



Stakeholder Informational Meeting One Water LA Overview

February 16, 2017



Agenda

1. Welcome, Introductions & General Updates 1:00 – 1:15 p.m.
2. Purpose of One Water LA 1:15 – 1:25 p.m.
3. Who's Involved: A Collaborative Effort 1:25 – 1:45 p.m.
4. One Water LA 2040 Plan Elements 1:45 – 3:15 p.m.
5. Next Steps & Upcoming Events 3:15 – 3:30 p.m.
- Meeting Close 3:30 p.m.

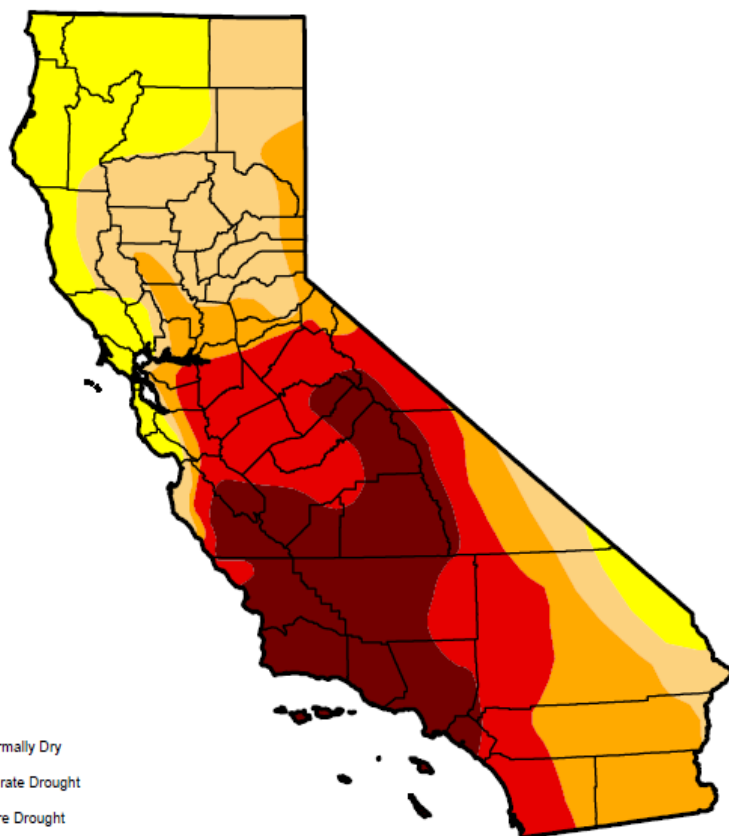


General Updates



Recent Storms and Drought Conditions

U.S. Drought Monitor **California**

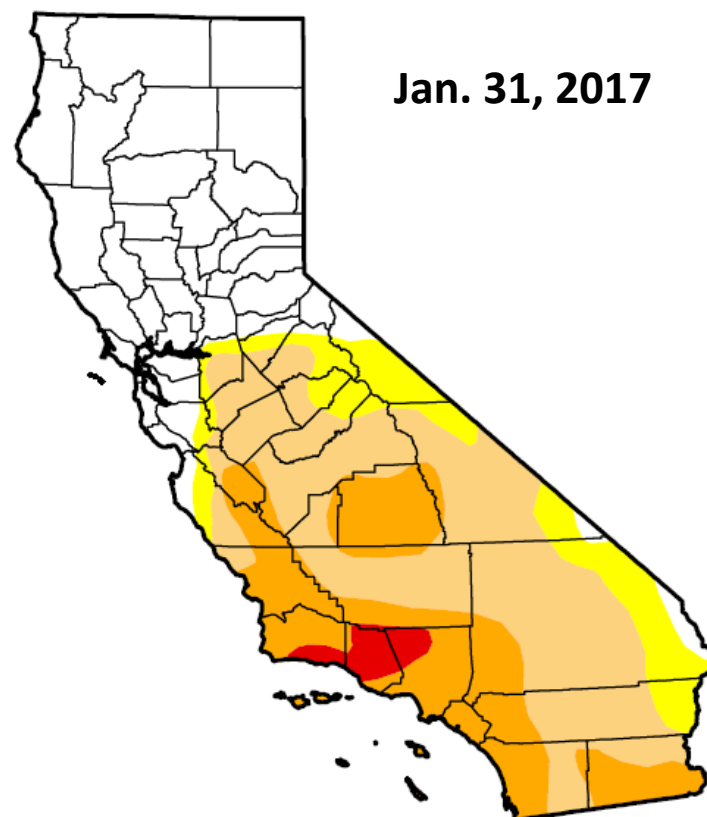


Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Jan. 31, 2017



<http://droughtmonitor.unl.edu/>



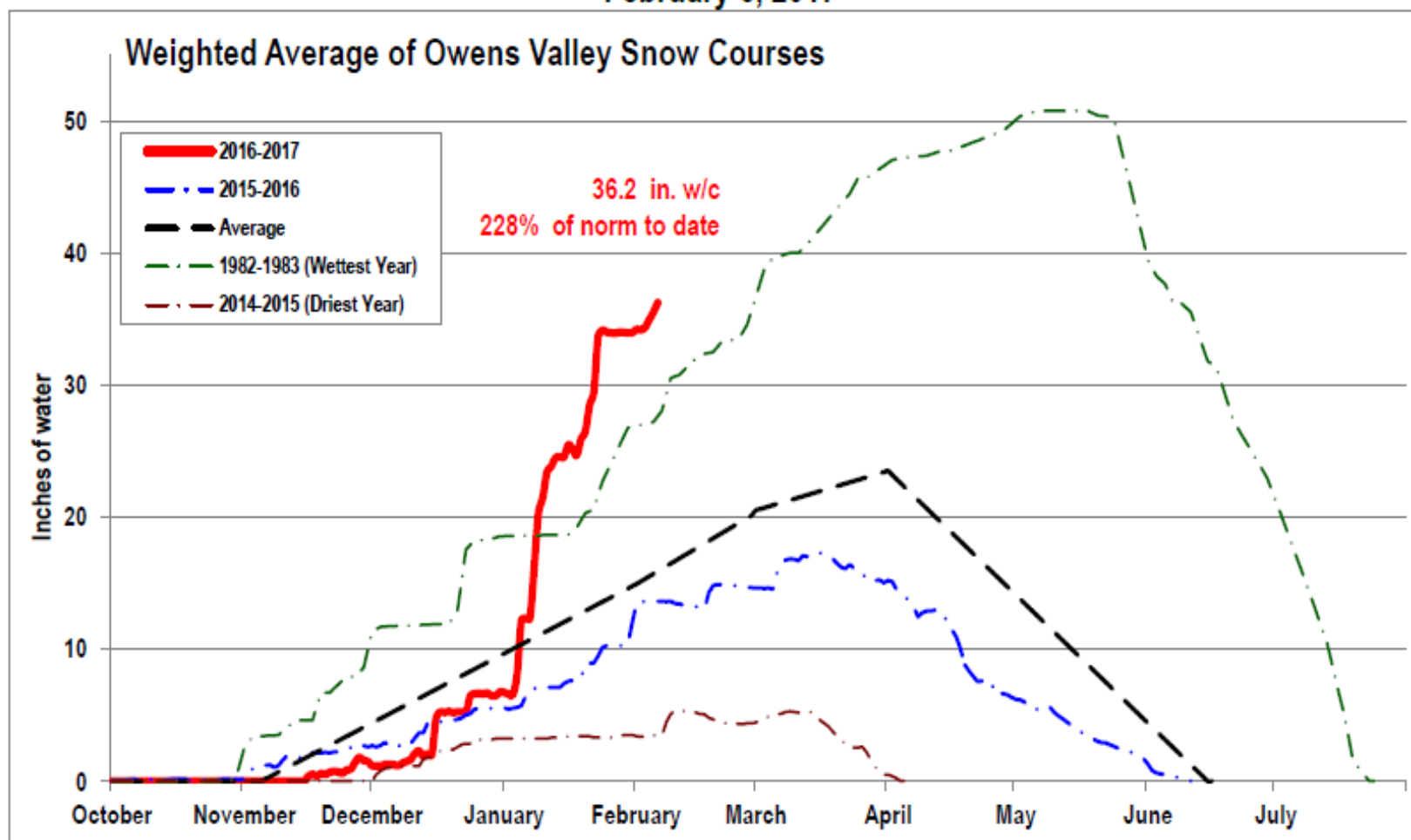
LA's Water Supplies





Eastern Sierra Snowpack Conditions

EASTERN SIERRA
CURRENT PRECIPITATION CONDITIONS
February 6, 2017

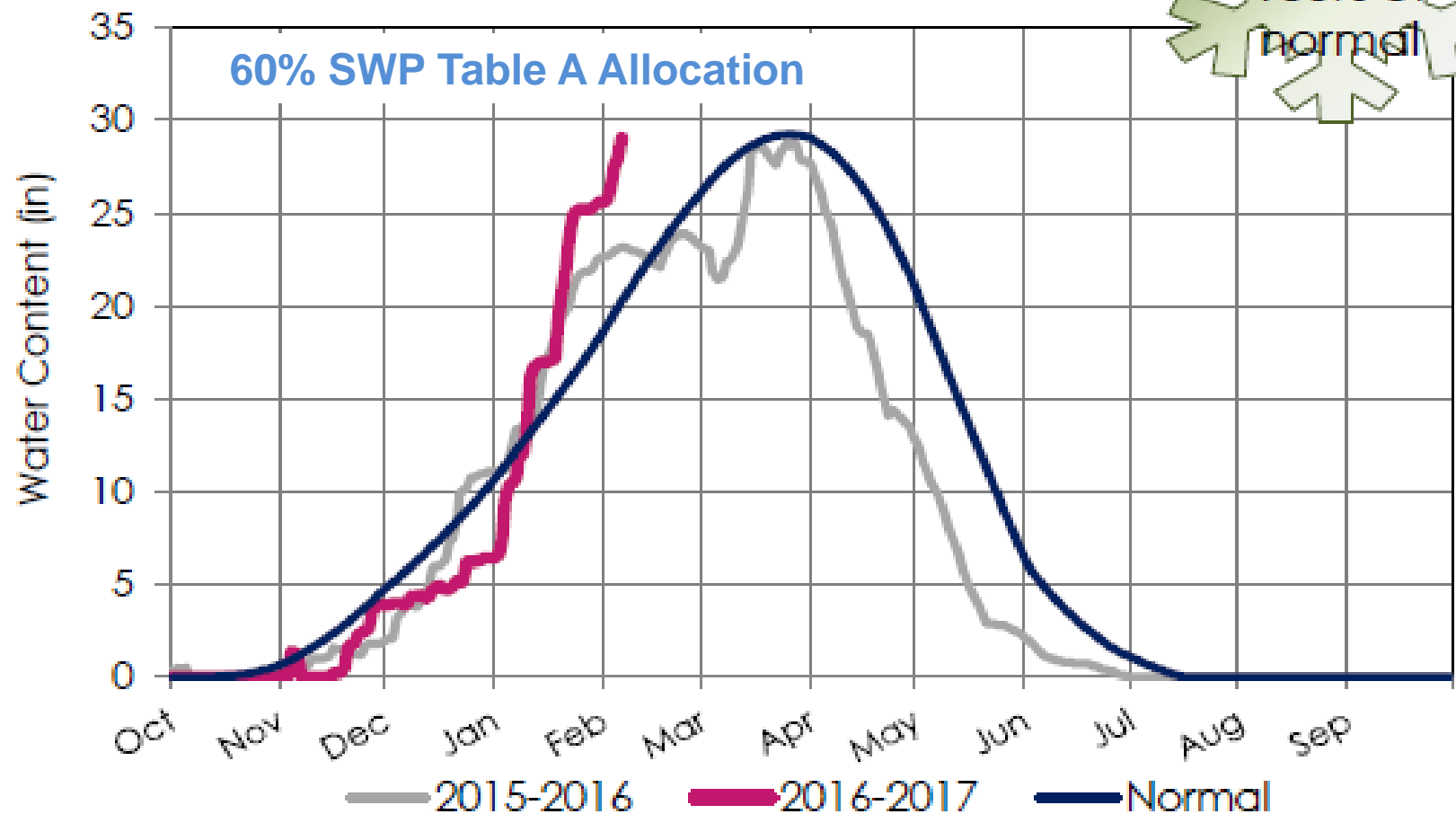




Northern Sierra Snowpack

Northern Sierra Snowpack

As of February 5, 2017

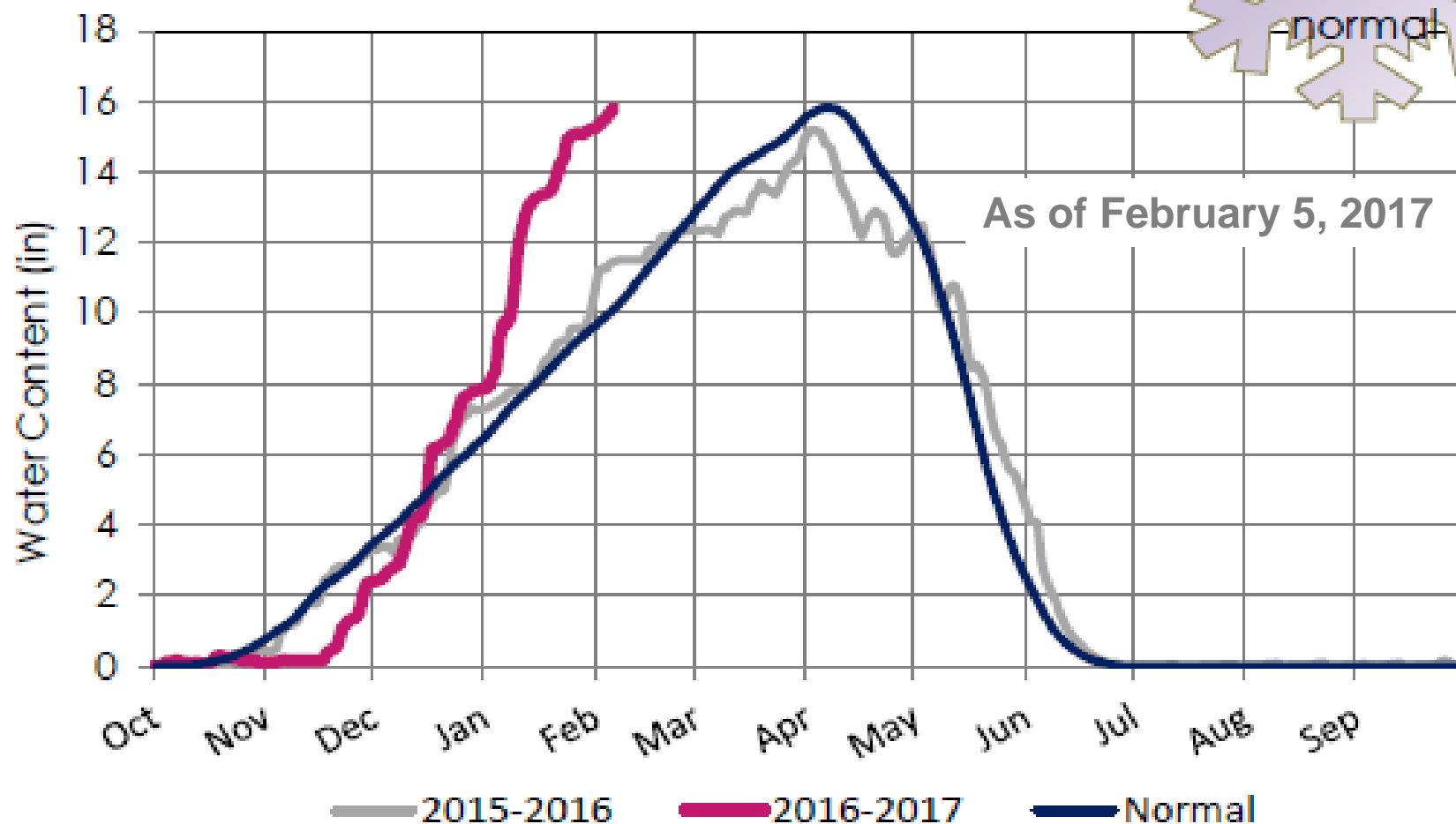


Water Supply
Report



Upper Colorado Basin Snowpack

Upper Colorado Basin Snowpack



Water Supply
Report

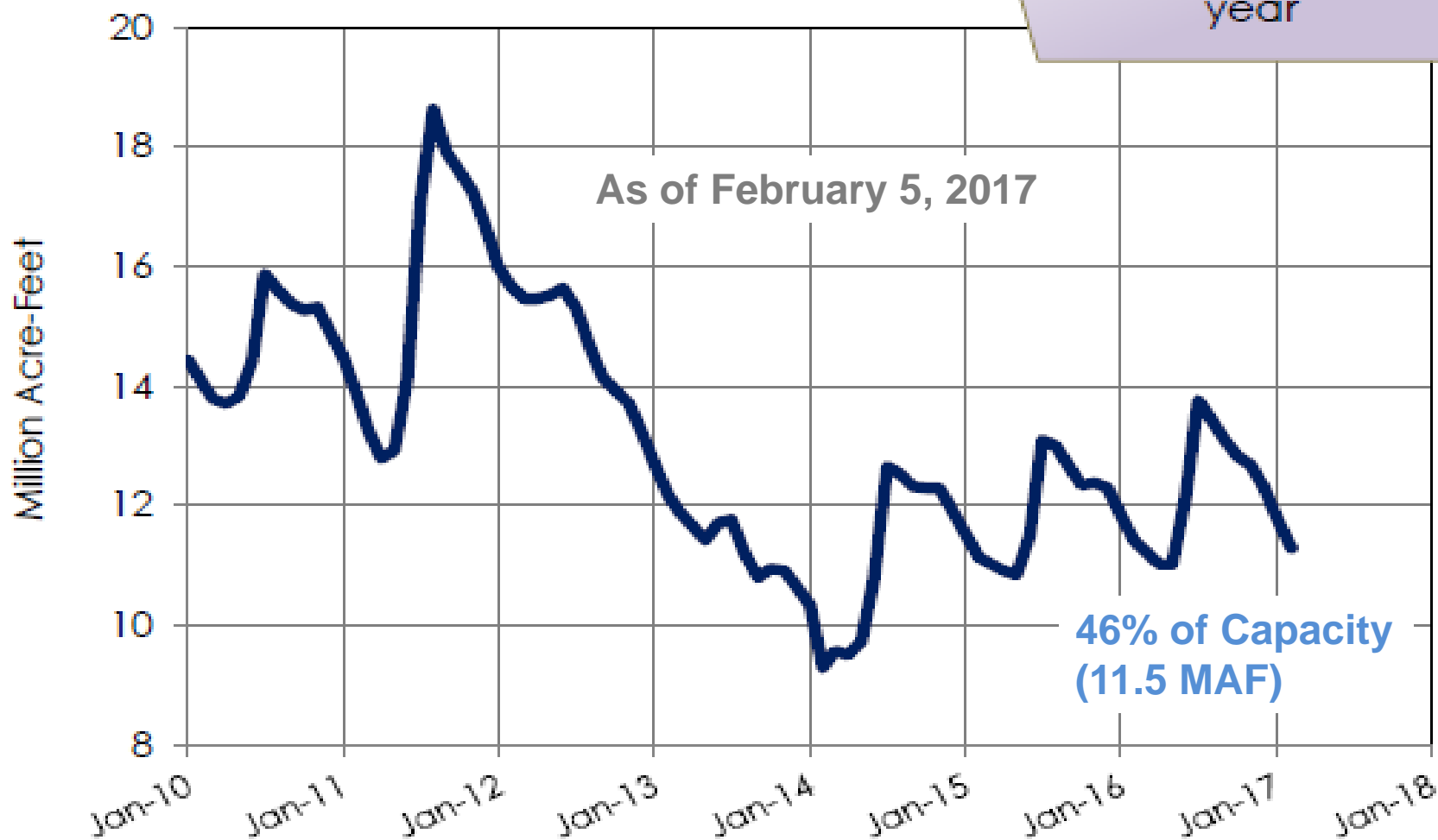


Lake Powell Storage

