



CUSTOMERS FIRST

Water Resources Planning Update

LADWP Neighborhood Council
MOU Oversight Committee

October 6, 2018

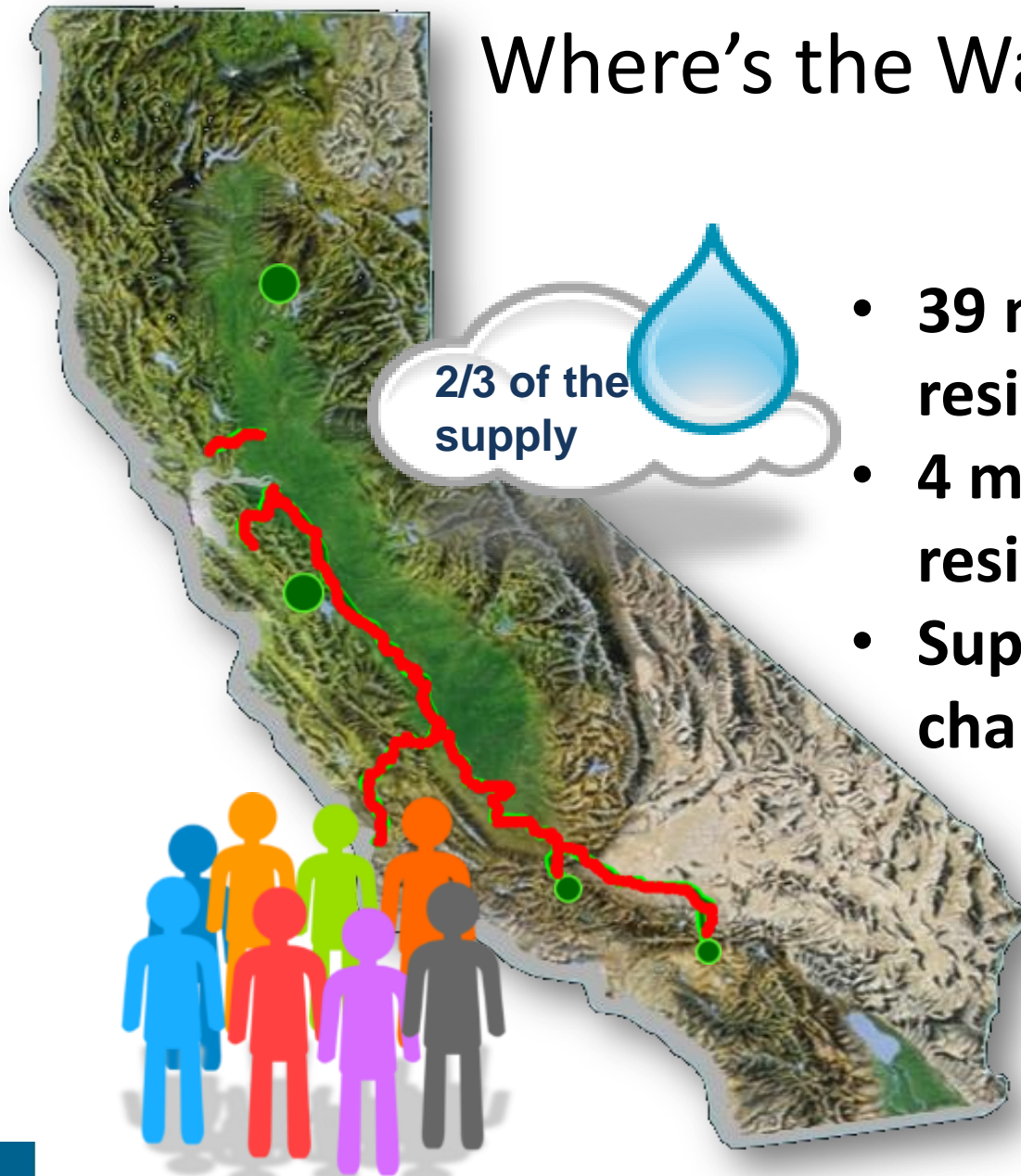


Agenda

- **LA's Water Resources Planning Efforts** (Past, Present, and Future)
- **New Challenges, Risks, and Opportunities** (resources and infrastructure)
- **Other related updates, Q&As....**



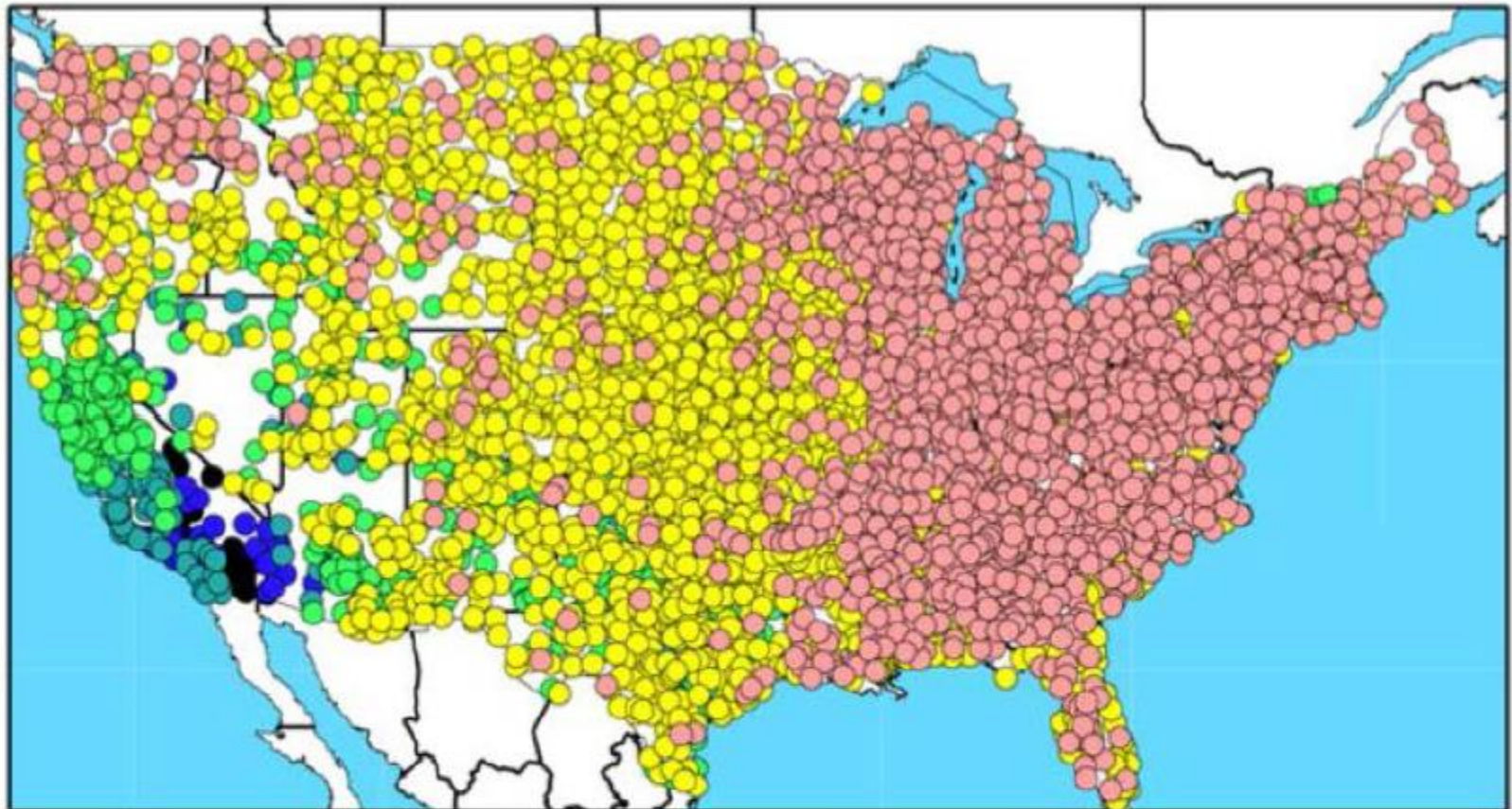
Where's the Water Needed?



2/3 of the
supply

- 39 million California residents
- 4 million Los Angeles residents
- Supply and demand challenge

California Has the Largest Year-to-Year Variability in Precipitation Accumulation



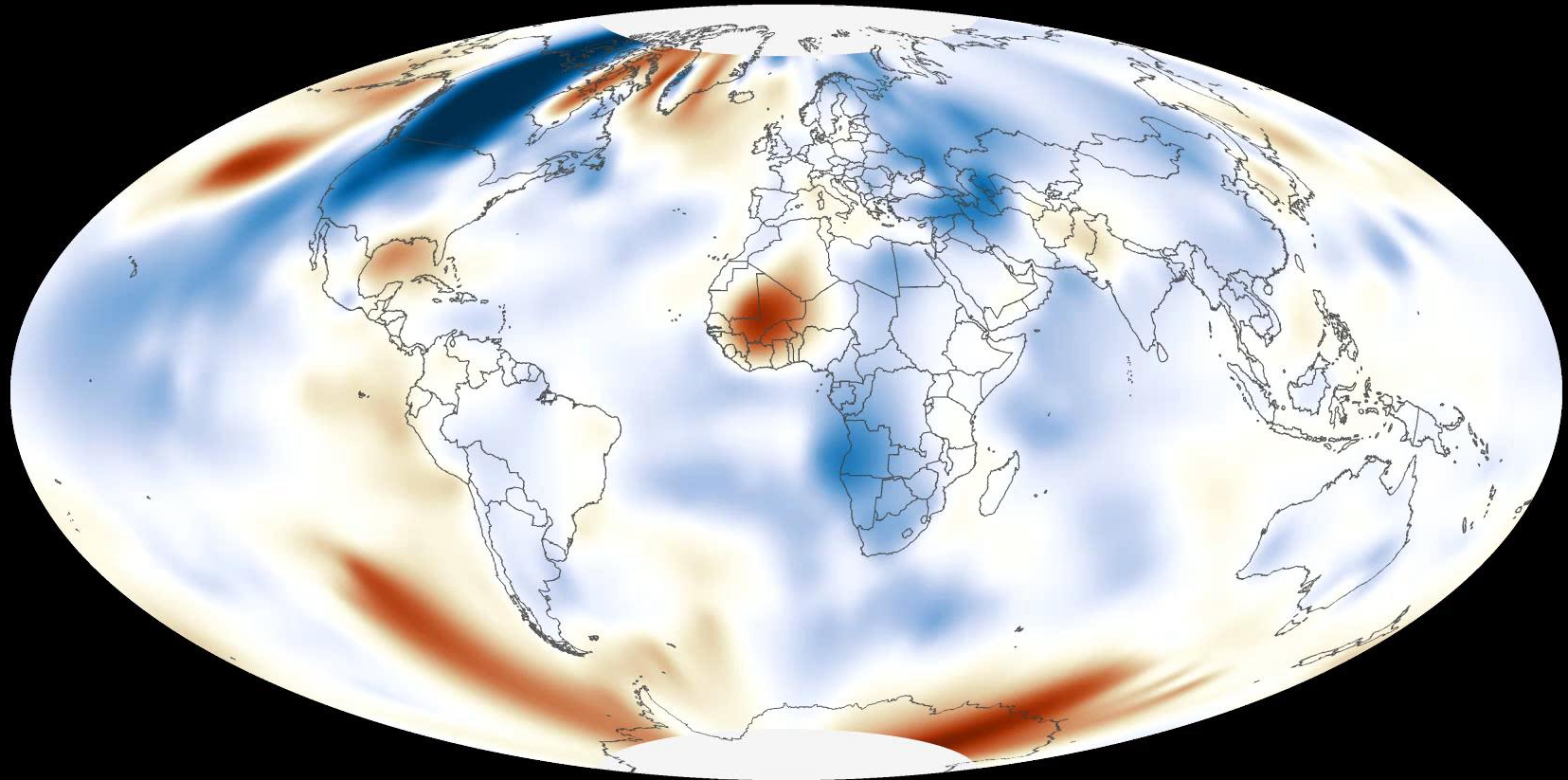
Dettinger et al. 2011

fraction



Coefficient of variation for annual precipitation 1950-2008

History of Earth's Surface Temperature 1880-2016



1880

compared to the 20th Century average

-3

0

3°C

NOAA

2017 one of 3 hottest years on record

Warming was seen
in 2017

Change in glo

For U.S., 2017 was a hot and costly year

Cape Town Rations Water Before Reservoirs Hit Zero

October 26, 2017 / in Africa, South Africa, Water Management, Water News / by Brett Walton

No end to water crisis in South Africa's second largest city.



