

# PROGRAM IMPLEMENTATION AND DELIVERY

Board Workshop #1  
July 23, 2019



SANITATION DISTRICTS OF LOS ANGELES COUNTY

The logo for the Sanitation Districts of Los Angeles County, featuring a stylized wave pattern in blue and green within a circular frame.

# PURPOSE OF WORKSHOPS

- Obtain Board input on program next steps
- Prepare for future Board actions following a full discussion of options
- Identify key issues and concerns before moving forward to next steps



# BOARD WORKSHOPS

White Paper



Fall 2019

Board Letter

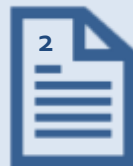


Workshop #1:  
Implementation and  
DPR Considerations

Workshop #2:  
Planning, Agreements  
and Financial  
Considerations

Board Action on Next  
Steps

July 23, 2019



White Paper

Late 2019 – Early 2020



# TWO KEY QUESTIONS TODAY

1

Implementation  
Urgency?

What additional activities (if any) should Metropolitan undertake during the environmental review process in order to accelerate program implementation?

2

DPR Development?

How would Metropolitan proceed in developing raw water augmentation opportunities, considering DPR regulations are not currently in place?



# OUTLINE

- Program Overview
- Treatment Plant Site Conditions
- Environmental Review Process
- Implementation Options
- Direct Potable Reuse (DPR) Considerations
- Wrap-up and Next Steps



# PROGRAM OVERVIEW

# PROGRAM BACKGROUND

- Pilot Scale Studies (2010-12)
- Progress Report (Sept. 2015)
- Board approval and appropriation for Demonstration Plant (Nov. 2015)
- Feasibility Study Report (Nov. 2016)
- Demonstration Plant
  - Completion of Final Design (Feb. 2017)
  - Construction Completion & Start-up (Sept. 2019)
- Conceptual Planning Studies Report (Feb. 2019)



# PROGRAM APPROACH

- Primary objective indirect potable reuse for groundwater recharge
- Two-phase approach (100 mgd followed by 50 mgd or more)
- Built around backbone conveyance system
- Preserving flexibility for the future
  - DPR utilizing raw water augmentation
  - Additional effluent from JWPCP
  - Integration with City of Los Angeles and other purified water systems

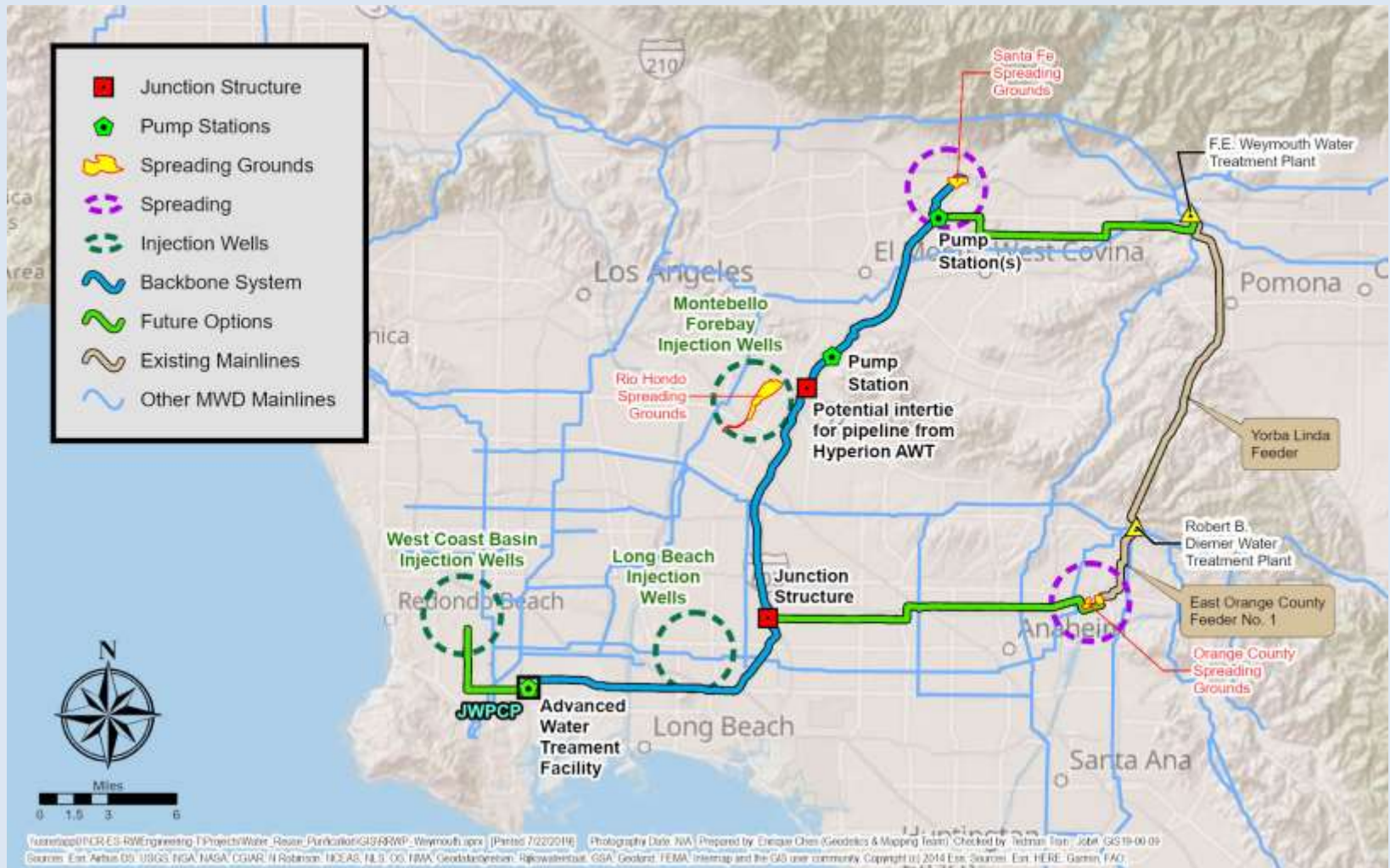




# AWT LOCATION AT JWPCP



# PROGRAM ELEMENTS



# LETTER OF INTENT WITH CITY OF LOS ANGELES

- In place July 2019
- Intent
  - Provides a basis for collaboration between the City's Hyperion Program and Metropolitan's Regional Program
  - Supports development of a formal Memorandum of Understanding between the parties
- Benefits
  - Improves potential for integration between two systems
  - Allows for coordination in planning and regulatory process
  - Reduces potential conflicts/duplication of activities