Lake Powell Storage

Capacity: 24.3 MAF

75 TAF less in storage
than this time last
year



Water Supply
Report

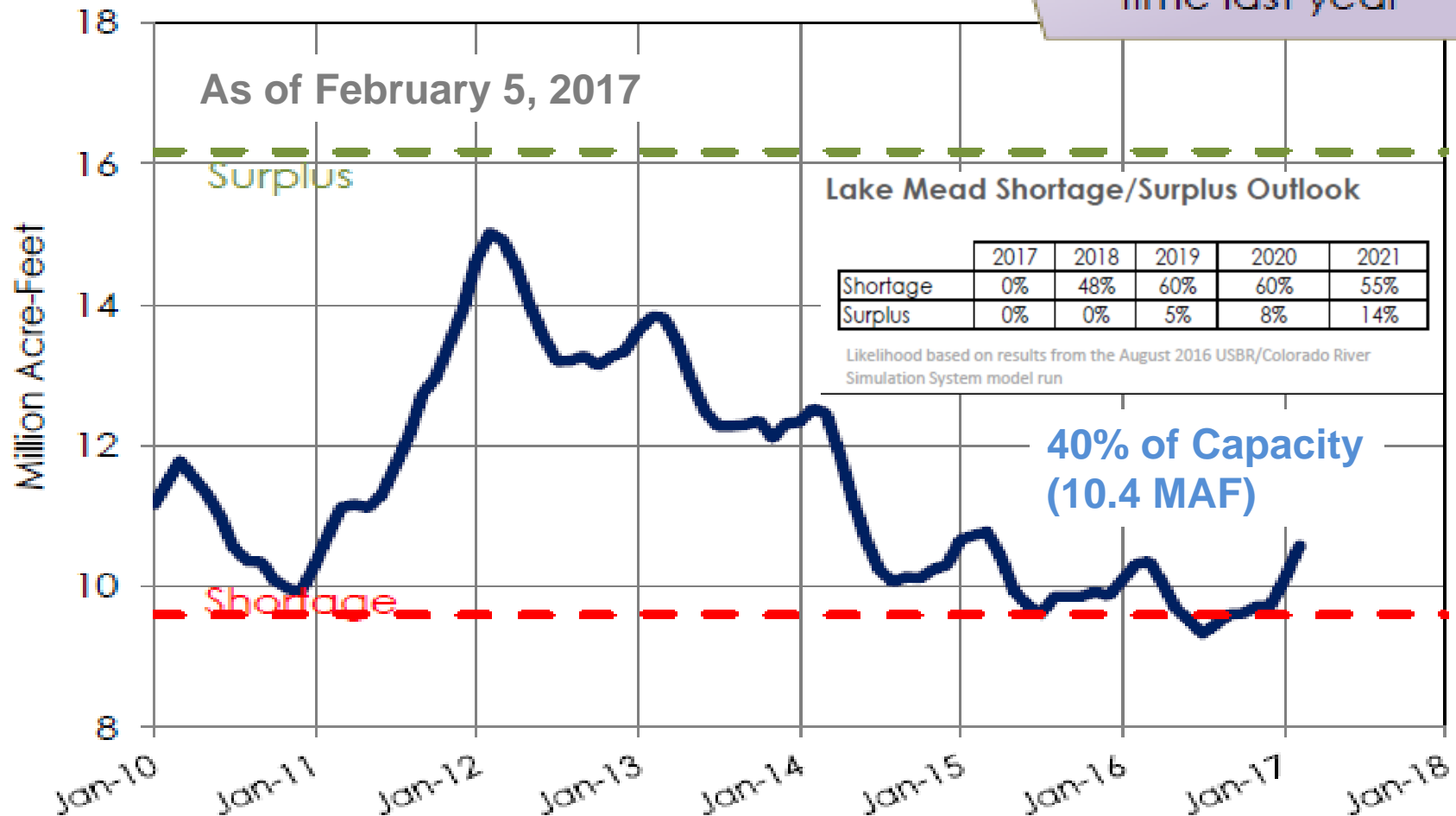


Lake Mead Storage

Lake Mead Storage

Capacity: 26.1 MAF

230 TAF more in storage than this time last year



Water Supply
Report



Purpose of One Water LA



LA's Current Water Picture

Approximately **90%** of L.A. water supplies are imported



Challenges

- Recurring Drought
- Flooding
- Increasing demand
- Aging infrastructure
- More stringent regulations
- Limited funding
- Dependence on imported water
- Climate change



Sustainable City pLAn

- Reduce water use by 20% by 2017
- Reduce purchased imported water by 50% by 2025
- Reduce per capita potable water use by 25% by 2035
- Source 50% of water locally by 2035
- Create Integrated Local One Water Strategy



One Water LA: A central part of LA's efforts to reduce reliance on imported water by increasing local water supply



One Water LA Vision

Collaborative approach to develop an integrated framework for managing the City's watersheds, water resources, and water facilities in an **environmentally**, **economically**, and **socially** beneficial manner.