After three consecutive dry years, Cape Town resorts to water "blackouts" to conserve water. Photo by Public Domain.

By Brett Walton, Circle of Blue

include the massive Northern California fires last fall as well as the blazes that burned through Southern California in December.

Last year was also the country's 20th-wettest on record, as well as the fifth year in a row that had above-average precipitation. The year started with a very wet winter for the Northwest, but ended with the ninth-driest December on record. This helped lay the deadly groundwork for the fires that scorched California, the scientists pointed out.

"The really wet winter there allowed vegetation to flourish, and then during the typically dry summer and autumn period that vegetation dried out — providing ample fuels for wildfires," Crouch said. "It's been a pretty devastating year out west, in that respect."

What's to blame

The scientists could not say how much of the high costs of this year's major disasters was attributable to risks associated specifically with global warming and climate change, and how much was attributable to the fact that humans tend to live in cities and build vital infrastructure along coasts, rivers and other high-risk zones.

"Both the economists and the physical scientists retrospectively will look at that," said Deke Arndt, chief of the monitoring section for NOAA's National Centers for Environmental Information. "But those kind of happen at the speed of science."

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Twitter: @aminawrite

Lottery results

For Saturday, Jan. 13, 2018

SuperLotto Plus

High number is bold

3-24-29-33-40—Mega 27

Jackpot: \$54 million

Winners per category:

	No. of winners	Amount of prize(s)
5 + Mega	0	—
5	2	\$38,282
4 + Mega	16	\$1,142
4	268	\$100
3 + Mega	503	\$54
3	12,743	\$10
2 + Mega	6,809	\$11
2 + Mega	33,046	\$2
Mega only	90,407	\$1

Powerball

Powerball number is red

14-25-35-58-69—Powerball 24

Jackpot: \$50 million

California winners per category:

	No. of winners	Amount of prize(s)
5 + Power	0	—
5	0	—
4 + Power	1	\$30,872
4	38	\$403
3 + Power	75	\$212
3	2,240	\$8
2 + Power	1,700	\$9
2 + Power	13,990	\$5
Power only	34,351	\$4

Winning jackpot ticket(s) sold in other states: None

For Sunday, Jan. 14, 2018

Fantasy Five: 13-23-25-31-37

Daily Four: 3-2-8-3

Daily Three (midday): 7-1-4

Daily Three (evening): 3-0-7

Daily Derby:

(6) What Win

(7) Susha

(11) Marley Bags

Race time: 1:42.81

Results on the Internet:

www.latimes.com/lottery

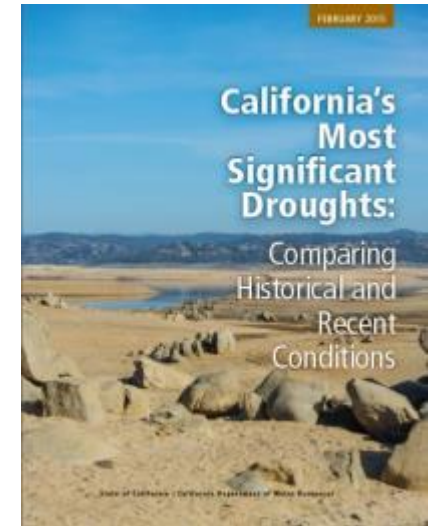
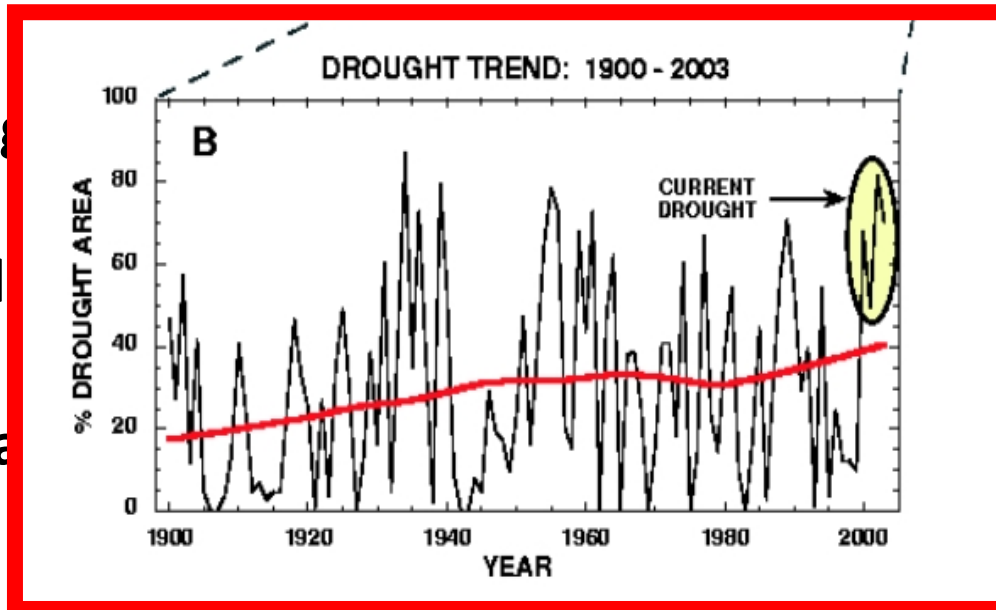
General Information:

(800) 568-8379

(Results not available at this number)

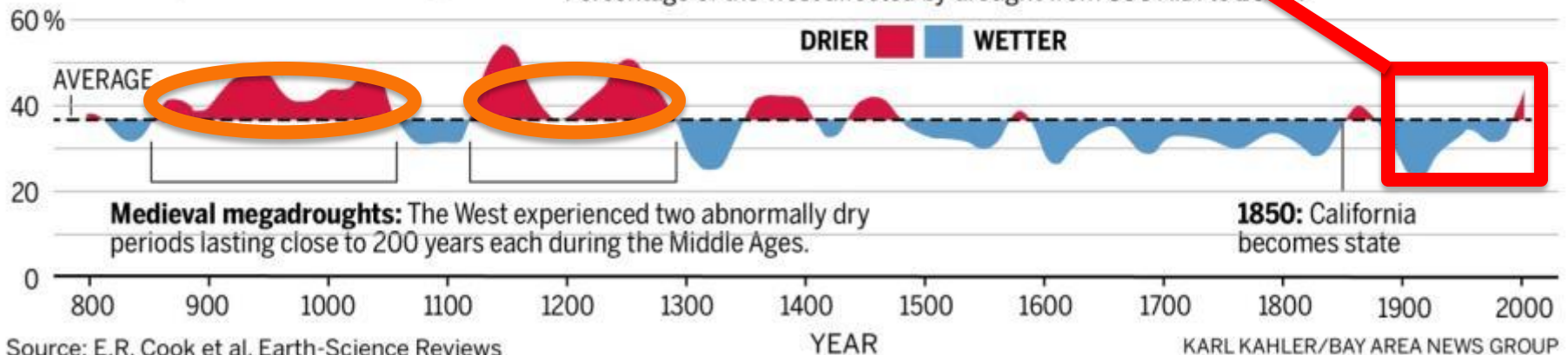
Prolong Drought Potential

- Tree rings decade “megadroughts”
- Potential



A 200-year drought?

Evidence from tree rings shows that drought was historically much more widespread in the American West than now, while the 20th century was wetter than normal. Percentage of the West affected by drought from 800 A.D. to 2000:

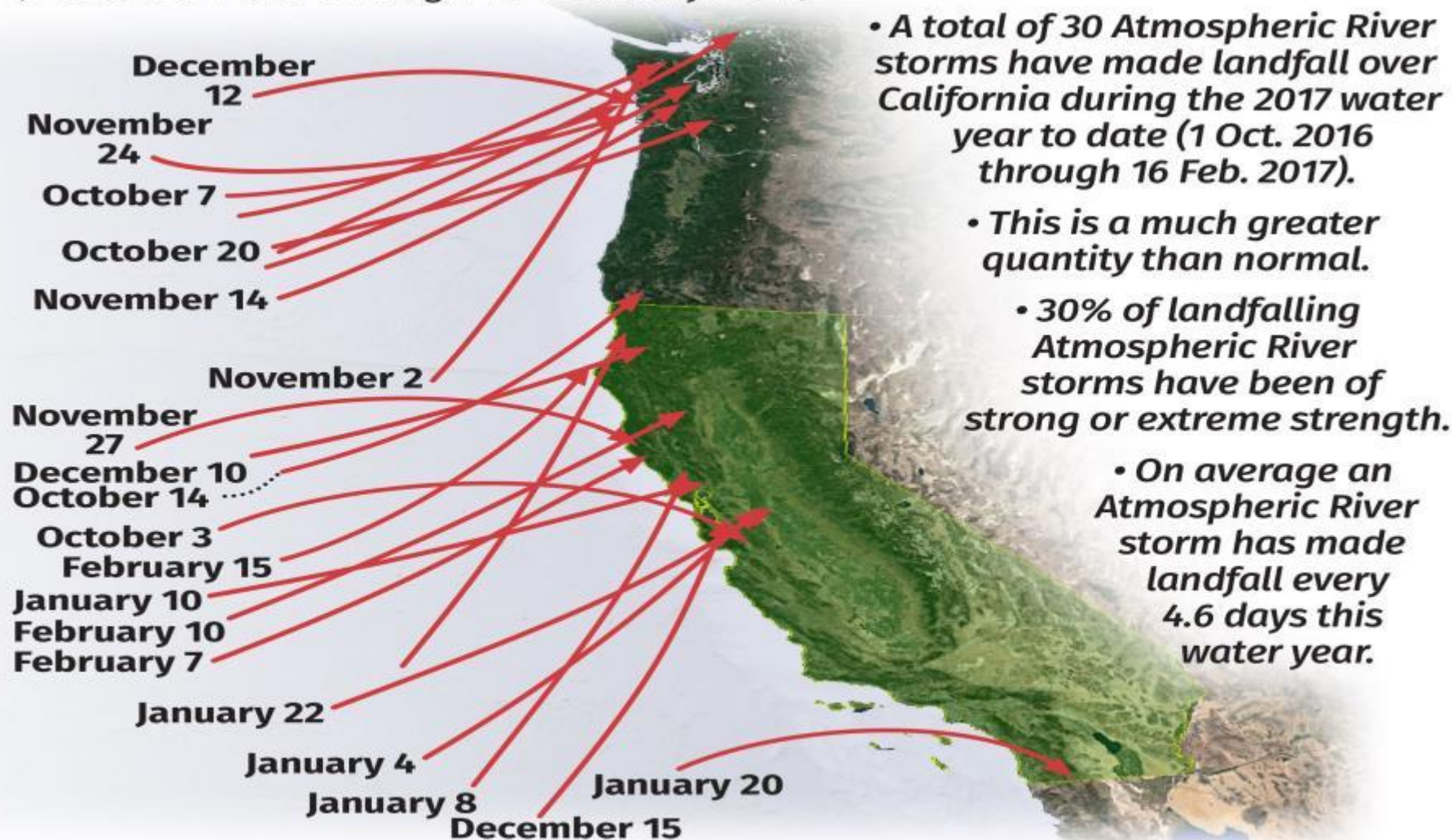


Source: E.R. Cook et al, Earth-Science Reviews

KARL KAHLER/BAY AREA NEWS GROUP

Atmospheric Rivers during Water Year 2017

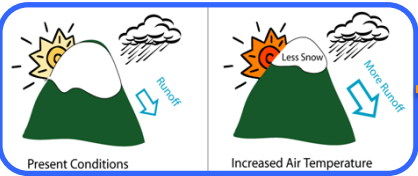
(1 October 2016 through 16 February 2017)



Some AR landfalls are not shown due to graphical overlap.

