cash-in-Your-Lawn." Since this media campaign began, customer applications for "Cash-in-Your-Lawn" have increased tenfold.

LADWP is continuing the media campaign investment through the summer months using a variety of media, including television ads, bus signage, movie theater ads, traditional radio spots, print ads, and social media such as Facebook, Twitter, YouTube, along with on-camera interviews and other free media. From January to July 2014, LADWP has invested \$500,000 in ads promoting water conservation.

These ads included the following:

- Movie theater ads on 110 screens, with a total of over 58,000 viewings
- Bus tail ads displayed on 200 different City routes
- Bus shelters, bus benches, and public restroom ads, including displays on 90 bus shelters and 15 restrooms
- Online ads for 15 local sites in the City
- Conservation messaging in various newspapers, including the Los Angeles Times, City Watch, La Opinion (Spanish), and Daily News
- Radio spots on 12 stations with a total of 900 airings
- Outreach to 30 community newspapers, including some printed in Korean, Chinese, and Vietnamese

Looking forward, LADWP plans to spend another \$500,000 on its ad campaign from September through December 2014.

LADWP actively responds to news requests to share information on LADWP's drought response and educate customers about the importance of water conservation. From January to July 2014, LADWP staff has participated in or been featured in the following:

- 86 radio interviews
- 25 television interviews
- 95 online news articles
- 92 print news articles

These include interviews with Los Angeles Times, USA Today, La Opinion (Spanish), Daily News, Fox, and NBC.

Messaging continues to focus on informing customers about current and projected dry-year conditions, and the City's prohibited uses and outdoor landscape watering restrictions. The media campaign also encourages customers to voluntarily further reduce outdoor water use and modify their water use behavior.



LADWP recently mailed out water conservation postcards to all of our 470,000 single-family residential customers. The postcards remind customers about watering restrictions in effect, educate them on watering times and days based on their address, and direct them to our water conservation Web site at [www.LADWP.com/WaterConservation](http://www.LADWP.com/WaterConservation).

#### New Contracts

LADWP is in the process of finalizing two new contracts to assist with our water conservation programs. The first contract is for a pilot study of customized customer water use reports along with an associated web portal. These reports will graphically show customers how much water they use in comparison to neighboring water efficient customers, and provide customized tips on how to reduce their use. The second contract will assist in development of a new interactive Web site which will assist customers in designing California Friendly landscapes, which comply with requirements for our Cash-in-Your-Lawn program. Both projects are planned to start in September 2014.

LADWP also initiated a Water Conservation Potential Study (Study) in June 2014 to explore new ways for the City to promote water conservation. The Study will determine the impact of previous and current water conservation programs across all customer sectors; identify sectors that still have potential for additional conservation under current programs and strategies; and investigate new and emerging water conserving technologies. The Study will allow LADWP to accurately measure potential for further water conservation during the next 25 years and will assist with long-term water supply planning. Results of the Study will be reflected in the 2015 UWMP.

#### Partnerships With Other Agencies

LADWP assists other City Departments and other public agencies in leveraging LADWP incentive funds to retrofit their facilities with water efficient hardware. Examples of significant accomplishments achieved through partnerships are provided below:

- In an effort to reduce water waste and identify areas of potential water conservation, LADWP provided on-site water audit training for the City's Department of General Services (GSD) plumbers, Department of Recreation and Parks (RAP) landscapers and Port of Los Angeles (POLA) staff, and conducted nearly 500 facility audits.
- A Memorandum of Understanding (MOU) was signed between LADWP and GSD to install 875 water-efficient urinals and 325 high-efficiency toilets in City facilities.



- Ten high-use City facilities have been retrofitted with water efficient toilets, urinals, and faucets saving approximately 23 acre-feet per year (AFY). Locations include City Hall, City Hall East, Pershing Square, and LADWP headquarters.
- A \$3 million per year grant from LADWP was utilized by RAP to install 155 smart controllers at 67 parks, resulting in a savings of 12 percent of normal water usage. Additionally, the MOU has funded water use efficiency improvements at 18 park facilities saving over 400 AFY.

#### Extending Outreach Efforts

Over the last several years, LADWP has expanded conservation outreach and education. Some activities to promote conservation include: increased communication with ratepayers through Twitter, Facebook, YouTube, newspapers, radio, television, and other types of media; outreach to Homeowner Associations and Neighborhood Councils; distribution of hotel towel door hangers and restaurant table tent cards; and ramping up marketing of expanded water conservation incentive and rebate programs.

