Potential Regional Recycled Water Program

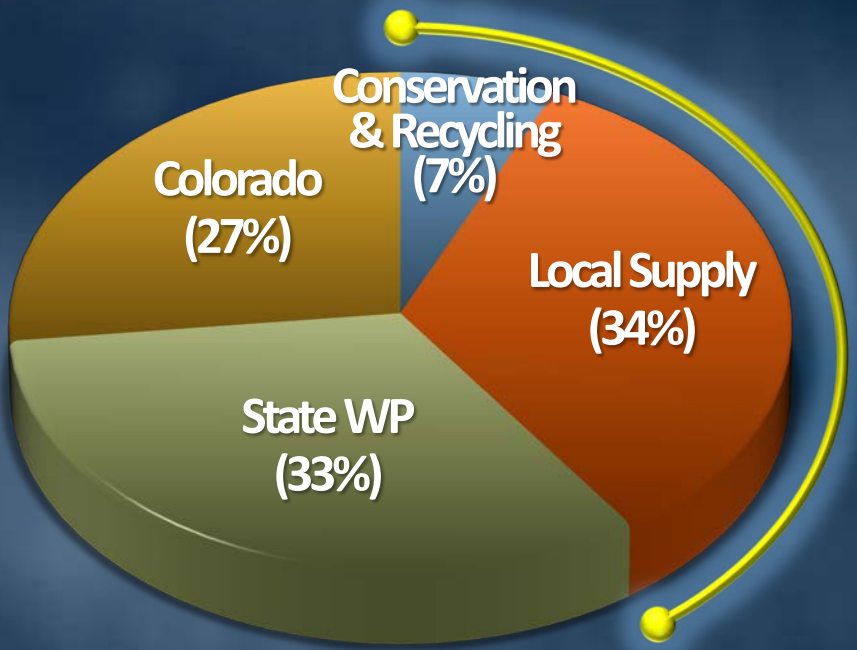
Water Reuse - Los Angeles Chapter
December 6, 2016

A Decade of Significant Change

- Two Extraordinary Hydrologic Droughts
  - Record low snowpack and runoff in Sierras
  - 17-year drought on Colorado River
  - Groundwater production dropped
- Drought Emergency in California
- Two Significant Regulatory Impacts
  - Quagga mussels on the Colorado River
  - Delta smelt on the State Water Project
- Significant Economic Recession