Source: Center for Western Weather & Water Extremes at Scripps

Water Supply & Reliability Challenges



Climate Change



Seismic Risk to Imported Supplies

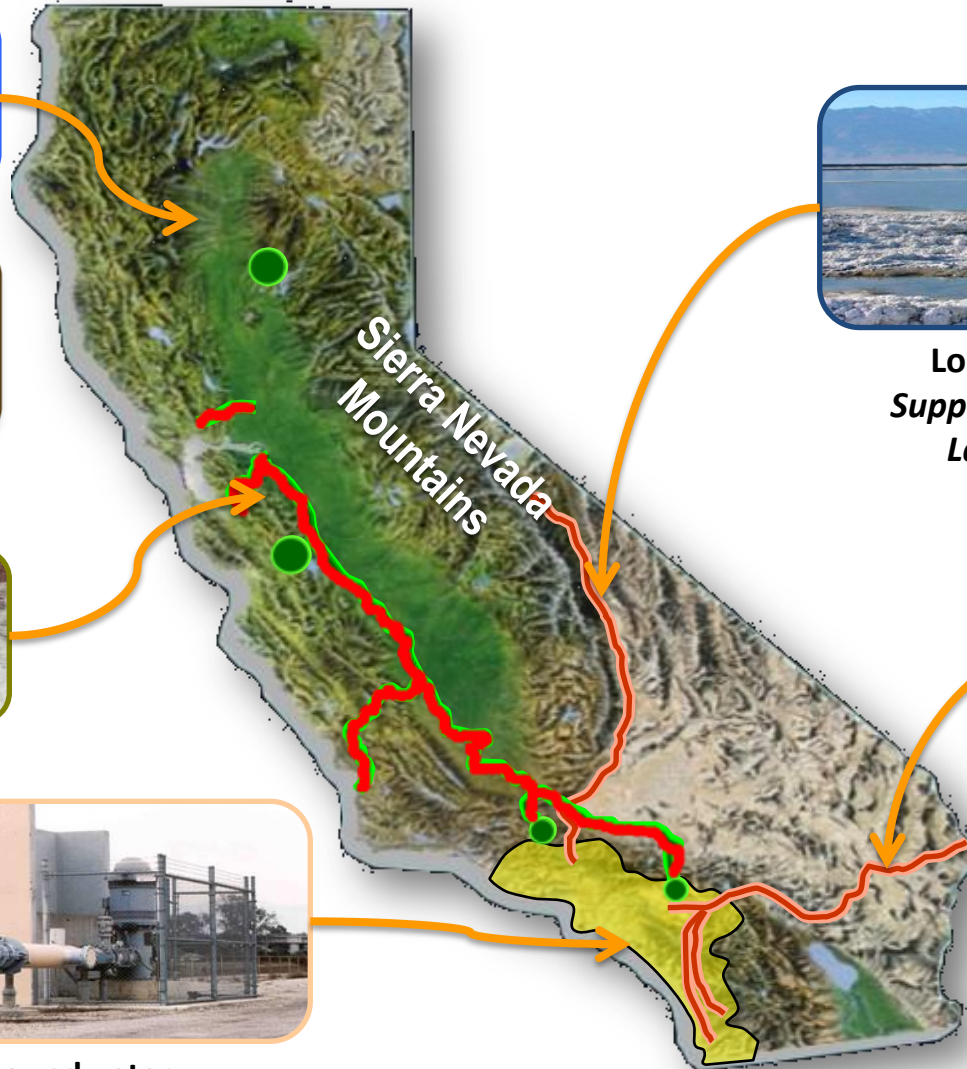


Bay-Delta Uncertainty



Local Groundwater:

Contamination in the San Fernando Basin



Los Angeles Aqueduct:
Supply reduction due to Owens Lake dust mitigation



Colorado River Aqueduct



Rising MWD Water Costs
ladwp.com

Water Resources Planning and Development has Transformed LA

1913



1st Los Angeles Aqueduct Completed

1930's and 1950's



In Partnership with MWD, LADWP Helped Fund the Colorado River Aqueduct and State Water Project

1970



2nd Los Angeles Aqueduct Completed

1979



Delivery of Recycled Water Commenced

2008



Watershed Management Group Created

2015



Stormwater Capture Master Plan

1900

1910

1920

1930

1940

1950

1960

1970

1980

1990

2000

2010

2015

Pre-1900's



Pueblo Rights to San Fernando Basin Reaffirmed in 1979

1928



Joined Metropolitan Water District

1977



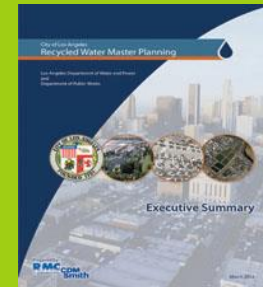
Water Conservation Program Initiated

2006



Integrated Resources Plan Completed

2012



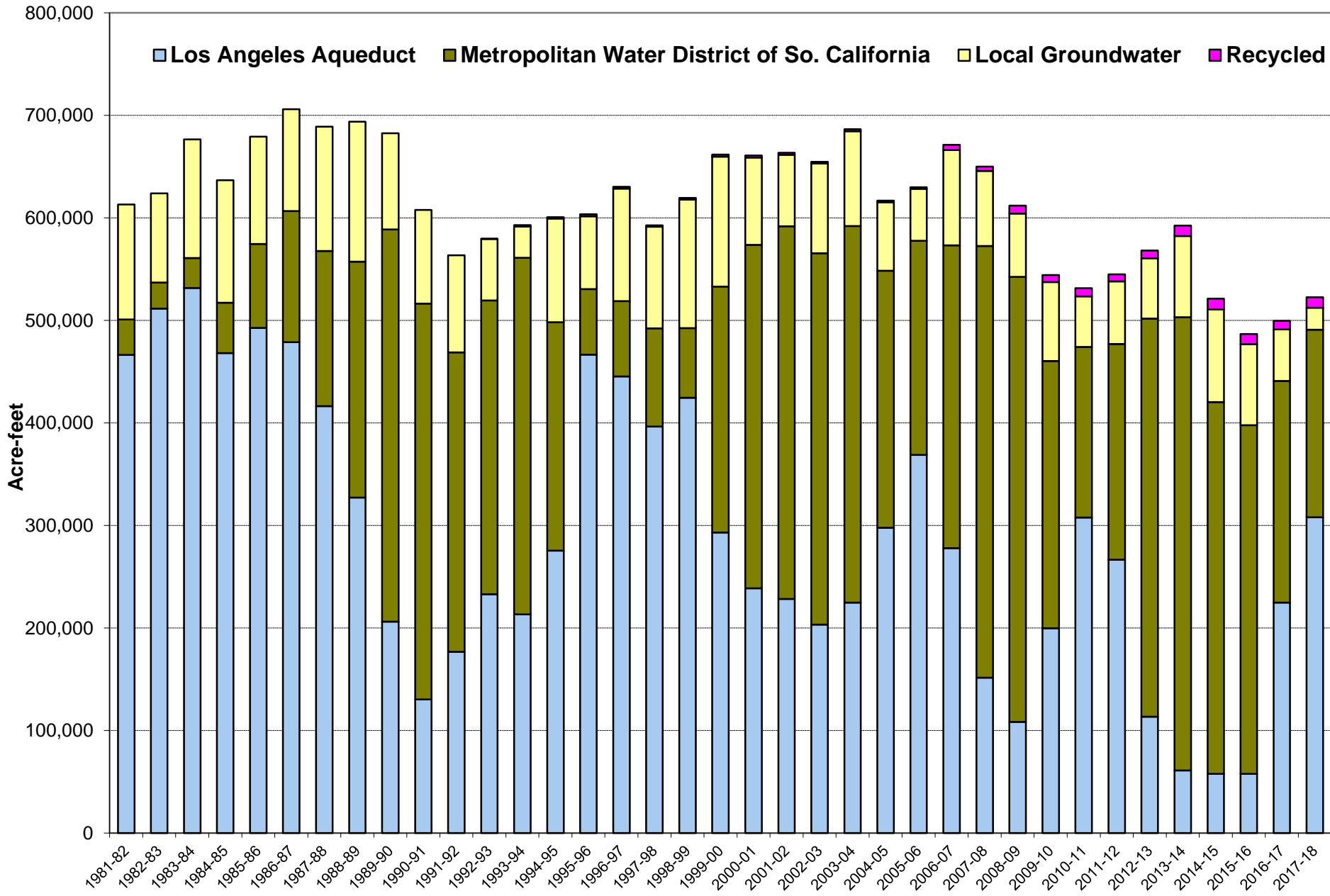
Recycled Water Master Planning

2017



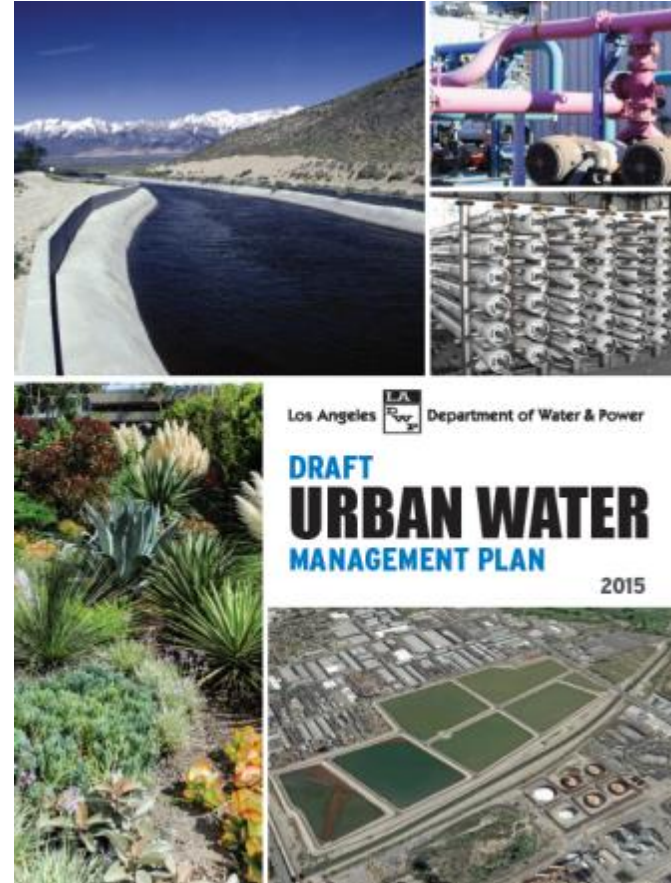
Water Conservation Potential Study

Historical Water Supplies



UWMP Background

- **Urban Water Management Planning Act (1984)**
 - Required for agencies serving more than 3,000 customers or 3,000 AFY
 - Plan must be filed with the State every 5 years
- **Water Supply Reliability to Year 2040**
 - 2015 UWMP available for download at:
www.ladwp.com/2015UWMP
- **State Grant/Loan Eligibility**
- **Compliance with the Act for process and content requirements for UWMP preparation**



