Regional Recycled Water Program

Engineering and Operations Committee
Item 6b
June 11, 2018

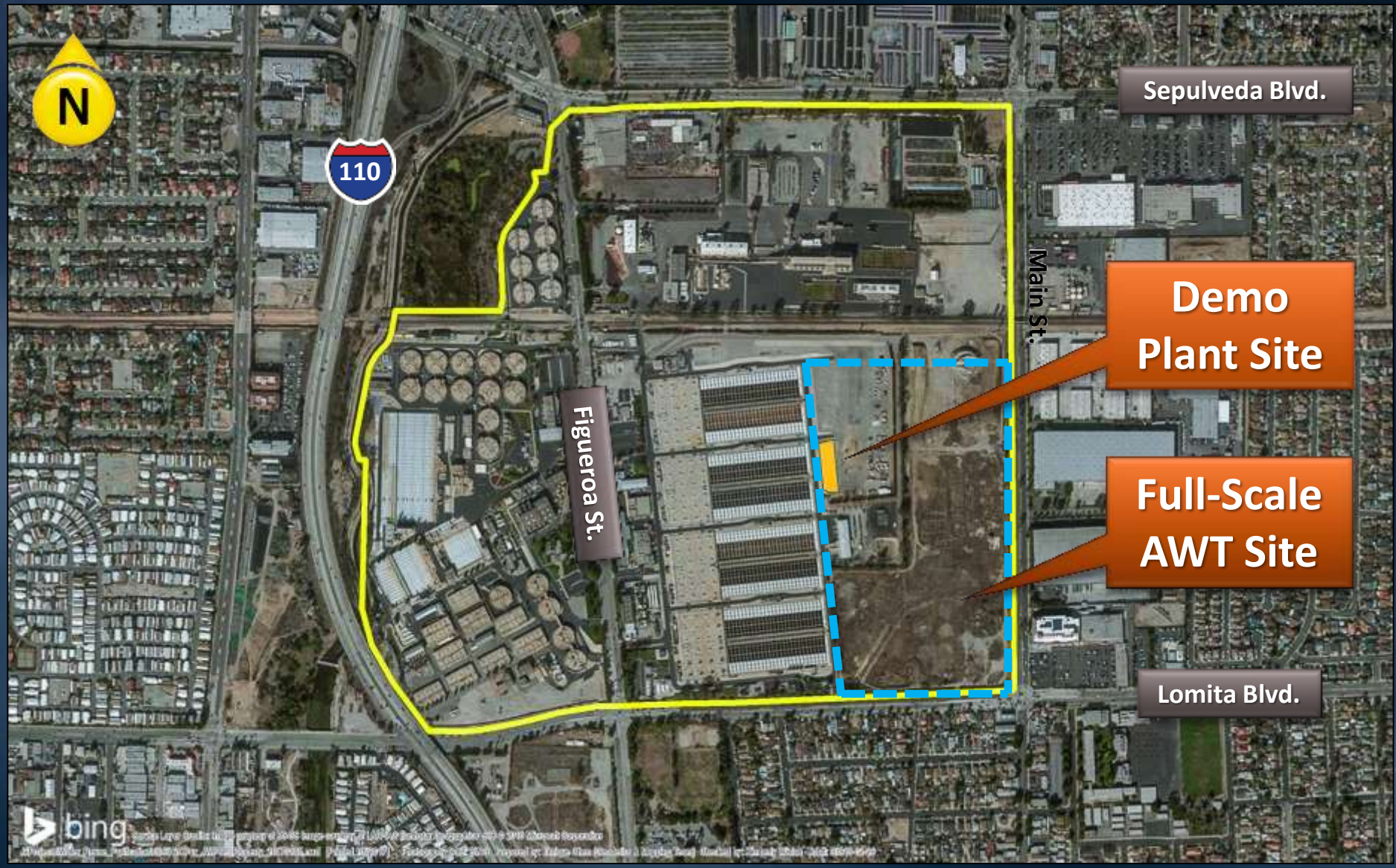
Outline

- Demonstration Plant
  - Objectives and Overview
  - Construction Status
  - Testing and Monitoring Strategy
- Program Planning Studies
- Schedule