Rain/Stormwater

Groundwater

Wastewater

Recycled Water

Drinking Water



One Water LA

- **Phase 1:** Lay the groundwork *(Completed 2015)*
- **Phase 2:** Develop One Water LA 2040 Plan *(To be completed 2017)*





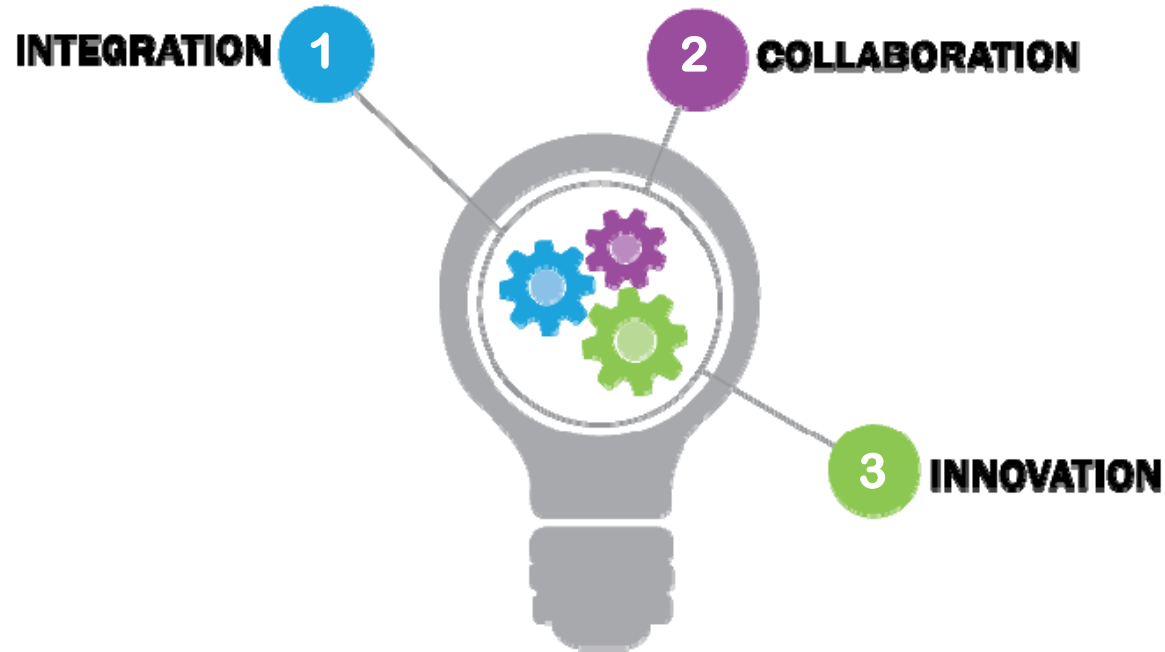
Phase 1: Objectives

- 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 for sustainable water





Phase 2: Key Considerations



- Water supplies
- Declining sewer flows
- Water quality
- Climate change impacts
- Potable reuse

- Funding
- Regional collaboration
- Implementation of short- and long- term policies
- Balancing LA River and water supply needs



1) Integration

Conserve

Reduce demand
and make supply
last longer

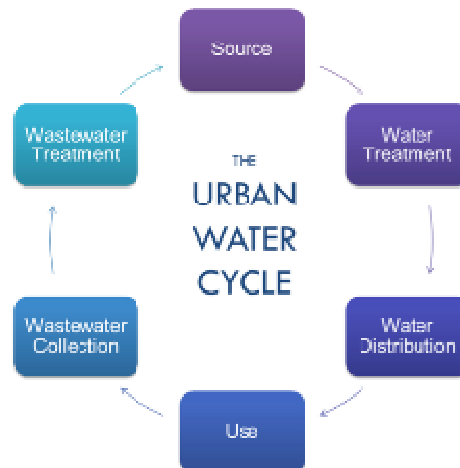


Reuse

Non-Potable



Potable



Capture

Centralized



Distributed





2) Collaboration



Working Together to Address Complex Issues

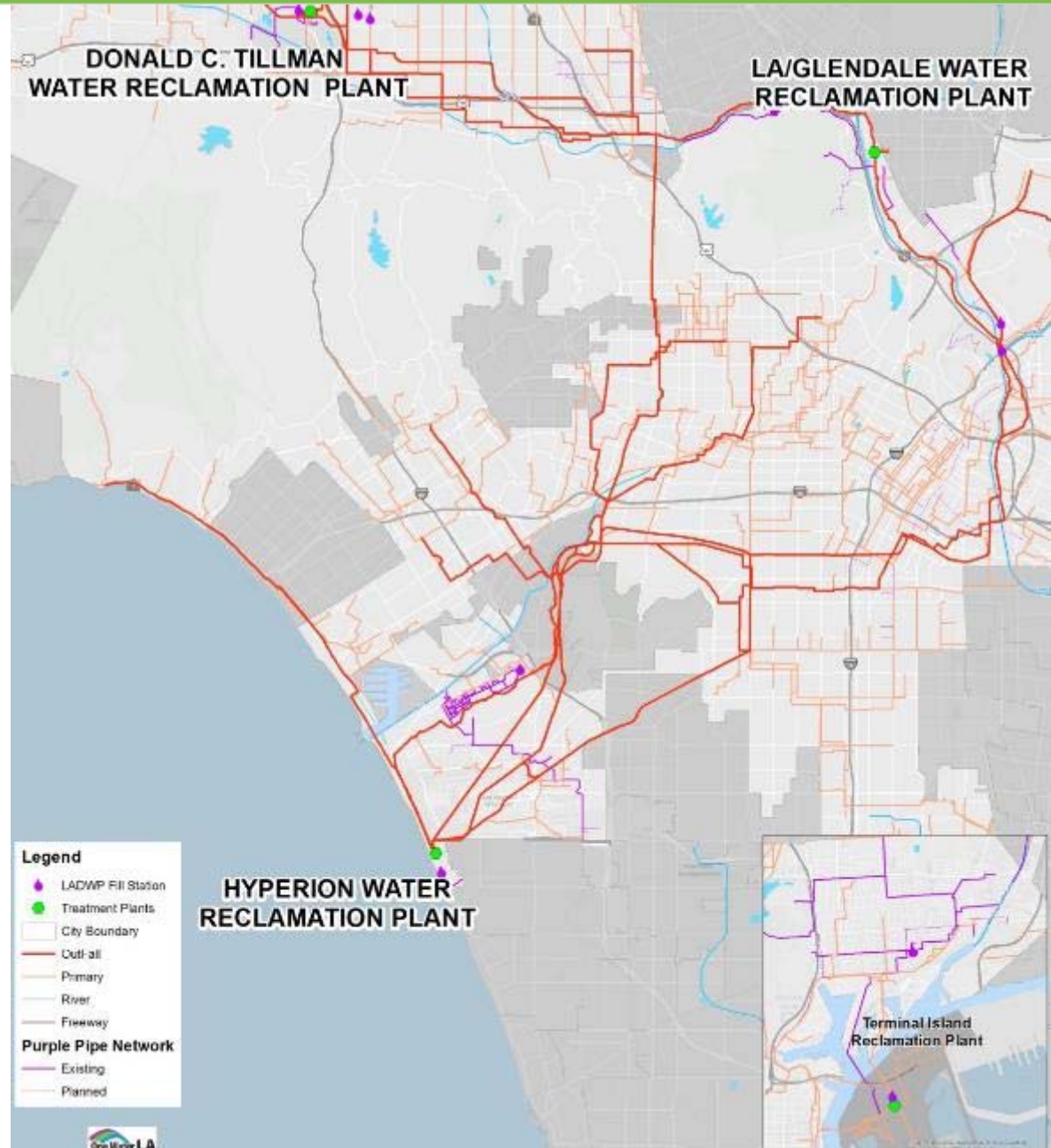
- Alternatives Analysis
- Project and Policy Identification
- Funding Strategies
- Partnerships



3) Innovation

Creative Water Management:

- Maximize recycled water production and use from existing water reclamation plants (WRPs)
- Augment sewer flows with runoff to increase water recycling
- Reconfigure sewer alignment(s) to increase flows to WRPs
- New strategically located City-owned satellite water reclamation plant(s)





Benefits

One Water LA: Smarter land use, healthier watersheds, increased efficiency, enhanced communities, climate change resilience, and greater protection of public health.

LIVABLE COMMUNITIES



- ▶ Green Streets
- ▶ Parks & Open Space

ENVIRONMENT



- ▶ Ecosystem Restoration
- ▶ Reduced Carbon Emissions

ECONOMIC BENEFITS



- ▶ Local Job Creation
- ▶ Utility Efficiencies

ENERGY MANAGEMENT



- ▶ Lower Energy Needs
- ▶ Greener Energy



Who's Involved? A Collaborative Effort



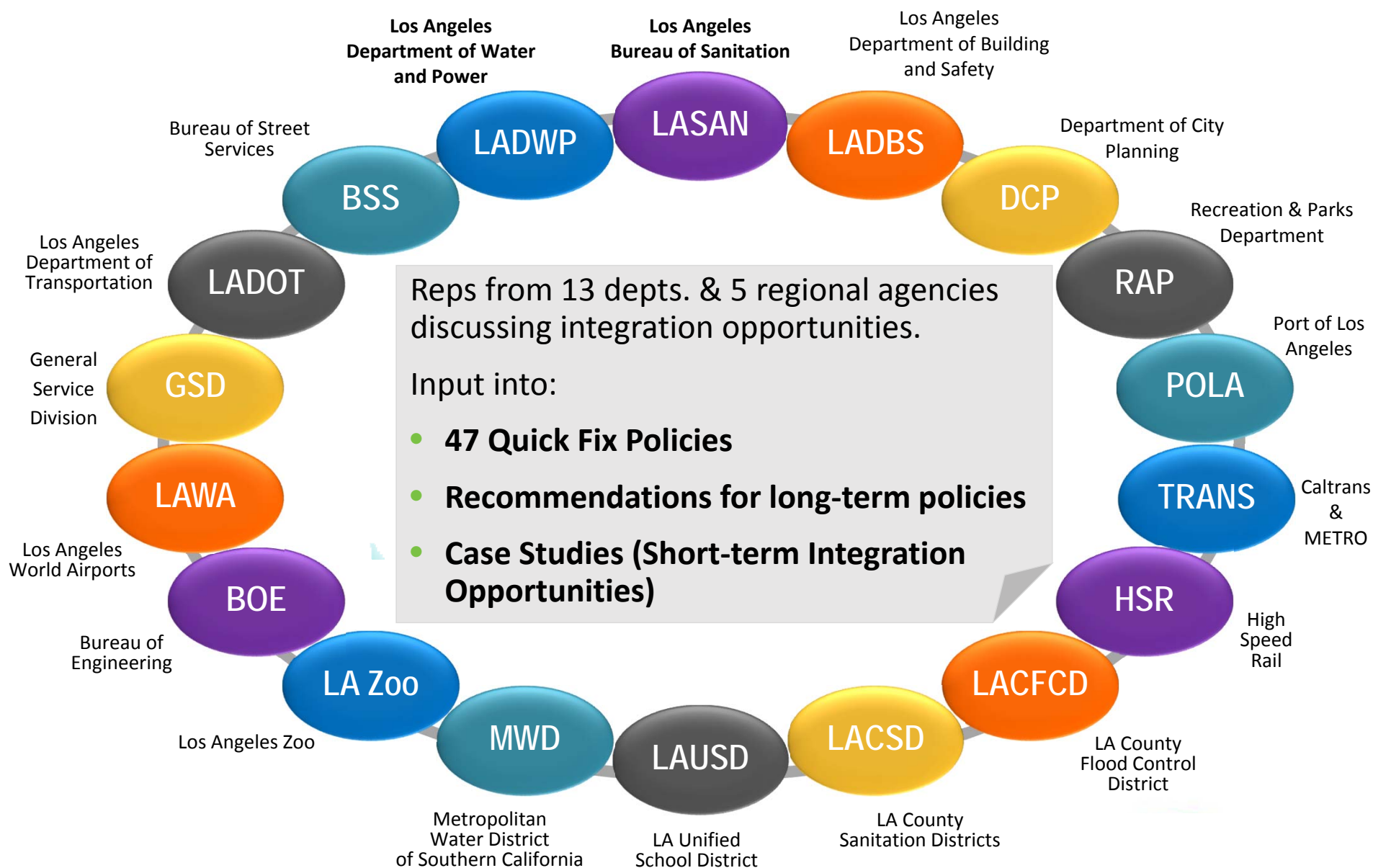


Who's Involved?