UWMP Elements

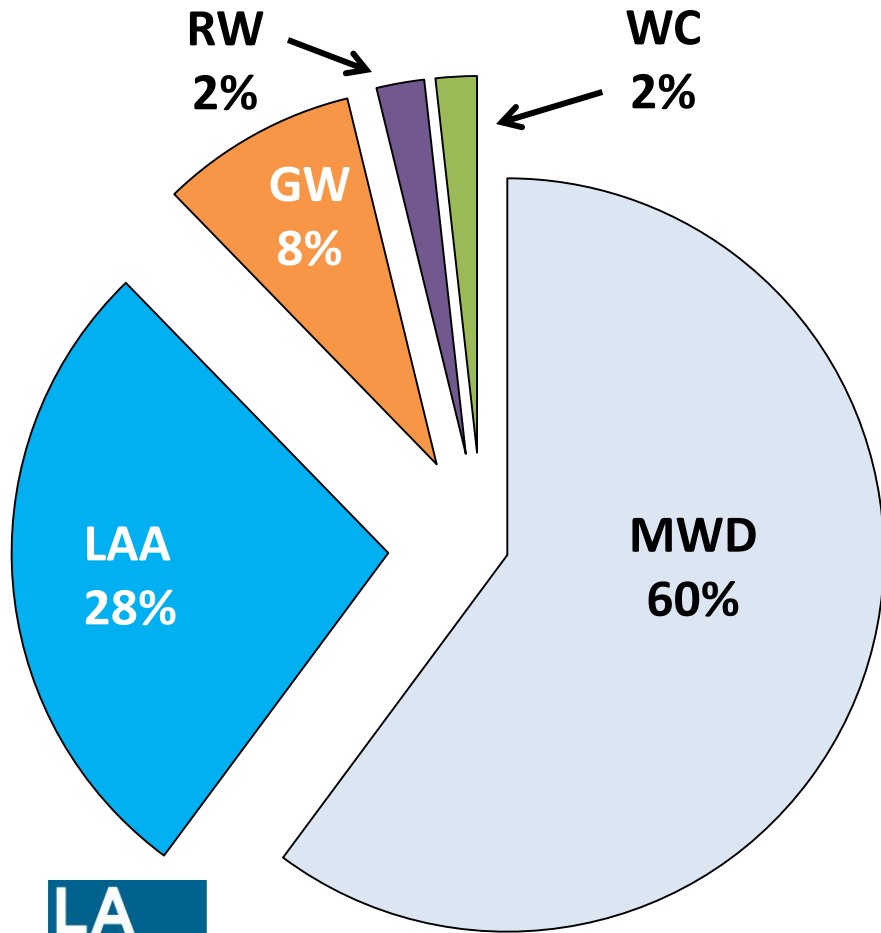
Water Resources Management and Planning for the next 25 Years

- Water Demand Forecasting
- Existing and Planned Sources of Water
- Water Use Efficiency and Conservation Efforts
- Assessment of Water Supply Reliability and Vulnerability
 - Average, Single Dry, and Multiple Dry Years
- Water Shortage Contingency Analysis
- Voluntary Reporting
 - Climate Change
 - Energy Intensity of Water Supply

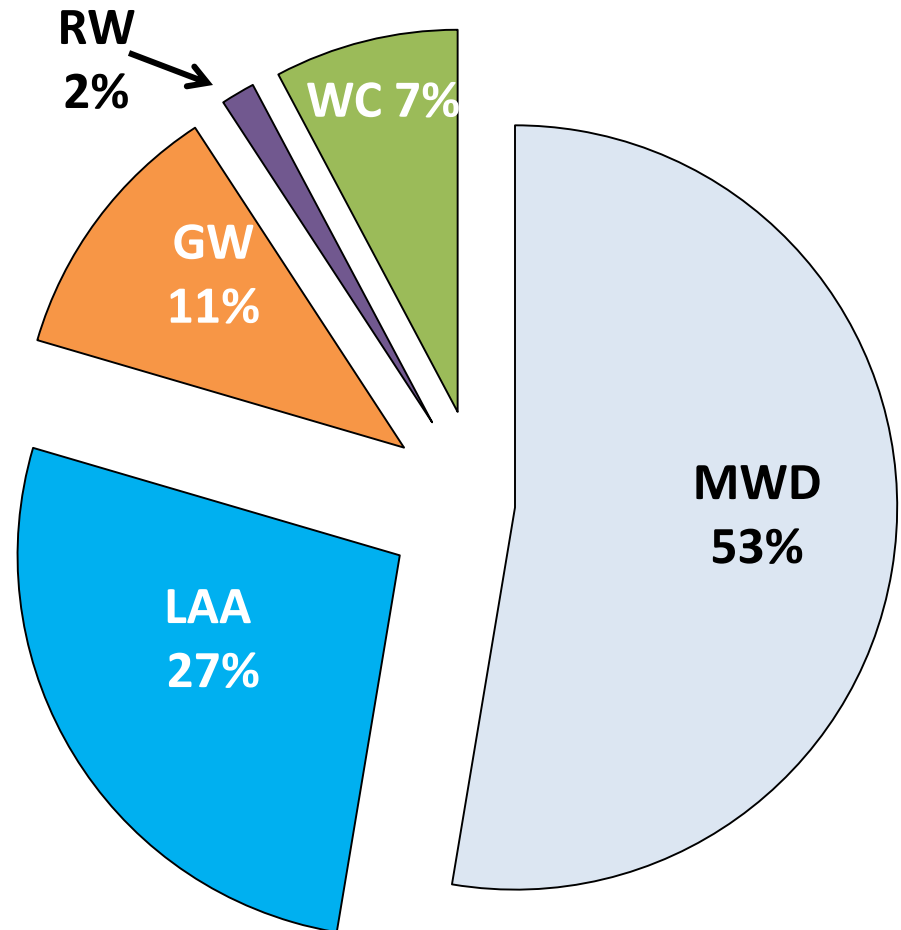


Projection vs. Actual

FYE 2011-15
Projection

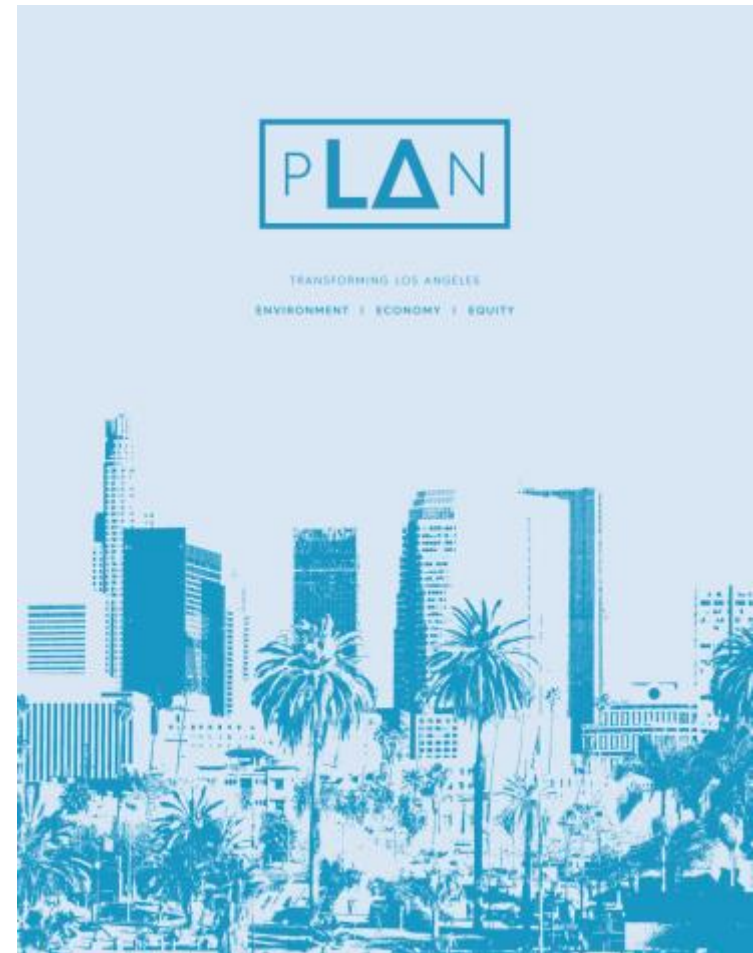


FYE 2011-2015
Actual

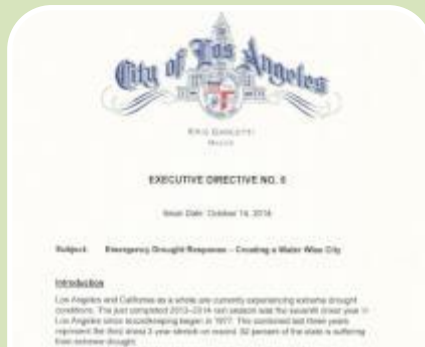


Sustainable City pLAn (2015)

- Reduce LADWP purchases of imported water by **50%** by **2025**
- Source **50%** of water locally by **2035**
- Build capacity to capture **150,000** AFY of stormwater by **2035**
- Create Integrated Local One Water Strategy

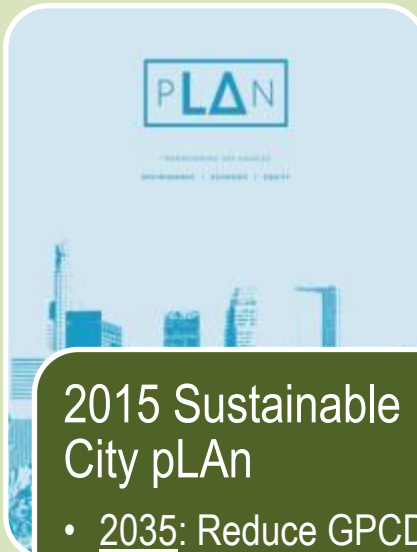


Water Supply Program Supports City's Sustainable Water Mandates



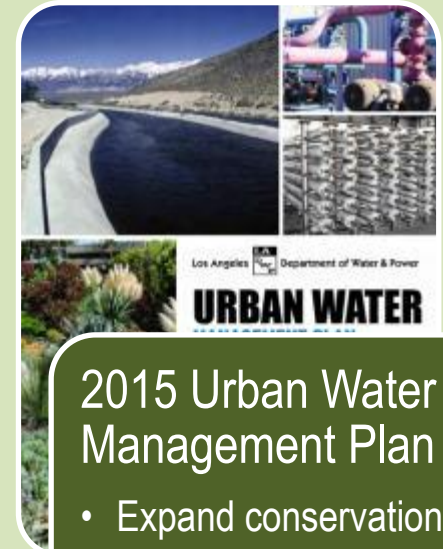
2014 Executive Directive No. 5

- 2017: Reduce GPCD by 20%
- Create an integrated strategy to increase local supplies



2015 Sustainable City pLAN

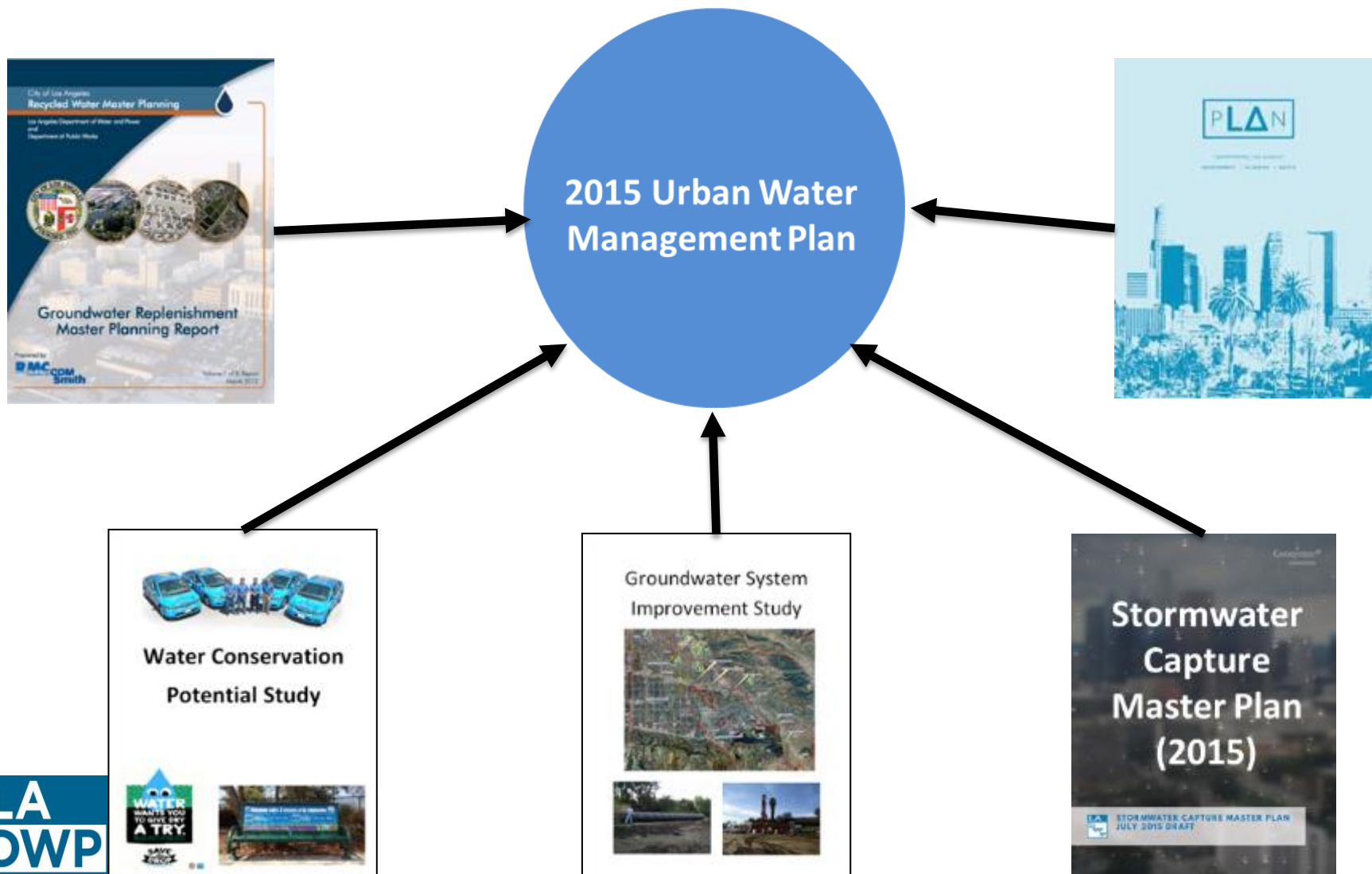
- 2035: Reduce GPCD by 25%
- 2025: Reduce purchased imports by 50%
- 2035: 50% of water locally sourced



