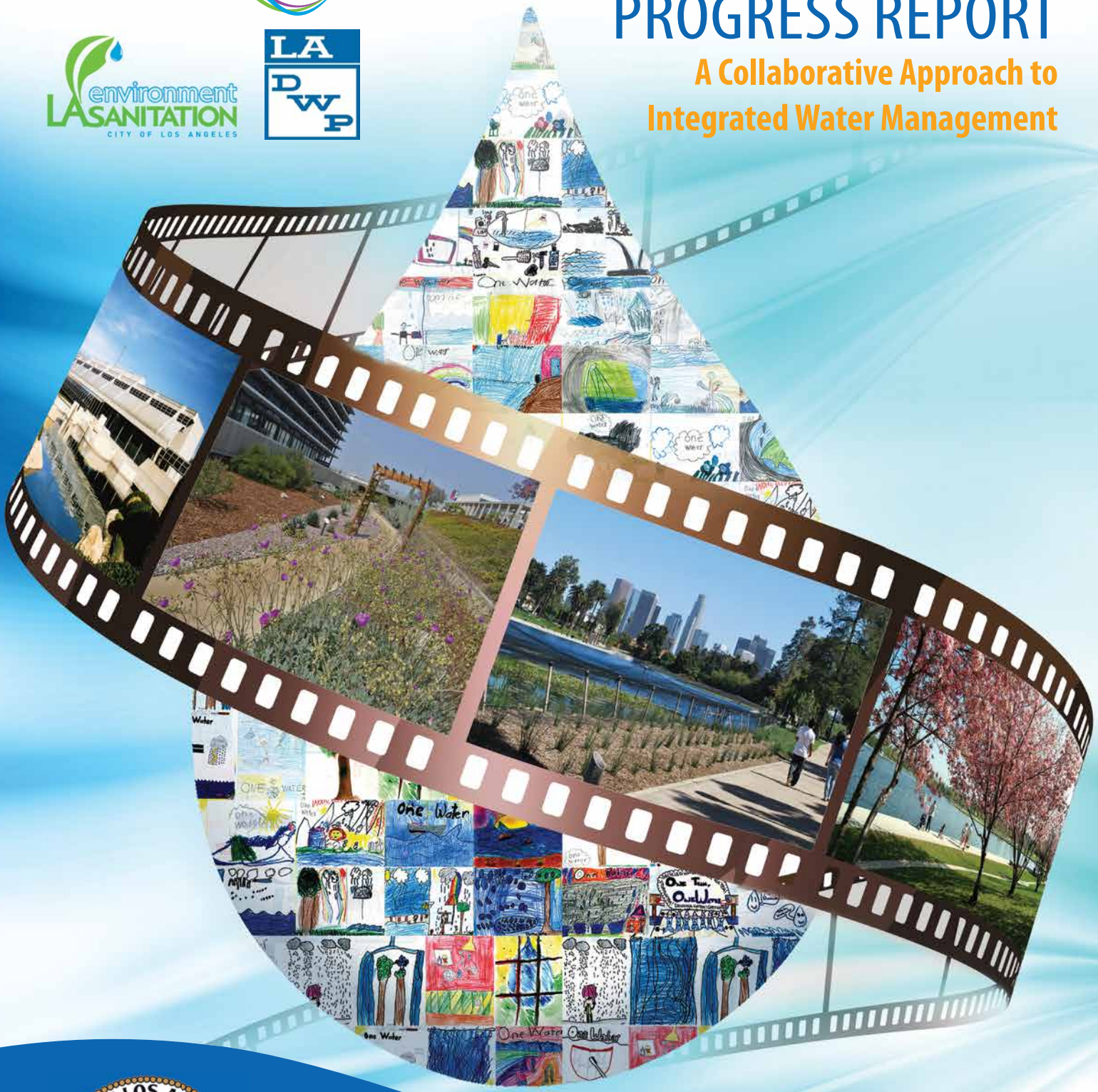
One Water LA

ONE WATER LA
PROGRESS REPORT

A Collaborative Approach to Integrated Water Management



JUNE 2017

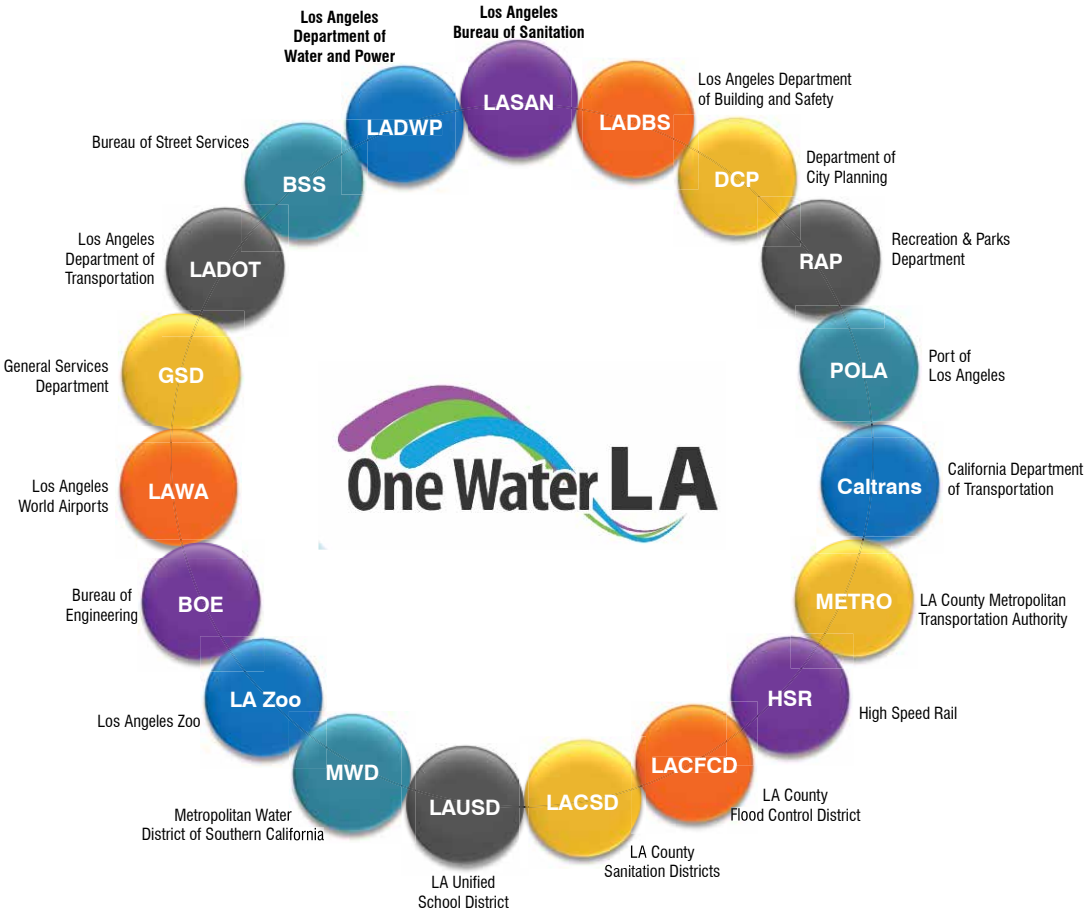
Eric Garcetti
Mayor of Los Angeles

"I issued Executive Directive #5 because conserving water is the new normal, not something we think about only during a drought. The One Water LA 2040 Plan puts those values into action — by helping us integrate our water resources, and work together to manage them more efficiently. I'm proud to see so many of our public agencies collaborating across the region to create a more sustainable, resilient future for every community."

One Water LA Partners

The One Water LA Plan is being developed by dedicated representatives from both LASAN and LADWP and shaped by input from other City departments, regional agencies, the advisory group, and a large stakeholder group, representing a wide variety of interests.

Steering Committee Members



Advisory Group Members

- Carolyn Casavan (Sherman Oaks Neighborhood Council)
- Brad Cox (Los Angeles Business Council)
- Jack Humphreville (Greater Wilshire Neighborhood Council)
- Louise McCarthy (Community Clinic Association of Los Angeles County)
- Ken Murray, MD (Wilderness Corps)
- David Nahai (David Nahai Companies)
- Mike O'Gara (Sun Valley Area Neighborhood Council)
- Veronica Padilla (Pacoima Beautiful)
- Kelly Sanders (University of Southern California)
- Melanie Winter (The River Project)

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SECTION 1

One Water Vision

One Water LA is a collaborative approach to develop an integrated framework for managing the City's water resources, watersheds, and water facilities in an environmentally, economically and socially beneficial manner.

MacArthur Park, Westlake Neighborhood Los Angeles, CA

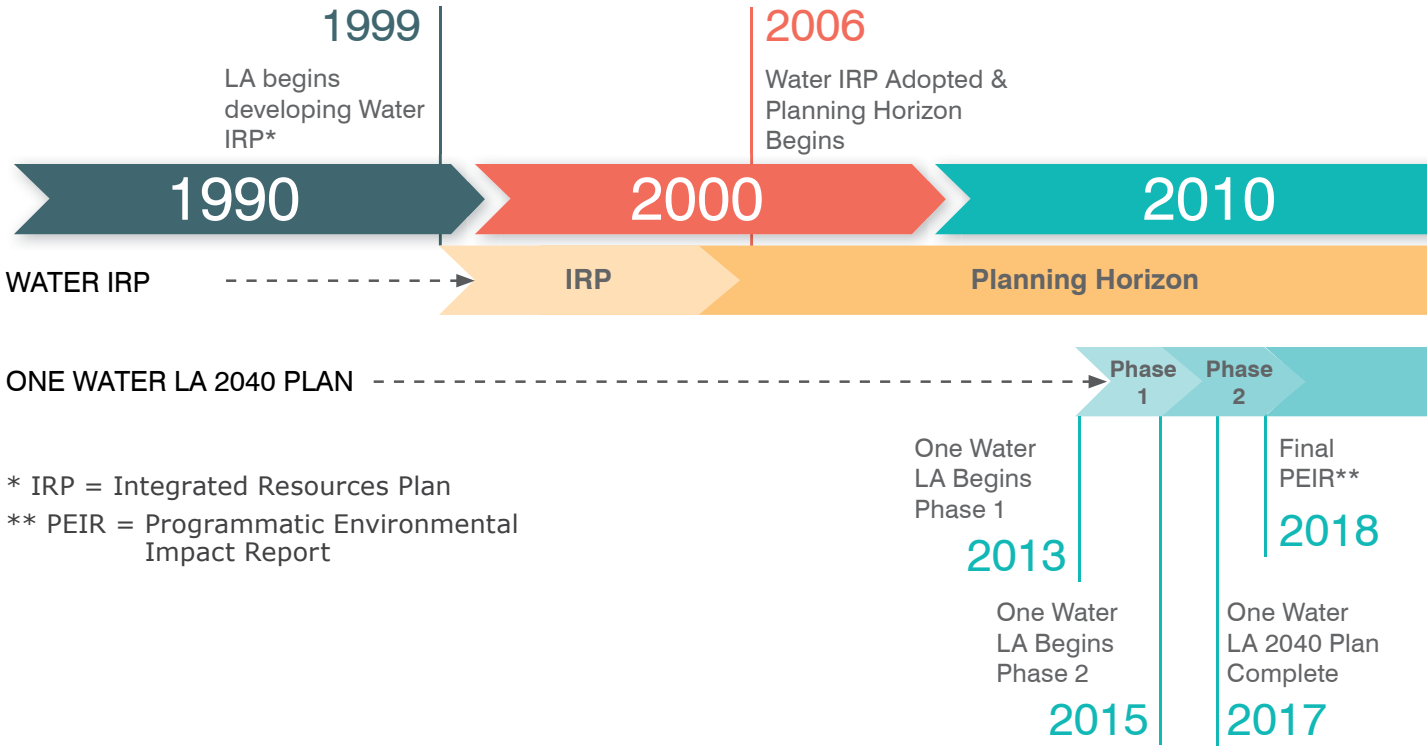
What is One Water LA?

The One Water LA 2040 Plan (One Water LA) is a comprehensive planning process designed to increase sustainable water management for the City of Los Angeles (City). The City launched One Water LA with two primary goals:

1. Develop a vision and implementation strategy to manage water in a more efficient, cost effective, and sustainable manner.

2. Identify ways for City departments and regional agencies to integrate their water management strategies.

One Water LA will provide a comprehensive strategy consisting of new project, program and policy opportunities to manage water in a more integrated, collaborative, and sustainable manner. The Plan will consist of multiple deliverables that will form the foundation of the Implementation Strategy, which provides a roadmap to make the One Water LA Vision a reality. One Water LA is a collaborative approach to integrated water management and aims to further the many opportunities that exist to integrate efforts and programs. For specific water projects, programs, or policies that are the sole responsibility of one agency, such as LADWP's aqueduct or groundwater remediation project, refer to that agency's appropriate plans.