Steering Committee





Advisory Group

10 Stakeholder Advisors representing a diversity of groups & interests



Carolyn Casavan (*Sherman Oaks Neighborhood Council*)

Brad Cox (*LA Business Council Institute*)

Ken Murray (*Wilderness Corps*)

David Nahai (*David Nahai Companies*)

Melanie Winter (*The River Project*)

Jack Humphreville (*Greater Wilshire Neighborhood Council*)

Mike O'Gara (*Sun Valley Area Neighborhood Council*)

Veronica Padilla (*Pacoima Beautiful*)

Kelly Sanders (*USC*)

Louise McCarthy (*Community Clinic Association of LA County*)

Receive advice on direction and next steps.

Input into:

- **Vision, Objectives, Guiding Principles**
- **Process and expansion of stakeholder engagement**
- **Policies**
- **Integration Opportunities**
- **Evaluation Criteria**
- **Project Ideas**
- **Progress Report**



Stakeholder Workshops

Forum for stakeholder engagement & involvement to brainstorm ideas, share progress, receive feedback.

Input into:

- **Vision & Objectives,**
- **Guiding Principles,**
- **Water Balance Tool,**
- **Climate Change Polling,**
- **Evaluation Criteria,**
- **Project Ideas, and**
- **Policies,**
- **Creation of Special Topic Groups**





Special Topic Groups



Groups of stakeholders discussing 5 key topics:

1. **Funding**
2. **Outreach & Communications**
3. **Stormwater**
4. **Partnerships & Innovation**
5. **Decentralized/ Onsite Treatment**



Focused Meetings

MAYOR'S REQUEST: "INCLUDE AND ENGAGE ALL CITY DEPARTMENTS"

20+ Departments and Agencies Engaged:

- Water Departments and Agencies
- Transportation
- Construction and Code Enforcement
- Open Space Recreation Education
- Land Use Planning and Community

Already Producing Results:

- **City Engineering Specs allowing recycled water in concrete**
- **Working with Planning on ReCode:LA**
- **Working with LAUSD to increase stormwater capture**
- **Increasing uses for recycled water (LA Zoo)**
- **Leveraging resources among partners**



Special Meetings



Organized to discuss various topics in greater detail.

Input Into:

- **Project Ideas Workshop (Nov. 2016)**
- **Stormwater Fee Dialogue (Jan. 2017)**
- **Info/Overview Meeting (today)**



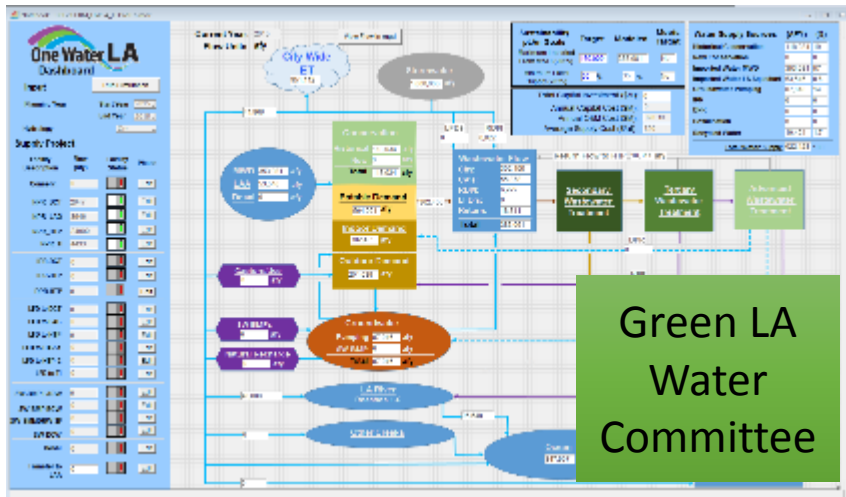
Other Engagement Highlights



Academia



Youth Education – LA Charter School



Non-profits



Business Community



Get Involved

All of us can take action to capture, conserve and reuse water
– *Success relies on everyone!*

- Get Involved
- Request a Presentation
- Take Tours
- Share your ideas
- Share with others
- Become a partner





Questions

Do you have any questions





One Water LA 2040 Plan Elements

All Water is One Water



Plan Elements





Basis of Planning



Planning Process

- Start with Previous Studies
- Develop actionable plans to implement Objectives & Guiding Principles

Horizon

- **Long-Term Program:** To ensure LA's water future



2020

2040



Mass Balance Tool



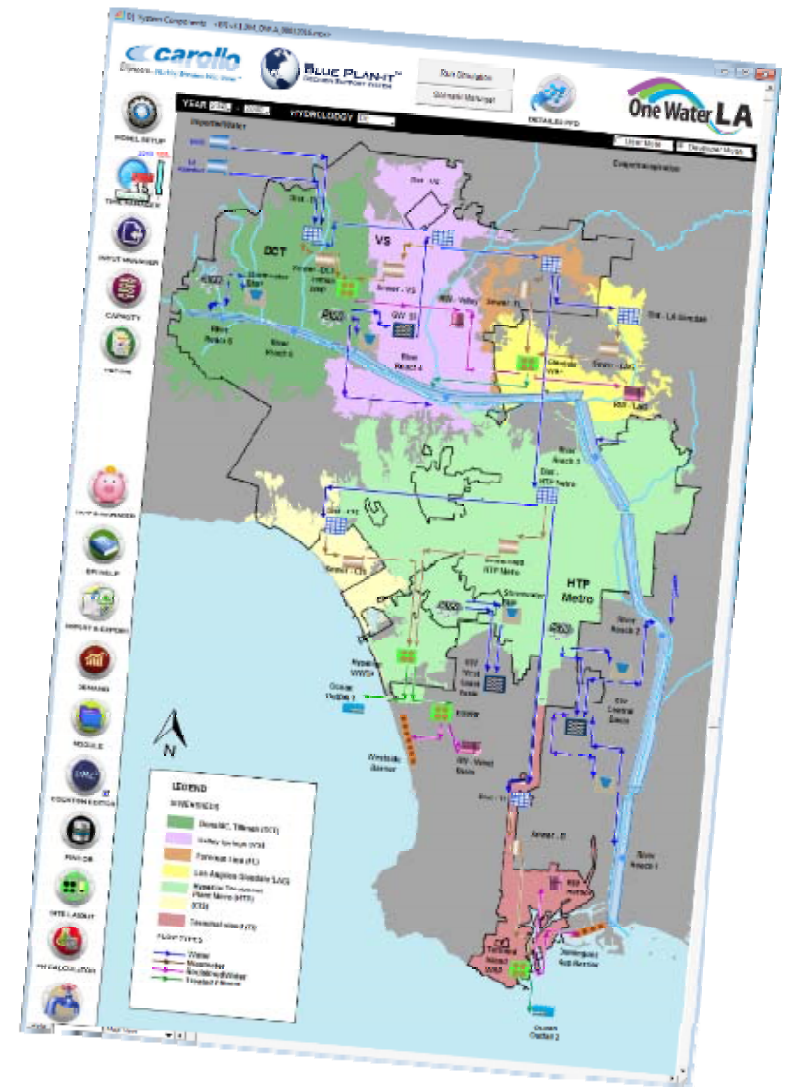
Mass Balance Tool

Purpose

The Tool was developed to support integrated “One Water” planning by quickly calculating the city-wide flow changes for a variety of future conditions.

Key Components

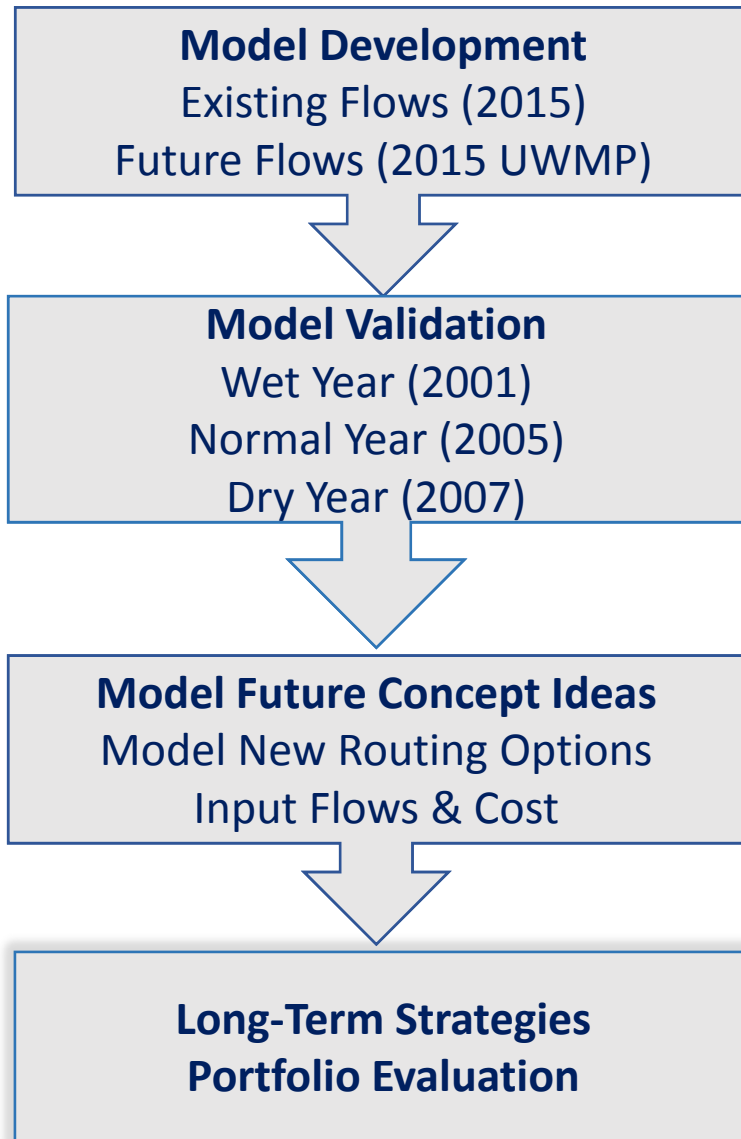
- First-ever flow balance of LA’s entire Water Cycle
- Collaborative data effort of multiple departments
- Annual flow projections from 2015 to 2040
- Normal, wet, and dry year hydrology
- Potential Future Facilities/Concept Ideas
- High Level Unit Costs



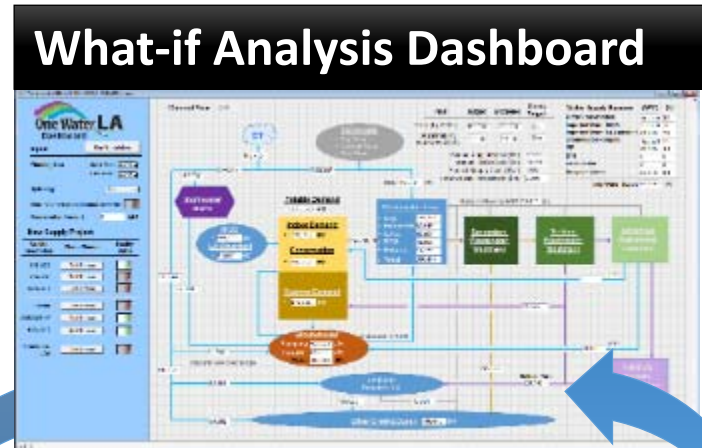
[illegible]



Status & Next Steps



**In
Progress**





Climate Resilient Infrastructure



What are Climate-based Infrastructure Risks?