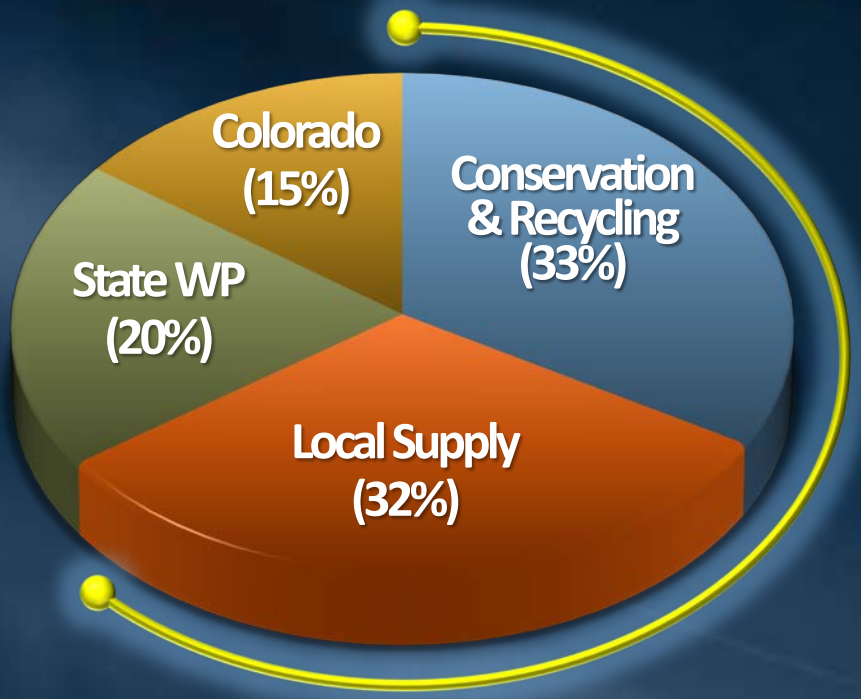
MWD Water Supply Strategy

Average Year Water Supply – 1990 vs 2040



1990 – 41% Local

Heavy dependence on imported supply and SWP Diversions



2040 – 65% Local

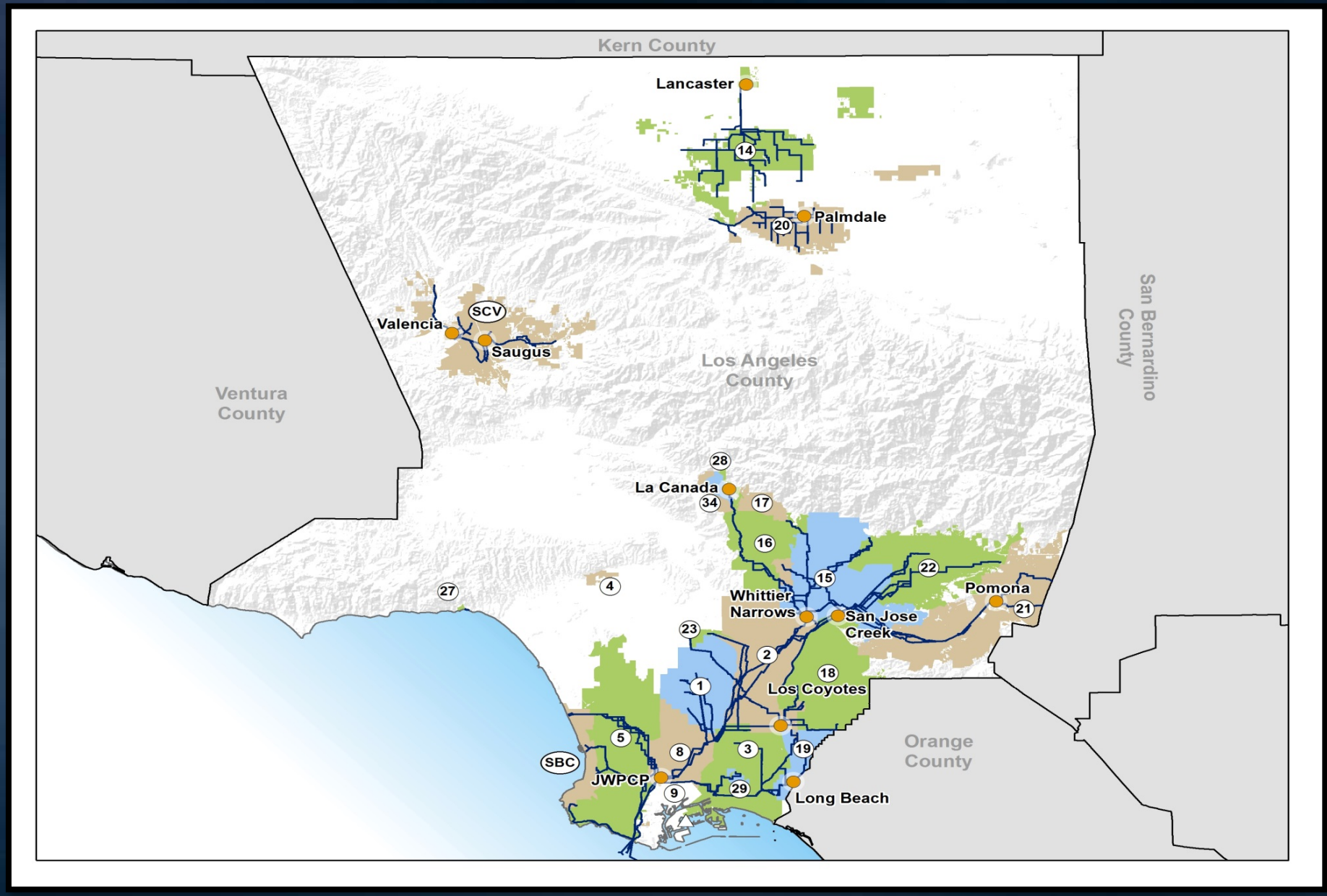
Emphasis on Conservation and Local Supplies