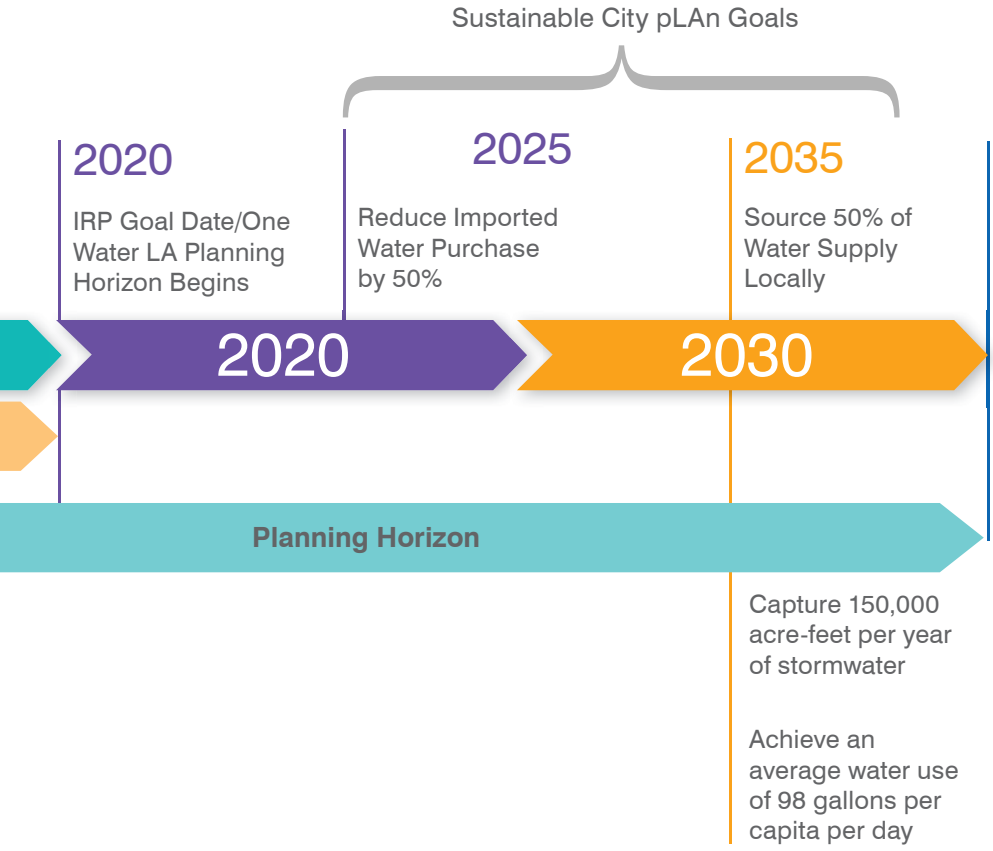
One Water LA promotes new thinking to respond to evolving water management challenges and helps achieve the Sustainable City pLAn goals. One Water LA depends on close collaboration between City departments to break down the traditional institutional barriers between the management of drinking water, wastewater, recycled water, runoff, and stormwater. By integrating projects, programs, and adjusting policies, the City can help improve water quality, support supply reliability, improve system efficiency, and continue to protect public health and our environment.

Beyond City departments and regional agencies, One Water LA also takes care to represent the City's diverse geography, demographics, and interests, helping make sure One Water LA benefits everyone who calls the City of Los Angeles home.

Progress Report Purpose

The purpose of this report is to share the City's One Water LA accomplishments and progress to date.

The information presented in this report represents a snapshot in time. The One Water LA 2040 Plan will further refine some of the goals and strategies discussed in this report.



The One Water LA Plan extends the planning horizon of the Water Integrated Resources Plan (Water IRP) from 2020 to 2040. The One Water LA Plan and associated programmatic environmental impact report (PEIR) are anticipated to be completed by 2018.

Water Management Challenges

One Water LA is looking at a wide variety of water-related issues and challenges that will require new integrated water management strategies in the future. These include:

More Stringent Stormwater Quality Regulations

To protect beaches and marine life, regulators establish total maximum daily loads (TMDLs) for various pollutants found in runoff. The City has a certain amount of time to comply with these TMDL requirements to avoid fines. These deadlines are approaching rapidly.

Reducing Reliance on Purchased Imported Water

The City's current supply mix is heavily dependent on imported water from Northern California, the Eastern Sierras, and the Colorado River Watershed. Chronic and more severe droughts reduce the reliability of imported water supplies.

Replacing Aging Infrastructure

The City owns thousands of miles of water, sewer, and stormwater pipelines and associated facilities. The vast majority of these systems are old and getting older. Replacing all aging infrastructure in Los Angeles at once is not affordable. The challenge is to prioritize replacements and repairs despite limited information, funds, and resources.

Limited Funding

The City has limited funds and resources to address all of these water management challenges. Integrated planning between City departments will help prioritize needs, develop multi-benefit solutions, and identify funding sources, and cost-sharing opportunities.

The Machado Lake Ecosystem Restoration Project is an example of a stormwater quality improvement project in LA that protects aquatic life and enhances recreation.

The City is aggressively focusing on aging pipes and other deteriorating infrastructure to prevent unexpected ruptures.

Increasing Climate Change Resiliency

The City must become more climate resilient. This means not just preparing for droughts, but for increasing temperatures, more intense precipitation events and associated flooding risks, sea level rise, risk of wildfires, and damage from high winds.

Recurring Droughts

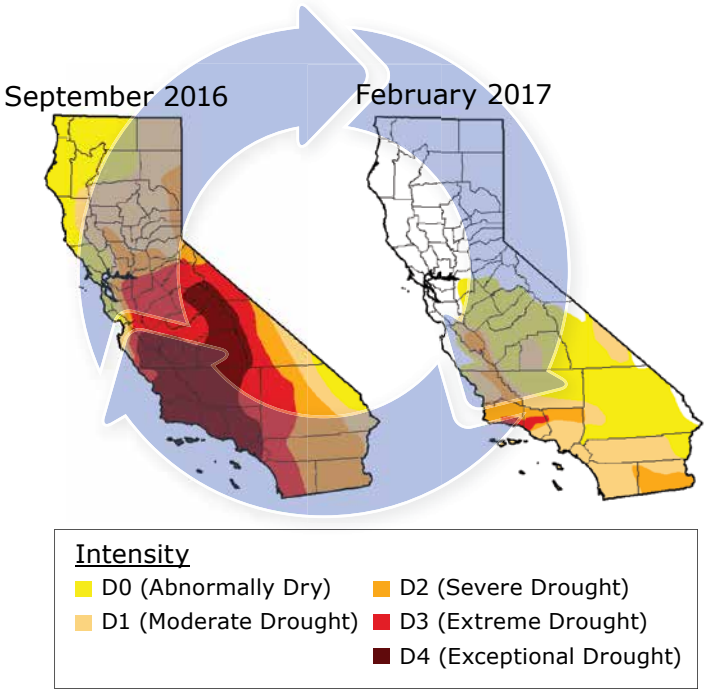
Severe statewide droughts have reduced surface and underground water levels throughout California. The droughts have reduced LA's access to imported water supplies, resulting in new water conservation requirements. Despite the heavy rains in the beginning of 2017, the City must be ready for prolonged dry conditions in the future.

Adapting to Changing Flood Protection Needs

More frequent intense storm events could result in flooding. Increased stormwater capture and recharge is a key strategy to achieve flood protection and water quality goals.

Flooding in Los Angeles during the multiple day storm event in February 2017.

The Cyclical Nature of California's Droughts



Source: California Drought Monitor

Preparing for an Increasingly Unpredictable Climate

From 2011 to 2016, California experienced the most severe drought conditions in the State's history. However, the rain events between December 2016 and February 2017, brought new problems: flooding, evacuations, and landslides. While current snowpack and surface water levels are encouraging, the extreme weather fluctuations demonstrate the importance of becoming more resilient to climate change. Simply put, the City must adopt proactive strategies to handle an increasingly unpredictable climate.

About One Water LA

One Water LA connects plans, ideas, and people to arrive at more integrated and fiscally-responsible water management solutions. By looking at the total water picture, the City with its partners can create more efficient projects that maximize resources and minimize cost. The City is committed to pursuing multi-beneficial projects, combining financial resources, and identifying funding opportunities to make One Water LA a reality.

One Water LA builds on information developed for a large number of existing planning studies, including the following:

- 2006 Water Integrated Resources Plan (IRP)
- 2015 Urban Water Management Plan (UWMP)
- 2015 Stormwater Capture Master Plan (SCMP)
- 2015 Enhanced Watershed Management Plans (EWMP) representing each of LA's five watersheds
- Los Angeles County's 2015 LA Basin Stormwater Conservation Study

One Water LA also supports the Sustainable City pLAn released in 2015, which calls for a multi-faceted approach to achieving stormwater quality, a locally sustainable water supply, reducing per capita potable water use, scaling back dependence on purchased imported water, maximizing water recycling, and increasing stormwater capture. One Water LA's success relies on everyone, including government, businesses, academia, community members, and interest groups working together to achieve the One Water LA vision.

One Water LA leverages many existing studies.

A few examples of the Sustainable City pLAn goals One Water LA supports

Stormwater Quality:
Improve beach water quality grade-point average (GPA) to:

3.9 (dry) 3.2 (wet) — 2025

4.0 (dry) 3.5 (wet) — 2035

50% Reduce the purchase of imported water by 50% 2025

150,000 AFY Capture 150,000 acre-feet per year of stormwater 2035

50% Source 50% of water locally 2035

The Two Phases of One Water LA

The level of complexity, scope, and large number of stakeholders involved makes One Water LA more extensive than most other studies or master plans. The Plan consists of two phases:

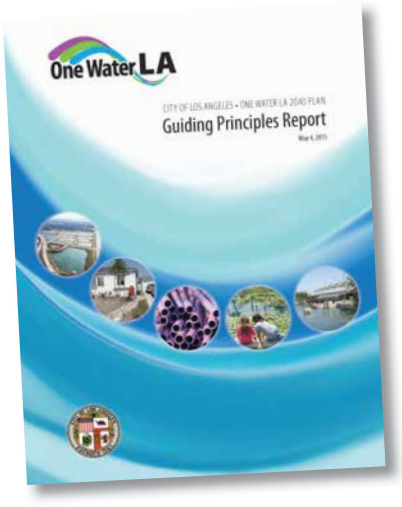
1

Phase 1 defined the Vision, Objectives, and Guiding Principles of One Water LA. More than 350 stakeholders were actively engaged in Phase 1.

The Guiding Principles Report, completed in May 2015, listed the following One Water LA Objectives:

- **Integrate management of water resources** and policies
- Balance **environmental, economic and societal** goals
- Improve health of local **watersheds**
- Improve local water **supply reliability**
- Implement, monitor and maintain a **reliable wastewater** system
- Increase **climate resilience**
- Increase **community awareness** and advocacy

Section 3 in this report contains a summary of the progress made towards the seven Objectives.



2

Phase 2 involves detailed, integrated planning and policy analysis that will result in an implementation strategy to meet the One Water LA vision, objectives, and guiding principles. The One Water LA 2040 Plan is being developed by dedicated representatives from both LASAN and LADWP and shaped by input from other City departments and regional agencies. A steering committee, advisory group, and a large number of stakeholders are also providing input. This phase will include updated wastewater and stormwater facility plans, as well as recommended policies to increase coordination, integration, and management of water between all City departments.

The One Water LA 2040 Plan consists of many plan elements and deliverables that will form the foundation of the One Water LA Implementation Strategy.

Value of One Water LA

Benefits

By identifying the multiple benefits (environmental, economic, and social) of projects and programs, the City can implement more sustainable and cost-effective solutions. Ultimately, One Water LA will lead to smarter land use practices, healthier watersheds, greater integration of the City's various water systems, increased utility efficiency, stronger communities, climate change resiliency, and protection of public health.

The key outcomes of One Water LA include:

- A framework for integration opportunities between City departments, regional agencies, and other stakeholders.
- A strategy to maximize potable reuse opportunities.
- A strategy to maximize stormwater capture that considers water quality, flood mitigation, and water supply benefits.
- A variety of long-term policy recommendations.
- A roadmap for integrating projects and programs to achieve the One Water LA objectives and support the Sustainable City pLAn goals, including project triggers, cost estimates, and funding considerations.

To make our community a better place to live and work, we have to keep our water clean, increase local water supplies, and continue greening our City. This can be done better through planning and managing all water as One Water.

Collaboration is Critical to Success

One of the unique elements of One Water LA is cooperation and collaboration at many different levels within the City family. LADWP and LASAN are the two leading departments, working in partnership with other City departments, regional agencies including LA County Department of Public Works, the business community, and stakeholders. Making sure everyone's voice and perspective is heard is an important key to success.