Basic Climate Conditions

- Temperature Increase
- High Winds
- Precipitation
- Sea Level Rise
- Earthquake
- Tsunami

Threats To Assets

- Power Outages During Peak Demand
- Severe Drought/ Water Rationing
- More Frequent & Intense Wild Fires
- Mudslides / Landslides
- Localized Flooding/ Erosion
- Coastal Flooding/High Tides/ Storm Surges
- Prolonged Power Outage/ Lack of Fuel

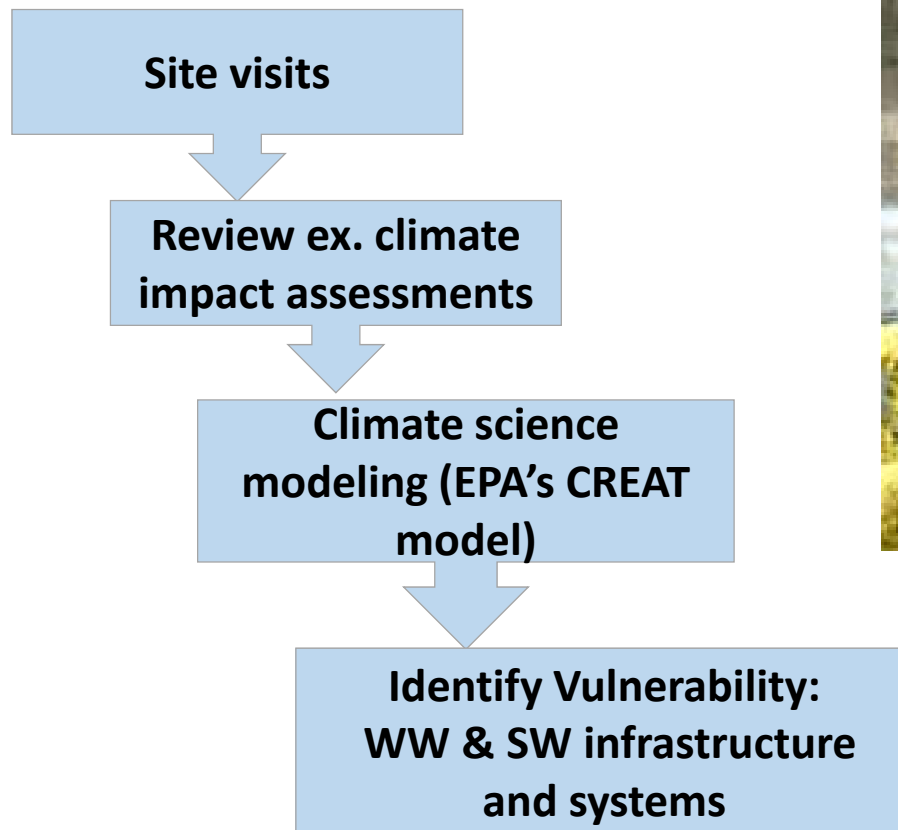
Risks to Assets

- Property/Structural/ Equipment Damage
- Loss of Power
- Interrupted Service and Process Operations
- Emergency Fuel Depletion
- Inundation/Loss of Access
- Regulatory Non-Compliance
- Loss of Revenue



Determining Climate Risk

How do future climate conditions impact the City's wastewater and stormwater assets through 2040?



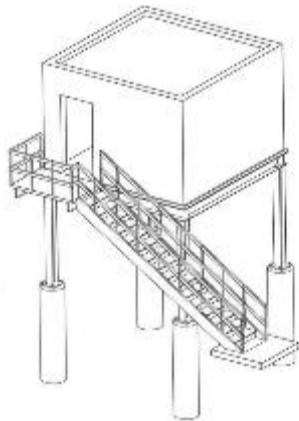
Site visits conducted to assess vulnerable facilities & identify practical, cost-effective measures to mitigate climate threats.



Status & Next Steps



Analysis at Terminal Island and LA Glendale Reclamation Plants



Conveyance system Analysis – Various pump stations



Climate Evaluations, Risk, Impacts, & Assessments



WW, SW, & Conveyance Evaluations & Analysis



Infrastructure Options, Strategies, Funding & Recommendations

**85%
Complete**

Present recommendations to Management & Mayor's office



Near-Term Integration Opportunities



Near-Term Opportunities

Near-term Integration Opportunities are within the next **1 to 5 years**.
For the purpose of:

- Demonstrating the **advantages of collaboration** and
- Developing an **institutional framework** to **streamline collaboration** among departments & agencies.
- Iterative process that **selected top 4 case studies from 44 initial ideas**

Top Four Case Studies

Recycled Water
and Stormwater
for the LA ZOO



Distribution of
Advanced Treated
Recycled Water to
LAX & Vicinity



Capture of Off-site
Stormwater at a
School Site



Rancho Park





Four Near-Term Case Study Projects

Rancho Park

- On-Site WRP
- Recycled Water & Stormwater for irrigation
- Agencies: LASAN, LADWP, RAP

Recycled Water & Stormwater for the LA Zoo

- Recycled Water for irrigation, exhibits & restrooms
- Stormwater capture opportunities within Zoo
- Agencies: LA Zoo, LADWP, LASAN

Distribution of Advanced Treated Recycled Water to LAX & Vicinity

- Advanced Treated Recycled water for Terminals and Cooling Towers
- Agencies: LAWA, LADWP, LASAN

Capture of Off-Site Stormwater at a School Site

- Stormwater capture for infiltration on School Site
- Agencies: LAUSD, LASAN
- Location: TBD





Status & Next Steps

For each Case Study documented:

- Objectives & Benefits
- Implementation Considerations
- Agreements & Policies
- Cost Considerations
- Schedule

Case Study Development
Process & Descriptions



Task 3 Technical
Memorandum (Draft)



Input from Steering
Committee



Task 3 Technical
Memorandum (Final)

**In
Progress**

Mayor's Office &
Water Cabinet Support



Implementation
& Replication



Part of One Water LA 2040
Plan, Further Studies TBD



Long-Term Integration Opportunities



Evaluation Criteria

Evaluation Criteria are used to **balance environmental, economic, and societal goals** when comparing future project concept options

4 Categories and 18 Criteria

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/ GHG Emissions

Implementation Criteria

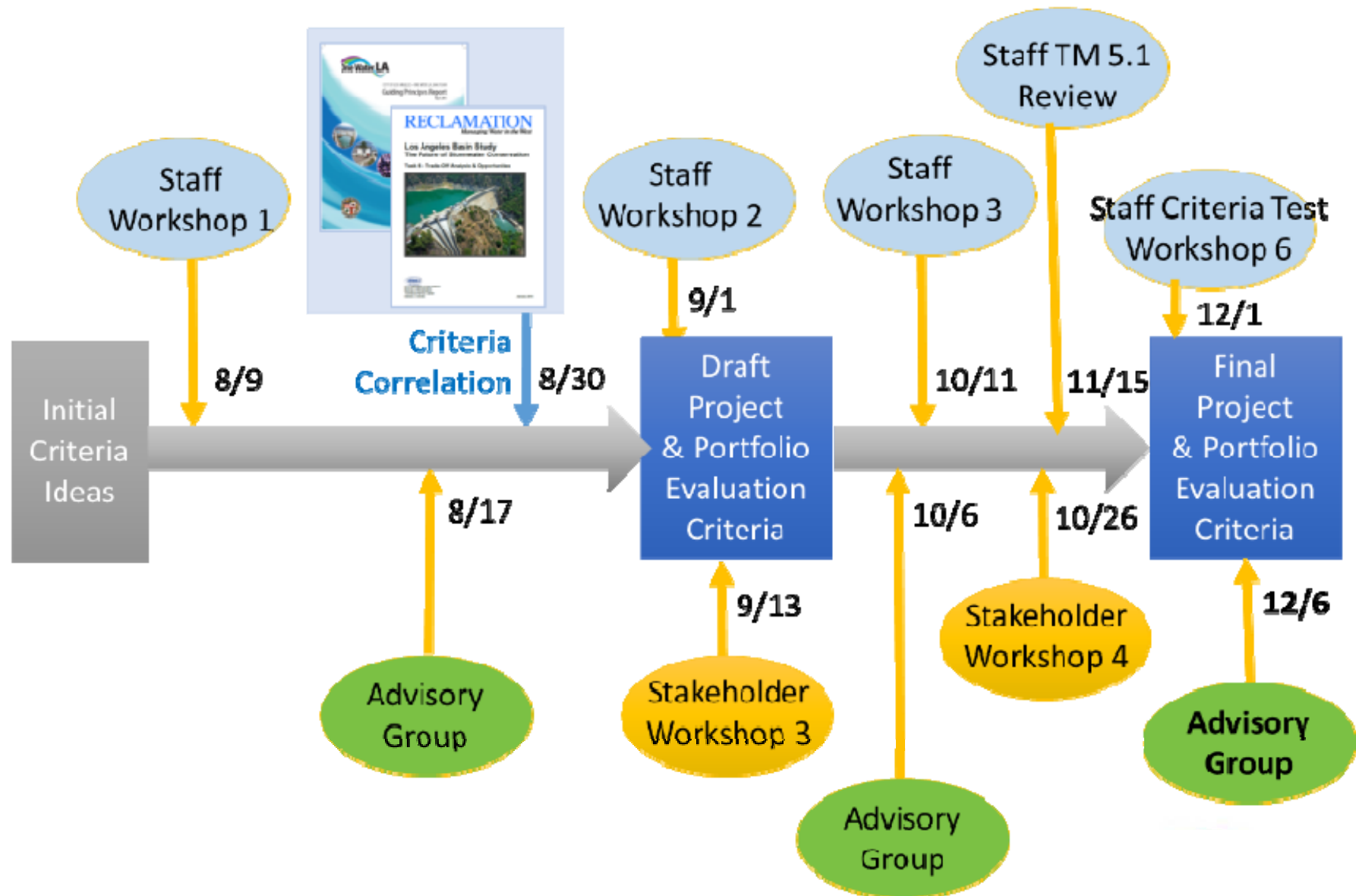
- Constructability
- Institutional collaboration
- **Regulatory approval**
- **Public engagement**
- **Public and political support**

Environmental Criteria

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



Rigorous Criteria Development Process



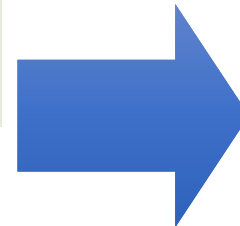


Evaluation Criteria Screen Concepts

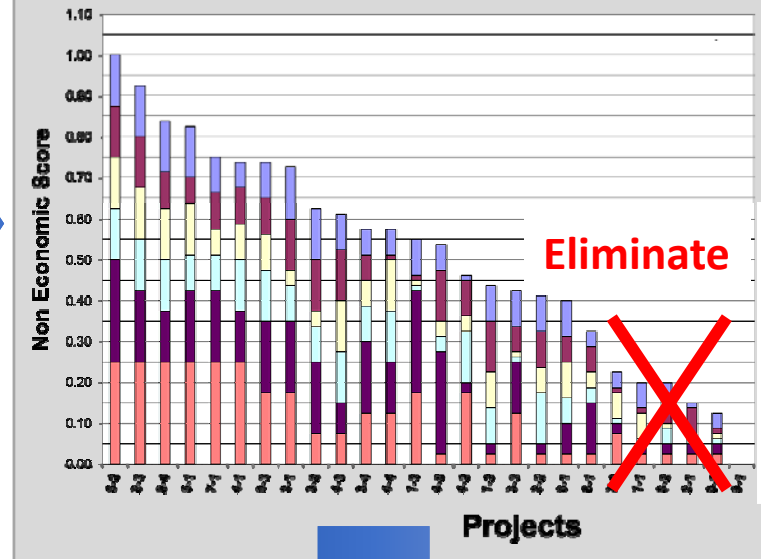
Concept Scoring

Economic Criteria	Resiliency Criteria	Implementation Criteria	Environmental Criteria
<ul style="list-style-type: none"> Unit cost Financial benefits Funding mechanism Likelihood to obtain outside funding 	<ul style="list-style-type: none"> Drought resiliency Earthquake resiliency Flood risk mitigation Local supply benefit Energy Impact/ GHG Emissions 	<ul style="list-style-type: none"> Constructability Institutional collaboration Regulatory approval Public engagement Public and political support 	<ul style="list-style-type: none"> Environmental justice Open/natural space and recreational benefit Stormwater quality Ecological benefit

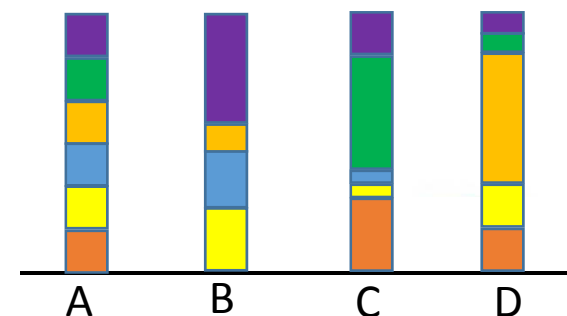
	Economic Criteria	Resiliency Criteria	Implementation Criteria	Environmental Criteria
	✓	✓	✓	✓
		✓	✓	✓
		✓	✓	✓
		✓	✓	✓
		✓	✓	✓