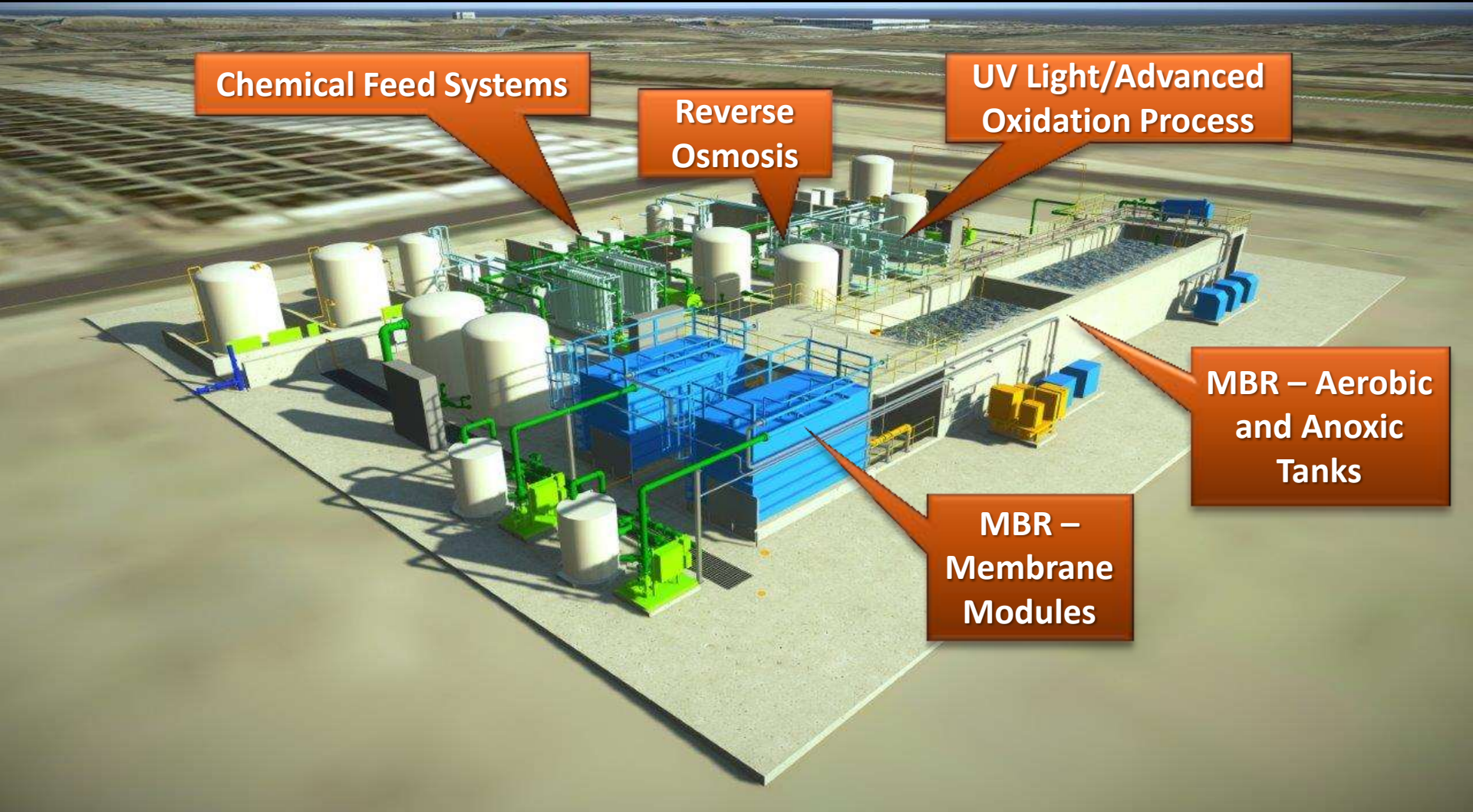
Demonstration Plant Objectives

- Provide data for regulatory acceptance
- Confirm viability of membrane bioreactor (MBR) process
- Optimize full-scale treatment process design
- Establish cost clarity for treatment
- Confirm operational dependencies/interfaces with LACSD
- Provide vehicle for public outreach and acceptance