#### Encouraging Regional Conservation Measures

LADWP has worked with MWD to double the budget for their conservation incentives program and to encourage all water agencies in their service region to promote water conservation, and adopt water conservation ordinances that include prohibited uses and enforcement. One recent accomplishment includes the addition of a new \$75 incentive for residential customers to install a rain barrel on their property.

#### Conservation Rebates and Incentives

LADWP continues to expand its conservation rebates and incentives for homeowners and business owners. The conservation rebate and incentive programs include the Commercial Rebate Program, Residential Rebate Program, and Technical Assistance Program. A full listing of programs available to LADWP customers is provided on the LADWP Web site at [www.LADWP.com/WaterConservation](http://www.LADWP.com/WaterConservation). In addition, as part of the City's ongoing effort to encourage customers to adopt "active" water conservation measures (i.e., measures that can help customers conserve water on a daily basis without thinking about it) in their homes and businesses, LADWP continues to distribute water-saving bathroom and kitchen faucet aerators and shower heads free-of-charge.

LADWP's California Friendly Landscape Incentive Program, called "Cash-in-your-Lawn," recently increased its incentive to \$3 per square foot of turf removed and replaced with low-water-using plants, mulch, and permeable hardscapes or artificial turf. Information on

this incentive program is available through LADWP's Web site and MWD's [www.socalwatersmart.com](http://www.socalwatersmart.com) Web site.

Additional financial incentives for water conservation and water recycling could be funded in the future through a statewide Water Bond. The 2014 Water Bond that is currently slated for the November ballot (unless delayed or replaced by the legislature) contains funding through grants for integrated regional water management, water conservation statewide, and water recycling statewide.

#### Compliance with the City's Green Building Ordinance

LADWP works with the City's Green Building Team to pursue desired changes in City codes and standards to promote water efficiency in new construction projects and major building renovations. One significant accomplishment was the approval of the Water Efficiency Requirements Ordinance by the City Council, which modifies the City Municipal Code to establish new requirements for water conservation in construction of new buildings, and the installation of new plumbing fixtures in existing buildings to minimize effects of any water shortages on City customers.

#### Compliance with Low Impact Development (LID) Ordinance

The City also adopted the LID Ordinance, which is designed to help reduce off-site runoff, improve water quality, replenish groundwater supply, reduce heat island effects, stabilize natural streams, preserve natural resources, enhance habitats, and minimize downstream impacts while maintaining watershed characteristics and providing aesthetic features to the communities. The LID Ordinance amends and expands on the existing Standard Urban Stormwater Mitigation Plan (SUSMP) by requiring capture of the first three quarter inch of a storm event for on-site beneficial reuse. Under the LID Ordinance, over 200 development/re-development projects are reviewed and approved each month.

#### Compliance with Water Supply Assessment (WSA) Code Requirement

LADWP prepares a WSA for all major development and re-development projects in the City as required by the California Water Code (Water Code). The Water Code requires LADWP to determine in a WSA if water demands associated with major projects are included in LADWP's most recently adopted UWMP and make a determination whether there is an adequate 20-year water supply. As part of the WSA water demand analysis, LADWP verifies project compliance with all City ordinance requirements. In addition, LADWP works with each developer to encourage their commitment to implementation of additional voluntary conservation measures that go beyond current City requirements in order to maximize water conservation savings.

### Submetering for Multi-Family Residential Customers

Submetering is currently an option for multi-family residential buildings in the City. Submeters promote water conservation by making tenants in multi-family buildings aware of their water usage and financially responsible for the amount. Property owners are responsible for the reading, maintenance, certification, and billing of tenants related to submeters. In some cases, LADWP can provide individual meters for multi-unit buildings, if the building and plumbing design allows for it. LADWP meters are located in the street, within the public right-of-way. Submeters, however, are typically incorporated to a building's plumbing design and are usually located on the building premises.

Over the past few years, there have been multiple state legislative proposals to prioritize the development of building standards for submeters and to mandate new multi-unit residential and commercial buildings to include submeters for water. Most water agencies, including LADWP, have been supportive of these efforts due to the expected water conservation benefits. However, because submeter reading and billing would have to be conducted by the property owner or manager, renters groups have expressed concerns about billing and related appeals processes that have ultimately impacted the success of the legislation.