Concept Ranking & Screening



Themed Portfolios



1. Calculate Total Benefit Score per concept
2. Rank concepts based on Total Score
3. Select concepts for Portfolio Evaluation



Types of Concept Options

Regional Stormwater BMPs



Distributed Stormwater BMPs



Groundwater Replenishment (IPR)



Non-Potable Reuse (NPR)



Stormwater to Sewer (LFDs)



Advanced Treatment (IPR/DPR)



LA River Storage & Reuse



Ocean Desalination

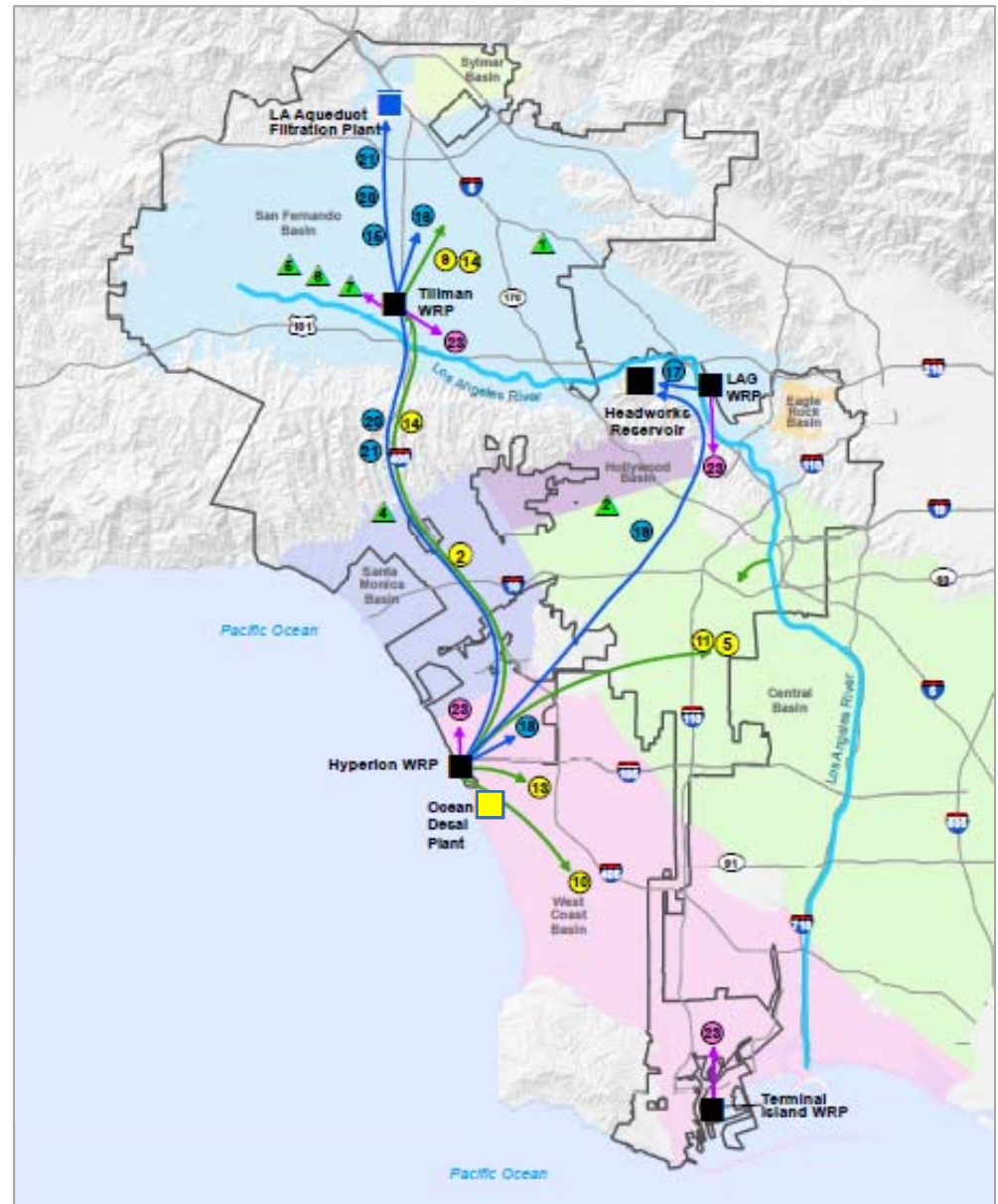




Concept Options Evaluation

Types of Concepts	No.
Stormwater	8
IPR	6
DPR	7
Other	4
Total	25

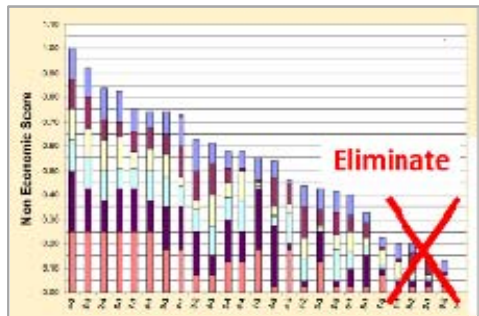
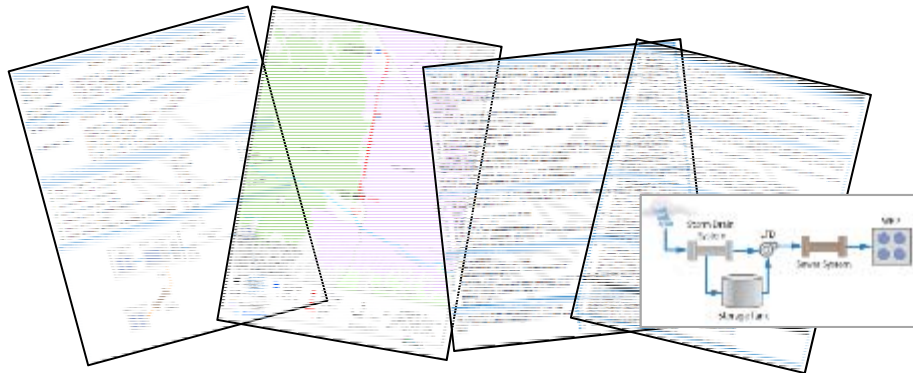
Evaluation process will identify the most beneficial strategies (i.e. projects & programs) to achieve long-term goals



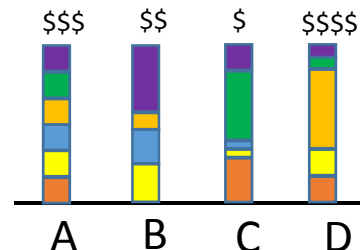


Status & Next Steps

Economic Criteria	Resiliency Criteria	Implementation Criteria	Environmental Criteria
<ul style="list-style-type: none"> Unit cost Financial benefits Funding mechanism Likelihood to obtain outside funding 	<ul style="list-style-type: none"> Drought resiliency Earthquake resiliency Flood risk mitigation Local supply benefit Energy Impact/ GHG Emissions 	<ul style="list-style-type: none"> Constructability Institutional collaboration Regulatory approval Public engagement Public and political support 	<ul style="list-style-type: none"> Environmental justice Open/natural space and recreational benefit Stormwater quality Ecological benefit



	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Criteria 1	✓	✓	✓	✓	✓	✓
Criteria 2	✓	✓	✓	✓	✓	✓
Criteria 3	✓	✓	✓	✓	✓	✓
Criteria 4	✓	✓	✓	✓	✓	✓
Criteria 5	✓	✓	✓	✓	✓	✓



**Criteria Development;
Identify Concept Options**



**Concept Options
Development:
Descriptions, Schematics &
Maps, Cost Estimates**



**Concept Option Evaluation:
Use of Criteria to Compare
Benefits of Concept Options**

**In
Progress**

**Long-Term Strategies
Portfolio Evaluation**



Wastewater Facilities Plan



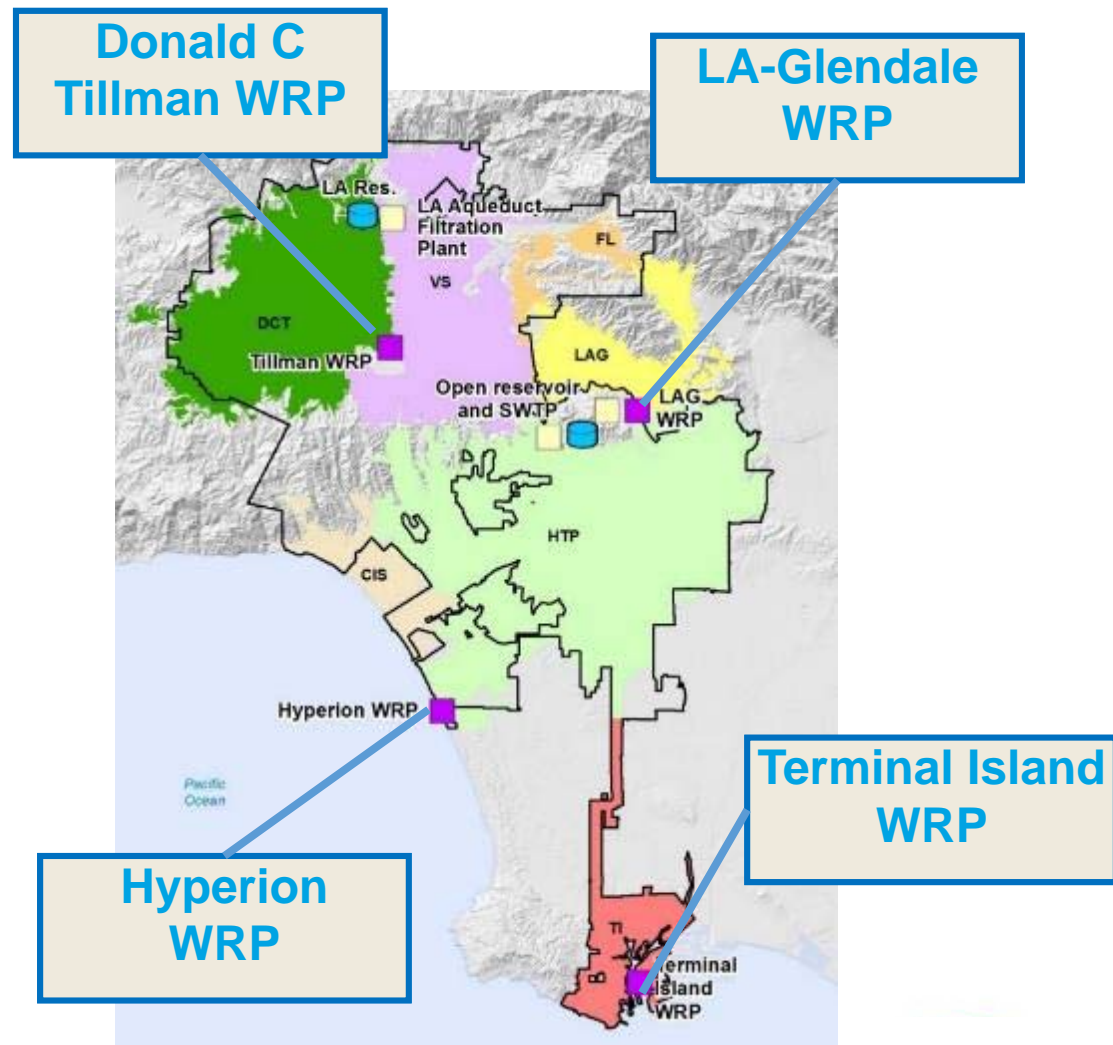
Wastewater Facilities Plan

Purpose

Develop facility plans for the 4 reclamation plants to address future system needs through 2040

Why are we doing it?

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





Hyperion WRP

Capacity: 450 mgd

Avg Flow (2015): 240 mgd

Key modifications:

1. Increase delivery to West Basin (70 mgd)
2. AWWPF by 2019 (2-5 mgd)
3. Change NDN treatment process to Tertiary Plus or Advanced for IPR/DPR in the future



Donald C. Tillman WRP

Capacity: 80 mgd

Avg Flow (2015): 32 mgd

Key modifications:

1. Advanced treatment for GWR project by 2020
2. Interim ozonation (6 mgd)



LA-Glendale WRP



Capacity: 20 mgd

Avg Flow (2015): 19 mgd

Key modifications:

1. 5 MG equalization tank to increase water recycling
2. Recycled water expansion to Elysian Park and Downtown LA



Terminal Island WRP

The image shows the Terminal Island Wastewater Reclamation Plant. In the background, there's a view of the Los Angeles skyline across a body of water. The main part of the image shows the industrial facility with a large blue corrugated metal roof. In the foreground, there are rows of large, grey, cylindrical membrane bioreactor (MBR) modules. A yellow caution sign is visible on one of the modules. To the right, there's a large purple pump with a red handwheel and a yellow safety bollard. A white sign with black text is also present near the pump.