2015 Urban Water Management Plan

- Expand conservation
- Expand recycled water
- Enhance stormwater capture
- Remediate contamination in groundwater basin

UWMP Planning Efforts



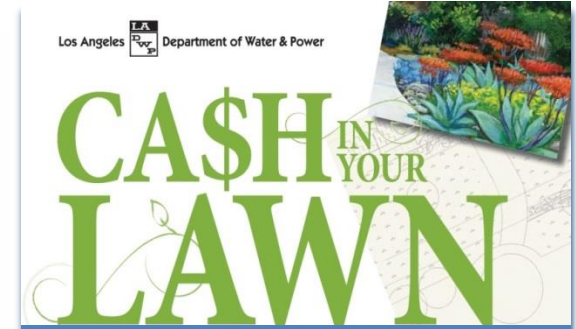
Local Water Supply Program



Recycled Water



Stormwater Capture



Water Conservation



SF Groundwater Basin Remediation



Local Water Supply Reliability

Local Supply Development Conservation

Goal: 110,100 AFY – 143,900 AFY

CONSERVE

Local City Ordinances

Commercial Programs

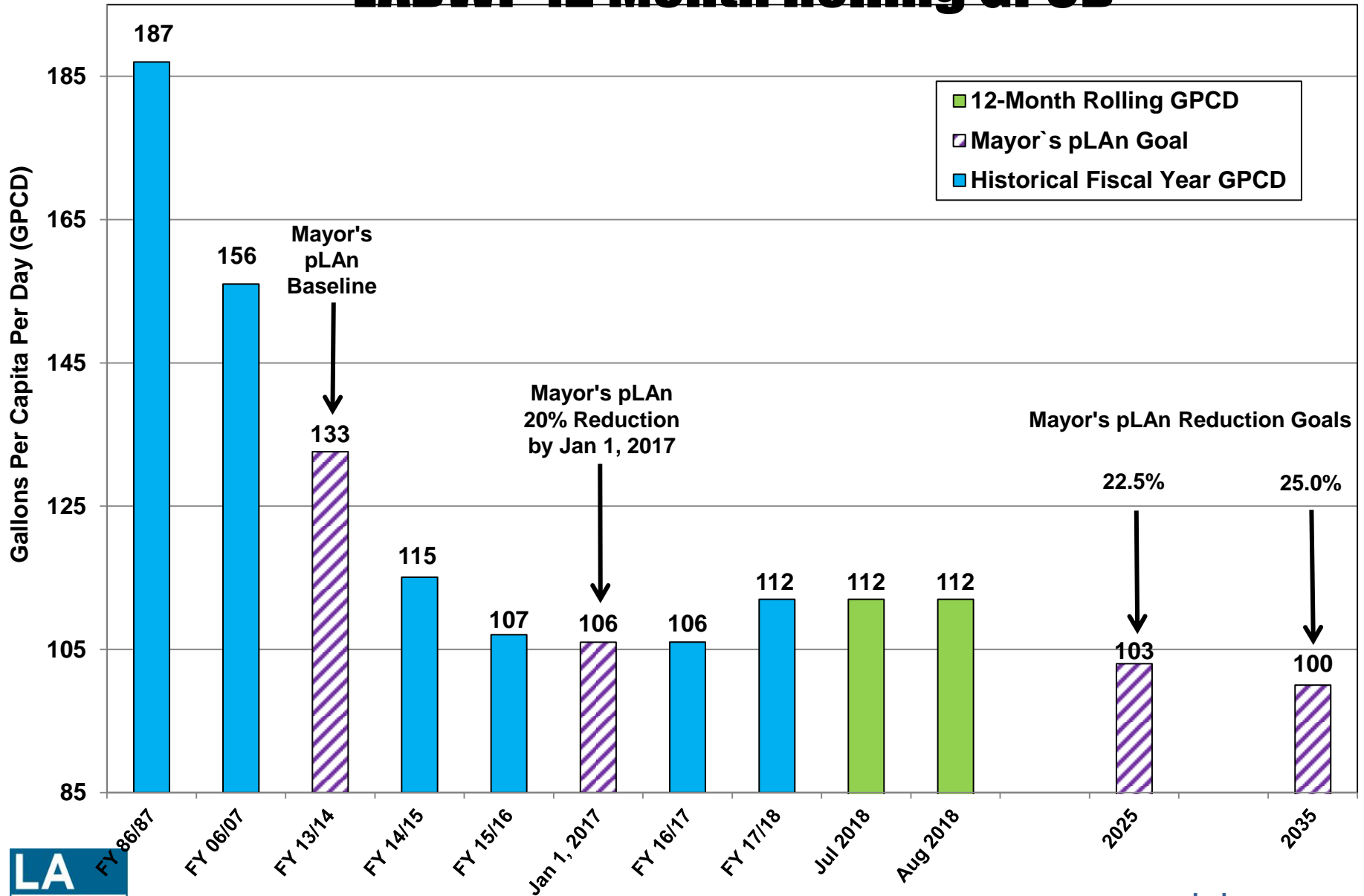
Residential Programs

Public Outreach & Education

Partnerships



LADWP 12 Month Rolling GPCD



Local Supply Development Recycled Water

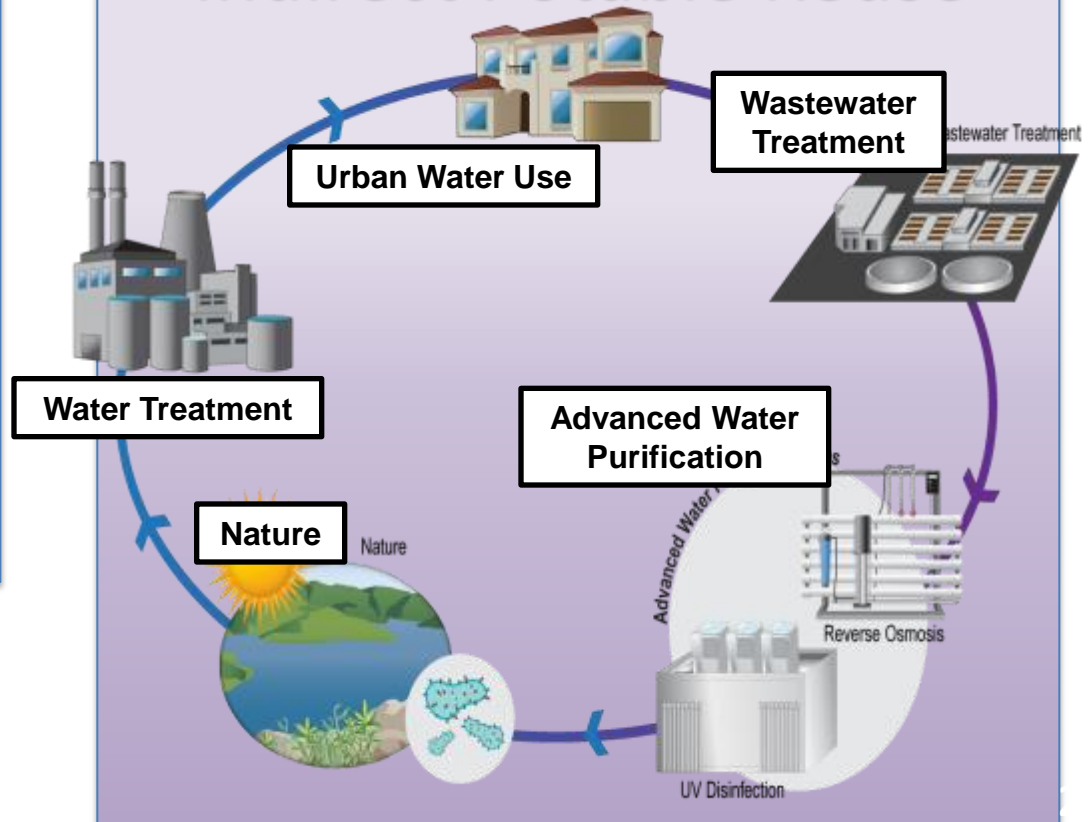
Goal: 75,400 AFY

NPR: 45,400 AFY

Non-Potable Reuse



IPR/GWR: 30,000 AFY Indirect Potable Reuse



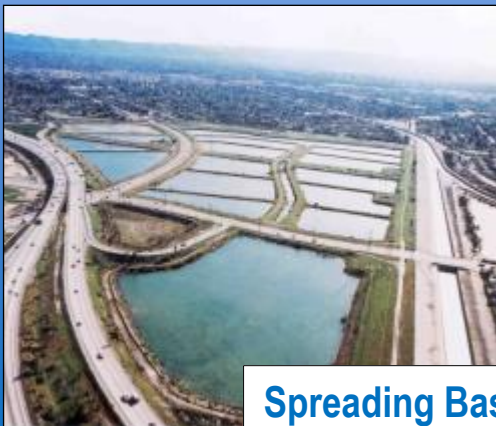
Stormwater Capture Program

Additional SW Capture Potential: 68,000 – 114,000 AFY

Dam Improvements



Centralized



Spreading Basins