LADWP staff work with stakeholders to consider options and discuss challenges related to building retrofits to incorporate submeters. However, retrofitting older plumbing systems to include submeters is not always feasible due to pipe configurations and the limits of existing submetering technology. Retrofits can also be prohibitively expensive for property owners. For these reasons, LADWP is not pursuing mandatory requirements for submetering at this time.

### Graywater Usage by Residential Customers

Graywater is untreated household wastewater that has not come into contact with toilet waste or unhealthy bodily wastes. It includes water from bathtubs, showers, bathroom wash basins, clothes washing machines, and laundry tubs. It does not include water from kitchen sinks and dishwashers. Graywater systems in residential buildings in the City are used for subsurface irrigation and are permitted by LADBS. Approval must also be obtained from the Los Angeles County Department of Public Health.

Due to potential public health or environmental concerns, regulations do not allow the application of graywater using spray irrigation. Graywater is also not allowed to pond, run offsite, discharge to a storm drain system or surface water body, or irrigate edible food crops directly in contact with surrounding soil. LADBS requires residential graywater systems to have associated operation and maintenance manuals that must remain with



the building throughout the life of the graywater system. New owners or tenants must also be notified of the presence of a graywater system.

LADWP does not currently provide any financial incentives for graywater systems, but continues to assess its potential as a conservation option. Information regarding requirements for graywater systems is provided on the LADBS Web site at [http://ladbs.org/LADBSWeb/LADBS\\_Forms/InformationBulletins/IB-P-PC2011-012Graywater.pdf](http://ladbs.org/LADBSWeb/LADBS_Forms/InformationBulletins/IB-P-PC2011-012Graywater.pdf)

### **Long-Term Planning**

As part of the 2010 UWMP, LADWP set ambitious goals to develop local water resources through additional water conservation, water recycling, and stormwater capture. Achieving these goals will diversify the City's water supply portfolio to improve reliability and resilience when dry conditions and water shortages occur.

### Water Conservation

Conservation has had a tremendous impact in reducing Los Angeles' water use, and is a cornerstone of the City's water resource management philosophy. Cumulative annual hardware savings since the inception of LADWP's conservation programs total more than 108,000 AFY. The 2010 UWMP promotes an aggressive long-term approach to water conservation to ensure a sustainable supply for the future. It challenges City residents to change their behavior and attitudes relative to water consumption. The 2010 UWMP describes an approach to meeting California's "20 percent reduction by 2020" mandate and includes a goal of reducing overall potable water demand by an additional 64,368 AFY by the year 2035. To reach these ambitious goals, LADWP has focused its efforts in several key areas: education/outreach, local regulations, and customer rebates/incentives for water efficient devices, as described previously.

Some highlights from the list of LADWP's numerous water conservation accomplishments are provided below:

- Through the Ultra-Low-Flush (ULF) Toilet Replacement program and High-Efficiency Toilet (HET) Rebate program, over 1,400,000 ULF and HET toilets have been installed in the City, resulting in an estimated water savings of over 48,000 AFY (15.8 billion gallons/year).
- High-Efficiency Washer Rebate Program has resulted in the purchase and installation of over 102,000 high-efficiency washing machines that save water and energy.

- LADWP's free-of-charge distribution of water-saving bathroom and kitchen faucet aerators and shower heads has resulted in over 400,000 aerators, and 1.8 million showerheads being installed.
- LADWP's 100 percent volumetric tiered rate structure has been providing financial incentives to all customers for efficient water use since 1993.
- Water Meter Replacement Program is responsible for the replacement of over 202,800 meters out of 660,400. This program provides customers with greater accuracy in metering water use, and a higher degree of accountability for water that is delivered by the City's distribution system.
- LADWP has invested in the RAP efficiency program, which also includes some financing provided by a grant from the Department of Water Resources (DWR).
- Additional DWR grants have been awarded to LADWP for providing weather-based irrigation landscape controllers for our commercial and industrial customers.
- Technical Assistance Programs (TAP) for business and industry have been created to provide incentives for retrofitting water-intensive industrial equipment with high-efficiency devices. A large effort is currently being expended using TAP to increase water-efficiency of commercial cooling towers, and expand the program for small business participation.
- The California Friendly Landscape Incentive Program was recently expanded to provide \$3 per square-foot for removal of turf and replacement with California-friendly, low-water-using plants, mulch, permeable hardscapes and/or artificial grass.