Capacity: 30 mgd

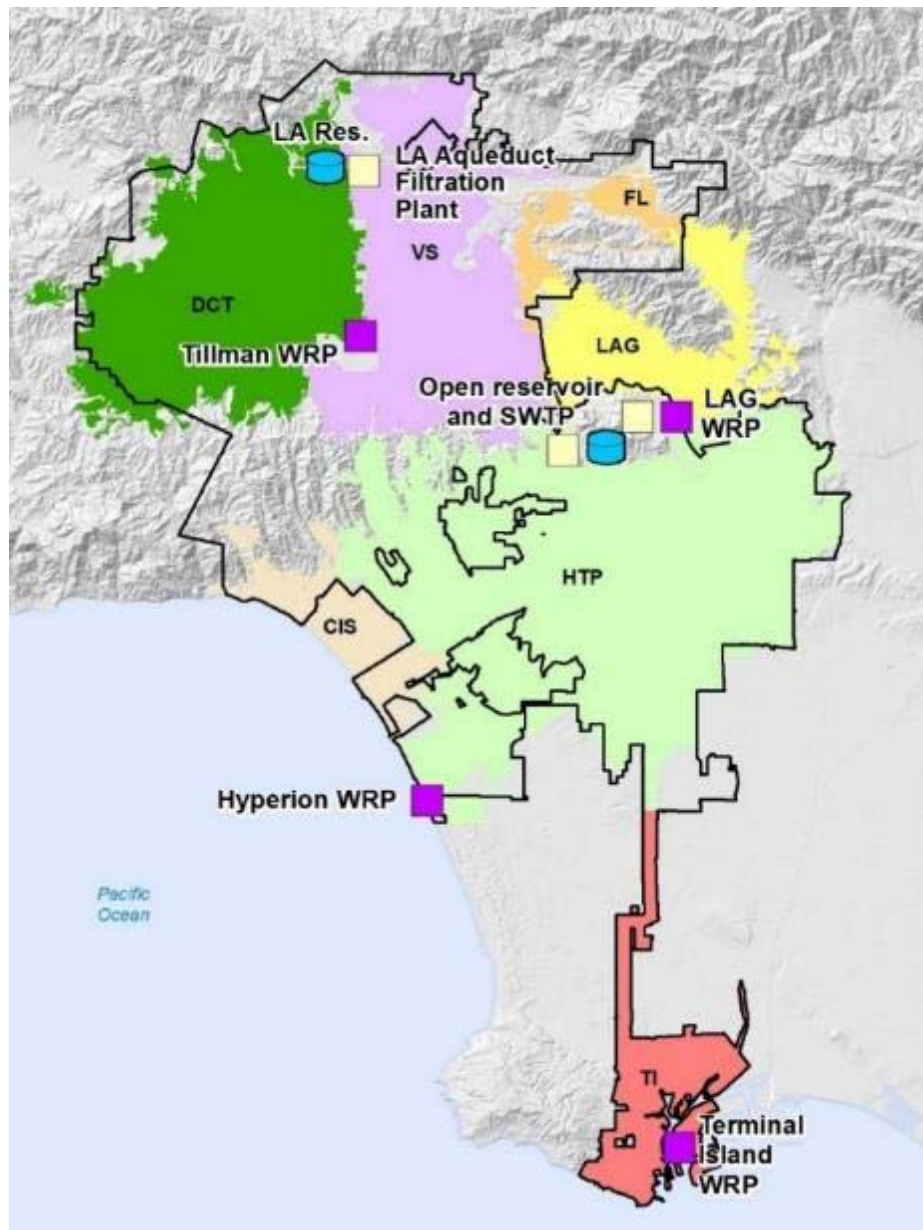
Avg Flow (2015): 14 mgd

Key modifications:

1. Expansion to 12 mgd of Advanced Treatment
2. Full Advanced Treatment
3. 100% Reuse with Harbor and Intrusion Barrier



Status & Next Steps



Facilities Plan Technical Memorandums:

Discuss specific processes, identify issues and needs



Future System Needs Technical Memorandums:

Identify upgrades & additions

In Progress

CIP Prioritization Technical Memorandum: Develop short, mid & long term CIPs



Stormwater Facilities Plan

Plan Status & Next Steps

**2015
Stormwater
Capture
Master Plan**

**2015
Enhanced
Watershed
Management
Plans**



**Data Gathering
Stormwater Flows & Events
Stormwater Conveyance System**



**System Consideration
Stormwater System Analysis
Capital Improvement Program**

**In
Progress**

**Stormwater & Urban Runoff
Facilities Plan**

**In
Progress**



3-Legged Stool Approach

A Stormwater and Urban Runoff Facilities Plan integrates previous planning efforts and utilizes a 3-legged stool approach to prioritize over 1,000 projects (consisting of both centralized and distributed stormwater projects) based on flood protection, water supply and water quality benefits.

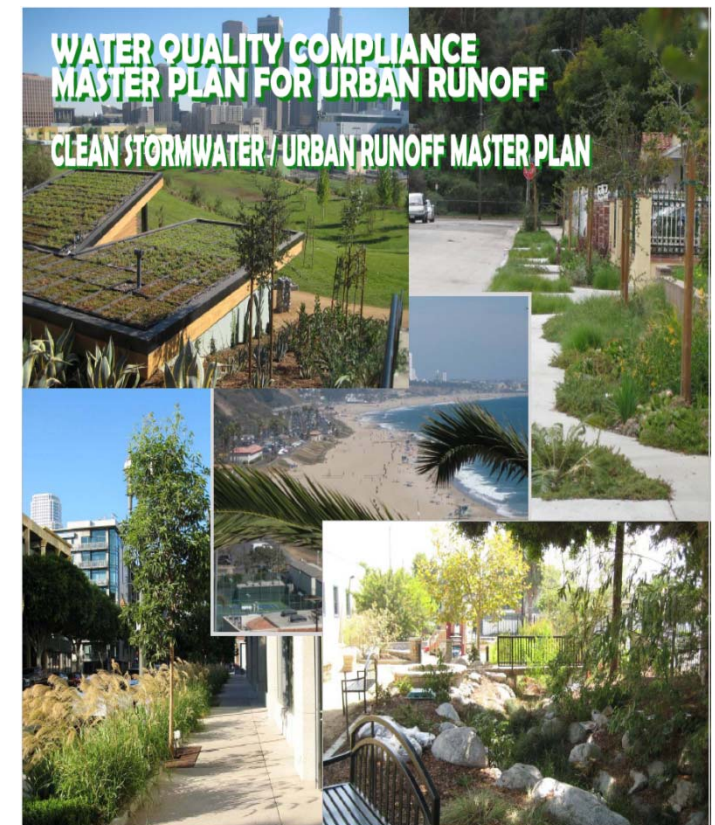
What is the 3-Legged-Stool Approach?





Stormwater Management

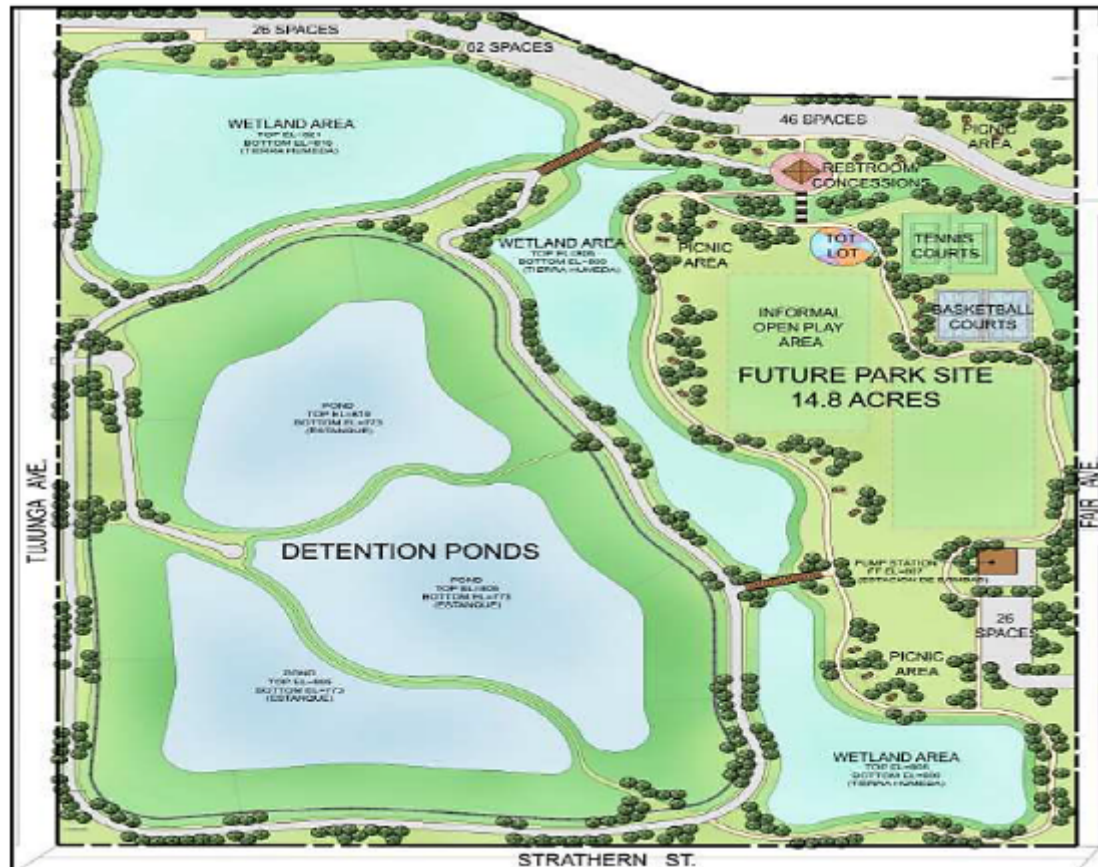
For every \$1 Million in Water Quality investments, there is up to \$22 Million in added benefits or avoided costs.





Example of Regional Integrated Project

Rory Shaw Wetlands Park – *A collaborative project led by LA County in collaboration with City of LA and other partners*



Project area:

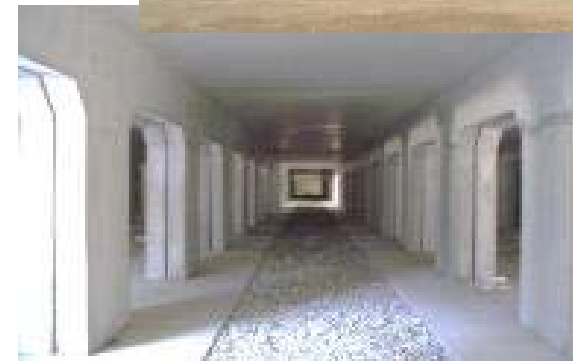
46 acres

Upstream drainage area:

929 acres

Expected water capture & use:

900 ac-ft





Example of Distributed Project

Riverdale Green Street



- Infiltration units capture runoff from 14 acres of residential land
- Parkway landscaping features drought-tolerant native plants





Additional Studies: LA River



LA River Study Purpose

PURPOSE

Identify considerations, assumptions, and areas of future study necessary to determine optimal flow conditions in the LA River that balance the City's water supply needs with the River's needs to support its water-dependent and regulatory uses.