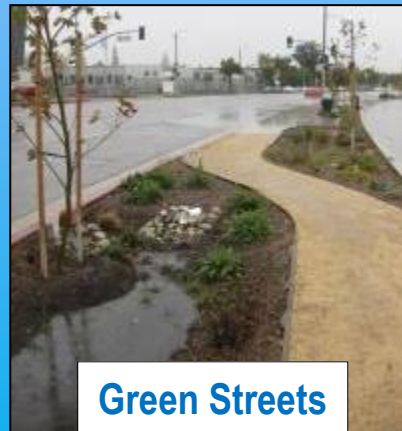
Dry Wells



Cisterns



Distributed



Green Streets



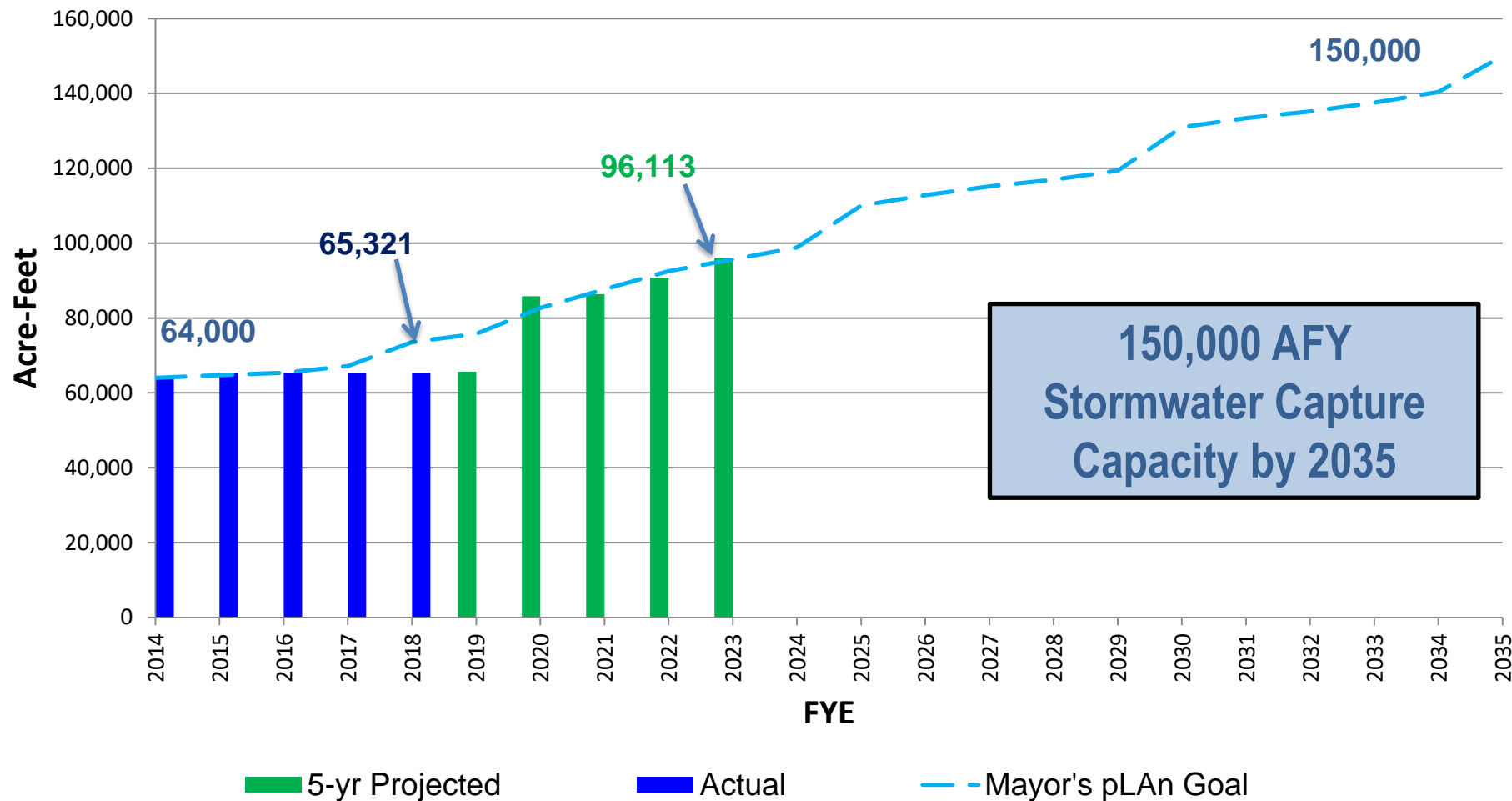
Rain Barrels

Tujunga Spreading Grounds Enhancement Project

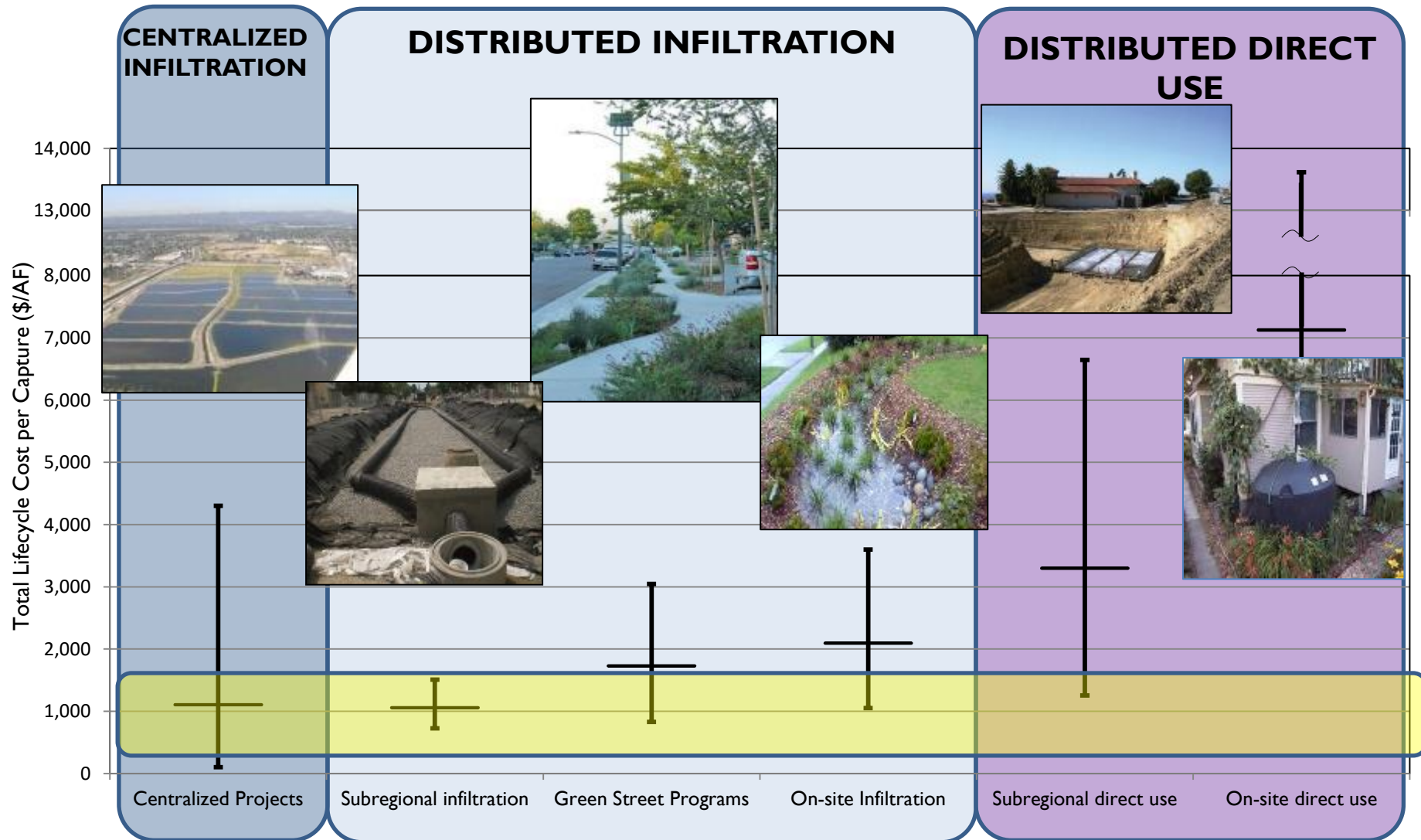
Increased Yield from 8,000 AFY to 16,000 AFY

- Ground breaking August 22, 2016
- Anticipated project completion in early 2020

LADWP 5-Year Stormwater Capture Capacity Goal

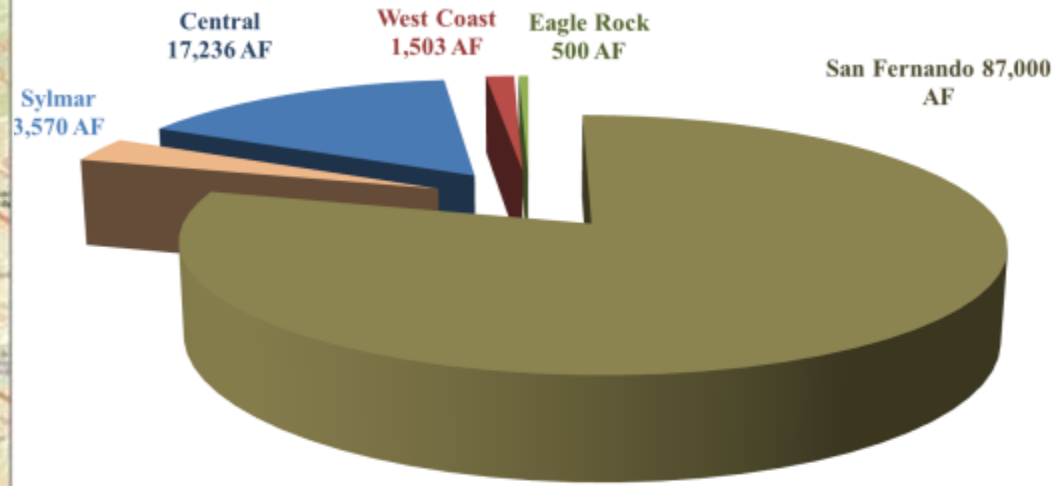


Stormwater Capture in LA



SF Groundwater Basin Remediation

Planned groundwater basin remediation will be crucial to restoring the health and beneficial uses of the San Fernando Basin



Total: 109,809 AFY

ladwp.com

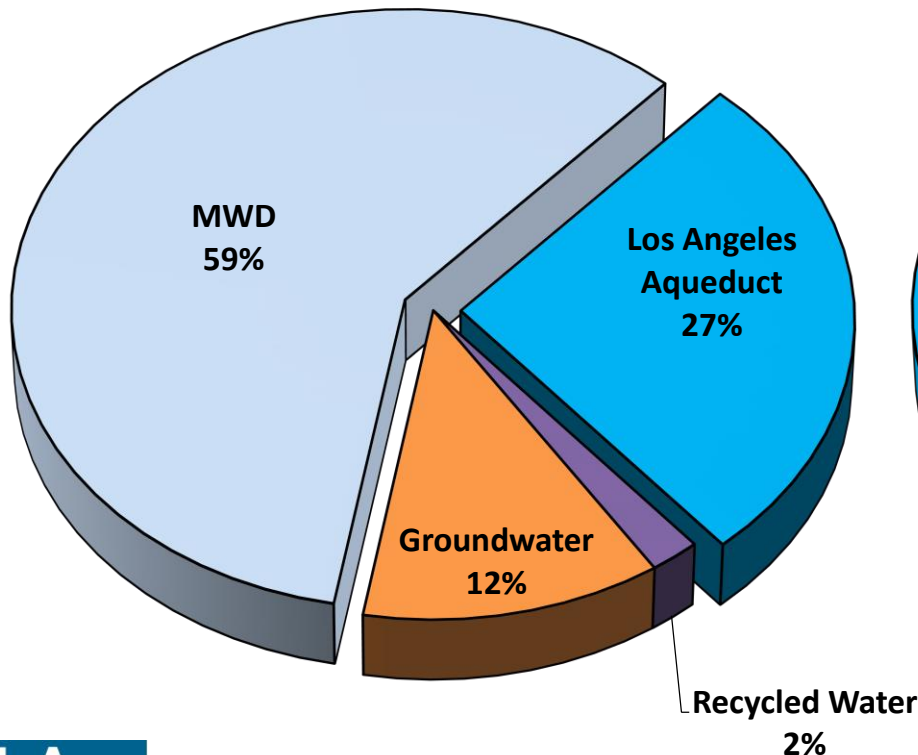
North Hollywood West Wellhead Treatment Facility

- **Type of Proposed Treatment:**
 - 1,4-Dioxane Treatment using AOP w/LPGAC
- **Construction: **STARTED – 30% Complete****
 - September 2017 – December 2019
 - LADWP Construction Forces
- **Submitted Steps 1-4 of DDW's 97-005 Policy Permitting Process**