# REVIEW OF TREATMENT PLANT SITE CONDITIONS

Ray Tremblay

Department Head – Facilities Planning  
Sanitation Districts of Los Angeles County

# PROPOSED LOCATION



# PROJECT SITE COMMITMENTS

- Suitable site within the Joint Water Pollution Control Plant boundaries
  - Up to 35 Acres
- Parties to meet and confer to develop an approach to cost-effective mitigation
- Sanitation District responsible for all remediation as needed to permit construction



# SITE HISTORY

- Operated as a refinery from 1939 to 1992.
- Regional Water Quality Control Board investigation began in 1985.
- LACSD purchased in 2000 for \$14 million. Price included cleanup.
- Cleanup entity defaults in 2008. Sanitation Districts assumed responsibility for the remediation.
- 2018 current land value of FORCO site (35 acres) is approximately \$60-80 million.



1994 Aerial

# REMEDIATION TO DATE

- Demolished structures to grade
- Groundwater and soils remediation
- Performed Human Health Risk Assessment
- Pursuing site closure with Regional Board
- Regional Board has given approval to construct AWT on site with conditions





# NEXT STEPS

- Prepare Remedial Action Plan
- Coordinate with Metropolitan to address interfering utilities and subsurface structures
- Sanitation Districts Board briefing fall 2019
- Implement additional remediation measures



# ENVIRONMENTAL REVIEW PROCESS

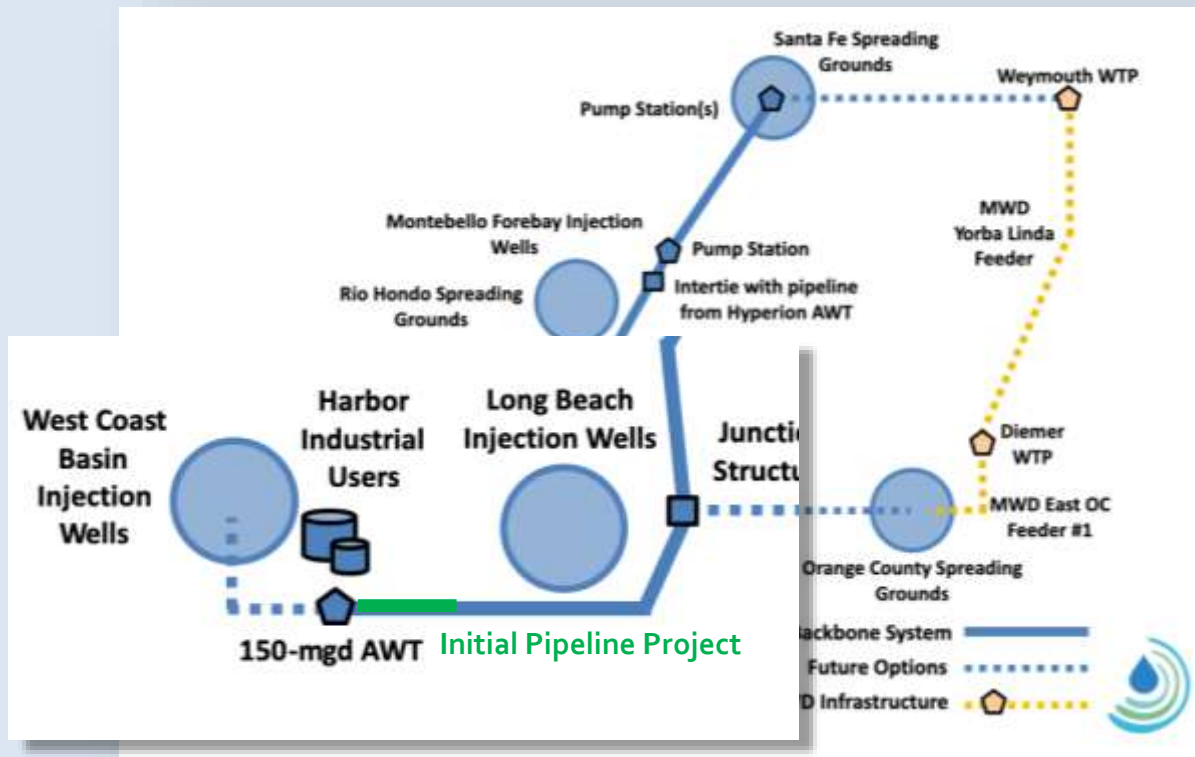
# TIERED CEQA PROCESS

- Programmatic EIR (PEIR) provides high-level analysis of effects of a multi-year, multi-phase program
- Project-specific tiered documents can be prepared as part of the initial PEIR, or at later date
- Project-specific analysis conducted when additional design and site information is available



# TIERED PROCESS

## Programmatic EIR



Tiered Project-specific Document



# IMPLEMENTATION OPTIONS

# THREE OPTIONS

## Traditional Option

Programmatic EIR (PEIR)

## Accelerated Construction

Everything above plus:

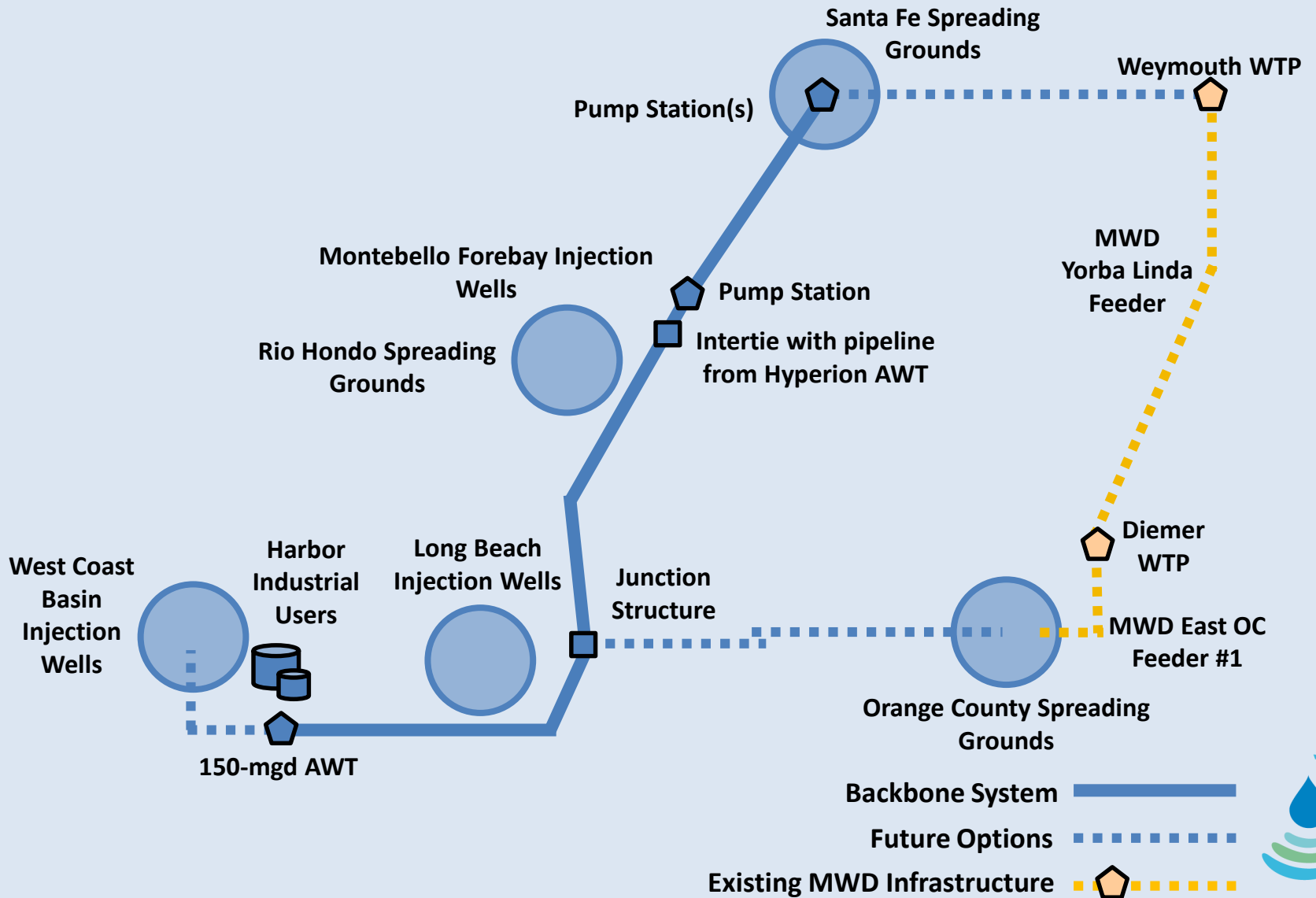
- Tiered project-level document for 3.5-mile pipeline

## Accelerated Water Delivery

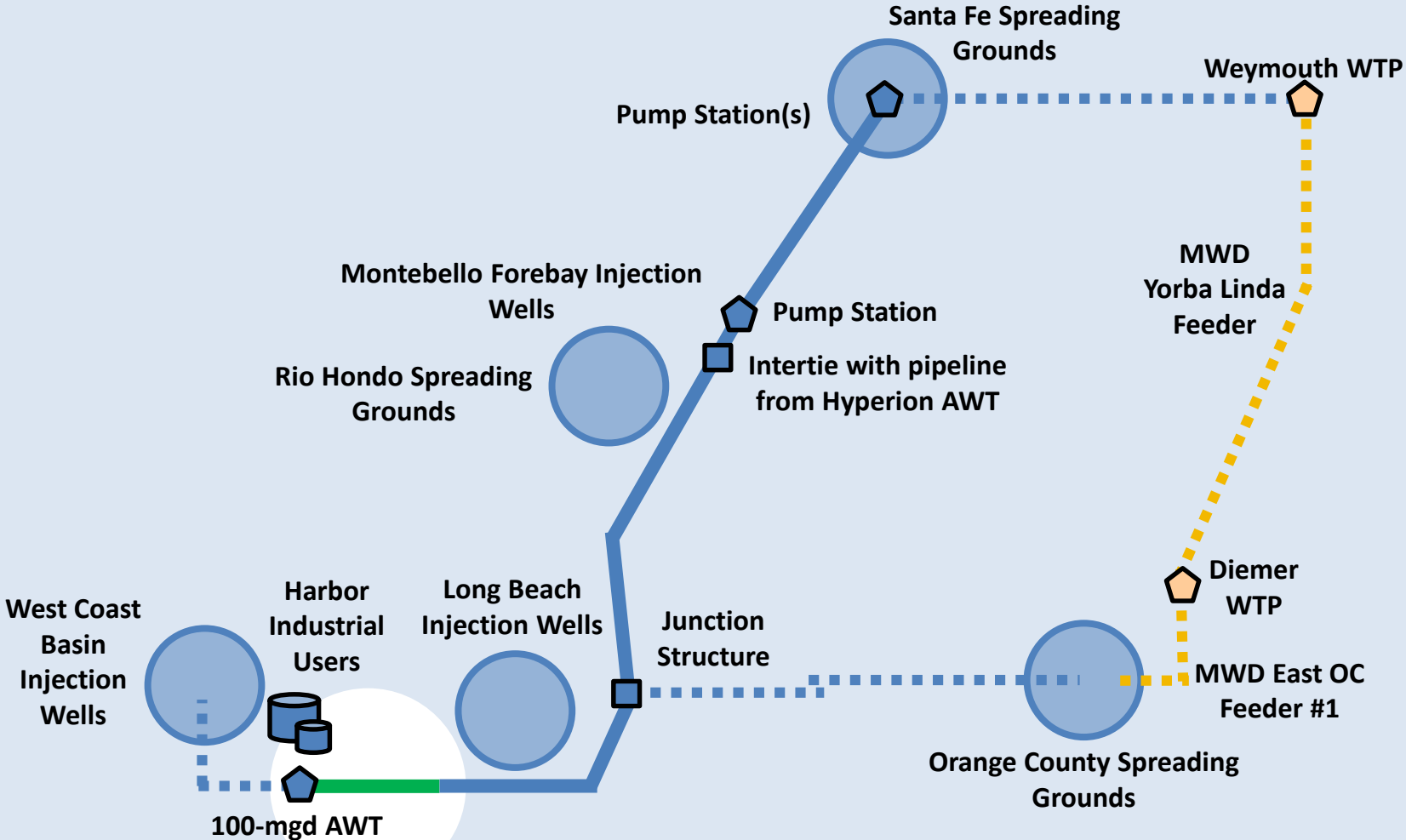
Everything above plus:

- Initial AWT plant (approx. 20 mgd)
- Conveyance to West Coast Basin

# TRADITIONAL PEIR APPROACH



# ACCELERATED CONSTRUCTION WITH PRELIMINARY DESIGN

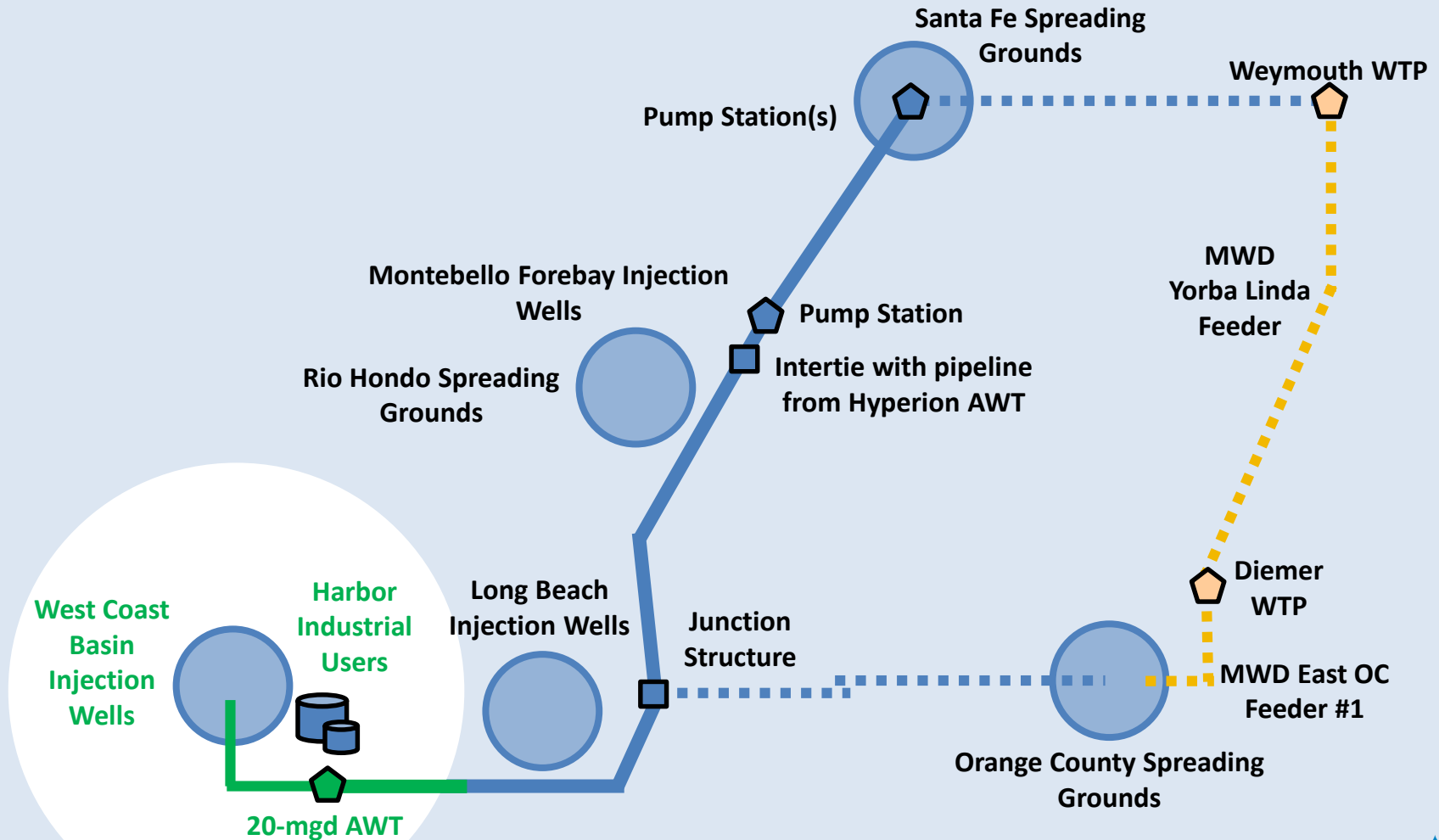


Facilities included for Preliminary Design 





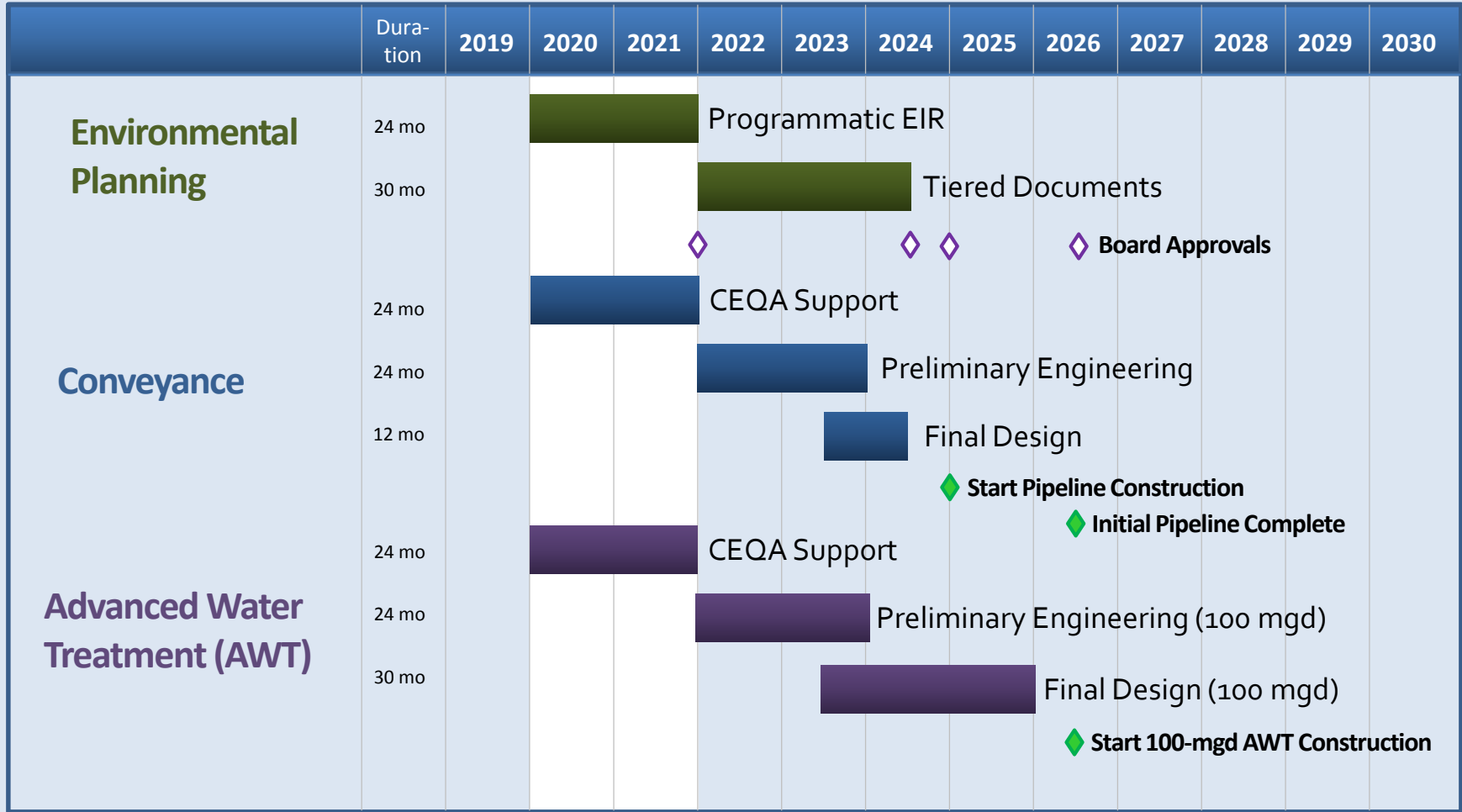
# ACCELERATED DELIVERIES WITH PRELIMINARY DESIGN



Facilities included for Preliminary Design



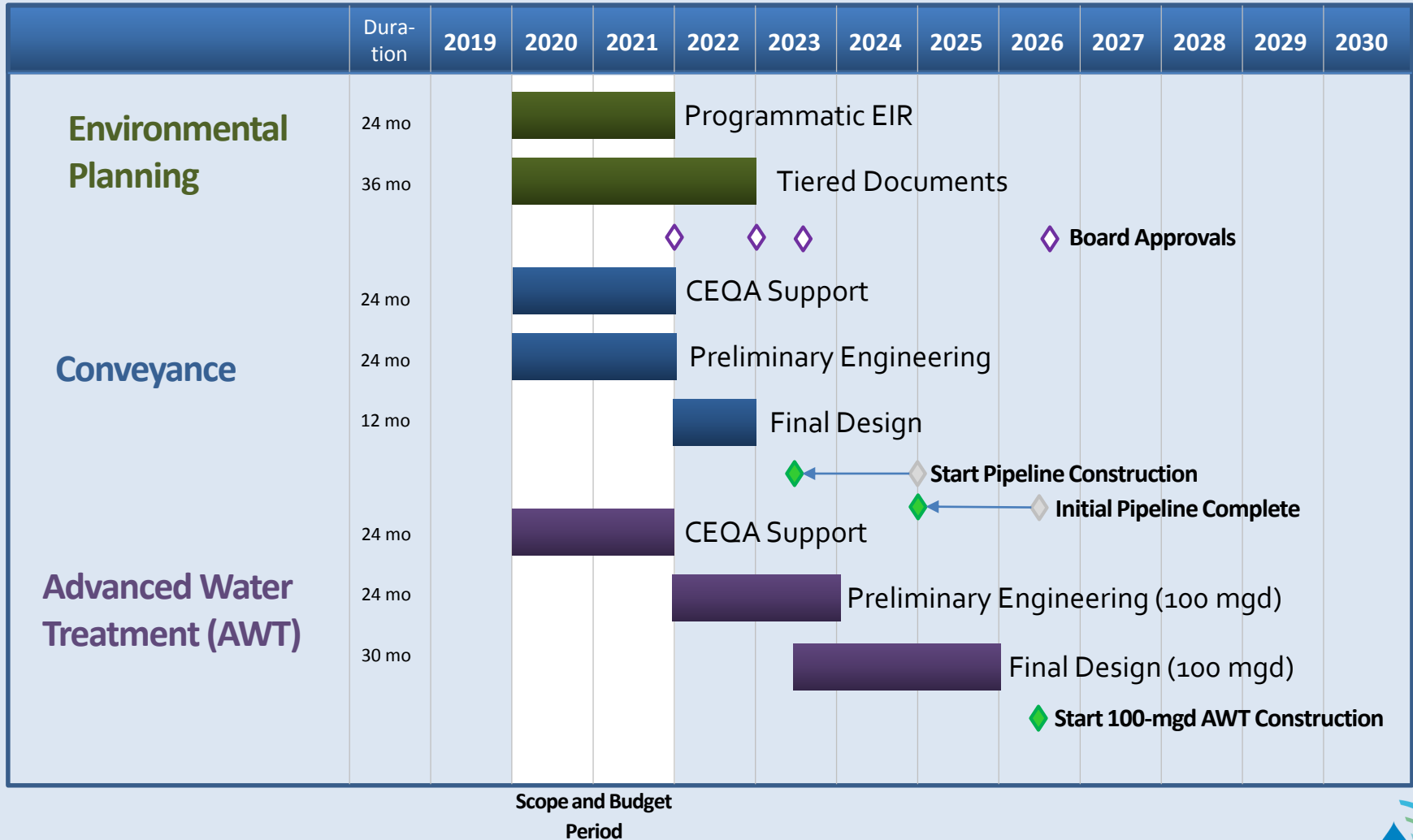
# TRADITIONAL



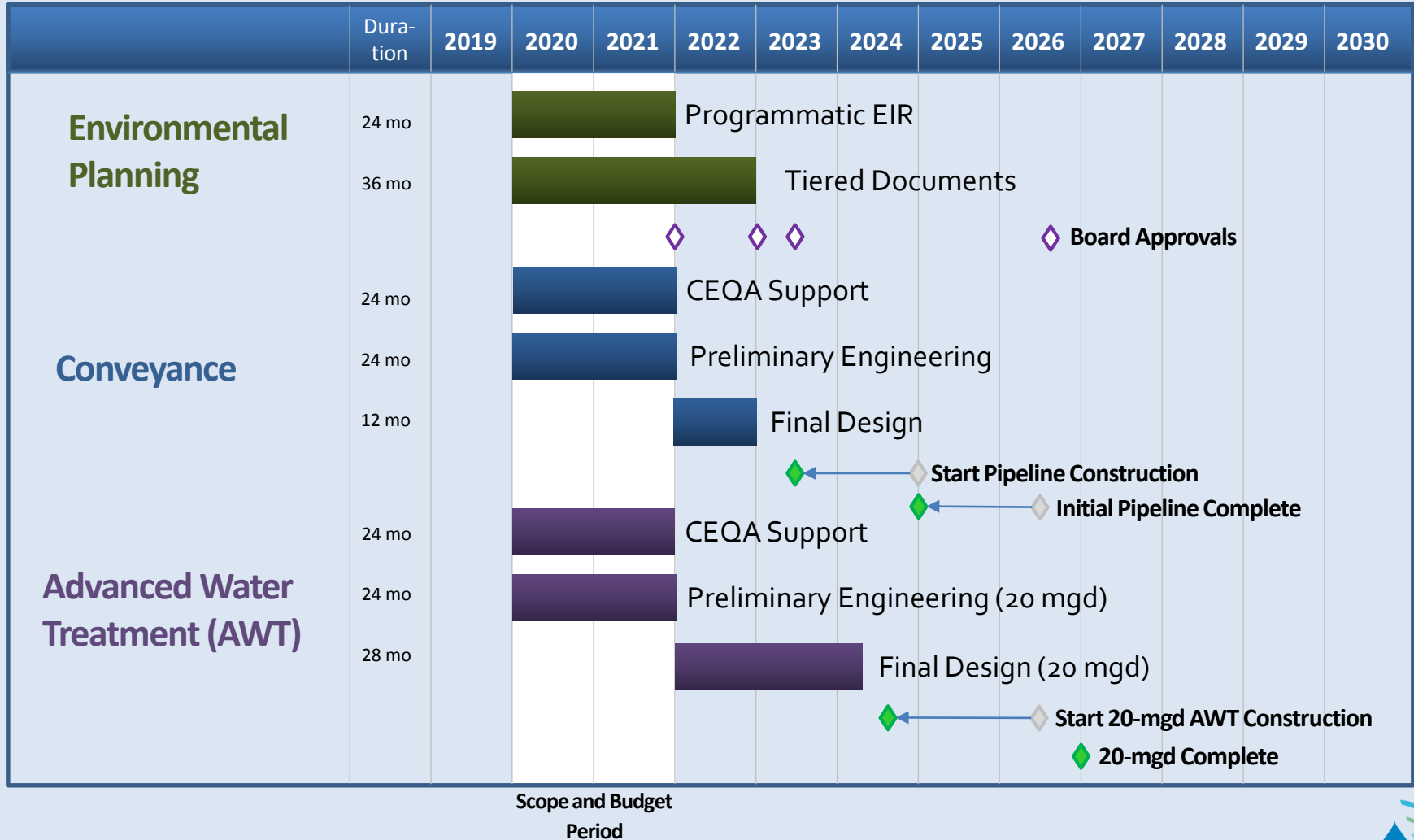
Scope and Budget  
Period



# ACCELERATED CONSTRUCTION



# ACCELERATED DELIVERIES



# BENEFITS

## Accelerated Construction

- Minimizes cost increases resulting from inflation
- Reduces impacts of unexpected delays on final completion date
- Launches preliminary design and risk management as early as possible
- Accelerates project team learning curve

## Accelerated Deliveries

- All of the accelerated construction benefits
- Enables early acquisition of operational experience and knowledge
- Accelerates regional benefits of additional water supply
- Provides early water sales and cost recovery
- Utilizes existing facilities made available by the Sanitation Districts for the program

# RISKS

## Accelerated Construction

- Additional mitigation measures required
- Complex pipeline alignments must be revised
- Engineering rework required

## Accelerated Deliveries

- All of the accelerated construction risks
- Contingent on:
  - ✓ MBR treatment process approvals
  - ✓ Nitrogen management strategy decision
  - ✓ Timing of need for replenishment water in the West Coast Basin

# BUDGET RANGES

## Estimated Budget Range (24 Month Duration)

Option	Low	High
Traditional	\$20,000,000	\$33,000,000
Accelerated Construction	\$30,000,000	\$41,000,000
Accelerated Water Delivery	\$47,000,000	\$60,000,000



# DIRECT POTABLE REUSE CONSIDERATIONS



# OUTLINE

- Background
- Raw Water Augmentation Opportunities
- Raw Water Augmentation Development Roadmap