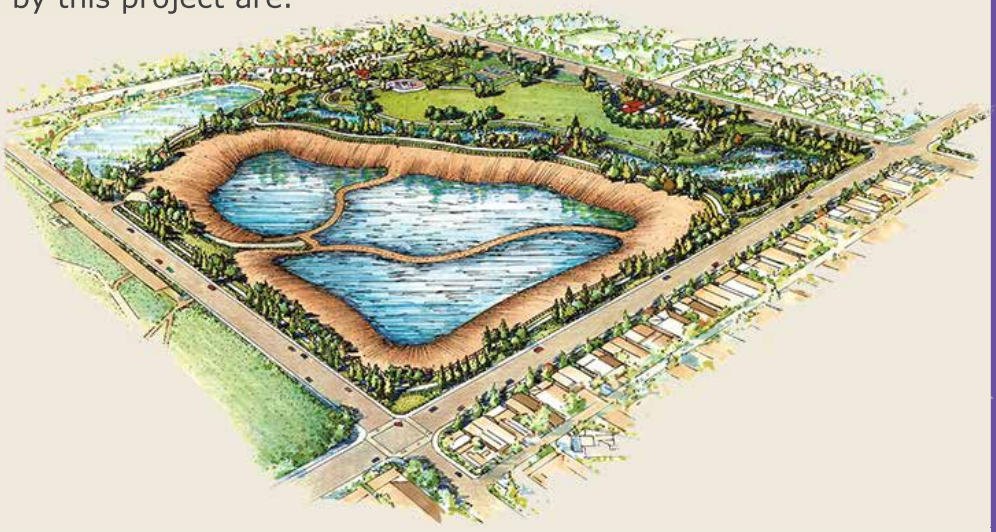
Collaboration extends beyond the One Water LA 2040 Plan development. The City is identifying ways for departments to work together on water management matters for decades to come. Bringing together all these parties in the planning stage helps foster new relationships between departments, regional agencies, and stakeholders.

One Water LA is more than a Plan – it is a group of people throughout the City working to change the way we think about managing water.

Multi-Benefit Project Implementation

The One Water vision promotes implementation of multi-benefit projects. An example of an ongoing multi-benefit project made possible by a partnership with Los Angeles County Flood Control District and the City is the Rory M. Shaw Wetlands Park in Sun Valley. The multiple benefits provided by this project are:

- Flood Protection
- Stormwater Quality
- Water Supply
- Ecosystem Restoration
- Recreation
- Education
- Mobility
- Environmental Justice

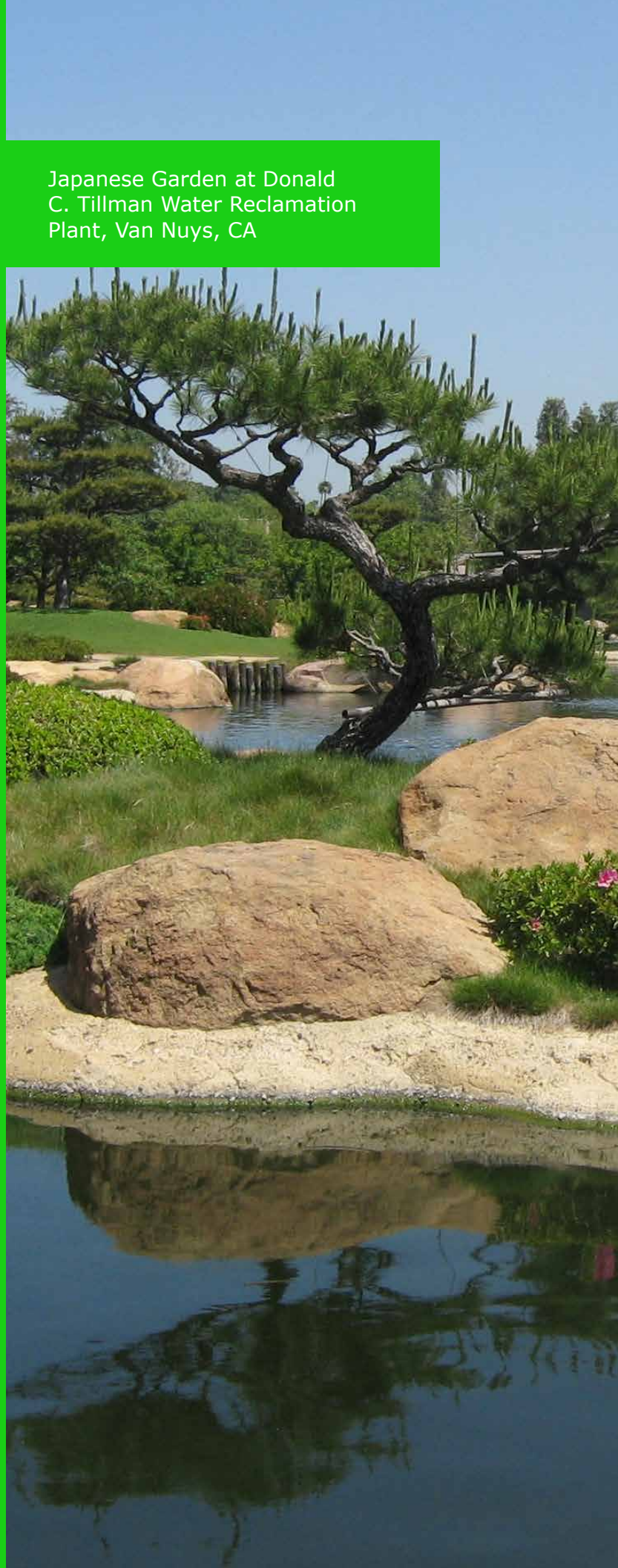


The Rory M. Shaw Wetlands Park project is an example of successful inter-agency collaboration. One Water LA is looking at similar opportunities to implement multi-benefit projects in the City of LA.

SECTION 2

LA's Existing Water Management Strategies

Do you know where LA's water comes from and how it is used? Read a little further to learn about how the City manages its Urban Water Cycle. This section includes a brief history of LA's water management and describes strategies currently being implemented by City departments related to water conservation, water recycling, stormwater and urban runoff.



Japanese Garden at Donald C. Tillman Water Reclamation Plant, Van Nuys, CA

LA's Current Water Supplies

The City uses multiple water supply sources, programs, and practices to meet the City's water demands, drinking water quality standards, wastewater discharge limits, and environmental water quality requirements. In recent years, the City of LA has imported approximately 84 percent of its entire water supply from hundreds of miles away.

As shown on the map below, the City utilizes three different aqueducts that bring water to LA from the Delta, Owens Valley, and the Colorado River. The remaining 16 percent of the City's water supply comes from local groundwater, stormwater, and recycled water. The City's current supply mix results in heavy dependence on snowfall and sufficient storage in Northern California, Eastern Sierras and the Colorado River watershed.

As we have seen in recent years, drought conditions and climate change severely impact snowfall in the Eastern Sierras and the Colorado River watershed. As those water supplies fluctuate, so does our ability to import water from these sources.

Moreover, all three aqueducts cross the San Andreas Fault and are subject to prolonged interruptions in case of a major seismic event. The One Water LA Plan recognizes that developing our own local supplies—sources that we can rely upon under any circumstances—is a top priority of the City.

Approximately 84 percent of the water the city of LA uses comes from hundreds of miles away.

Foundation of Existing Water Management Strategies

The two key documents that define the City's existing water management strategies are the 2006 Water Integrated Resources Plan (IRP) and the 2015 Urban Water Management Plan (UWMP).

Water Integrated Resources Plan

The Water IRP, adopted in 2006, covers a planning horizon from 2000 to 2020. The Water IRP represents the first time that wastewater facilities planning was integrated with stormwater, recycled water, and water conservation. It was also ground-breaking in its engagement with public stakeholders during the planning process. Public engagement through the Water IRP helped pass Proposition O, which pays for the construction of stormwater management projects. The Water IRP also led to development of the Groundwater Replenishment (GWR) Project and creation of the Recycled Water Advisory Group.

Urban Water Management Plan

The main goal of the 2015 UWMP is to plan for meeting all future water demands with water supplies under average and dry year conditions.

Further steps involve identifying future water supply projects to meet these demands, updating water conservation goals, and developing a single and multi-dry year management strategy. The UWMP, updated every five years, is the City's master plan for water supply and resources management and guides LADWP's decision-making process to secure a reliable and sustainable water supply for the City.

LADWP's 2015 UWMP update provides a strategy for the City to meet the Sustainable City pLAn goals for 50% reduction of purchased imported water by 2025, 50% local water supply by 2035, and up to a 25% reduction in potable water use. In addition, it incorporates the beneficial role of LADWP's San Fernando Basin Groundwater Remediation project in allowing LADWP to further utilize the City's investments around groundwater replenishment with recycled water and stormwater projects.

The 2006 Water IRP resulted in public support and passage of Proposition O in 2000, which has funded 19 stormwater and water quality projects, including, the Echo Park Lake Revitalization shown below.

The 2006 Water IRP also led to the GWR Project, which will recharge up to 30,000 acre-feet of recycled water per year into the San Fernando groundwater basin. This project is expected to be operational by 2022.

California Friendly Landscaping Demonstration Garden at the LADWP John Ferraro Building in Downtown Los Angeles, CA.

Water Conservation

The City of LA, long-recognized as an early pioneer of water conservation programs, continues to be a national leader in water use efficiency and has one of the lowest per capita water uses of all large cities in the United States. Since the 1970s, water conservation has been a permanent part of the City's water supply planning.

The recent multi-year drought resulted in diminished supplies from the Los Angeles Aqueduct (LAA) and heavy reliance on purchased water from the Metropolitan Water District of Southern California (MWD). When Governor Brown declared the drought emergency in January 2014 Angelenos responded quickly by reducing water use by 22 percent.

Mayor Garcetti signs Executive Directive No. 5 alongside City management and stakeholders on October 14, 2014.

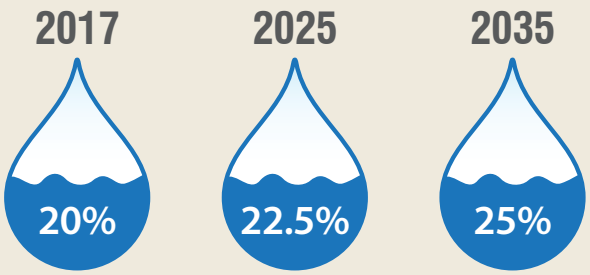
In October 2014, Mayor Eric Garcetti issued Executive Directive No. 5, which set goals to reduce per capita water use and reduce purchase of imported water supplies. The Sustainable City pLAn, which builds on this directive, includes goals to reduce per capita water use 25 percent by 2035. To achieve this goal, the City has a multi-faceted water conservation approach that targets both indoor and outdoor uses and reaches across all customer sectors. The next page highlights a few of the on-going conservation programs.

Results of Existing Strategies:

- Reduction of average water use to 104 gallons per capita per day, already achieving the 2017 target of the Sustainable City pLAn.
- Replacing 47.8 million square feet of turf, reducing use of 1.9 billion gallons of water per year.
- More than 120,000 acre-feet of water saved through LADWP's conservation incentive programs.

Future Targets:

- Achieve an average water use of 98 gallons per capita per day by 2035.
- The Sustainable City pLAn water conservation targets are:



Examples of Recent & Ongoing Water Conservation Strategies

Water Loss Reduction Program

In 2013, LADWP completed its Water Loss Audit and Component Analysis. Based on the findings, LADWP created a Water Loss Task Force to reduce water loss through new initiatives such as improved pressure management and increased active leak detection.

Save-the-Drop Campaign

In April 2015, the City launched its Save-the-Drop water conservation outreach campaign--a partnership between LADWP and the Mayor's Office. Outreach materials include public service announcements, radio spots, event handouts, and public signage. The campaign also partnered with celebrities such as Steve Carrell, Jaime Camil, and Moby for public service announcements airing on TV, in movie theaters, and on the radio.

DID YOU KNOW?

One acre-foot equals about 326,000 gallons. That is enough water to cover 1 acre of land, about the size of a football field, 1 foot deep.

Outreach & Education

LADWP has developed extensive public information and school education programs. These programs include: Los Angeles Times in Education, "Thirsty City" Live Play Performances, and the Los Angeles Outdoor Landscape Academy – offering training classes that assist customers in making the switch from turf to sustainable landscapes.

Cash in your Lawn

The Cash in Your Lawn program provides homeowners with rebates to remove thirsty grass and replace it with California-friendly landscaping. Despite having only 10 percent of the State's population, the City has already contributed to more than 95 percent of the State's goal. To date, City of LA residents have replaced nearly 50 million square feet of grass with low water using, sustainable landscaping—saving more than 1.9 billion gallons of water each year!

Save-the-Drop water conservation outreach campaign.

Example of a homeowners' California friendly landscaping.