Regional Opportunity

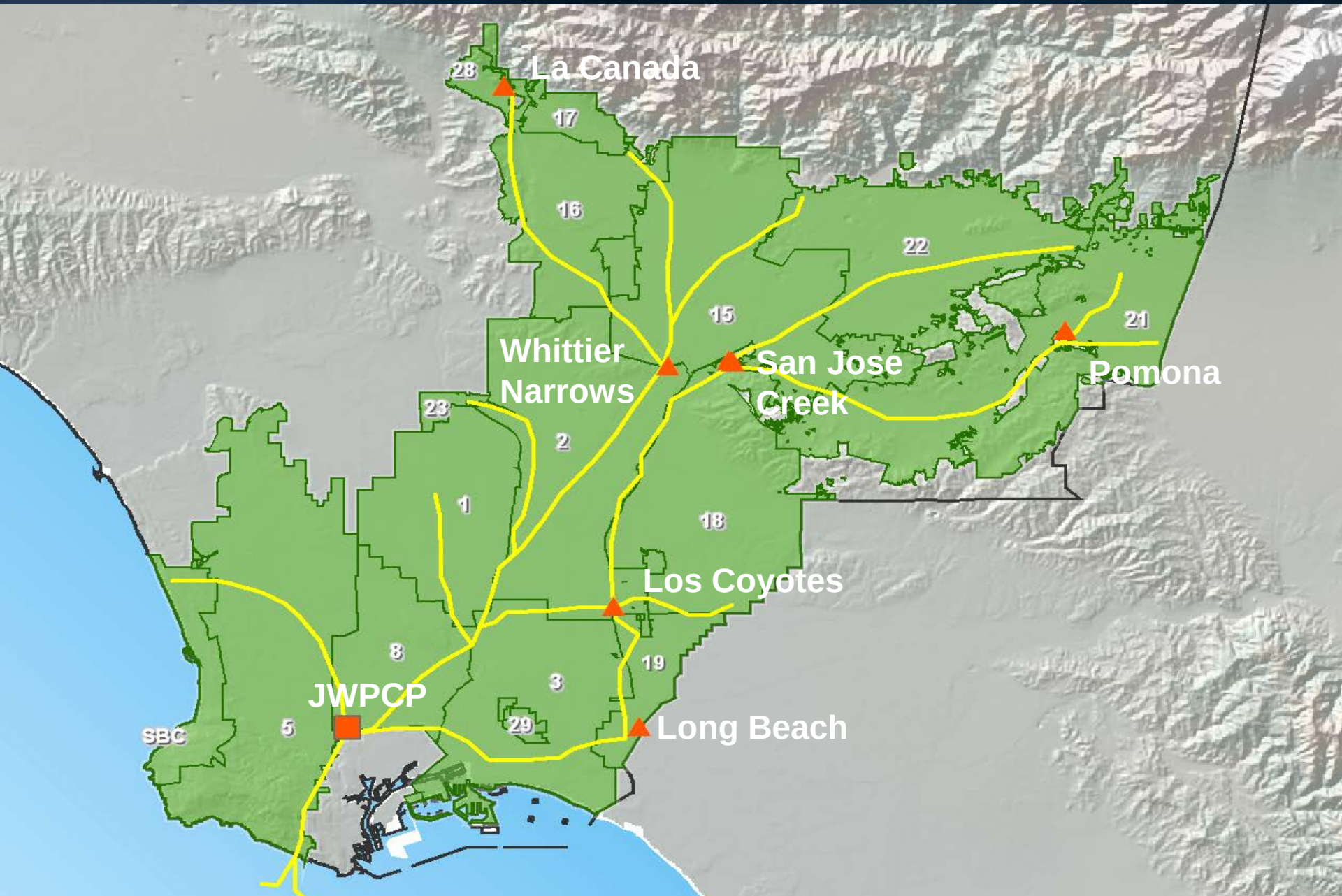
Opportunity for Regional Program

- Development of new regional water source
  - Up to 150 mgd
  - Deliveries for recharge and storage in GW basins
  - Increases Metropolitan's regional storage reserves
- Significant reduction in regional supply shortages
- Increased diversity consistent with IRP
  - Conservation
  - Recycling and Desalination
  - Stabilization of imported water supplies
- Drought and emergency storage benefits

LACSD Service Area



Joint Outfall System



Objectives for Each Agency

- LACSD
  - Increase overall reuse within its system
  - Begin beneficial reuse at the Joint Water Pollution Control Plant
  - Reduce ocean discharges
- Metropolitan
  - Diversify regional supplies
  - Improve storage & delivery capabilities
  - Provide new source of high quality, drought-resistant water
  - Improve supplies and storage during emergencies

Metropolitan & LACSD

- Decade of discussions on water recycling
  - 2010-12 Pilot studies on treatability of effluent
  - 2015 Discussions on a potential partnership
- November 2015 – Board authorized
  - Agreement with LA County Sanitation District No. 2 for development of potential regional recycled water program
  - Recycled water demonstration project
  - Feasibility and financing studies