# BACKGROUND

# CALIFORNIA RECYCLED WATER REGULATIONS



Non-Potable  
Reuse

***Irrigation  
Industrial Uses***

2000



Indirect  
Potable Reuse

***Groundwater  
Augmentation***

2014



Indirect  
Potable Reuse

***Reservoir  
Water  
Augmentation***

2018



Direct  
Potable Reuse

***Raw Water  
Augmentation***

2023



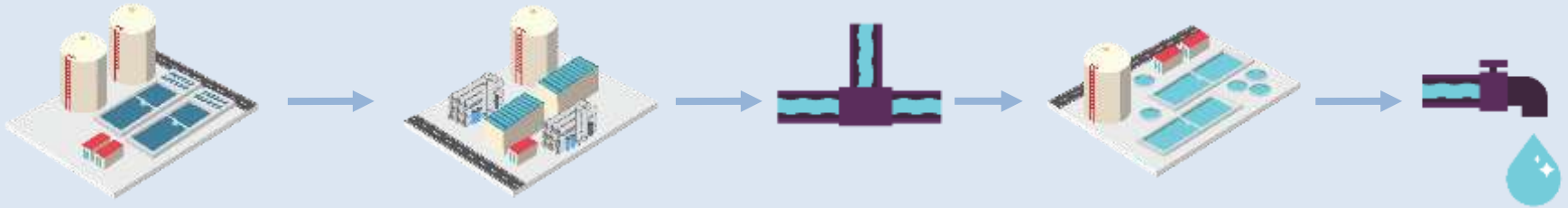
Direct  
Potable Reuse

***Treated  
Drinking Water  
Augmentation***

TBD

***Increasing requirements for public health protection***

# RAW WATER AUGMENTATION

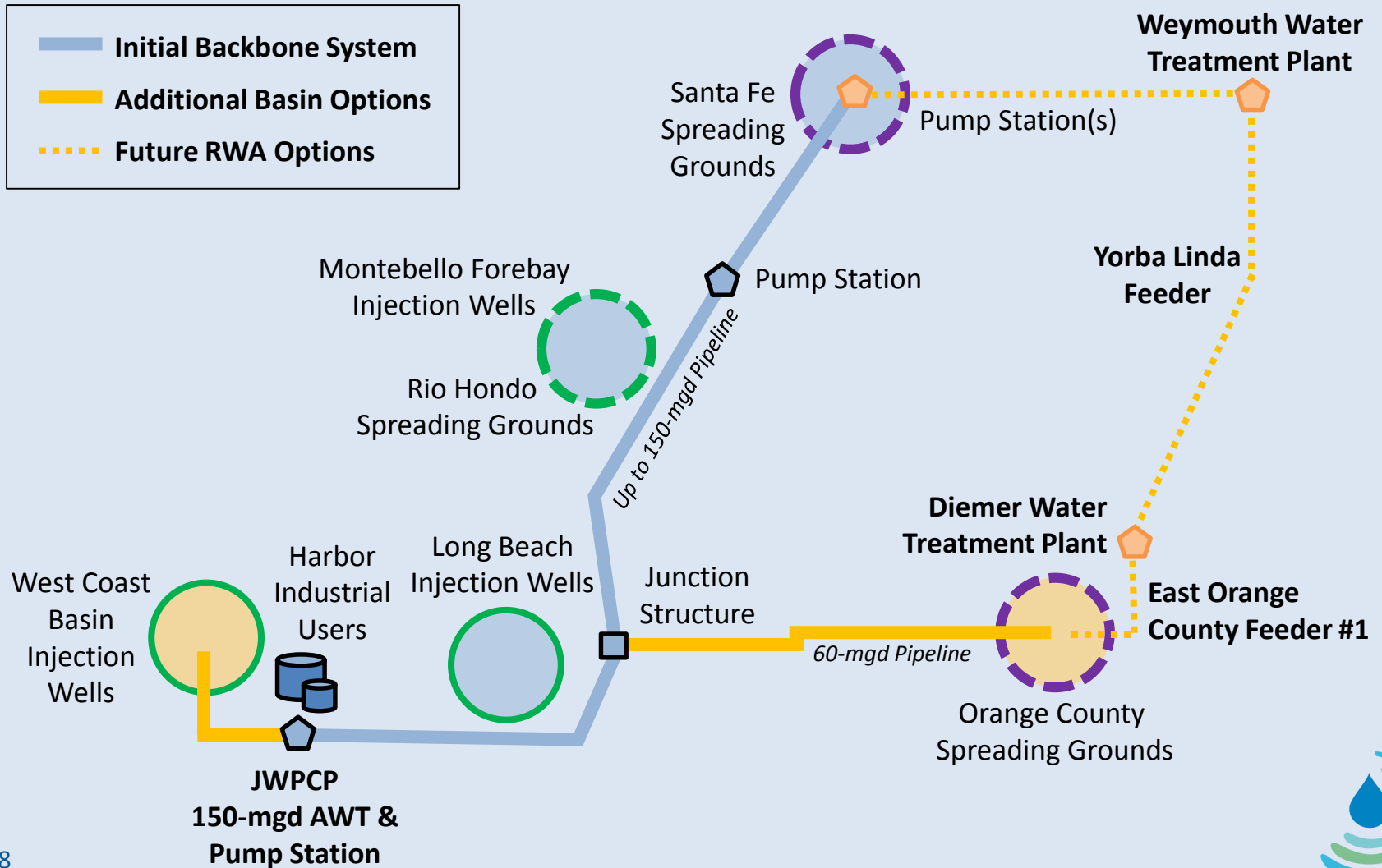


- Direct potable reuse (DPR) through **raw water augmentation (RWA)** is the placement of advanced treated water into a raw water conveyance system upstream of a drinking water treatment plant
- State Water Resources Control Board (State Board) is required to adopt uniform water recycling criteria for RWA by the end of 2023
  - Regulatory adoption could be delayed to mid-2025 depending on state of science at that time



# RAW WATER AUGMENTATION OPPORTUNITIES

# RAW WATER AUGMENTATION OPTIONS



# RWA CONSIDERATIONS AND ANTICIPATED REQUIREMENTS

- Enhanced source control and wastewater treatment optimization
- Higher levels of advanced treatment and treatment redundancy through multiple independent barriers
- More rigorous monitoring and enhanced tools to respond to “off-spec” events
- System integration that minimizes impacts on blended water quality



# TREATMENT FACILITY OPTIONS

- Additional RWA treatment processes could be:
  - Part of the AWT facility planned at JWPCP, or
  - At a potential satellite facility downstream; only flow to be used for RWA would be treated to more stringent requirements
- Further discussion with State Board is needed to determine potential acceptance of a satellite facility concept