Terminal Island Advanced Water Purification Facility, Los Angeles, CA

Water Recycling

The City built its first water recycling infrastructure in the 1960s. Today, the City serves more than 50 large-scale customers with recycled water for irrigation, industrial, and environmentally beneficial uses. The 2015 UWMP set a goal to supply 75,400 AFY of recycled water by 2040, which is projected to be approximately 12 percent of the total City supply mix, compared to just 2 percent today. To achieve this goal, the City continues to expand its recycled water program through the growth of its purple pipe network and implementation of the Groundwater Replenishment Project in the San Fernando Basin.

Results of Existing Strategies:

- Sixty-two miles of recycled water purple pipelines deliver up to 10,000 AFY to non-potable customers and approximately 25,000 AFY to environmental uses.
- Fourteen recycled water fill stations for commercial users.
- Pilot Testing and completion of the Environmental Impact Report for the Groundwater Replenishment Project.
- Expansion of Terminal Island Advanced Water Treatment Facilities to 12 million gallons per day (mgd).

Future Targets:

- Implement the GWR Project to recharge up to 30,000 AFY of recycled water in the San Fernando Basin by 2022.
- Implement near-term projects to increase non-potable reuse to 29,000 AFY by 2025.
- Explore partnership efforts with other utilities to develop long-term alternatives to maximize recycled water use to 75,400 AFY by 2040.

Water is forced through reverse osmosis membranes to remove salt, dissolved chemicals, viruses and pharmaceuticals.

Examples of Recent & Ongoing Water Recycling Strategies

Groundwater Replenishment Project

The Groundwater Replenishment Project will provide up to 30,000 AFY of recycled water from Donald C. Tillman Water Reclamation Plant (WRP) to replenish the San Fernando Basin. To date, the City has conducted extensive pilot testing of various treatment processes to comply with state regulations for groundwater replenishment. This project is planned to be operational in 2022.

Terminal Island Water Reclamation Plant Expansion

Since 2006, the Terminal Island WRP has supplied nearly 4 mgd of recycled water to the Dominguez Gap Barrier, which prevents seawater intrusion into the West Coast Groundwater Basin. In 2016, LASAN completed the plant expansion, doubling its treatment capacity from 6 to 12 mgd. This will allow the City to deliver the Dominguez Gap Barrier with its total needs, eliminating the need for potable water as a supplement. The facility will now also supply various harbor-area industrial users with recycled water and send water to Machado Lake to replenish water lost from evaporation.

Non-Potable Reuse Expansions

The City has completed nearly 62 miles of recycled water system extensions from the Donald C. Tillman WRP, LA-Glendale WRP, Terminal Island WRP, and Hyperion WRP. The total non-potable reuse demand nearly doubled from 5,151 AFY in 2006 to 9,913 AFY in 2016.

Regional Partnerships

In addition to partnering with Burbank, Glendale, and others, the City is exploring a regional partnership with the Las Virgenes Municipal Water District to serve Woodland Hills Country Club with recycled water. The City also reached an agreement in early 2017 to increase the delivery of up to 70 mgd to West Basin Municipal Water District for their recycled water system.

Recycled Water Fill Stations

Recycled water fill stations are locations where recycled water can be accessed to fill water trucks or other containers. Currently, the City has 14 recycled water fill stations used by commercial users for dust control, street sweeping, and irrigation. In 2016, the City temporarily operated a residential recycled water fill station that provided free recycled water to LADWP customers.

The Mayor and LASAN management celebrate completion of the Terminal Island WRP expansion.

The City continues to expands its non-potable water system in the Harbor, which is supplied from this pump station at the Terminal Island WRP

Ed P. Reyes Greenway,
Los Angeles, CA

Stormwater and Urban Runoff

The City's stormwater mission is to protect receiving water bodies while complying with all flood protection and pollution regulations. The 2006 Water IRP brought a new spotlight on stormwater as an important resource, which resulted in the approval of Proposition O and the completion of roughly $500 million worth of stormwater projects. Today, approximately 64,000 AFY of stormwater is captured, recharged, or used from active centralized capture and natural infiltration. However, the vast majority of stormwater runoff cannot be contained and flows to the Pacific Ocean.

Several earlier planning efforts are being integrated in One Water LA, such as the 2015 SCMP, the 2015 EWMPs and the 2016 Los Angeles Basin Stormwater Conservation Study. The purpose of these plans is to increase stormwater as a local water supply source, manage flooding, and enhance downstream water quality.

Results of Existing Strategies:

- The City currently captures nearly 10 billion gallons (29,000 acre-feet) of stormwater per year at centralized spreading and infiltration facilities.

Future Targets:

- Capture 150,000 AFY of stormwater by 2035.
- Identify funding mechanisms and performance metrics to implement stormwater capture as identified in the SCMP and the EWMPs.

The Avalon Green Alley North is a collaborative effort to green a network of alley segments within residential neighborhoods of Los Angeles.

The LA Zoo parking lot improvement project removes trash and other pollutants in urban runoff using biorentention cells, permeable pavement, and drought tolerant plants.

Examples of Recent & Ongoing Stormwater and Urban Runoff Strategies

City of Los Angeles Proposition O Projects

Proposition O authorized $500 million of general obligation bonds for projects that clean up polluted stormwater in the City's rivers, lakes, beaches, and ocean. This bond measure allowed the City to complete the planning, design, and construction of numerous stormwater projects. Examples include signature projects such as Echo Park Revitalization Project, South LA Wetlands Park, Hansen Dam Wetland Restoration, Machado Lake Ecosystem Rehabilitation, Penmar Park Subsurface Stormwater Storage and Infiltration, and the LA Zoo Green Parking Lot Stormwater Infiltration.

Stormwater Capture Master Plan

The LADWP's 2015 SCMP is intended to help reduce the City's dependence on purchased imported water. The SCMP outlines strategies to develop projects, programs, and policies to advance centralized and distributed stormwater capture initiatives over the next 20 years. The plan will serve as a guiding document for policymakers.

Enhanced Groundwater Recharge

Groundwater recharge with stormwater and recycled water is essential to maintaining groundwater supplies and providing for long-term water supply reliability. The SCMP has identified both centralized and distributed stormwater projects that will increase groundwater recharge from the current baseline of 64,000 AFY to 132,000 AFY (conservative scenario) to 178,000 AFY (aggressive scenario).

Enhanced Watershed Management Plans

Total maximum daily loads (TMDLs) set pollutant load limits for receiving water bodies. The City collaborated with nearly 30 other government agencies to prepare an EWMP for each of the five watersheds within LA County. The City has moved forward with several of the recommended projects, but is challenged by the lack of funding needed to meet permit requirements by the rapidly approaching compliance deadlines.

Green Streets/Green Alleys

This program integrates distributed and regional projects with multi-purpose green solutions designed to improve water quality, augment water supply, manage floods, enhance habitat, and provide for open space. The program includes rainwater harvesting and greenways systems to maximize stormwater capture and infiltration on public and private land.

Low Impact Development for Private Developments

The main purpose of the Low Impact Development (LID) ordinance is to ensure parcel-based development and redevelopment projects on private properties mitigate the impacts of runoff and stormwater pollution. LID comprises site design approaches and best management practices (BMPs) that are designed to effectively remove nutrients, bacteria, and metals while reducing the volume and intensity and capturing of stormwater flows.

SECTION 3

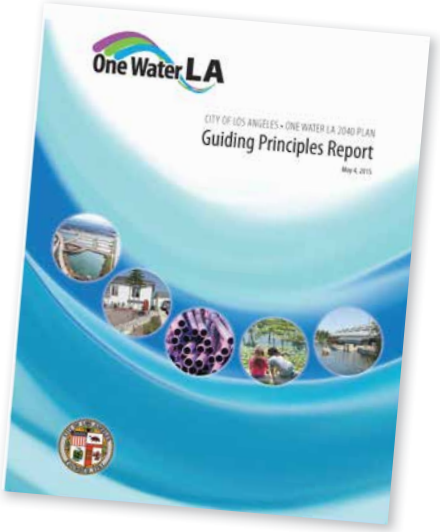
One Water LA Progress Update

In Phase 1 of One Water LA, the City and its stakeholders established seven objectives to help achieve the One Water LA vision. This section presents a progress update for each of the objectives. Since many activities will take years to implement, this update is merely a "snapshot" in time. The One Water LA 2040 Plan will provide a more complete strategy to achieve the City's goal of collaborative, beneficial management of its water resources, watersheds, and water facilities.

South Los Angeles Wetlands Park, Los Angeles, CA

One Water LA Objectives

The City, in collaboration with the Steering Committee, Advisory Group, and stakeholder groups, developed the One Water LA vision, 7 objectives and 38 guiding principles. The vision statement defines the overall purpose of One Water LA and it describes what the City aspires to accomplish in the broadest terms. The One Water LA vision statement is stated below.



A complete list of guiding principles and stakeholder groups can be found at www.onewaterla.org

ONE WATER LA VISION

One Water LA is a collaborative approach to develop an integrated framework for managing the City's water resources, watersheds, and water facilities in an environmentally, economically and socially beneficial manner.

One Water LA will lead to smarter land use practices, healthier watersheds, greater reliability of our water and wastewater systems, increased efficiency and operation of our utilities, enhanced livable communities, resilience against climate change, and protection of public health and our environment.

Development of the One Water LA 2040 Plan involves extensive cooperation and engagement from a variety of groups and committees.

The Seven Objectives of One Water LA are:

1. **Integrate management of water resources and policies** by increasing coordination and cooperation between all City departments, partners and stakeholders.

2. **Balance environmental, economic and societal goals** by implementing affordable and equitable projects and programs that provide multiple benefits to all communities.

3. **Improve health of local watersheds** by reducing impervious cover, restoring ecosystems, decreasing pollutants in our waterways and mitigating local flood impacts.

4. **Improve local water supply reliability** by increasing capture of stormwater, conserving potable water and expanding water reuse.

5. **Implement, monitor and maintain a reliable wastewater system** that safely conveys, treats and reuses wastewater while also reducing sewer overflows and odors.

6. **Increase climate resilience** by planning for climate change mitigation and adaptation strategies in all City actions.

7. **Increase community awareness and advocacy for sustainable water** by active engagement, public outreach and education.

The next several pages describe the progress made towards achieving these seven objectives and supporting guiding principles since the One Water LA planning effort began.

1 Integrate management of water resources and policies by increasing coordination and cooperation between all City departments, partners and stakeholders

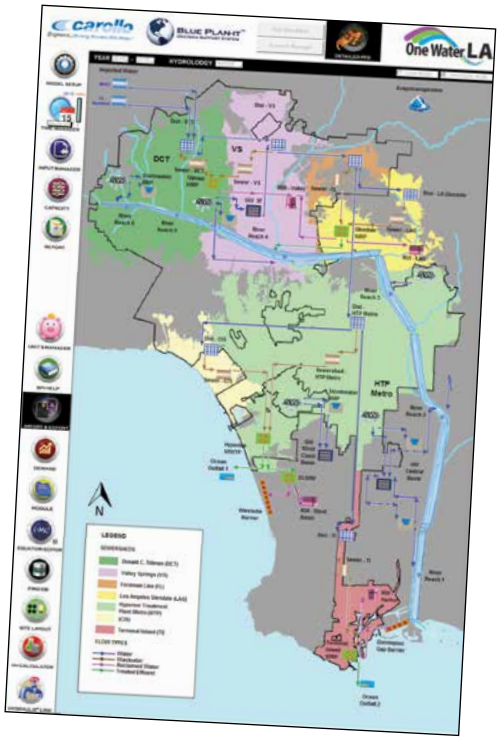
Progress to Date

- **Established the One Water LA Steering Committee**, representing 14 City departments and 6 regional agencies, who collaborated to:
  - Develop the Vision Statement, Objectives and Guiding Principles with stakeholders,
  - Identify water-related project integration opportunities, and
  - Develop policies to streamline integrated water resources management and collaboration.
- **Held more than 40 inter-departmental/agency focus meetings**, where LASAN and LADWP staff met with individual City departments and regional agencies.
- **Initiated the One Water LA Stakeholder Group**, which includes more than 350 stakeholders representing more than 200 organizations, including neighborhood councils, non-profits, business and homeowner associations, academia and others.
- **Formed the Stakeholder Advisory Group**, to allow for more frequent interaction with stakeholders. The Advisory Group provides a good representation in terms of interests, geography within the City, and past participation in other water-related stakeholder processes.
- **Created five Special Topic Groups** for key components and held multiple meetings with each group to allow for in-depth discussion.