Demonstration Plant

Demonstration Plant Objectives

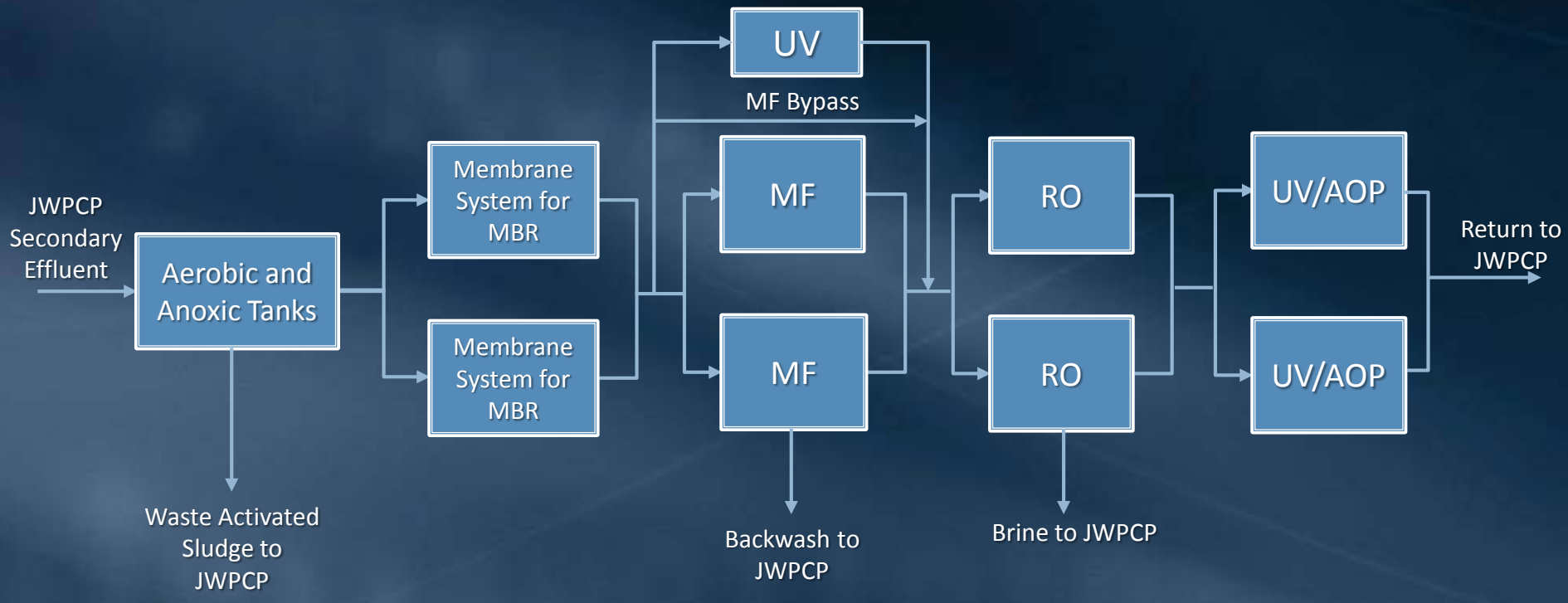
- Develop data for Title 22 Engineering Report for regulatory approval
- Optimize design and develop operating criteria for full-scale AWT facility
- Establish cost clarity for full-scale treatment
- Coordinate MWD-LACSD operations
- Provide vehicle for public outreach and acceptance

Pilot Plant at JWPCP

Builds upon 2010-12 Pilot Study demonstrating capability to successfully treat JWPCP effluent and meet regulatory requirements