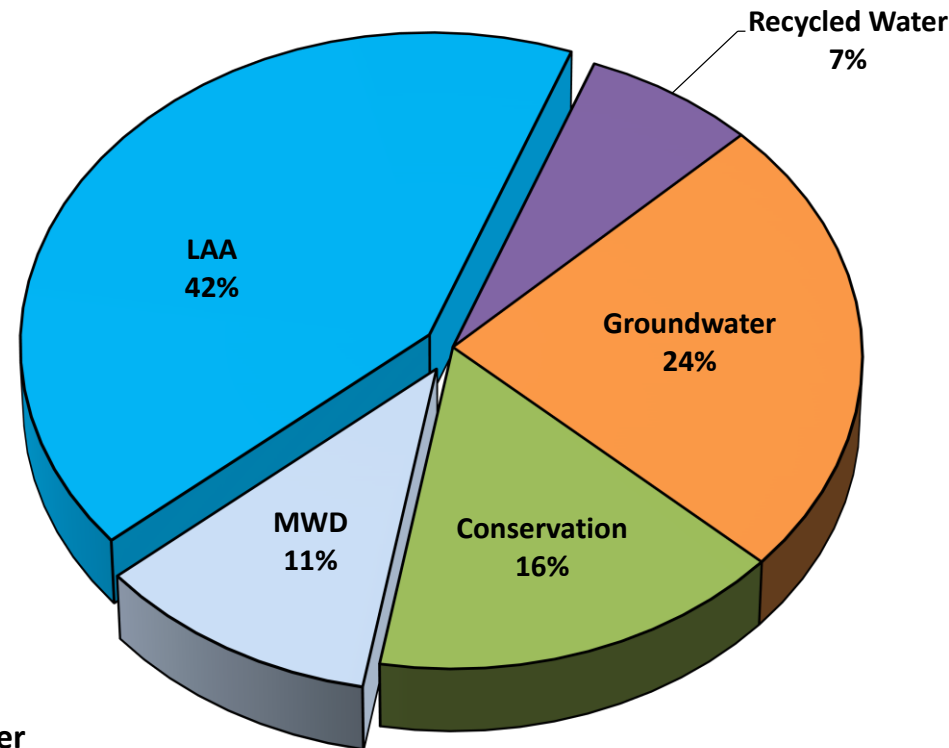


LA Water Supply Reliability

Fiscal Year End 2014 - 18 Average
Total Production: 523,100 AFY



Fiscal Year 2039 - 40 Average Hydrology
Total Production: 675,700 AFY



Metropolitan Water District of Southern California (MWD)

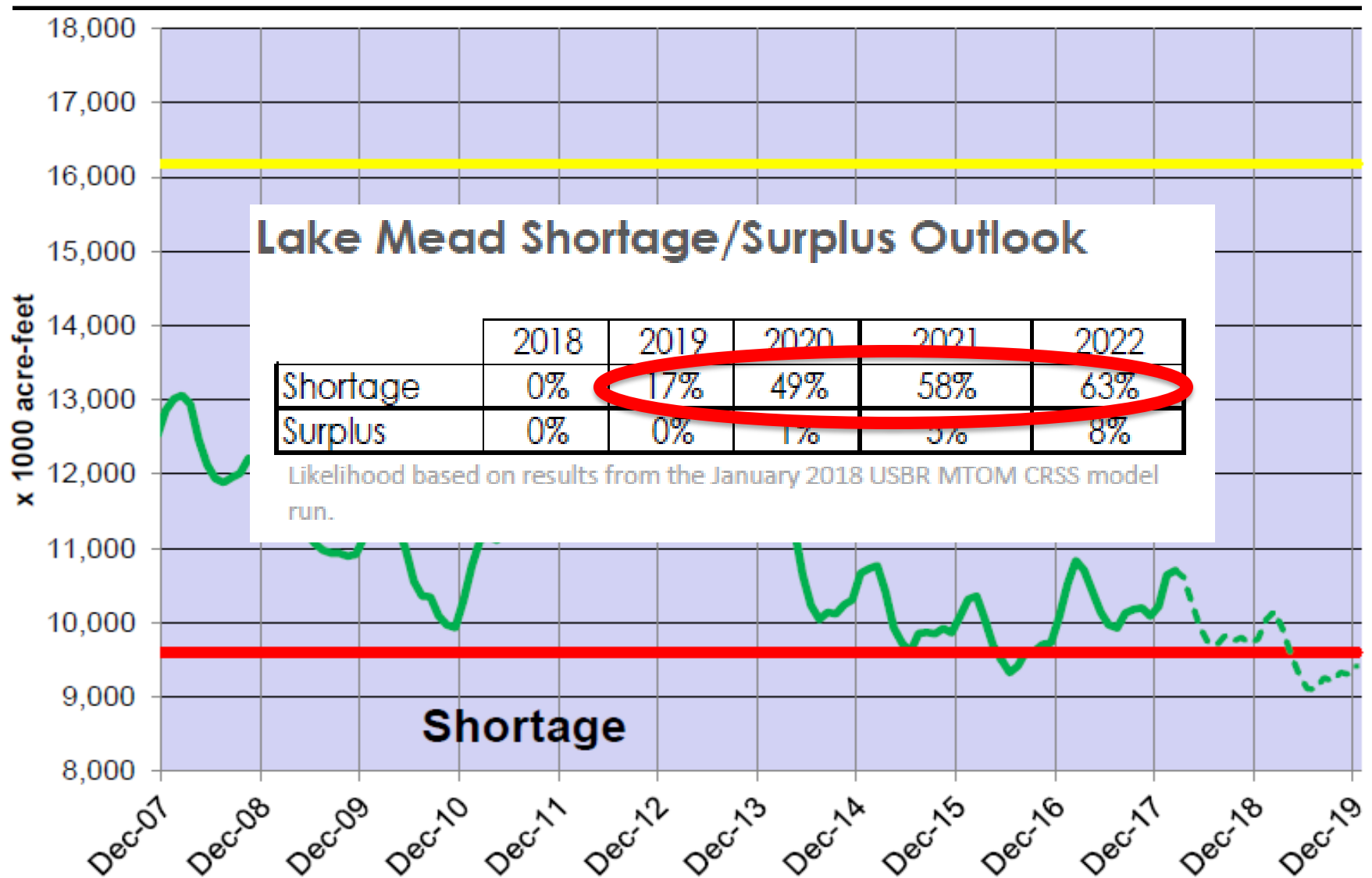
- **Regional Water Wholesaler**
- **Serves 6 counties, 19 million people**
- **5,200 square miles service area**
- **26 Member Agencies**
 - 14 cities
 - 11 municipal water districts
 - 1 water authority
- **Water Supply Portfolio**
 - Colorado River supplies
 - State Water Project (flowing through the Delta)
 - Local supplies



Lake Mead's Future in Average Years



Lake Mead Storage



The Bay-Delta: The State Water “Hub”

Drinking Water for 25 Million Californians

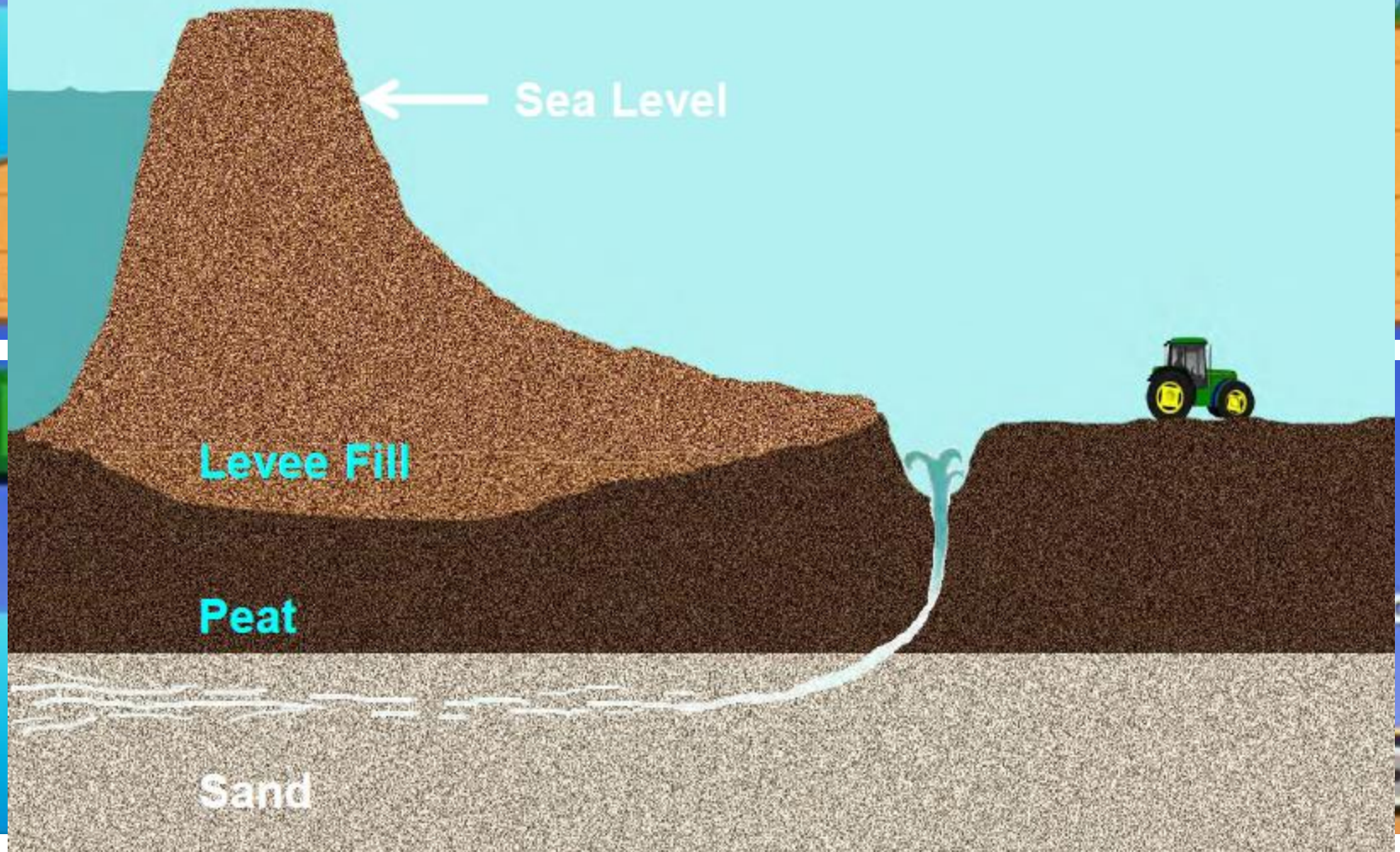


**Irrigation for half of the Nation's
Fruits and Vegetables**



The Delta

Today



Bay Delta: A Valuable Ecosystem

Over 750 plant, bird, animal and fish species, including:

- Over 50 different fish species
- Over 225 bird species



Protected Fish

Not Drawn to
Scale

- Delta Smelt



- Longfin Smelt



- Sturgeon



- Salmon



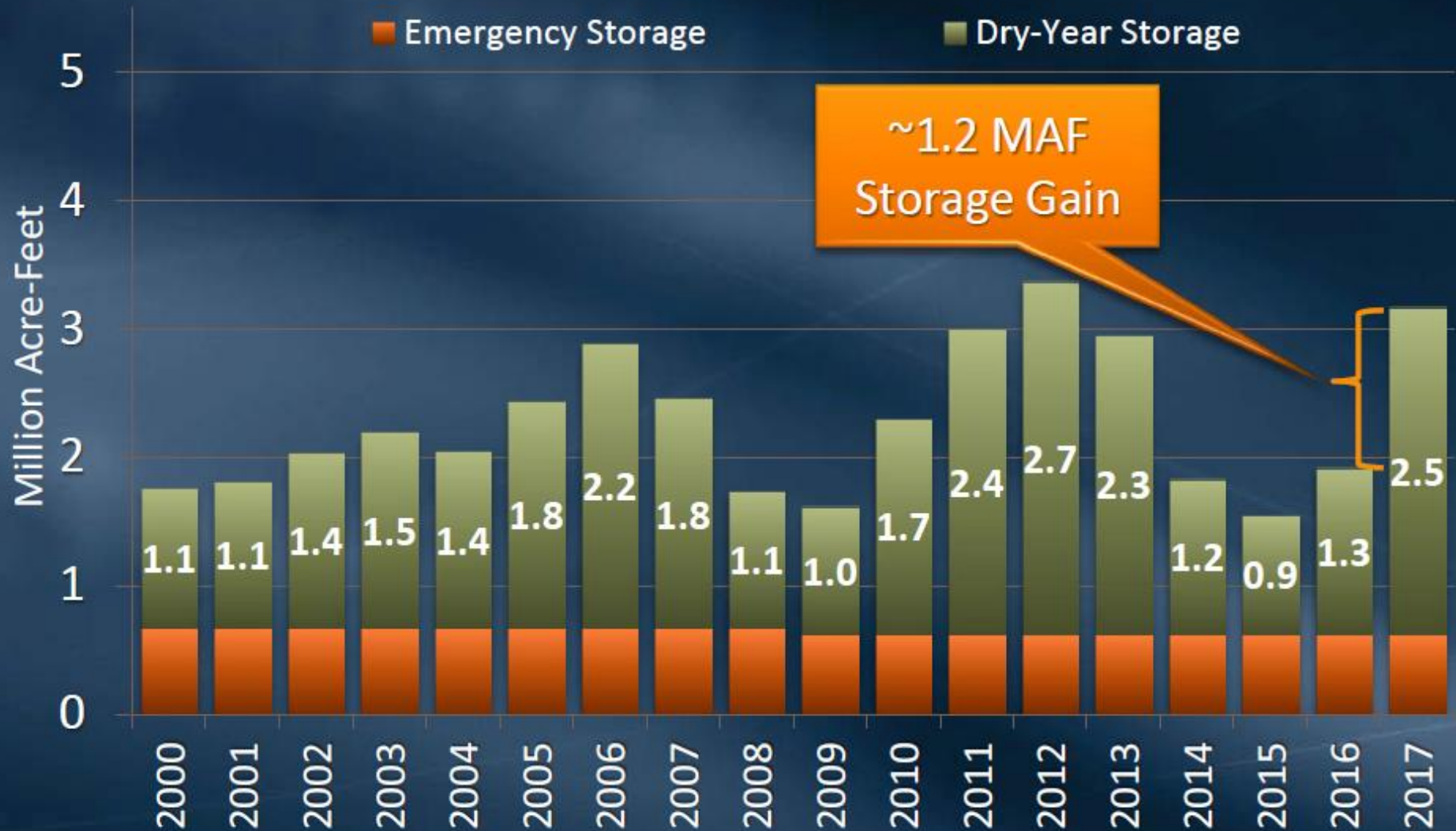
- Steelhead



MWD Regional Storage Reliability Increases Local Resilience to Drought & Emergencies



Increased Storage to Manage Future Droughts



MWD Supplemental Supply Reliability

- **2015 Urban Water Management Plan**
 - Assess regional water supply reliability
 - Water shortage contingency plan
- **2015 Integrated Water Resources Plan (IRP) Update**
 - Assess strategy for managing short and long term uncertainty
 - Retail demand updates
 - Develop goals for water use efficiency, local resources, State Water Project and Colorado River Aqueduct



Main Spillway Construction



May 2017



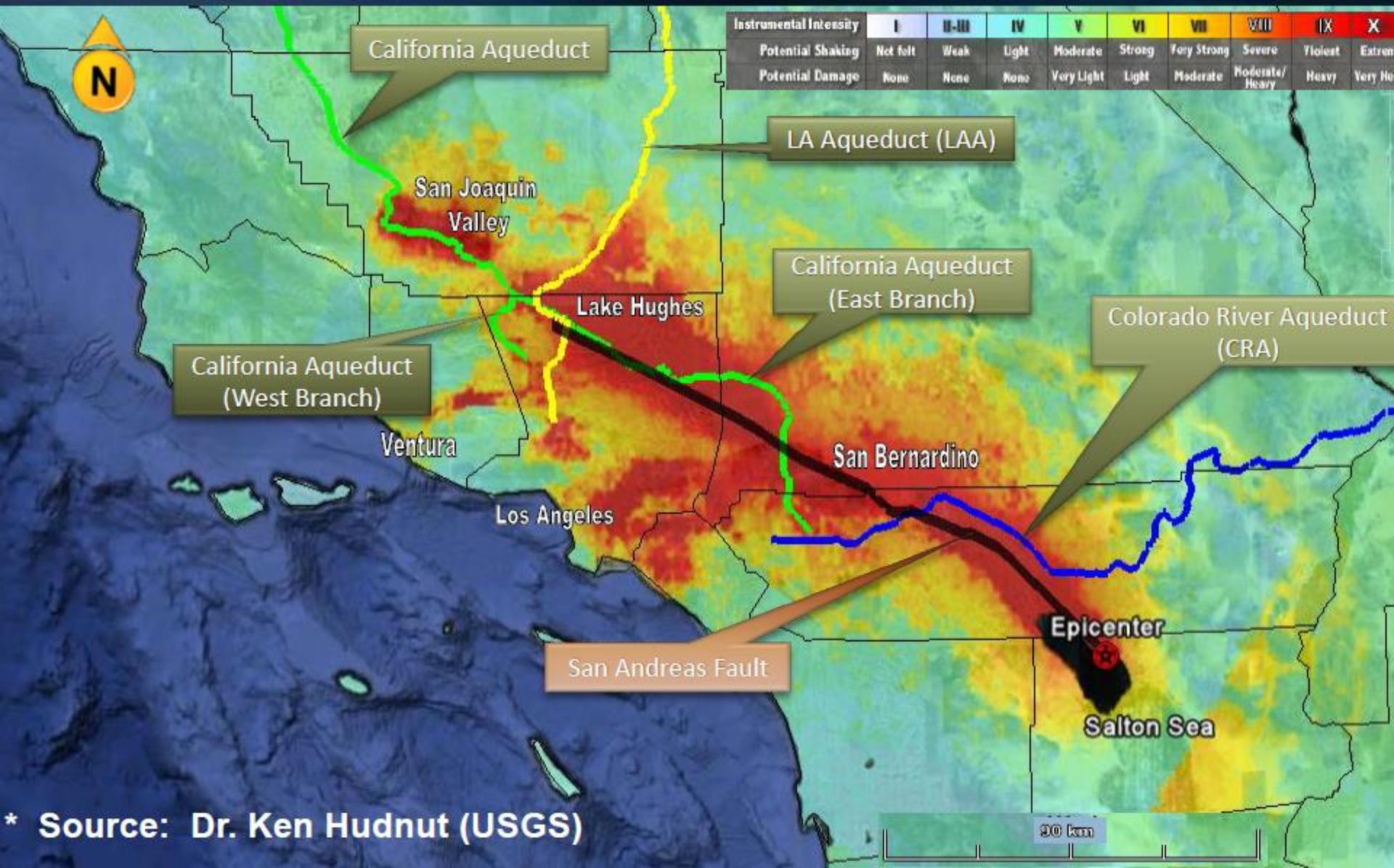
Aug 2017



Nov 2017

Seismic Risks of Imported Water Supplies

Great California ShakeOut Scenario - M7.8*



* Source: Dr. Ken Hudnut (USGS)

Neenach Pump Station

SWP to LAA via Turn-out

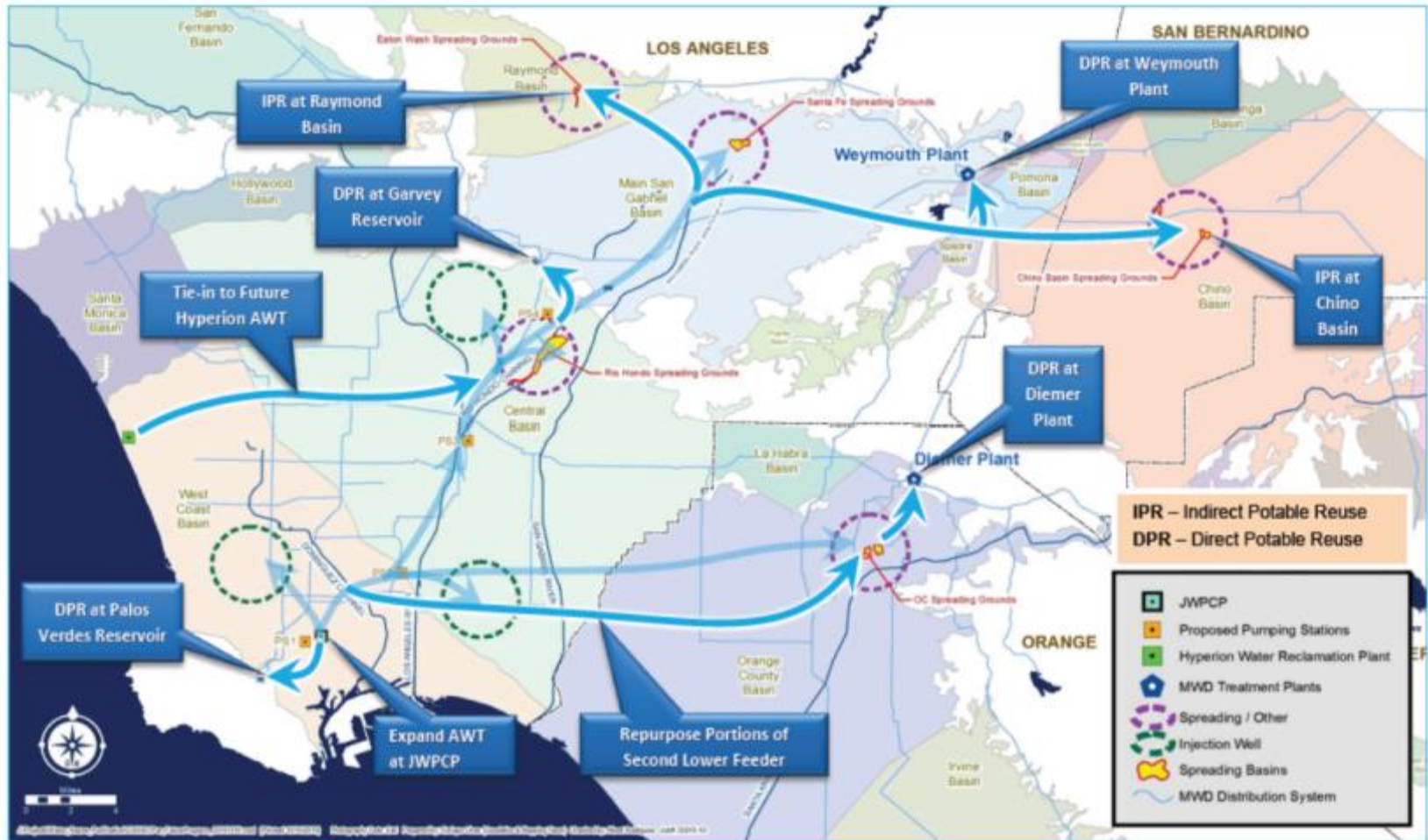
- MWD Deliveries
- Water Transfers

LAA to SWP via Turn-in

- Exchanges



Regional Recycled Water Long-Term Planning



One Water LA 2040

- Collaborative approach to consider all of the City's water resources to identify integration opportunities
- High-level planning estimate of potential fiscal impact
 - \$3.9B (2018-20); Total: \$13.3B (2018-40)
 - Includes planned projects from other plans (EWMPs & SCMP)
 - Estimates will be updated as planning goes from conceptual to design
- Stakeholder involvement critical throughout planning & implementation
- Next steps: Plan publication & EIR



www.onewaterLA.org



VIRTUAL LAUNCH

OCTOBER 10, 2018

To help raise awareness on "Imagine a Day Without Water,"
the City of Los Angeles will be launching the
One Water LA 2040 Plan

Visit www.OneWaterLA.org on October 10th to view the final draft plan!



Imagine a Day Without Water

www.OneWaterLA.org



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