Location of AWT Facilities at JWPCP

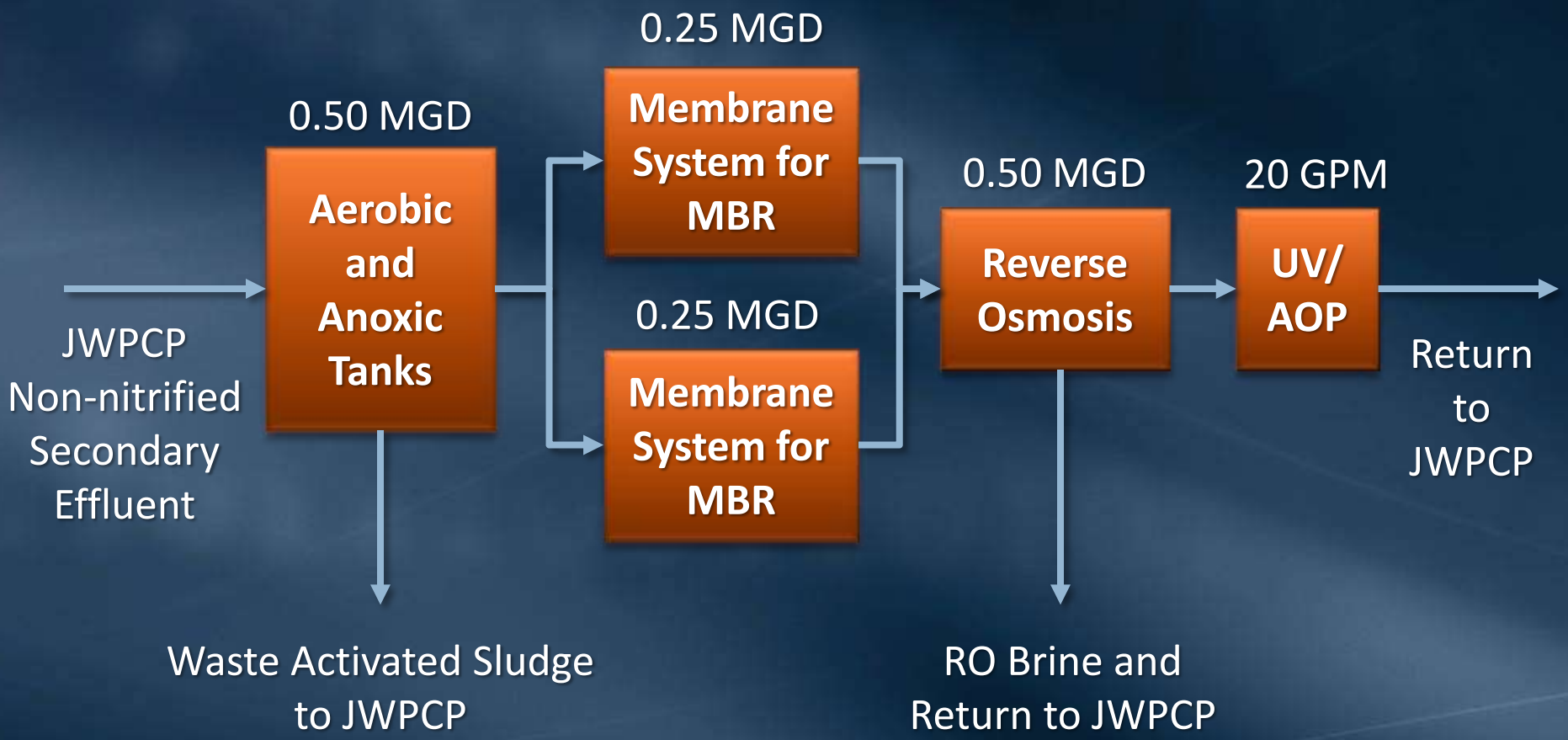


Regional Recycled Water
Advanced Purification Center



Demonstration Plant Process Train

0.5-MGD Capacity



Demonstration Plant Construction

Current Status and Schedule

- Construction approximately 40% complete
- Complete construction - Late 2018
- Commence start-up and operation - Early 2019