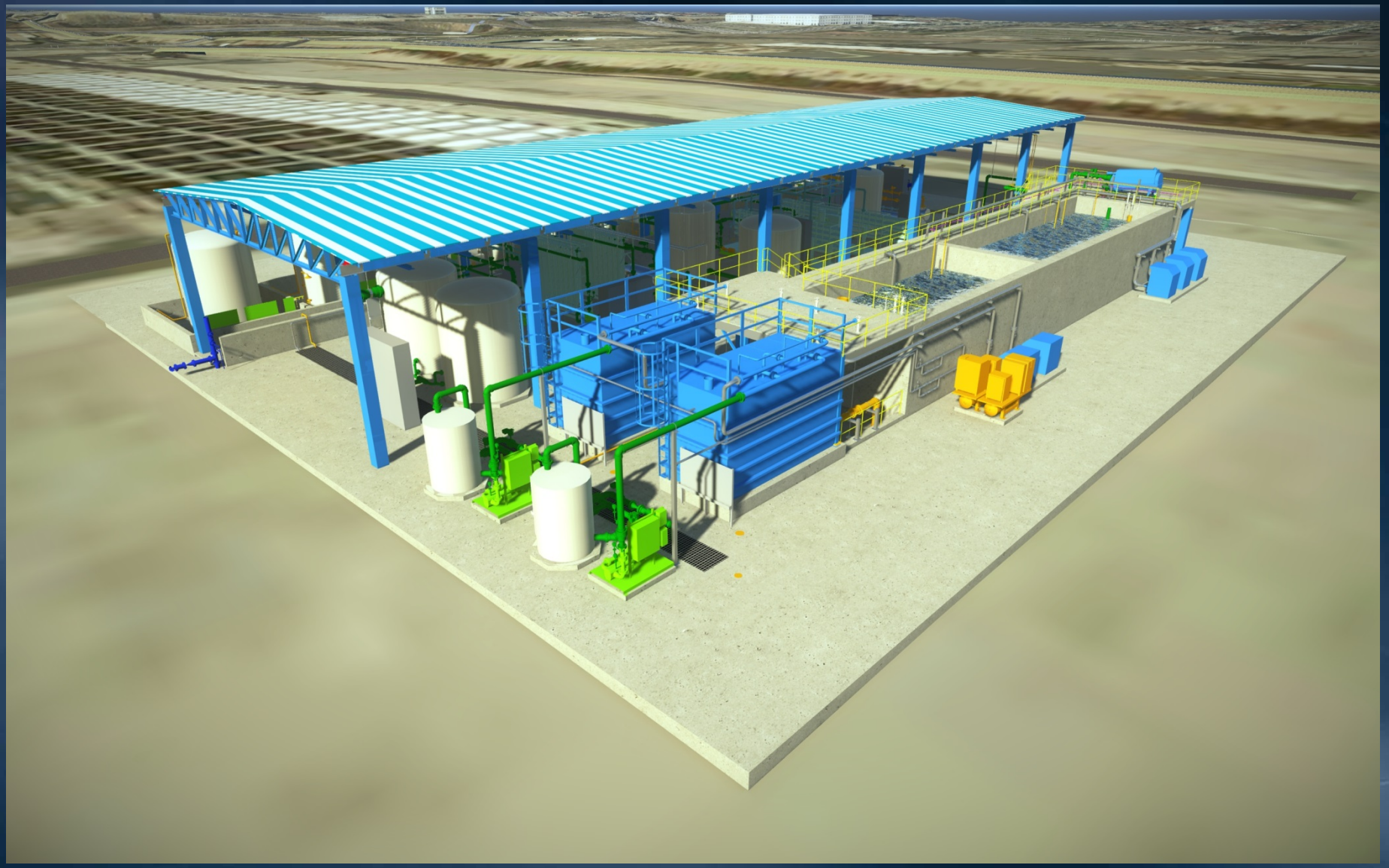
Demonstration Process Train

Production capacity of 0.5 MGD



- 90% Final Design complete
- Prequalified MF, RO, UV vendors, Sept. 2016
- Final Design complete Jan 2017

Demonstration Plant



Feasibility Study


Potable Uses
Homes & Businesses
Joint Water Pollution Control Plant
Advanced Water Treatment Plant
Conveyance System
Spreading Grounds or Injection Wells
Groundwater Basins
Extraction Wells
Public Acceptance
Source Control
Regulatory Approval
Partnerships
Regional Recycled Water Program

Feasibility Study for Potential Regional Recycled Water Program

- Investigate feasibility of proposed program
  - Can it be done?
  - What are the costs and benefits of doing it?
  - Is it economically viable?
- Provide Metropolitan and Sanitation Districts Boards with essential information to make decision on whether to proceed with program

Feasibility Report Methodology

1. **No Fatal Flaws?**
2. **Justified and Cost Effective?**
3. **Impacts on the cost of water to Member Agencies?**

Use of a “Base Case” for evaluation

- A complete implementable system of program elements including:
  - Facilities and infrastructure
  - Institutional arrangements
  - Financing assumptions
- Necessary and sufficient to accomplish the program’s goals
- Hypothetical system model not yet designed to achieve “optimized” performance