The Water Balance Tool

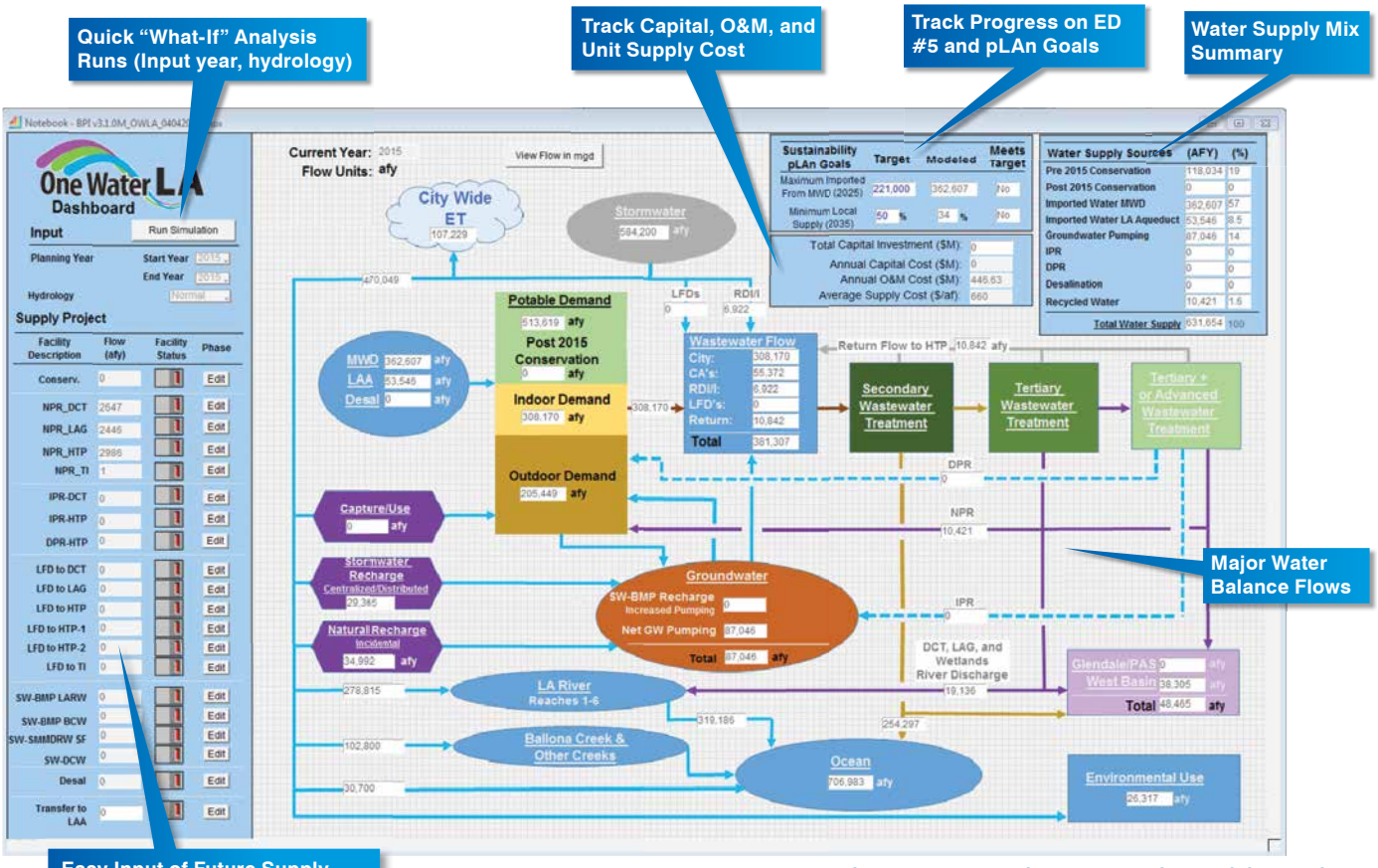
One of the early accomplishments of One Water LA was the development of a Water Balance Tool, which encompasses all the major flow components of the City's urban water cycle. The development of this tool is 1 of the 38 guiding principles under this objective.

The Water Balance Tool helps LASAN and LADWP better understand the complexities of the City's water cycle from a One Water perspective. The Water Balance Tool summarizes annual rainfall, runoff, water demands, wastewater flows, stormwater flows, and ocean discharges for various planning years and hydrologic conditions. The tool is intended to help identify opportunities to make the City's urban water cycle "smarter" by maximizing water recycling and stormwater capture.



The Water Balance Tool Map View

The Water Balance Tool will be used by City staff to evaluate long-term water management scenarios. This tool estimates the water balance of the City's major flows for combinations of future projects under various demand conditions, hydrology scenarios, and planning years. The tool also tracks progress towards complying with the goals set forth in the Sustainable City pLAn.



The Water Balance Tool Dashboard

2

Balance environmental, economic and societal goals by implementing affordable and equitable projects and programs that provide multiple benefits to all communities.

Progress to Date

- Developed comprehensive evaluation criteria to identify the benefits of potential future water projects.
- Actively engaged multiple City departments, advisory group members, and stakeholders in developing the alternatives evaluation criteria and metrics.
- Solicited input from City staff and stakeholders on the relative importance of the evaluation criteria that will be used to score benefits of future water management strategies.
- Developed initial project triggers that will consider water demands, supply availability, regulatory requirements, climate vulnerability, and environmental goals.

The comprehensive evaluation criteria will be used to compare the benefits of the long-term concepts described on page 45, leading to a better understanding of how each concept balances environmental, economic, and societal goals. By assessing which concepts may have multi-beneficial elements, the City can prioritize future water investments. In addition, the multi-benefit approach was used in evaluation of near-term integration opportunities (see examples on page 29 and 44).

Economic Criteria

- Unit cost
- Financial benefits
- Funding mechanism
- Likelihood to obtain outside funding

Resiliency Criteria

- Drought resiliency
- Earthquake resiliency
- Flood risk mitigation
- Local supply benefit
- Energy Impact/ Green-House Gas Emissions

Implementation Criteria

- Constructability
- Institutional collaboration
- Regulatory approval
- Public engagement
- Public and political support

Environmental Criteria

- Environmental justice
- Open/natural space and recreational benefit
- Stormwater quality
- Ecological benefit

The City defined a total of 18 evaluation criteria with corresponding metrics to consider and balance environmental, economic, and societal goals.

Examples of Near-Term Integration Opportunities

Rancho Park Water Treatment Facility

This potential concept involves collaboration and coordination between LASAN, LADWP, Department of Recreation & Parks (RAP), and the University of California Los Angeles (UCLA).

The Rancho Park Water Treatment Facility concept consists of a potential new satellite water reclamation facility that would produce recycled water to meet substantial non-potable demands in the Westside area including irrigation for the UCLA campus, the City's largest municipal golf course, and several other users. The concept also includes stormwater capture to retain, treat and remove pollutants such as trash, metals, and bacteria.

Capture of stormwater at LAUSD schools

The City is pursuing a case study that assesses the feasibility of developing a pilot project for a LAUSD site to capture off-site stormwater. Conversations initiated through One Water LA Focus Meetings, have occurred with LAUSD engineering, operations, and health and safety staff.

The goal is to identify a potential pilot project that would consist of a pre-treatment system (off school site), concrete tank, monitoring system, valves, and potential irrigation systems. Trash and solids could be removed from stormwater diverted from a local storm drain. Diverted stormwater could then be conveyed onto the selected school site and used for either infiltration or irrigation. Potential school sites are grouped by watershed with focus on areas where regional stormwater facilities could optimize infiltration and on-site use meeting multiple objectives and benefits.

Water Related Opportunities for the LA Zoo's Master Plan

The LA Zoo, in collaboration with One Water LA, is advancing the incorporation of water management strategies for both stormwater and recycled water into their Master Plan. The goal is to decrease the LA Zoo's potable water use. Work in progress includes identification of information gaps, water quality requirements for use of recycled water in animal exhibits, funding opportunities, and other steps necessary to evaluate recycled water and stormwater capture uses. Information collected from this effort can potentially be applied to other zoos and animal shelters in the region and country.

The Rancho Park Water Treatment Facility concept looks at using both recycled water and stormwater to irrigate the City's largest municipal golf course and offset potable water demands for Westside area customers including UCLA and others.

The LA Zoo has opportunities to capture and use stormwater as well as utilize recycled water for irrigation and animal exhibits.

3

Improve health of local watersheds by reducing impervious cover, restoring ecosystems, decreasing pollutants in our waterways and mitigating local flood impacts.

Progress to Date

- **Preparing a Stormwater and Runoff Facilities Plan** based on a "three-legged stool approach" that considers flood protection, water supply, and water quality objectives.
- **Preparing a LA River Flow Study** that describes existing flow conditions and discusses strategies to balance water needs.
- **Held Stormwater Special Topic Group meetings** to address the need for both grey and green projects at the regional, distributed, and parcel level, which the City and community groups could achieve cooperatively.
- **Held Special Project Ideas workshop and hosted a Stormwater Fee Dialogue** to exchange ideas on additional project, program, and funding considerations.
- **Analyzed low flow diversion (LFD) opportunities** to increase recycled water supplies by routing stormwater into the sewer system.

Green Streets projects are an important element of the City's future stormwater management strategy. These natural systems provide multi-benefits beyond stormwater management, such as pedestrian safety and traffic calming, street tree canopy for heat island effect mitigation, increased property values, and reduced crime rates.

Examples of New Stormwater Approaches

What is a "Three-Legged-Stool" Approach to Stormwater Management?

Historically, stormwater projects target flood risk mitigation, or water quality improvement, or water supply augmentation. Instead, the One Water LA Stormwater & Urban Runoff Facilities Plan prioritizes "Optimal Stormwater Projects" as achieving all three benefits of the "three-legged stool," which are flood risk mitigation, water quality improvement, and water supply augmentation. These multi-benefit opportunities can be accomplished collaboratively by the City, regional partners, and stakeholders.

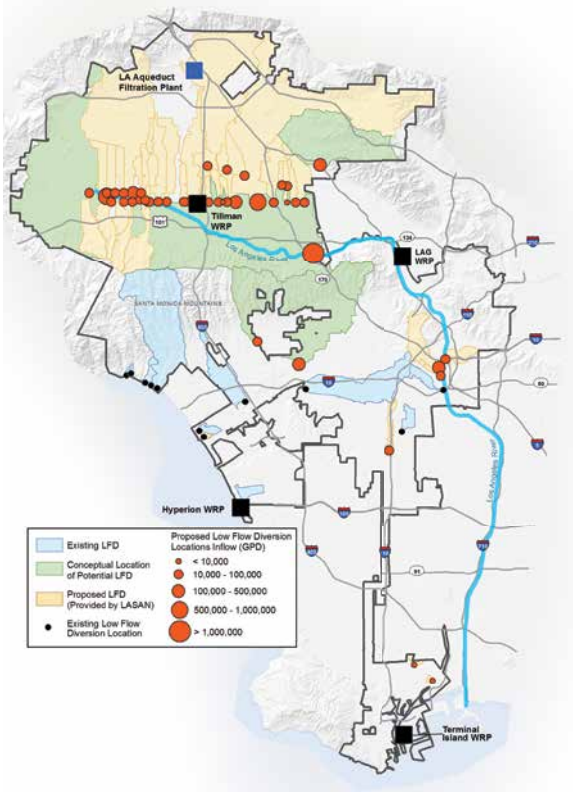
The City has identified more than 1,200 centralized and distributed stormwater project opportunities in its stormwater database. These will be refined and implemented as the City continues with project implementation through 2040.

The "three-legged stool" approach promotes implementation of projects that achieve multiple benefits

Low Flow Diversions

Water conservation has substantially reduced wastewater flows, leaving excess sewer system capacity in parts of the City. Low Flow Diversions (LFDs) are specifically designed to capture runoff and convert it into a water resource. By diverting runoff (specifically dry-weather runoff) into the sewer system for eventual treatment, LFDs can reduce potentially polluted water from entering our waterways and increase recycled water availability. The City conducted an analysis that identified 45 potential LFD locations where there is sufficient capacity in the sewer system to accommodate diversions from the storm drain system. The City estimates that LFDs can divert approximately 4,000-6,000 acre feet per year of stormwater into the sewer system , which helps maximize recycled water supplies and minimize losses to the ocean. Where feasible, wet weather flow diversions are also considered.

The best LFD opportunities exist in the San Fernando Valley, which could potentially increase recycling output from the DCT and LAG WRPs



4

Improve local water supply reliability by increasing capture of stormwater, conserving potable water and expanding water reuse.

Progress to Date

One Water LA considers all water: surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater, as "One Water." The key strategies that One Water LA evaluates are stormwater and recycled water.

Stormwater: The Stormwater & Urban Runoff Facilities Plan that is being developed builds upon the efforts of the SCMP and five EWMPs. In addition to the 3-legged stool approach (see page 31), ideas from stakeholders and other agencies gathered during the stormwater special topic group meetings and various focused meetings are incorporated in this Facilities Plan.

Recycled Water: The City is conducting a long-term alternatives analysis to understand the costs and benefits of maximizing recycled water production. One Water LA is evaluating opportunities to maximize non-potable and potable reuse at each of LASAN's four water reclamation plants and possible satellite water reclamation plant locations.

Our local groundwater aquifers are seen as "water banks" allowing recycled water and stormwater to be captured and stored. These water banks can be relied upon during drier periods when surface water is scarce.

The Harbor City Greenway project restored half a mile of the Wilmington Drain storm channel to its natural state, providing local residents access to 27 acres of green space and clean water flows into the Machado Lake ecosystem.