Construction Progress

Demonstration Plant Influent Pipe

JWPCP Secondary Effluent - LACSD

Process and Tank Farm Areas

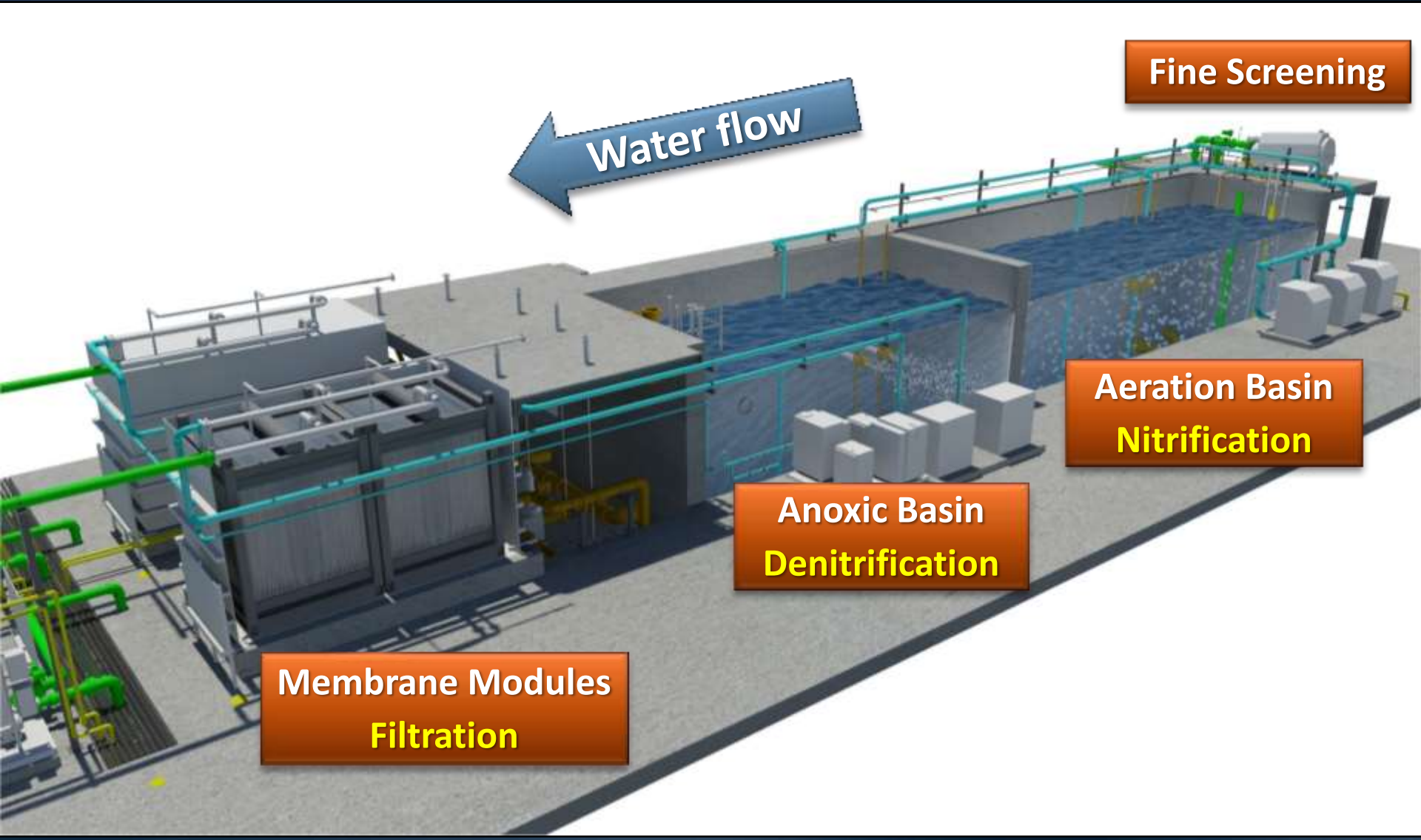
Foundation for MBR Filters

MBR Equipment

Membrane Bioreactor for Water Reuse

- Commonly used in non-potable reuse applications
- Limited use in potable reuse projects due to lack of pathogen removal regulatory credit to date
- Ongoing industry efforts to quantify pathogen removal through MBR
- Effective technology for treating JWPCP effluent
  - Removes pathogens
  - Manages nitrogen
  - Minimizes RO fouling
  - Removes biodegradable CECs

MBR Process at Demonstration Plant



Demonstration Project

Testing and Monitoring

- Primary focus during first year of testing is achieving regulatory acceptance of MBR
  - Extensive microbial testing to demonstrate pathogen removal
- Water quality from all unit processes will be monitored to ensure treatment goals are met
  - CEC monitoring will be included
- LACSD will characterize JWPCP source water and brine/waste streams from the AWT process

Testing and Monitoring Plan

- Testing and Monitoring Plan drafted
- Testing Schedule

Pre-testing	• Equipment Testing and Process Acclimation (3 months)
Phase 1	• Baseline Performance Testing (4 months)
Phase 2	• Challenge Testing and Evaluation (8 months)

- Additional testing for process optimization and full-scale design criteria deferred to later year

Regulatory Oversight

Ongoing Regulatory Coordination

- Continued engagement with regulators since early 2016
- Feedback received on various program elements
  - Potential regional program concept
  - Groundwater basin analyses
  - Demonstration plant process train
  - Demonstration testing strategy
- Upcoming meetings to finalize testing and monitoring plan for regulatory review and approval

Independent Advisory Panel

- Independent panel of experts required to review alternative approaches for meeting existing regulations (e.g., application of MBR)
- National Water Research Institute commissioned to secure panel for demonstration project
- Workshop scheduled for early August 2018 for panel review of testing and monitoring plan
- Panel will help guide demonstration project, and review data and all regulatory submittals