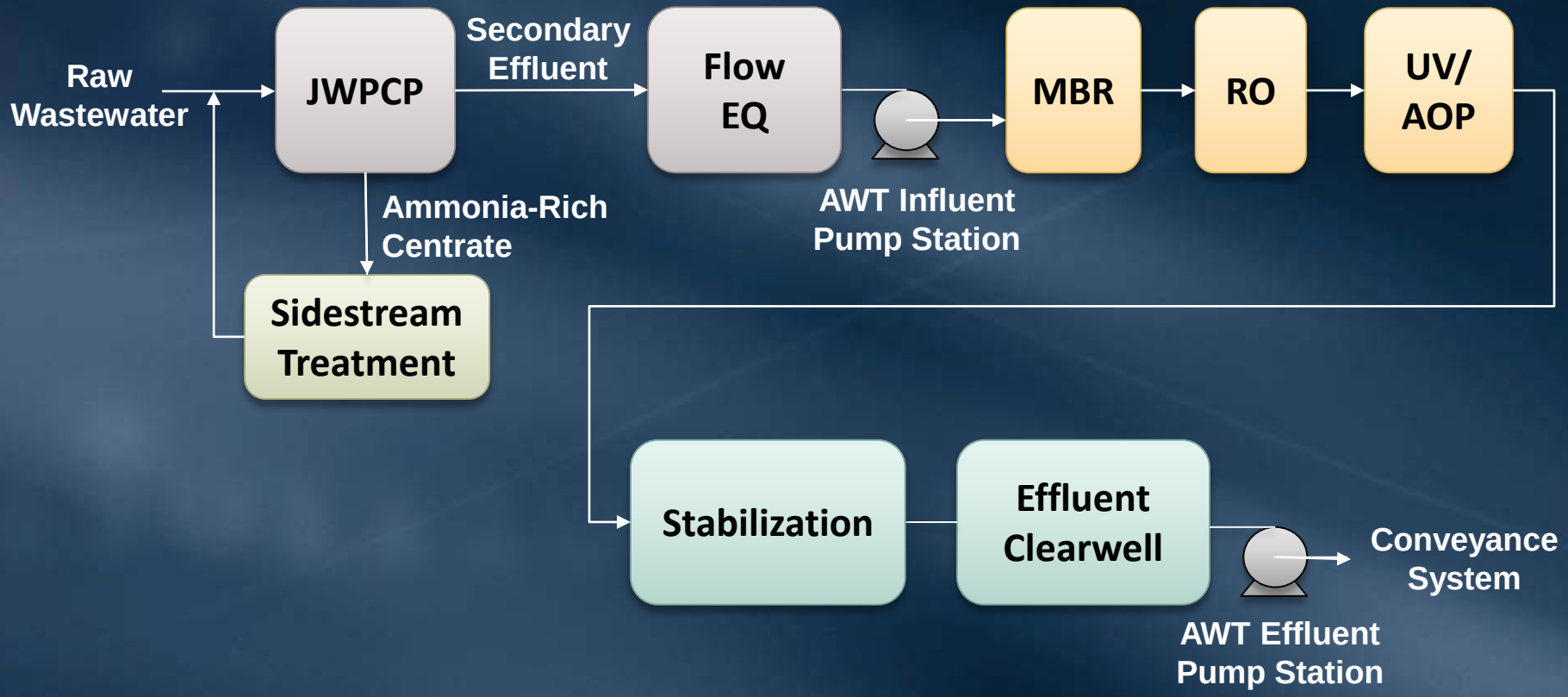
Full-Scale AWT Base Case

Location of AWT Facilities at JWPCP

Full-Scale AWT Base Case Overview

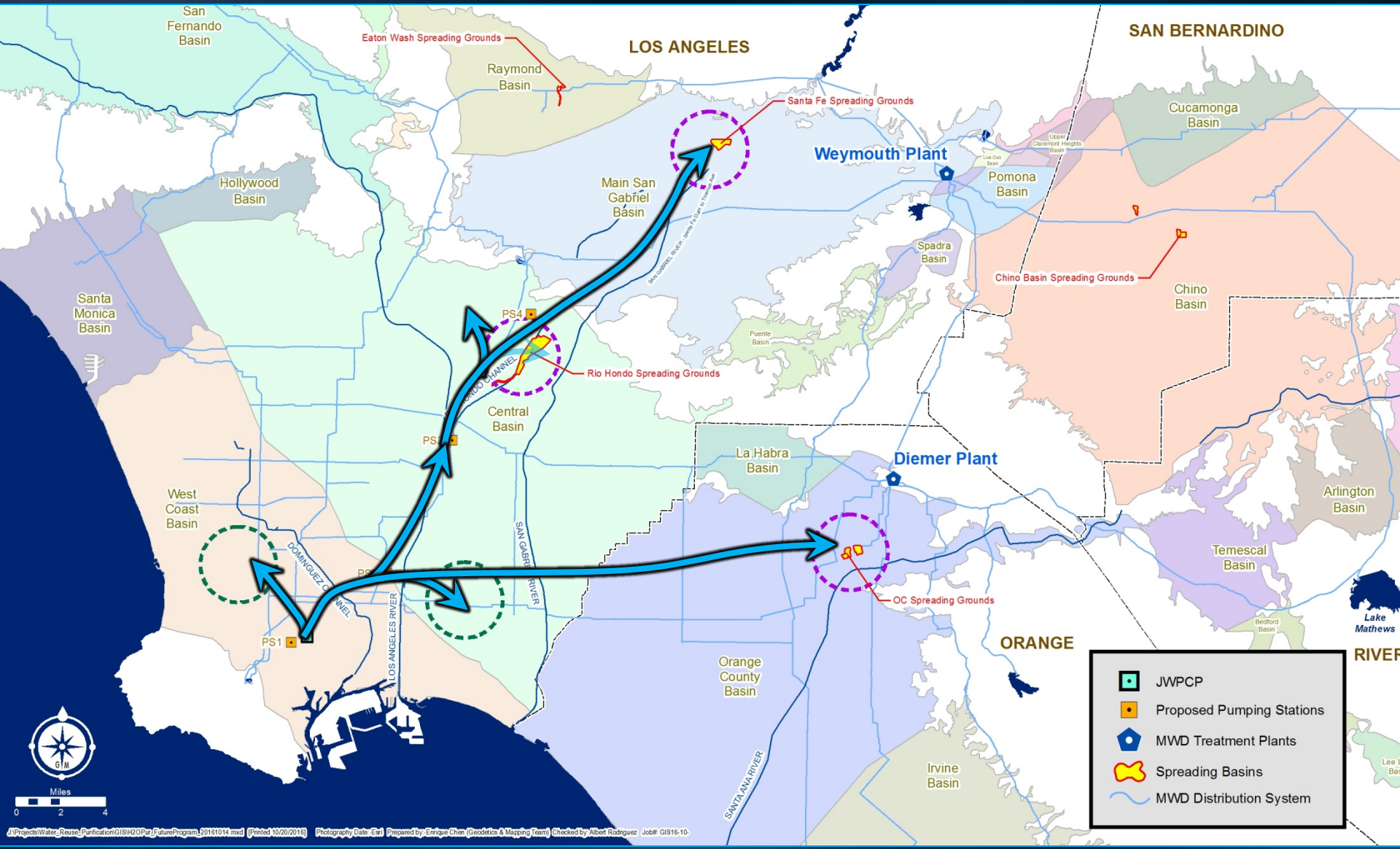
- Receive unchlorinated, non-nitrified secondary effluent from JWPCP
- Produce high-quality water suitable for groundwater recharge
  - 150 mgd product water design capacity
  - Flexible delivery rates based on agency needs
  - Meet current basin objectives
- Use tertiary MBR (tMBR) to achieve pathogen log reduction and minimize membrane fouling