City Planning and Partnership Spotlights

Clean Up Green Up is a policy initiative led by the Department of City Planning that aims to address environmental justice issues in communities disproportionally affected by industrial land uses and polluting sources. One Water LA provided input on stormwater measures related to this ordinance.

OurLA2040 is an update of the City's General Plan and the One Water LA team is working with the Department of City Planning to help draft the water element. The General Plan is the heart and foundation of the City's long range planning endeavors and serves as the basis for physical, economic, social, cultural, and environmental decision making.

Re:Code LA is preparing a new zoning code for the first time since 1946 that will enable the City to apply more tailored zoning that responds to the needs of the community. The One Water LA team is taking advantage of this unique opportunity by guiding the City's Planning Department on water-related code updates. The new code will be available for the upcoming Community Plans to use in their update efforts and to help implement the vision of the General Plan.

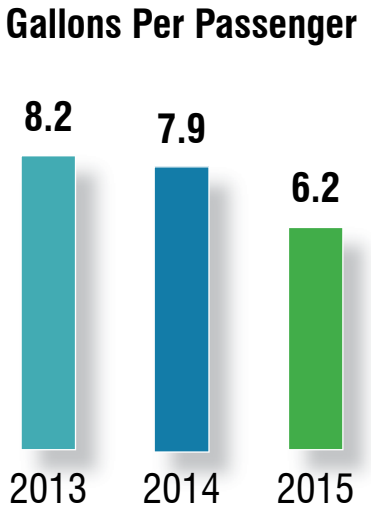
OurLA2040
Our City. Our Future. Our Plan.

PLAN re:code

clean GREEN UP

Los Angeles World Airports (LAWA) is doing its part to reduce potable water use. LAWA's water conservation initiatives address landscapes, construction-related dust control, as well as public outreach. Highlights include:

- Conversion of 63 percent (51 acres) of all LAX landscapes to recycled water irrigation.
- Discontinuation of irrigation in non-public areas.
- Conversion of turf to bark/stone.
- Reduction of potable water irrigation from 5 to 2 days per week.
- Nearly 95 percent of terminal faucets, toilets, and urinals are replaced with low-flow or ultra-low flow (saving about 50 to 80 million gallons per year).
- Use of recycled water and water conservation signage throughout LAWA facilities.



LAWA's efforts at LAX have resulted in a 33% reduction in potable water use despite a 14% increase in the number of passengers during the same 3-year period.

5 Implement, monitor and maintain a reliable wastewater system

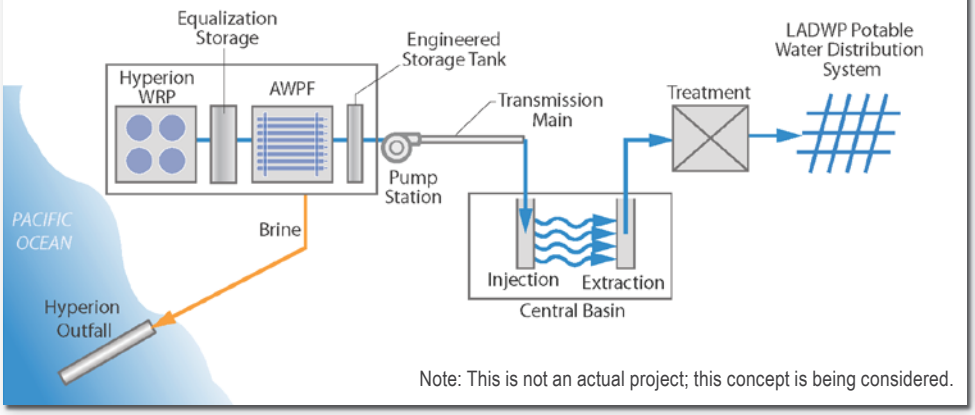
that safely conveys, treats and reuses wastewater while also reducing sewer overflows and odors.

Progress to Date

- **Analyzing various options to maximize and optimize potable reuse** from the City's water reclamation plants (WRPs).
- **Analyzed opportunities for new satellite WRPs** to create a distributed system of recycled water production and delivery throughout the city.
- **Preparing a Wastewater Facilities Plan** to assess existing and future capacity, process, and operations & maintenance needs for each of the City's four WRPs. Recommendations consider future flow projections, viability of future technologies, and regulatory requirements.
- **Assessing future solids handling options** to optimize recovery and use of nutrients from wastewater and biosolids based on expected regulatory and compliance issues.

As part of the Wastewater Facilities Plan for Hyperion, the City's largest Water Reclamation Plant, the City is assessing a wide variety of options to maximize recycling through regional collaboration and partnerships.

Example of a Potential Water Recycling Concept

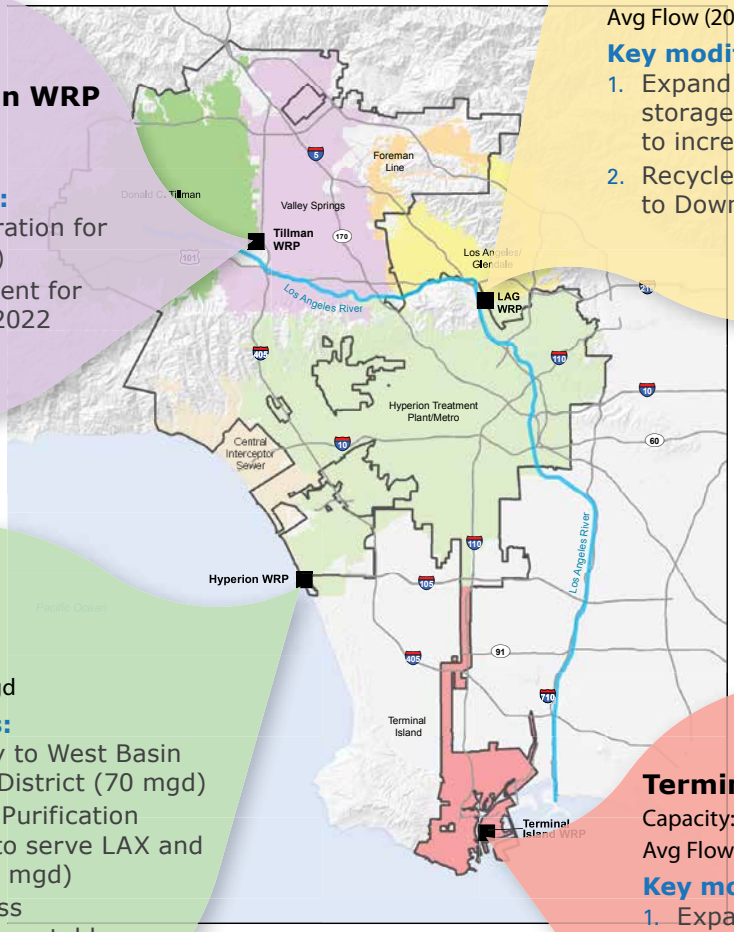


Each potential water recycling concept considered in the long-term alternatives analysis includes future system needs, a process flow schematic, and potential layout modifications.

Examples of Wastewater Facilities Plan Elements

The City is developing a comprehensive Wastewater Facilities Plan for its four WRPs: Hyperion, Terminal Island, Donald C. Tillman, and Los Angeles-Glendale. The purpose of this Facilities Plan is to optimize City assets and identify treatment plant improvements needed to increase water recycling and meet customer needs through 2040. The facilities plan documents the following for each WRP:

- Existing facilities, current treatment processes, and currently planned projects.
- Current issues, studies, evaluations, recommendations, and decisions for each process.
- Strategies for treatment options to meet future water demands.
- Climate resilient infrastructure recommendations to minimize risk and mitigate impacts.
- Phased Capital Improvement Plan needs including currently planned projects, improvements for existing deficiencies, and future system considerations.



Donald C. Tillman WRP
Capacity: 80 mgd
Avg Flow (2016): 32 mgd

Key modifications:
1. Ozonation/biofiltration for recharge (6 mgd)
2. Advanced treatment for GWR project by 2022

LA-Glendale WRP
Capacity: 20 mgd
Avg Flow (2016): 14 mgd

Key modifications:
1. Expand equalization tank storage capacity by 5 MG to increase water recycling
2. Recycled water expansion to Downtown LA

Hyperion WRP
Capacity: 450 mgd
Avg Flow (2016): 250 mgd

Key modifications:
1. Increase delivery to West Basin Municipal Water District (70 mgd)
2. Advanced Water Purification Facility by 2019 to serve LAX and Scattergood (1.5 mgd)
3. Treatment process improvements for potable reuse expansion in the future

Terminal Island WRP
Capacity: 30 mgd
Avg Flow (2016): 15 mgd

Key modifications:
1. Expand advanced treatment capacity to 12 mgd
2. 100% Reuse with Harbor and Seawater Intrusion Barrier

6

Increase climate resilience by planning for climate change mitigation and adaptation strategies in all City actions.

Progress to Date

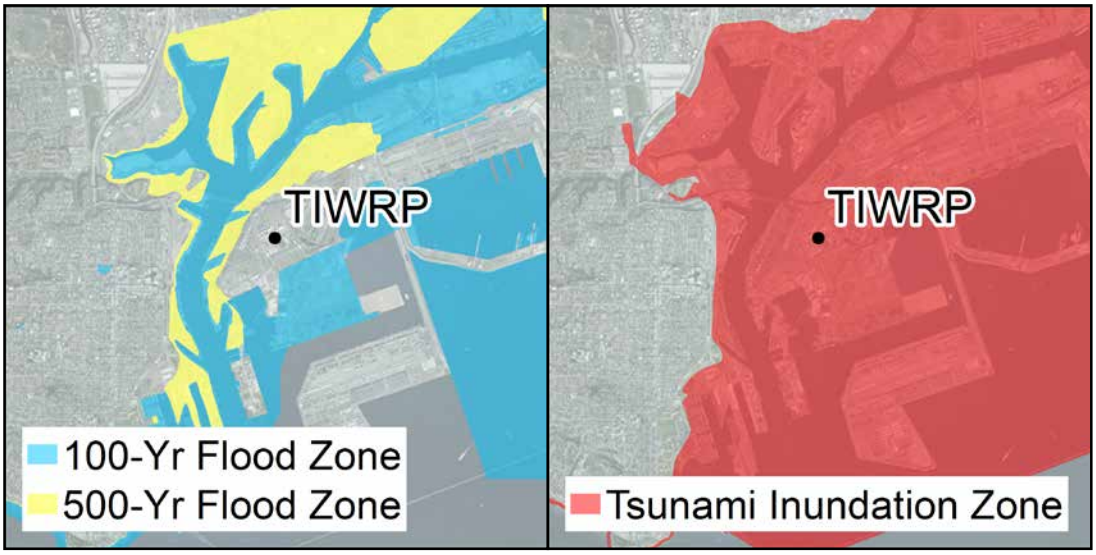
- **Used EPA's Climate Resilience Evaluation and Awareness Tool (CREAT)** to prioritize at-risk assets and develop planning level cost estimates to protect those assets.
- **Identified flood and tsunami impact zones** for the City's pumping plants and coastal wastewater treatment plants.
- **Conducted field evaluations of critical and vulnerable facilities**, such as sewer lift stations and stormwater pump stations.
- **Developed practical solutions to mitigate risk**, such as relocating vulnerable electrical equipment and building barriers to protect against extreme flooding.

Site visits helped to assess vulnerable facilities and identify practical, cost-effective measures for climate threats.

Climate change impacts require modifications to planning, design, and construction approaches such as relocation of below ground pump stations vulnerable to flooding and construction of protective shoring.

One Water LA addresses climate change impacts to wastewater and stormwater infrastructure. The City reviewed a variety of scenarios and solutions and adopted some of the best practices from areas and agencies who face similar climate threats. From the initial climate threat evaluation, the most likely and impactful scenarios include:

Climate Threat	Impact to Water Infrastructure	Possible Adaptive Measure
Increased temperatures	Diminished snowfall and earlier snowmelt in the Sierras	Develop more local water supplies to reduce dependence on purchased imported water
Increased number of hot days	Higher peak water demand	Increase distribution pumping capacity
Increased storm intensity	Higher flood risk to coastal infrastructure (e.g., pump stations)	Raising infrastructure and installing submarine doors
	Higher flows and infiltration entering pipelines/facilities	Increasing conveyance and pump station capacity
Increased prolonged drought	Declining surface water storage and groundwater levels	Increase water conservation, stormwater capture and expand recycled water production for groundwater replenishment
Sea level rise	Damage potential from storm surges and tsunamis	Reinforce perimeter walls and build waterproof structures



The Port of Los Angeles has seen a 3-inch rise in sea level from 1932 to 2006. EPA's CREAT tool evaluated climate change threats to the greater LA area , such as extreme precipitation, changes in sea level, flooding, and tsunami impact zones. Terminal Island WRP, one of the City's four water reclamation plants, is located in both flood and tsunami zones.