### Water Recycling

The City's goal is to reuse 59,000 AFY of recycled water by 2035, thereby increasing recycled water use eightfold. Currently, recycled water is replacing potable water previously used for non-potable purposes, such as outdoor irrigation and industrial uses. Recycled water can also be used to replenish groundwater basins. Increasing recycled water use will reduce the need for purchased imported water and diversify the City's water supply portfolio. To achieve this goal, the City has taken the following steps:

- Recycled Water Master Plan (RWMP) – In 2012, LADWP completed a three-year RWMP. RWMP documents are guiding near-term recycled water planning through 2035, as well as long-term recycled water planning for up to 50 years beyond the

2035 horizon. RWMP documents include an evaluation of recycling alternatives that integrate two strategies to increase recycling: groundwater replenishment and non-potable reuse. Non-potable projects will increase recycled water deliveries for irrigation and industrial customers throughout the City. The groundwater replenishment project will recharge the San Fernando Basin (SFB) with advanced-treated purified recycled water.

- Recycled Water Outreach – The City developed RWMP documents with input from numerous stakeholders through ongoing outreach activities beginning in 2009, including the Recycled Water Advisory Group (RWAG), Recycled Water Forums for the general public, elected official briefings, outreach to kindergarten through grade 12 students, and presentations to neighborhood councils and community groups. RWAG is made up of approximately 60 stakeholders, representing neighborhood councils, environmental groups, business organizations, civic groups, and other interests. They provide the City with input and ideas related to water recycling. RWAG has participated in a series of workshops, facility tours, and update sessions, and continues to provide insightful feedback to the City as projects are implemented.
- Advanced Treatment Pilot Studies – A critically important part of the groundwater replenishment planning process was to operate a pilot project consisting of different purification technologies using the actual treated wastewater from the City's Donald C. Tillman Water Reclamation Plant (Tillman Plant). The purpose of the pilot project was to test alternative source waters available at the Tillman Plant and evaluate effectiveness of advanced water purification technologies on those specific waters. Testing results demonstrated that the proposed advanced water purification processes provide exceptional water quality that is safe for groundwater replenishment.
- An advanced water purification facility will be constructed to treat recycled water from the Tillman Plant. This purification facility will produce highly purified water to replenish the San Fernando Groundwater Basin.
- Groundwater Replenishment Environmental Documentation – Environmental documentation for the Groundwater Replenishment Project was initiated in 2012.
- Harbor Refineries Pipeline Project – Of the project's 40,400 feet of recycled water piping, approximately 85 percent is already installed in the Harbor Area. The piping will convey recycled water to large industrial and irrigation customers. Expected completion date is December 2016.



- Water Reclamation Plant Upgrades and/or Expansion Projects – The Terminal Island Water Reclamation Plant (TIWRP) currently produces six million gallons per day (MGD) (about 6,700 AFY) of advanced-treated water, which is delivered to the Dominguez Gap to prevent saltwater intrusion and to recycled-water customers for irrigation and industrial uses. Expansion is currently under way to increase production to approximately 12 MGD (about 13,500 AFY). Estimated completion date is in 2017.

Additional information regarding LADWP's recycled water initiatives is available at [www.LADWP.com/recycledwater](http://www.LADWP.com/recycledwater).

### Stormwater Capture

The City's goal is to increase groundwater recharge by expanding and improving stormwater spreading basins, retrofitting large stormwater capture/flood control dams and completing other large-scale projects through cooperative partnerships with the Los Angeles County Flood Control District (LACFCD) and other agencies. LADWP is moving forward with several stormwater capture projects with the goal of providing for increased groundwater pumping rights in the SFB of 15,000 AFY. Stormwater capture projects will also provide 10,000 AFY of additional water conservation from capture and reuse solutions such as rain barrels and cisterns, for a total of 25,000 AFY by fiscal year (FY) ending 2035.