Full-Scale AWT Base Case Schematic

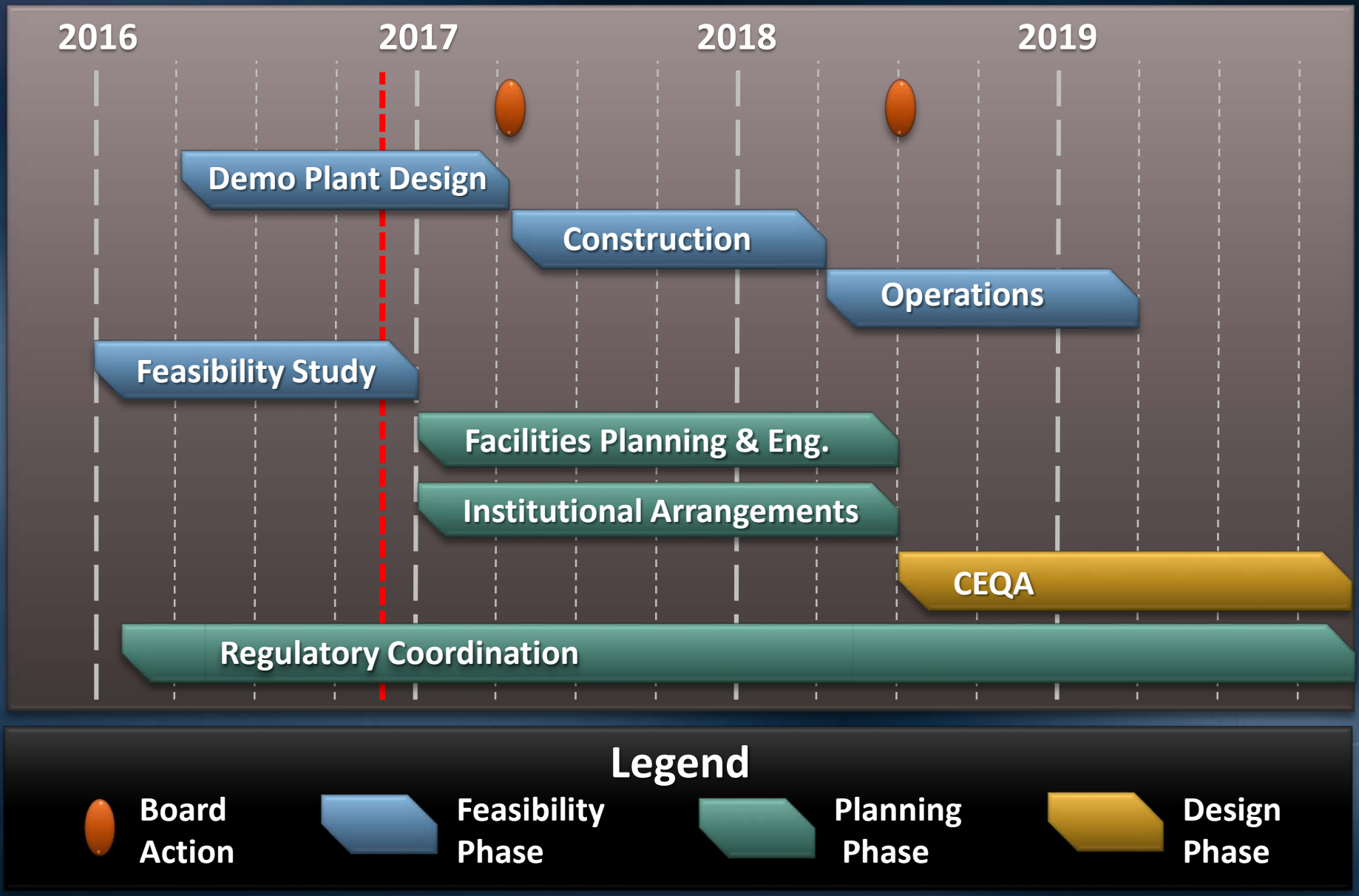


Conveyance Base Case

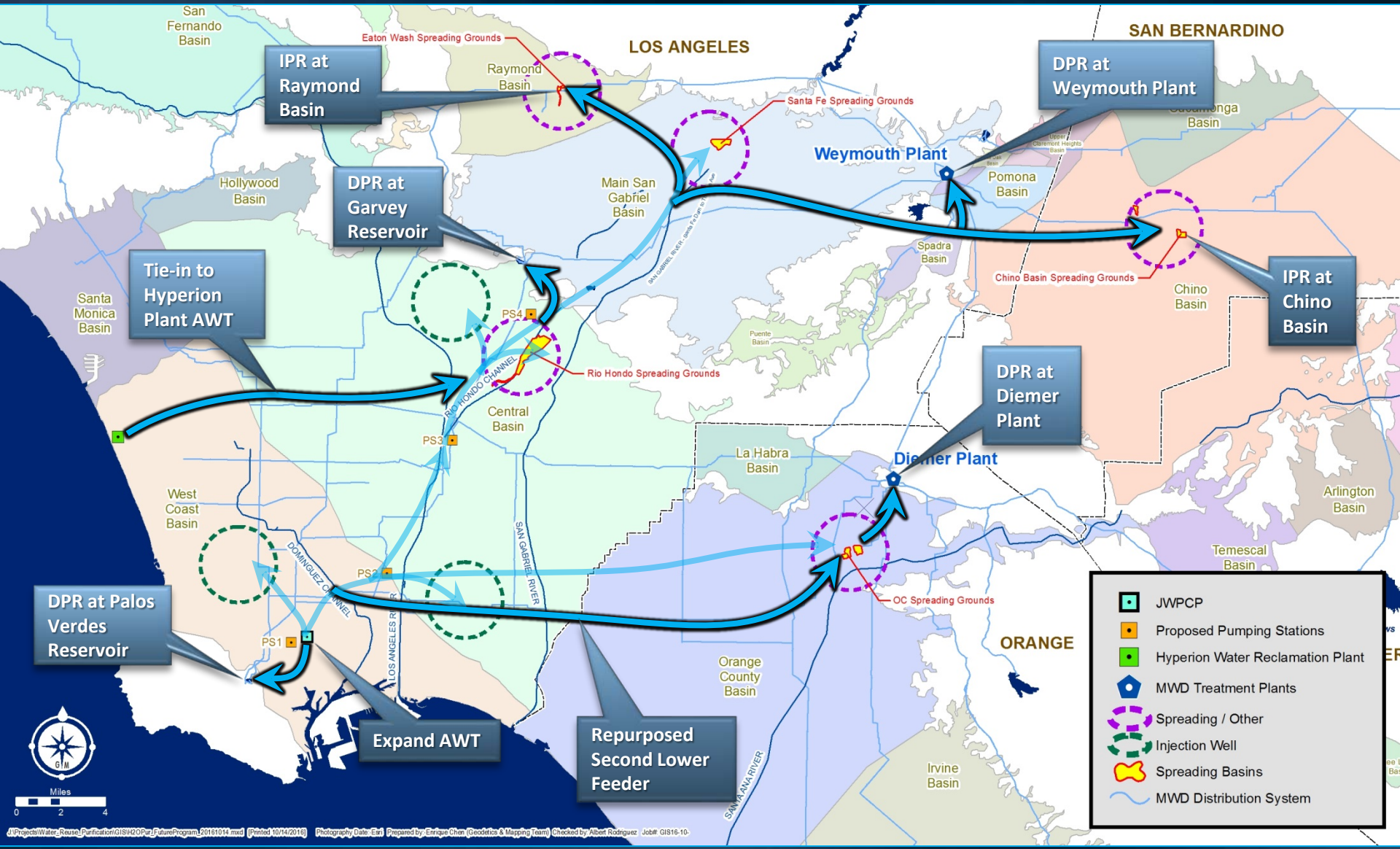
Potential Full Program (up to 150 MGD)



Program Timeline (2016-2019)



Potential Future Program Components




THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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