7 Increase community awareness and advocacy for sustainable water by active engagement, public outreach and education.

Progress to Date

- **Developed a comprehensive engagement strategy** that promotes integration, collaboration, and communication between various City departments, regional agencies, stakeholders, academia, and the general public.
- **Conducted numerous stakeholder workshops**, to involve representatives from neighborhood councils, community groups, non-profits, business interests, academia, and citizens in the Plan's development.
- **Coordinated with "Save the Drop"** campaign and other City water education efforts to make sure clear and consistent information is shared with the public.
- **Conducted educational presentations** and hosted information booths at local conferences and public events, such as the Annual Congress of Neighborhood Councils, Mayor's Health Expo, and Earth Day.
- **Promoted the City's recycled water fill station pilot program** and held certification training at select One Water stakeholder workshops.
- **Partnered with schools and universities** to expand water-related education and community engagement programs.

One Water LA seeks to include perspectives from diverse interests. Presentations on One Water LA to Business interests include: LA Business Council, the LA Area Chamber of Commerce (shown below), the Water Cluster of LA's Clean Tech Incubator, and the Valley Industry and Commerce Association.

Stakeholders participated in round-table discussions on future project opportunities and evaluation criteria at a World Café style stakeholder workshop.

Examples of Public Engagement Activities

LASAN hosted its first annual Earth Day LA on April 23, 2016 to share the importance of water and zero waste. (Photo: left and above). City staff operated recycled water fill stations to give free recycled water to residential LADWP customers. (Photo: far left).

Young Citizen Artists Project

One Water LA partners with charter schools and the Los Angeles Unified School District on the Young Citizen Artists Project to challenge students in creating new ideas and solutions to capture, conserve, and reuse water at their local schools and in their community. Last year, students from four schools participated in the project. Engineers from the City made presentations to the students, led tours of the Hyperion Water Reclamation Plant, and provided mentorship. The students gained a deeper understanding of LA's water management challenges.

Pepperdine University Education to Business Program

One Water LA partnered with Pepperdine University's Education to Business Program (E2B) to gather their ideas on One Water's public engagement strategy. A dedicated class of MBA students spent 13 weeks researching, analyzing, and developing recommendations to increase awareness of the One Water LA Plan and foster advocacy for sustainable water projects and programs.

Students from the Young Citizen Artist Project present their final projects at Los Angeles City Hall to a panel of City officials.

Pepperdine's E2B program's MBA students present a certificate to LASAN celebrating the culmination of the partnership.

SECTION 4

One Water LA Roadmap

The One Water LA 2040 Plan provides the roadmap for City departments and regional agencies to find new ways to integrate their respective practices and services. Through ongoing collaboration, City departments and regional agencies are finding new ways to implement projects such that the City's taxpayer and ratepayer dollars are used cost-effectively by leveraging resources and maximizing benefits.

This section describes how One Water LA's collaborative approach is shifting focus to a smarter urban water cycle. The One Water LA Implementation Strategy includes projects, policies and programs.

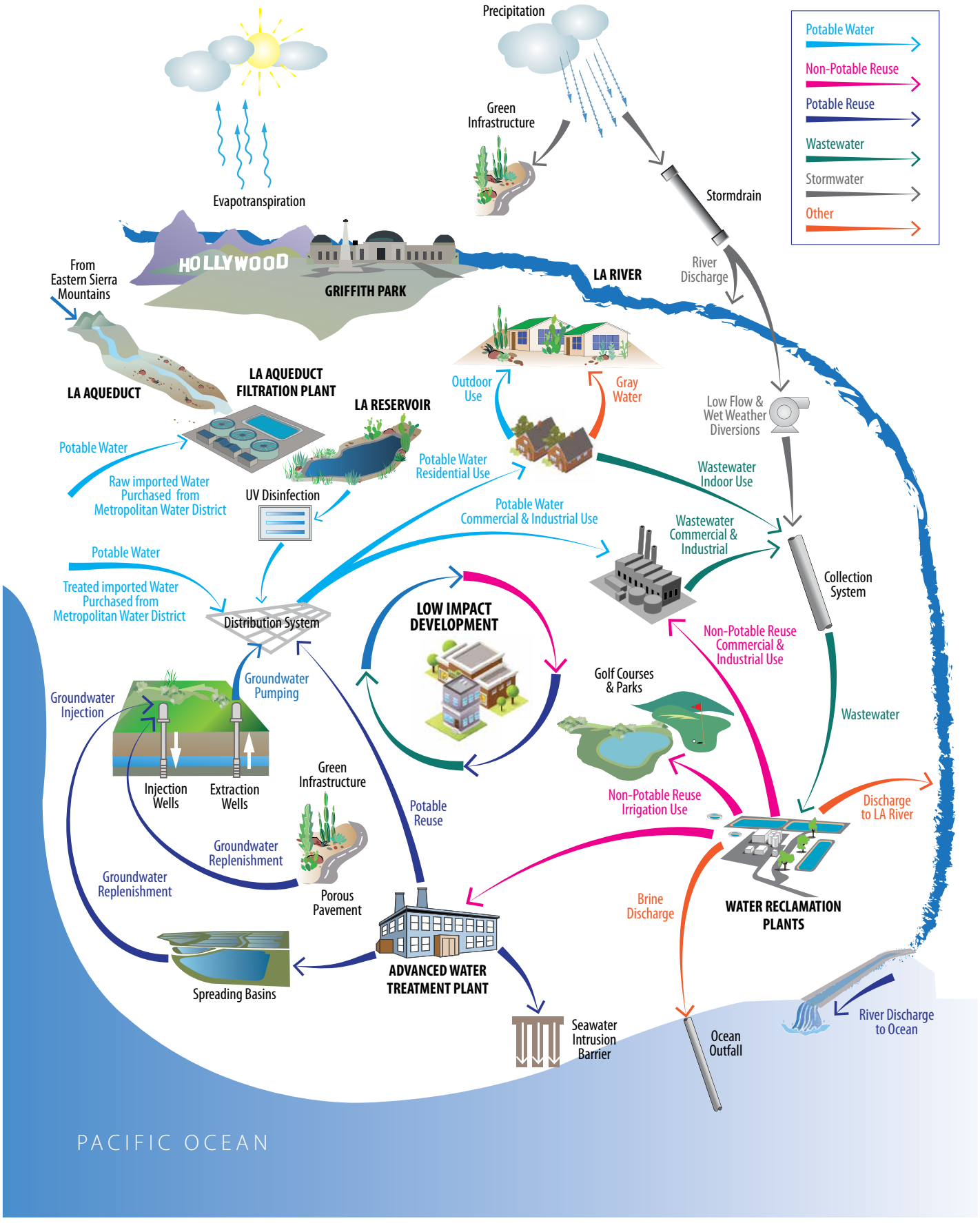
SECTION 4

Creating a Smart Urban Water Cycle

The City of Los Angeles has embraced a new way of thinking about its water resources. Within the One Water paradigm, all of the City's water is linked throughout the urban water cycle. The Plan identifies projects, policies, and programs to make LA's urban water cycle smarter by creating "short-cuts" that increase recycling opportunities and minimize losses to the ocean. Below are a list of key integration opportunities explored by One Water LA that help reduce reliance on purchased imported water, develop more local water supply sources and improve water quality.

- Increase stormwater capture and recharge through Low Impact Development (LID) and green infrastructure projects and programs.
- Increase stormwater capture, treatment, and reuse at neighborhood, sub-watershed, and regional levels.
- Increase use of the groundwater basin for storage through new recharge projects.
- Optimize and maximize recycled water for irrigation, commercial, industrial, and groundwater recharge uses.
- Understand water needs for the Los Angeles River.
- Explore the potential potable reuse options for advanced treated wastewater at each of the City's four WRPs.
- Explore the potential of potable reuse opportunities outside the San Fernando Groundwater Basin through inter-agency partnerships.
- Continue water conservation by residential, commercial, and industrial users.

To illustrate the opportunities that will contribute to a sustainable One Water future for all Angelenos, the City has developed a smarter version of LA's urban water cycle.



Disclaimer: This schematic is intended to provide an illustrative example of the urban water cycle aspects in the City of LA, and many urban water cycle aspects are not incorporated.

Near-Term Integration Opportunities

Near-term integration opportunities were identified to demonstrate the advantages of collaboration between various departments and agencies and establish an institutional framework to facilitate that collaboration.

Near-term integration opportunities are not new projects; they are projects that are currently moving forward that may benefit from support through the One Water LA planning effort. In workshop settings, the Steering Committee came up with more than 40 near-term project integration opportunities. These opportunities were screened and selected. The top four opportunities are currently further developed as "Case Studies".

The purpose of the Case Studies is to function as role models for future projects by establishing the necessary relationships, policies, agreements, and/or collaborative arrangements required to implement multi-departmental/agency integrated projects.

The top four case studies are:

- Delivery of advanced treated recycled water to LAX and Scattergood Generating Station
- Rancho Park Water Treatment Facility
- Water Management Strategies for the LA Zoo's Master Plan
- Capture of stormwater at LAUSD schools

See below and reference page 29 for a brief overview of the case studies.

Delivery of Advanced Treated Recycled Water to LAX and Scattergood Generating Station

This project involves collaboration and coordination between LASAN, LADWP, and Los Angeles World Airports. The City is planning to build a 1.5 mgd advanced water purification facility at Hyperion WRP, which could be expanded to deliver up to 5 mgd of high quality water. This project will deliver advanced treated water to LAX and the Scattergood Generating Station for commercial and industrial use.

With nearly 90 million annual passengers, LAX provides an excellent opportunity to increase education about recycled water and the City's sustainability and climate change resiliency goals.

Long-Term Strategies

One Water LA's long-term strategies consist of a mix of projects and programs that support the One Water LA objectives, the Sustainable City pLAn goals and the supply strategy defined in the 2015 UWMP. Presently, there are 25 concepts grouped into eight categories:

- Distributed Stormwater Best Management Practices
- Regional or Centralized Stormwater Best Management Practices
- Indirect Potable Reuse
- Direct Potable Reuse
- Non-Potable Reuse (NPR or Purple Pipe)
- Stormwater to Sewer Low Flow Diversions
- LA River Storage and Use
- Ocean Water Desalination

As part of the long-term strategy development, 25 ideas were developed, evaluated, scored and ranked. The most promising ideas will be combined as recommended long-term strategies to maximize recycled water use, contribute to supply resiliency and provide multiple water quality benefits. The combination of selected ideas will ultimately be integrated in the One Water LA Implementation Strategy.

The concepts include a wide variety of stormwater, groundwater, potable reuse, and other local water management strategies. These local supply options will be evaluated and selected concepts may become the cornerstone of LA's future water supplies.

Long-Term Policies

The City is currently looking at a select group of short-term and long-term policies, ordinances, and programs to help implement the One Water LA vision and objectives. The One Water LA team will work closely with the Mayor's Water Cabinet, City departments, regional agencies, and stakeholders to advance the policies and programs.

Through a comprehensive effort, the City and their partners developed an initial list of approximately 200 policy ideas. The list came from reviewing policy recommendations from past planning efforts and discussions with the Steering Committee, Advisory Group, Special Topic Groups, and stakeholders. These 200 policy ideas covered a variety of topics, including:

- Integrated Planning and Design
- Stormwater and Urban Runoff
- Training and Education
- Improve Collaboration and Streamline Implementation
- Funding and Partnerships
- Sustainability and Climate Change Resiliency
- Conservation
- Recycled Water
- LA River Revitalization

The policy ideas are being further refined and aligned with One Water LA's objectives to make sure that the recommended policies advance the One Water LA vision. The City will present select polices, ordinances, and programs to the Mayor's Water Cabinet to consider for adoption.

The One Water LA 2040 Plan will include a list of practical policy recommendations that will help achieve the One Water LA vision and objectives.

In December 2016, the City held an interactive policy discussion with more than 50 stakeholders to gain input on the initial policy ideas list and gather additional ideas for consideration.

Funding Strategies

The projects recommended by the One Water LA 2040 Plan may need to be funded differently than traditional projects. For example, water, wastewater, and recycled water projects are primarily funded through utility rates. Projects affecting stormwater, habitat restoration, water conservation, or similar efforts typically don't have established "user paid" funding structures.

The City has been working closely with LA County Department of Public Works to develop a regional revenue source for stormwater management and identify other funding options, such as:

Cost-sharing Frameworks: The cost of multi-benefit projects can be shared between beneficiary departments and agencies through partnerships.

Grant Funding: Guide the City departments to make decisions on local, state, and federal grant funding options for collaborative projects.

Loan Programs: Present a list of both existing and anticipated future (low interest) loan programs.

Public-Private Partnerships (P3): Identify various projects that could attract P3 financing.

Tax Measures: Look at implementing special taxes at the regional, municipal, or state level.

Traditional Municipal Funding: This would involve bond issues similar to Proposition O.