LA River Flow Study Outcomes

The key study outcomes are:

- **Understand existing low flow conditions** in the LA River over the last 3 years.
- **Estimate the potential range of low flow conditions** – considers projected changes in runoff management and wastewater flows through 2040.
- **Gain understanding of water budget assumptions in the ARBOR Study** (Area with Restoration Benefits and Opportunities for Revitalization)
- **Develop conceptual adaptive water management alternatives** that provide flexibility in the management of river flows and allow water supply opportunities.
- **Identification of future study needs** to determine optimal flow conditions that balance needs

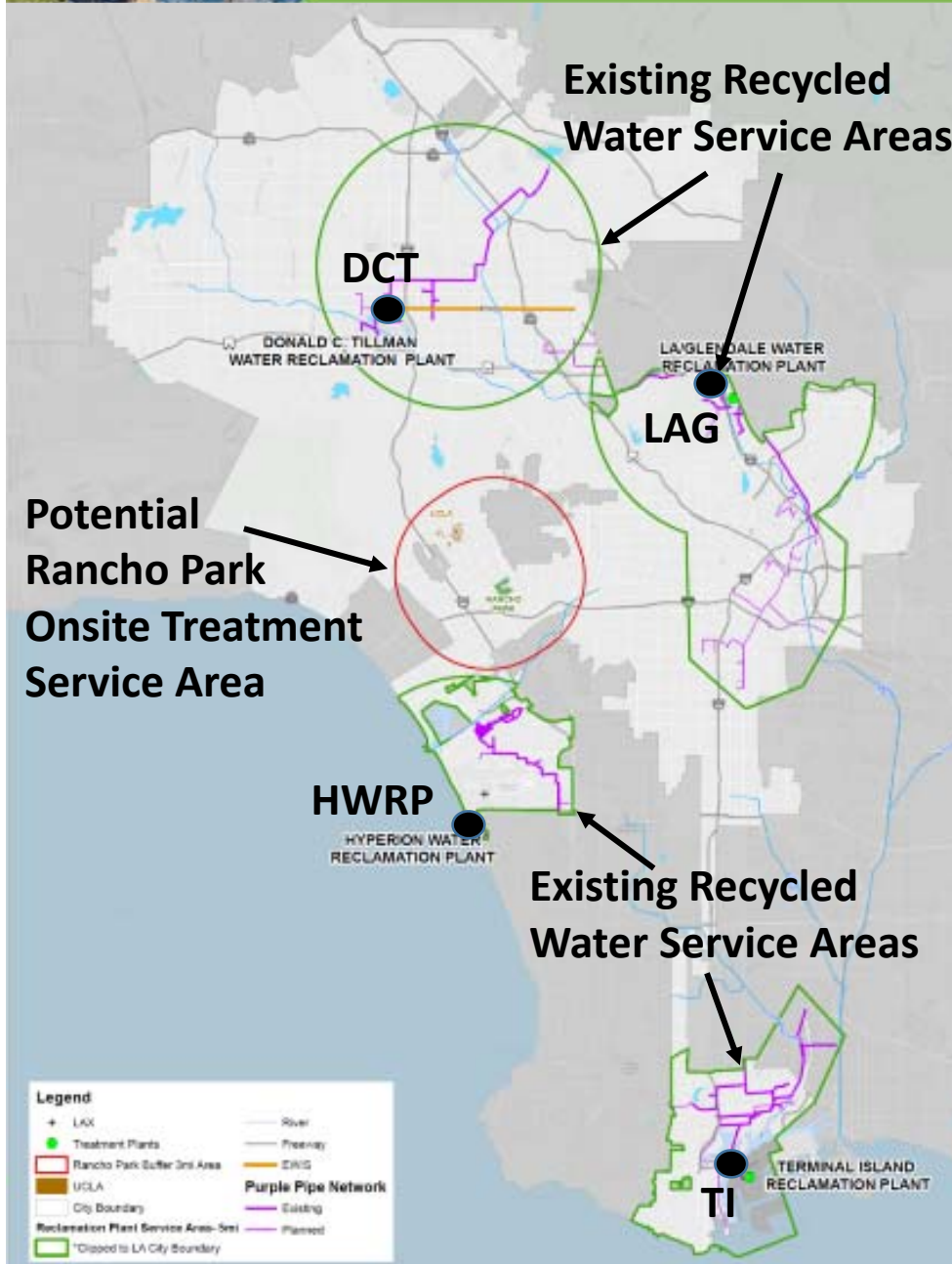




Additional Studies: On-Site Treatment



On-Site Treatment



Objectives:

- Mayor's Executive Directive No. 5
- Significant non-potable water demand identified (2012 Recycled Water Master Planning [RWMP] documents)
- Ballona Creek EWMP and TMDL compliance

Concept Components:

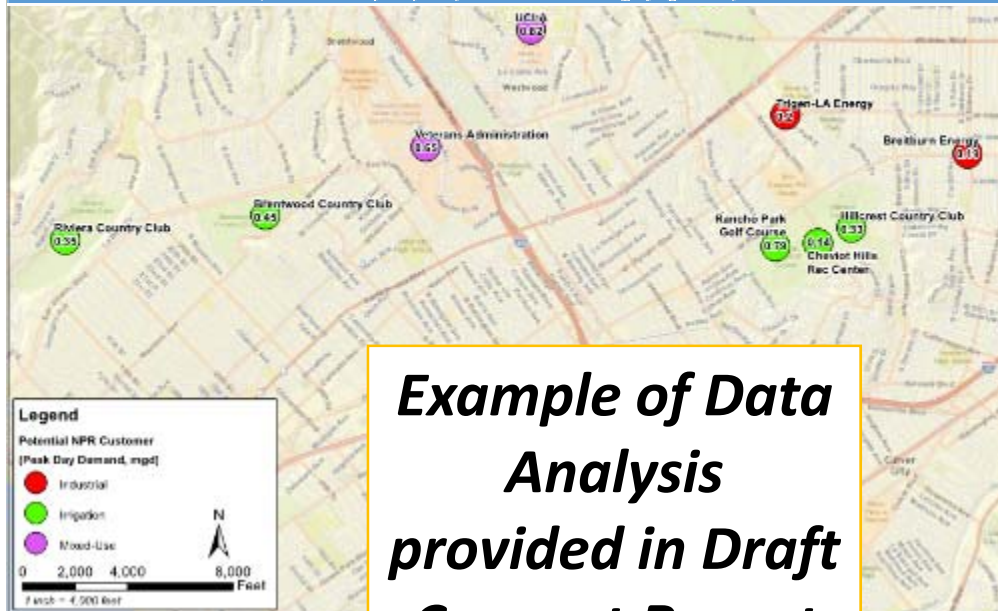
- Stormwater capture and treatment concept
- Satellite water reclamation facility (WRF) concept
- Concept Nexus



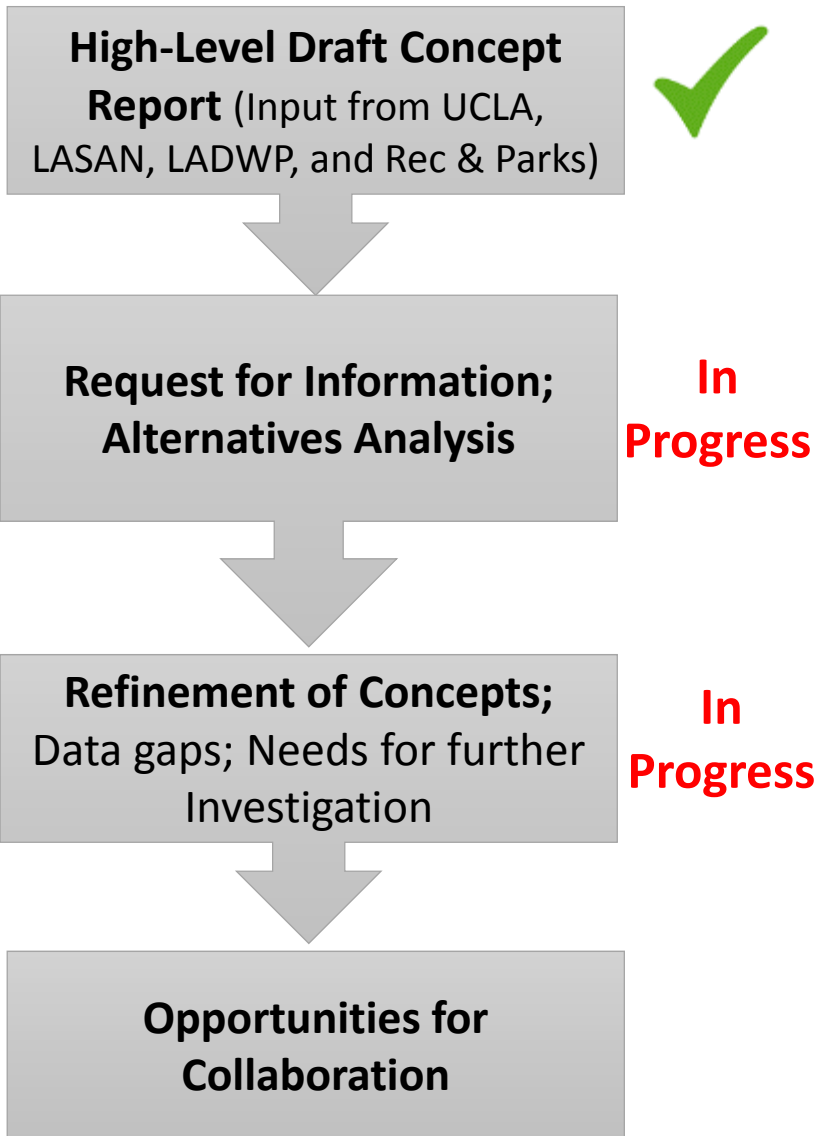
Status & Next Steps

Customers	Type of Use	Annual Demand		Peak Day Demand
		(AFY)	(mgd)	(mgd)
UCLA*	Mixed-use	540	0.48*	0.82
Veterans Admin. Institution	Mixed-Use	430	0.38	0.65
Rancho Park Golf Course	Irrigation	400	0.36	0.75
Brentwood Country Club	Irrigation	230	0.21	0.45
Rivera Country Club	Irrigation	180	0.16	0.35
Trigen LA Energy	Industrial	170	0.15	0.28
Hillcrest Country Club	Irrigation	170	0.15	0.33
Bretburn Energy	Industrial	165	0.15	0.10
Los Angeles Country Club	Irrigation	140	0.12	0.27
Cheviot Hills Rec Center	Irrigation	70	0.06	0.14
Non-Anchor Customers (30)		341	0.30	0.60
Total		2,836	2.53	4.80

*Sourced: RWMP 2012 Documents; UCLA, current (2016) non-potable demand is 1 mgd (avg annual)



***Example of Data Analysis
provided in Draft
Concept Report***





Policies



- Purpose – Develop Policies that increase collaboration and help implement the One Water LA vision and objectives
- Ideas have been collected from many sources
- 84 Policy ideas presented and discussed in breakout sessions at December 13 Workshop



Types of Policy Ideas Suggested

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





Status & Next Steps



**Review and Refine Ideas
Gathering & Polishing**



Policy Development:
Connect ideas to guiding
principles, sort policies from
programs

**In
Progress**

**Determine where ideas best
fit in the One Water LA Plan**

**Discuss ideas with Steering
Committee and Water
Cabinet**



Funding Strategies



Funding Opportunities

Opportunities include: Federal, State, Local, and Private in the form of Grants, loans, & partnerships

Such as...

- Water Infrastructure Improvements for the Nation Act (2016)
- Measure M
- City of LA's sidewalk repair program
- LA County's Park Bond
- State of California's Proposition 1
- EPA Loan Program - Water Infrastructure Finance and Innovation Act (WIFIA)



FEMA





Collaborative Funding Approach



- Seek outside funding for the City of LA's water projects
- Potential water-focused Funding Office
 - Enhance water resiliency and economic security
 - Build off of existing City- department projects lists
 - Explore City-focused public-private partnerships
 - Verify funding application viability, resources, development and submittal



Status & Next Steps



STG Funding Strategy ideas,
recommendations and input



Funding Strategies
Development and
Recommendations

**75%
Complete**

Water Funding Office
Recommendations

**75%
Complete**

Internal & expert review

Present recommendations to
Management & Mayor's
office



Implementation Strategy

Implementation Strategy

RECOMMENDATIONS

Near-Term
Integration
Opportunities

Long-Term
Concept Option
Recommendations

Wastewater
Facilities Plans
Recommendations

Stormwater
Facilities Plan
Recommendations

TRIGGERS

Growth

Flows &
Demands

TMDL
Deadlines

One Water Plan
Recommendations

- Projects
- Programs
- Policies

Sustainability
pLAN Targets

DPR
Regulations

Funding
& Other

IMPLEMENTATION STRATEGY





Next Steps & Upcoming Events



The “One Water LA Progress Report”

- High-level overview
- Purpose of One Water
- Progress since 2014
- Serve as a communication tool
- Approx. 50 pages of highlights





Upcoming Workshops & Meetings

- 3/1 - Steering Committee Meeting
- Early March - Advisory Group Meeting to discuss Draft Progress Report
- Mid March - Wastewater & Stormwater Facilities Plans Special Meeting





Other Upcoming Events

- One Water LA Day, April 11th
- Earth Day, April 22nd
- Young Citizen Artists Project (tbd)





Meeting Close

Additional Information:

www.onewaterla.org

onewaterla@lacity.org