Independent Advisory Panel

NWRI
Administration

Ed Means
Facilitation

Panel Members

Richard Bull, Ph.D.
Toxicology

Joe Cotruvo, Ph.D.
Chemistry

Charles Haas, Ph.D.
Microbiology

Thomas Harder, R.G.
Hydrogeology

Adam Olivieri, Ph.D.
Regulations and Permitting

Vernon Snoeyink, Ph.D.
Pipeline Corrosion/Water Chemistry

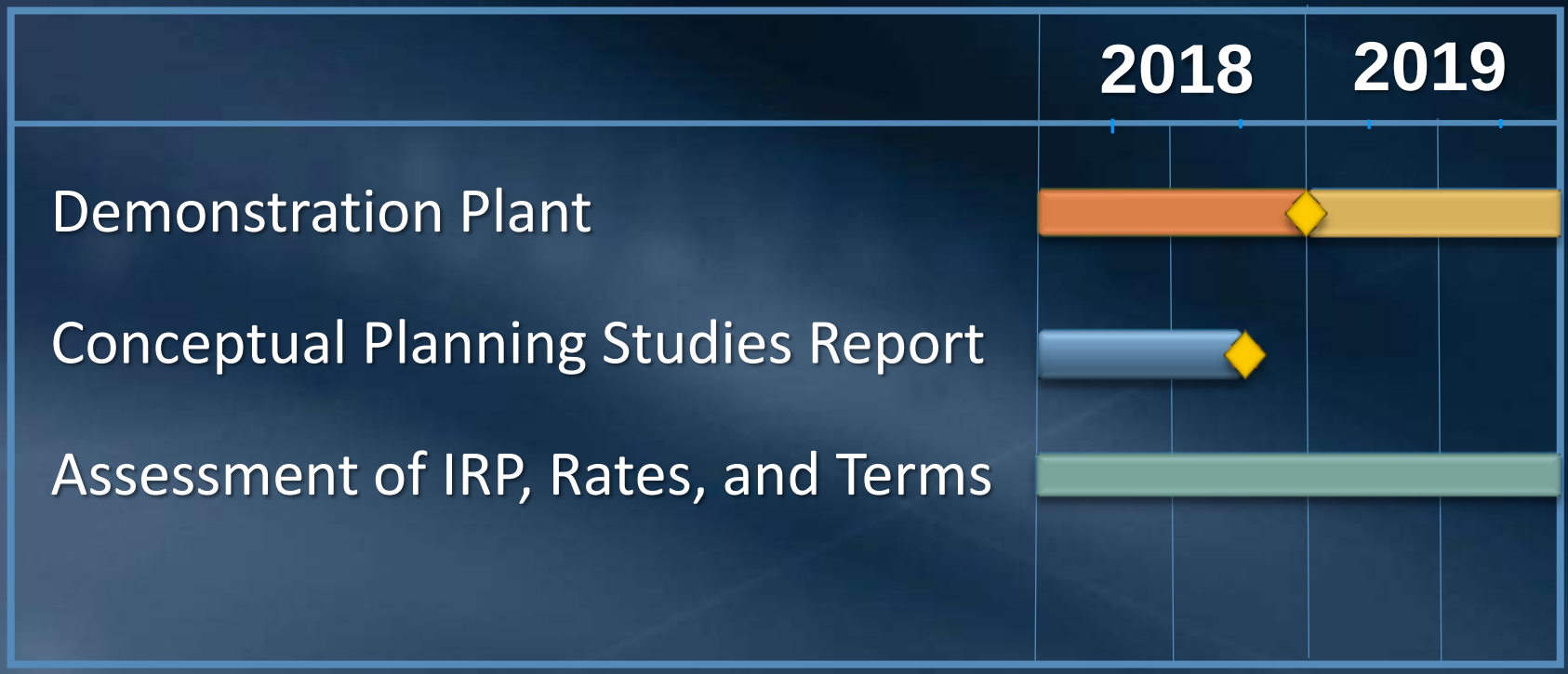
Michael Stenstrom, Ph.D.
Wastewater Treatment

Paul Westerhoff, Ph.D.
Drinking/Advanced Water Treatment

Program Planning Studies
Full-Scale Assessments

- Conceptual planning and phasing evaluations
- Groundwater modeling
- Source control assessments and nitrogen management studies
- Institutional and financial arrangements
- Public outreach planning efforts

Schedule


2018
2019
Demonstration Plant
Conceptual Planning Studies Report
Assessment of IRP, Rates, and Terms
Construction
Operations/Testing
Studies
Other
Completion

Metropolitan Recycled Water Website

www.mwdh2o.com/RRWP


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928