To facilitate this effort, in July 2013, LADWP initiated the development of a Stormwater Capture Master Plan (SCMP) in partnership with LASAN, LACFCD, and other local government and non-government agencies. SCMP will provide a framework for evaluating future stormwater capture projects and policies. SCMP will also recommend a handful of future projects and programs that will be beneficial additions to the City's current stormwater capture project portfolio.

SCMP will address a number of tasks and objectives including:

- Project coordination, data collection, and existing conditions analysis
- Analyzing stormwater capture potential
- Developing stormwater capture alternatives
- Recommending viable stormwater capture projects and implementation strategy

Public outreach will be an integral part of the SCMP development process, and will include the involvement of key technical personnel, regional stakeholders, general public, and the media. SCMP is scheduled for completion in July 2015. MWD has provided 50 percent of the funding for SCMP through its Foundational Actions Funding Program.

Examples of large-scale centralized stormwater projects that were recently completed, currently in progress, or expected to be in construction within the next few years are provided below:

- Big Tujunga SFB Groundwater Enhancement Project – Completed in 2010. Project scope included the retrofit of the Big Tujunga Dam to meet state seismic and spillway requirements and increase the reservoir's storage capacity. Project increased regional annual average stormwater capture capacity by 4,500 AFY.
- Hansen Spreading Grounds Enhancement Project – Completed in 2013. Project deepened the spreading basins, increased their storage capacity, replaced existing diversion structure with a new diversion structure, and added remote automation of the operating structures. Project increased annual average stormwater recharge capacity by 2,100 AFY.
- Tujunga Spreading Grounds Enhancement Project – Proposes to deepen the spreading basins, increase their storage capacity, replace existing diversion structure with two diversion structures, and add remote automation of the operating structures. Project will increase storage capacity to 790 acre-feet (AF) from its current level of 100 AF and increase the intake capacity from 250 cubic-feet per second (CFS) to 450 CFS. Project is expected to increase the annual average stormwater capture and recharge capacity volume from 8,000 AFY to an estimated 16,000 AFY.
- Pacoima Spreading Grounds Enhancement Project – Proposes to deepen the spreading basins, increase their storage capacity, replace existing diversion structure, and add remote automation of the operating structures. Storage capacity will increase from 530 to 1,197 AF by deepening and combining basins. Project is expected to increase annual average stormwater capture and recharge by 10,500 AFY.
- Lopez Spreading Grounds Enhancement Project – Proposes to expand and deepen the five shallow spreading basins that would increase storage capacity from 24 AF to a total of 73 AF. The flashboard system at the diversion structure that diverts water from the dam into the intake canal will be replaced with a gate system. Sediment in the intake canal will be removed to restore its original depth of three

feet. The intake canal will then be lined with gunite to prevent further sedimentation and maintain its capacity of 25 CFS. Project is expected to increase annual average stormwater capture and recharge capacity by 500 AFY.

- Branford Spreading Basin Project – Most of the water tributary to the spreading basin is urban runoff from Branford Street Channel. Total wetted area of the spreading grounds is 7 acres with a maximum intake of 1540 CFS and storage capacity of 137 AF. Average annual recharge for the facility is approximately 551 AF. Project proposes to install a pump at the spreading basin, a pipeline bridge across the Tujunga Wash Channel, and an outlet into Tujunga Spreading Grounds. These changes will improve groundwater recharge, flood protection, and water quality. Project is expected to increase annual average stormwater capture and recharge capacity by 590 AFY.
- Rory M. Shaw Wetlands Park Project – Consists of constructing stormwater capture and treatment facilities within the bounds of a 46-acre site formerly used as a gravel pit. Project will construct detention ponds and wetlands to store and treat stormwater runoff. Treated flows will then be pumped to the adjacent Sun Valley Park for infiltration in the underground basins. In addition to increased groundwater recharge, flood protection, and water quality improvements, the project will include habitat restoration and recreational opportunities. Project is expected to increase average stormwater capture and recharge capacity by 590 AFY.