State and Federal Tax Credit Programs: These are available to agencies that implement projects that achieve specific results, such as environmental or water quality improvements.

Other Potential Funding Sources:

- Water Infrastructure Improvements for the Nation Act (2016)
- State Revolving Funds
- State of California's Proposition 1
- Measure A for LA County's parks
- City of LA's sidewalk repair program

The Special Topics Group presented their top recommendations for funding strategies, which included:

- Explore stormwater tax or fee options.
- Develop an integrated planning approach with the County and other cities.
- Increase use of State Revolving Funds (SRF) for multi-benefits projects.
- Determine how to prioritize projects by measuring results and the value of benefits.

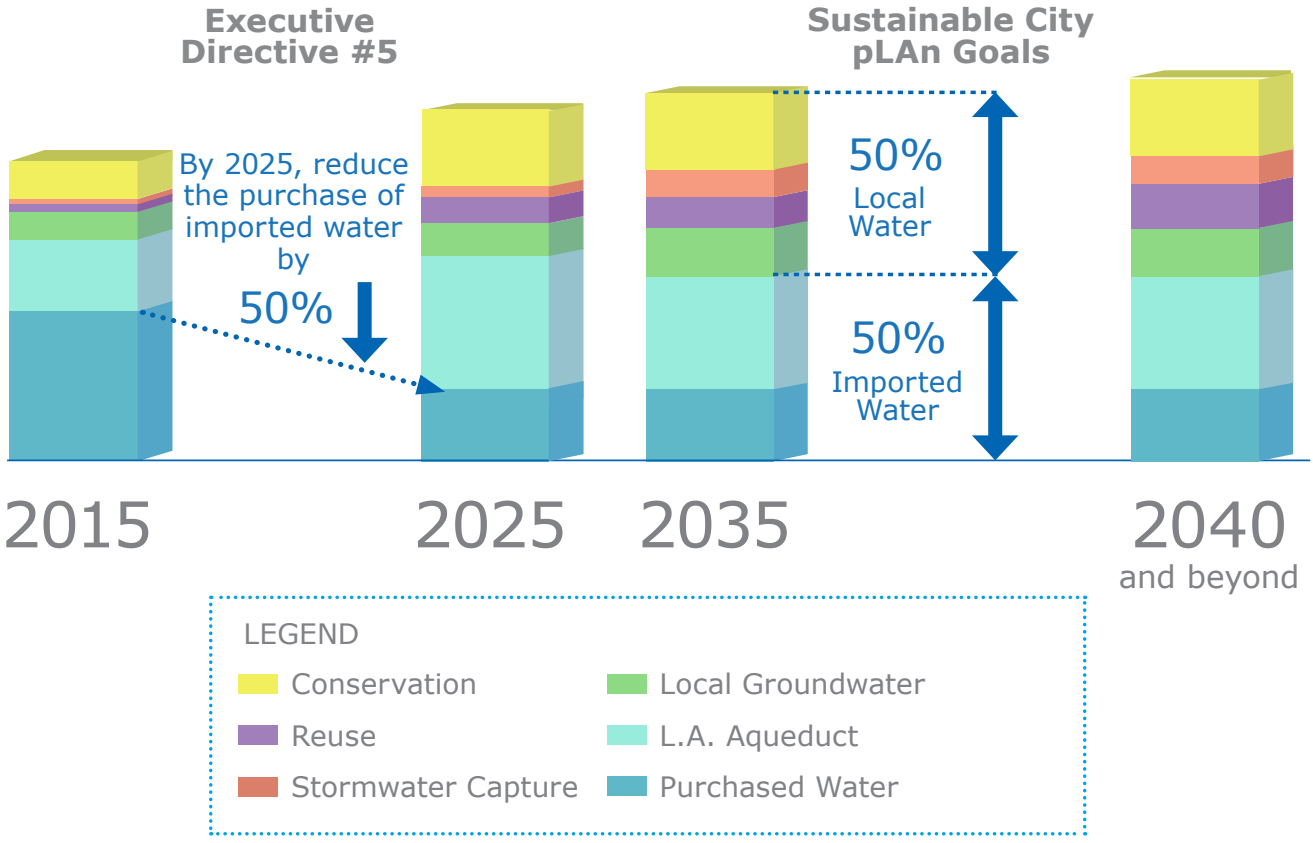
Stakeholders participating in the Funding Special Topic Group gathered and compared funding ideas that are incorporated in the One Water Plan.

Implementation Strategy

The City is already engaged in many activities, projects, and programs that support the One Water LA objectives and guiding principles. However, there is a long road ahead to realize the ultimate vision of One Water LA. The One Water LA 2040 Plan will include an Implementation Strategy that will serve as a roadmap to guide the City's decision-making to transform the One Water LA vision into reality. This Implementation Strategy will consist of projects, programs, and policies that collectively achieve the One Water LA 2040 objectives and support the Sustainable City pLAn goals.

A special focus on integration opportunities will enhance collaboration among City departments, regional agencies, and partners including businesses, non-profits, neighborhood organizations, and schools. The Implementation Strategy will include timelines based on known and anticipated triggers and goals, such as, completion of key projects; future flows and demands due to growth; stormwater compliance deadlines; and potable reuse regulations. The purpose of the One Water LA Implementation Strategy is to help manage the City's water resources, watersheds, and water facilities in an environmentally, economically, and socially beneficial manner.

To achieve the Sustainable City pLAn water supply reliability goals, the City has already started with the implementation of specific projects. The One Water LA 2040 Plan will include an evaluation of a large number of new project ideas that will result in the recommendations presented in the One Water LA roadmap to 2040 and beyond.



The City's Executive Management is committed to making One Water LA a Success.

Adel Hagekhalil, LASAN Assistant Director, and Marty Adams, LADWP Chief Operating Officer, led the Regional Collaboration at a VerdeXchange charrette. This conference demonstrates the on-going regional collaboration with agencies such as LA County Department of Public Works, Water Replenishment District and Metropolitan Water District of Southern California. The discussion progressed long-term strategies presented in One Water LA such as potable reuse and stormwater management.

"One Water LA has given us greater opportunities to continue our collaboration with LADWP and other City departments and regional agencies. Our top priority is no longer just water. It's improving the quality of life. We want to have the communities and our stakeholders involved in the creation of our infrastructure and water planning, not wait until the projects are done. Our goal is to have this be a plan by the community, for the community. We are connecting the dots, drops, and hearts of those we serve."

- Adel H. Hagekhalil, Assistant Director, LASAN

"The One Water LA effort has created real solidarity in addressing the City's varied water challenges. By better understanding the connectivity of our operations, jointly targeting multiple goals in stormwater management and collection, and aggressively creating new recycled water resources, we are approaching the issue of water in Los Angeles with a common mindset. Along with the entire City family, we are doing our collective best to consider every opportunity to further develop local water resources, improve drainage and flood protection, and protect downstream environments from pollution off our streets."

- Marty Adams, Chief Operating Officer, LADWP

List of Abbreviations

Abbreviation	Description
AFY	acre-feet per year
BMPs	best management practices
City	City of Los Angeles
CREAT	Climate Resilience Evaluation and Awareness Tool
DPR	Direct Potable Reuse
E2B	Education to Business
EPA	Environmental Protection Agency
EWMP	Enhanced Watershed Management Program
IPR	Indirect Potable Reuse
IRP	Integrated Resources Plan
LAA	Los Angeles Aqueduct
LADWP	Los Angeles Department of Water and Power
LASAN	Los Angeles Sanitation
LAWA	Los Angeles World Airports

Abbreviation	Description
LAX	Los Angeles International Airport
LFD	low flow diversion
LID	low impact development
MG	million gallons
mgd	million gallons per day
MWD	Metropolitan Water District of Southern California
NPR	non-potable reuse
PEIR	Programmatic Environmental Impact Report
RAP	Los Angeles Department of Recreation and Parks
SCMP	Stormwater Capture Master Plan
TMDL	total maximum daily load
UCLA	University of California Los Angeles
UWMP	Urban Water Management Plan
WRP	water reclamation plant

Glossary

Glossary	Definition
Best Management Practices (BMP)	Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.
Conservation	Act of using the resources only when needed for the purpose of protecting from waste or loss of resources.
Direct potable reuse	The addition of advanced treated recycled water (purified water) directly to a potable water distribution system.
Discharge	The volume of water that passes a given point within a given period of time. It is an all-inclusive outflow term, describing a variety of flows such as from a pipe to a stream, or from a stream to a lake or ocean.
Downstream	In the direction of a stream's current. For example, in the City of Los Angeles Hyperion Wastewater Treatment Plant is downstream to Donald C. Tillman Plant and the Los Angeles-Glendale Water Reclamation Plant; these plants are able to provide critical hydraulic relief to the City's major sewers downstream
Drought	A long period of below-average precipitation.
Effluent	Municipal sewage or industrial liquid waste (untreated, partially treated, or completely treated) that flows out of a treatment plant, septic system, pipe, etc.
Graywater	Graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.
Green Infrastructure	An adaptable term used to describe an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. As a general principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff.
Groundwater	(1) Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturated zone is called the water table. (2) Water stored underground in rock crevices and in the pores of geologic materials that make up the Earth's crust.

Glossary

Glossary	Definition
Groundwater Recharge	Inflow of water to a groundwater reservoir from the surface. Infiltration of precipitation and its movement to the water table is one form of natural recharge.
Imported Water	Water brought into the City of Los Angeles from a non-tributary source either from the Los Angeles Aqueduct, through purchase directly from the Metropolitan Water District of Southern California or by direct purchase from a member agency.
Indirect Potable Reuse (IPR)	The blending of advanced treated recycled water into a natural water source (groundwater basin or reservoir) that could be used for drinking (potable) water after further treatment.
Integrated Resource Planning (IRP)	A method for looking ahead using environmental, engineering, social, financial, and economic considerations; includes using the same criteria to evaluate both supply and demand options while involving customers and other stakeholders in the process.
Low Flow	Minimum instantaneous stream flow during periods of low water runoff.
Low Impact Development (LID)	A sustainable landscaping approach that can be used to replicate or restore natural watershed functions and/or address targeted watershed goals and objectives.
Non-Potable	Water that may contain objectionable pollution, contamination, minerals, or infective agents and is considered unsafe and/or unpalatable for drinking.
Potable Water	Water that is satisfactory for drinking and cooking.
Potable Reuse	A general term for the use of recycled water to augment drinking water supplies. Potable reuse, which covers both indirect and direct potable reuse, involves various forms of treatment options.
Rain Garden	A rain garden is a depressed area of the ground planted with vegetation, allowing runoff from impervious surfaces such as parking lots and roofs the opportunity to be collected and infiltrated into the groundwater supply or returned to the atmosphere through evaporation and evapotranspiration.
Receiving Waters	Creeks, streams, rivers, lakes, estuaries, groundwater formations, or other bodies of water into which surface water and/or treated or untreated wastewater are discharged, either naturally or in man-made.
Recycled Water	Reclaimed water that meets appropriate water quality requirements and is reused for a specific purpose.
Runoff	The excess portion of precipitation that does not infiltrate into the ground, but "runs off" and reaches a stream, water body or storm drain.
Sewer	A system of underground pipes that collect and deliver wastewater to treatment facilities or streams.
Stakeholders	Individuals and organizations that are involved in or may be affected by a proposed action, such as construction and operation of a water recycling project.
Total Maximum Daily Load (TMDL)	The sum of the individual waste load allocations and load allocations. A margin of safety is included with the two types of allocations so that any additional loading, regardless of source, would not produce a violation of water quality standards.
Urban Water Cycle	The Water Cycle in an urban environment; includes the consequences of increased development. More development and more concrete means less infiltration of rainwater into the soil, and more runoff.
Wastewater	Usually refers to effluent from an industrial or municipal sewage treatment plant. See also domestic wastewater.
Wastewater Treatment	Wastewater treatment process that includes combinations of physical and chemical operation units designed to remove nutrients, toxic substances, or other pollutants. Advanced, or tertiary, treatment processes treat effluent from secondary treatment facilities using processes such as nutrient removal (nitrification, denitrification), filtration, or carbon adsorption. Tertiary treatment plants typically achieve about 95% removal of solids and BOD in addition to removal of nutrients or other materials.
Water Cycle	The circuit of water movement from the oceans to the atmosphere and to the Earth and return to the atmosphere through various stages or processes such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transportation.
Water quality	A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.
Water Reclamation	(1) The treatment of water of impaired quality, including brackish water and seawater, to produce a water of suitable quality for the intended use. (2) A term synonymous with water recycling.
Water Recycling	The process of treating wastewater for beneficial use, storing and distributing recycled water, and the actual use of recycled water.
Watershed	The area or region of land draining into a common outlet such as a river or body of water. Synonymous with river basin or drainage basin.

A COLLABORATIVE APPROACH TO INTEGRATED WATER MANAGEMENT

Progress Report prepared by LASAN and LADWP with additional support from:

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