Examples of neighborhood and residential distributed stormwater recharge projects that are complete or currently in construction are provided below:

- Woodman Avenue Multi-Beneficial Stormwater Capture Project – Project will help recharge SFB, improve water quality, and alleviate local flooding. The project captures surface runoff from approximately 80 acres that currently runs along street gutters to storm drains, through the Tujunga Wash and the Los Angeles River and into the ocean. Project directs the flows through pre-treatment devices and into a vegetated swale and an underground retention system for infiltration. The infiltration swale and underground retention system replace an existing 16 foot-wide, 3,500 foot-long concrete median. Additional benefits include the creation of community open space enhancements such as improved aesthetics and pedestrian access, passive recreation, educational opportunities, and restoration of native habitat.
- North Hollywood Alley Retrofit BMP Demonstration Project – Project retrofit three alleyway segments for a total of 775 feet of alley improvements in the San Fernando Valley. Improvements created pervious surfaces in the drainage lines of the alleys to allow for stormwater infiltrating where it falls. In addition, seven



catch basins were installed in streets intersecting the alleys increasing the alleyway tributary drainage areas. These alleyway projects will demonstrate the ability to infiltrate stormwater nearer its origin which will help to recharge the SFB, improve water quality in the Los Angeles River, and reduce flooding.

- Rain Barrels Rebate – Provides a rebate to encourage customers to collect and re-use rainwater from gutters and downspouts for lawns and gardens to offset potable water usage outdoors and minimize the amount of water flowing into storm drains, sewer systems and local waterways. Plants and microbes prefer rainwater because it is naturally “soft” and free of chlorine, fluoride and other chemicals. Rebates start at \$75 per barrel. Minimum size is 50 gallons, with a maximum of two rain barrels per home.
- LADWP’s Distributed Recharge Efforts – Across the San Fernando Valley, urban stormwater runoff from impervious surfaces enters the storm drain system and eventually flows into the ocean. LADWP is exploring partnerships, projects, and programs that promote infiltration of rainfall runoff close to its point of origin. Several partnerships that LADWP continues to develop are with the City’s Department of Public Works, LACFCD, MWD, Los Angeles Unified School District, TreePeople, Council for Watershed Health, Los Angeles Beautification Team, and The River Project. Some of the projects and programs being developed include facility retrofits, neighborhood retrofits, and local recharge projects such as along medians, rain gardens, power line easements, and parkways.

Additional information regarding LADWP’s stormwater capture initiatives to augment local water supplies is available at [www.ladwp.com/stormwater](http://www.ladwp.com/stormwater).

Additionally, municipalities, non-governmental organizations and community stakeholders throughout the County of Los Angeles are working collaboratively to develop Enhanced Watershed Management Plans (EWMP) for each of Los Angeles’s five watersheds - Ballona Creek, Dominguez Channel, Marina Del Rey, Santa Monica Bay and Upper Los Angeles River. LASAN is currently leading this effort for the City, in collaboration with LADWP.

EWMP objectives are to comply with water quality mandates, improve the quality of our rivers, creeks and beaches, and address current and future regional water supply issues. Each of the five watersheds has a Watershed Management Group that meets on a regular basis. The goal of each Watershed Management Group is to develop a EWMP for their specific watershed. Each EWMP will identify current and future multi-benefit projects that will improve water quality, promote water conservation, enhance recreational opportunities, manage flood risk, improve local aesthetics, and support public education

opportunities. Each EWMP will include water quality priorities, watershed control measures, reasonable assurance analysis, the scheduling of projects and the monitoring, assessment and adaptive management of projects.

EWMPs for each of the five watersheds must be developed and submitted to the Los Angeles Regional Water Quality Control Board by June 28, 2015.

Although EWMPs will focus primarily on capturing stormwater from City areas with the highest pollution levels in stormwater in order to meet Clean Water Act mandates, there will be resulting multi-benefit projects that will be coordinated with the Stormwater Capture Master Plan to provide the maximum amount of benefit for both water quality and stormwater capture where feasible. Additional information is provided on the EWMP website: <http://www.lastormwater.org/green-la/enhanced-watershed-management-plans/>.

### Groundwater Remediation

Remediating groundwater basin contamination is critical to facilitating the success of local water supply development and increasing the resiliency of the City's water supplies during dry periods. Recycled water, stormwater, and excess imported water can be stored in SFB to augment existing water supplies. However, remediation is needed for LADWP to be able to pump and serve groundwater from SFB to its customers. To date, about half of the pumping wells in SFB have been shut down due to contamination. Without comprehensive groundwater remediation, the City will lose the ability to use this valuable local resource within the next decade. LADWP is undertaking the following actions to achieve this goal:

- Work with Regulatory Agencies and Governmental Officials – LADWP will continue to work with and encourage the United States Environmental Protection Agency (USEPA) to develop a long-term, comprehensive solution for existing and emerging contamination issues in SFB. LADWP will also continue to work with the Los Angeles Regional Water Quality Control Board and the California Department of Toxic Substances Control to find and hold polluters accountable for cleaning up their contamination of SFB.
- Groundwater System Improvement Study (GSIS) – In February 2009, LADWP began a six-year GSIS in SFB. GSIS will provide vital information to evaluate the groundwater quality in SFB and recommend treatment options to remediate the groundwater basin and maximize the utility of the groundwater supply. As part of GSIS, LADWP has collected samples from 97 wells (including 26 new monitoring wells), which will provide vital water quality information necessary for GSIS. LADWP is currently in the early stages of developing Groundwater Basin Remediation

Facilities to address the contamination. GSIS is expected to be complete in 2015. The anticipated in-service date for the Remediation Facilities is 2021 to 2023.

- Wellhead Treatment – LADWP completed the installation of wellhead treatment for two wells in the Tujunga Wellfield in order to maintain groundwater pumping production. LADWP is currently considering expanding upon this effort to increase pumping of local groundwater supplies from SFB at the Tujunga Wellfield.

### System Efficiency Improvements

During FY 2010-2011, LADWP conducted a Water Loss Audit and Component Analysis Study (Study) that examined the efficiency of the water distribution system, investigated real and apparent system losses, and recommended intervention strategies to minimize water loss. The Study results indicated that background leakage was the largest contributing factor to real water loss.

The national industry average leak rate is 27 leaks per 100 miles. In 2009, Los Angeles was performing near this national average. In 2011, the Los Angeles leak rate had reduced to approximately 20 leaks per 100 miles. The City has continued to reduce its leak rate to 15 leaks per 100 miles currently.

Los Angeles' average leakage loss of 23 gallons per connection per day compares very favorably to 21 other North American cities, which average 63 gallons per connection per day leakage loss.<sup>1</sup> This leakage loss compares favorably to local agencies as well. As an example, the City of Santa Monica experiences leakage losses of 42 gallons per connection per day.

The Study provided LADWP with a detailed set of recommendations on cost-effective ways to minimize real and apparent losses. Also provided was a priority listing of corrective action and intervention strategies based on their economic value. LADWP formed a water loss task force which will evaluate these corrective actions and bring recommendations on implementation to management for approval.

### Conclusion

The City plans to address the current drought and future dry conditions to ensure a reliable water supply. This will be accomplished through increased conservation, groundwater basin remediation, and local resource development as outlined in LADWP's 2010 UWMP. Goals of this plan will be updated and described in greater detail in the upcoming 2015

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<sup>1</sup> The national water loss study was conducted by the American Water Works Association – a non-profit scientific and educational association – and is available online at [www.awwa.org](http://www.awwa.org).



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UWMP. The 2015 UWMP will include cost-benefit analyses of programs and projects designed to diversify the City's water supply portfolio, reduce future reliance on purchased imported water, address changing climate conditions, and improve overall water supply reliability. The 2015 UWMP will also incorporate the results of critical studies and reports, such as the Stormwater Capture Master Plan, Water Conservation Potential Study, Recycled Water Master Plan and Groundwater System Improvement Study, which have been months or years in development and are currently underway. Until then, the 2010 UWMP remains LADWP's key resource and functional roadmap to understanding the City's short-term responses and long-term plans to cope with the ongoing dry-weather conditions that have become a regular occurrence in Southern California. LADWP will continue to be engaged in discussions with MWD on any revisions to WSAP to ensure any future implementation of an MWD allocation of its supplies to its member agencies will be done in an equitable manner to protect the interests of Los Angeles ratepayers.

If you have any questions or if further information is required, please call me at (213) 367-1338, or have your staff contact Ms. Winifred J. Yancy, Director of Intergovernmental Affairs and Community Relations, at (213) 367-0025.

Sincerely,



Marcie L. Edwards  
General Manager

PMF:yrg/ar

c: Councilmember Bob Blumenfield, Vice-Chair, Energy and Environment Committee  
Councilmember Tom LaBonge, Member  
Councilmember Jose Huizar, Member  
Councilmember Paul Koretz, Member  
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Ms. Winifred J. Yancy