# BLENDING AT METROPOLITAN'S TREATMENT PLANTS

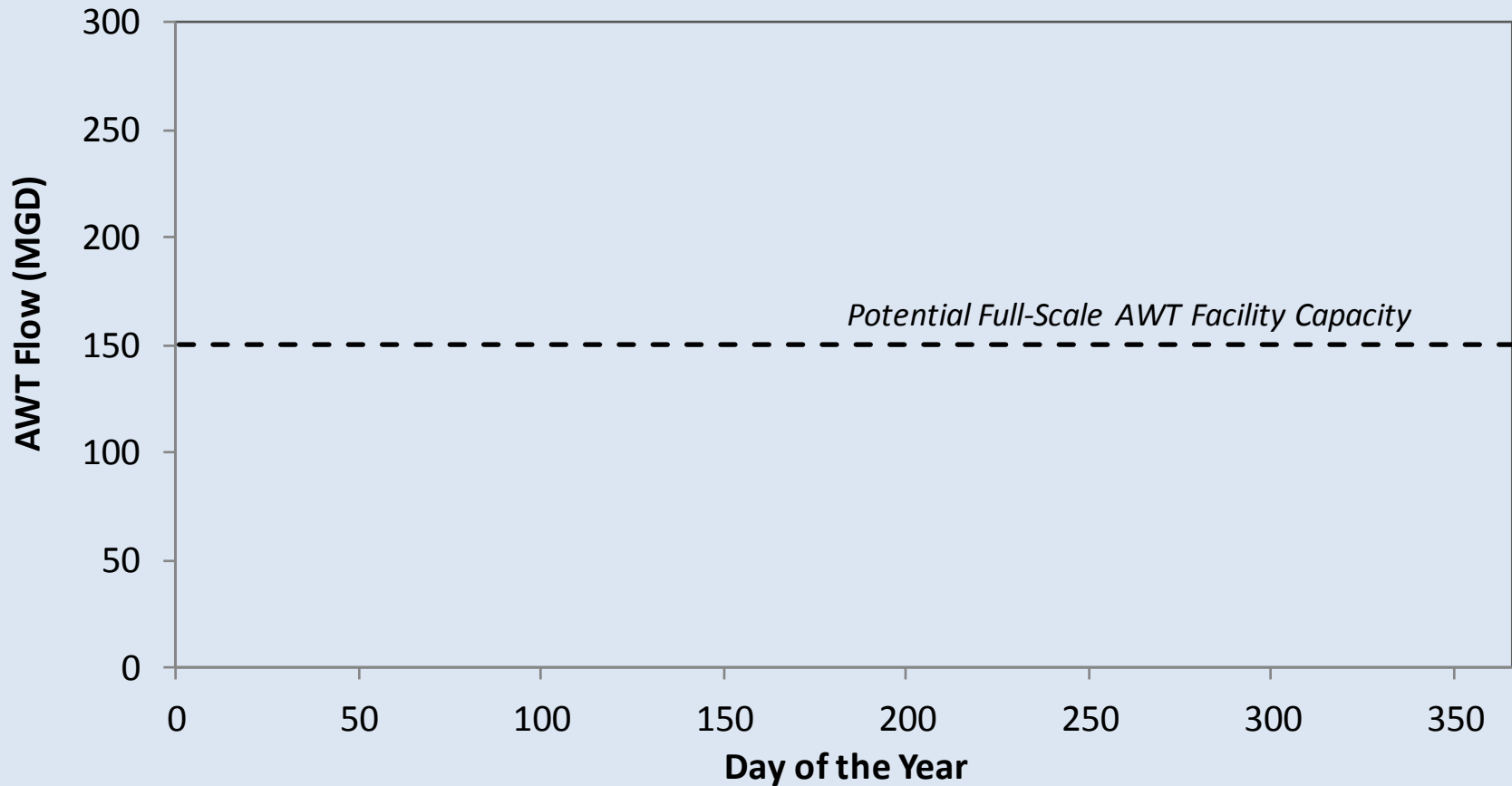
- State Board has expressed that blending requirements would be incorporated into future RWA regulations to the degree that it provides a "*meaningful public health benefit*" (SWRCB, 2018)
- Metropolitan may also establish blending requirements for introducing advanced treated water to Weymouth or Diemer plants to ensure water quality goals are met
- Blending percentage may increase with greater project experience and demonstration of public health protection



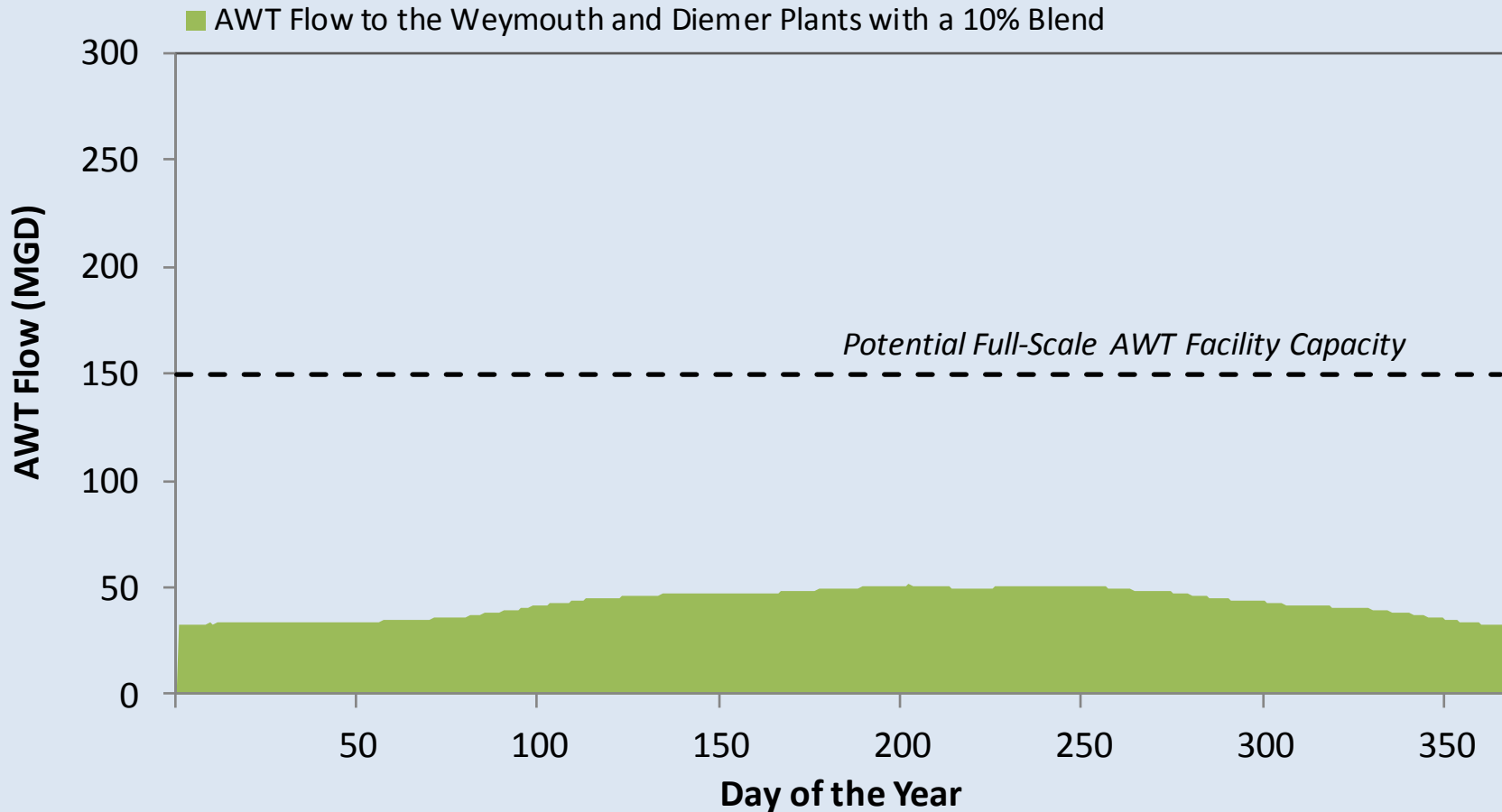
# BLENDING SUPPLIES AT WEYMOUTH



# POTENTIAL AWT FLOWS TO WEYMOUTH AND DIEMER PLANTS



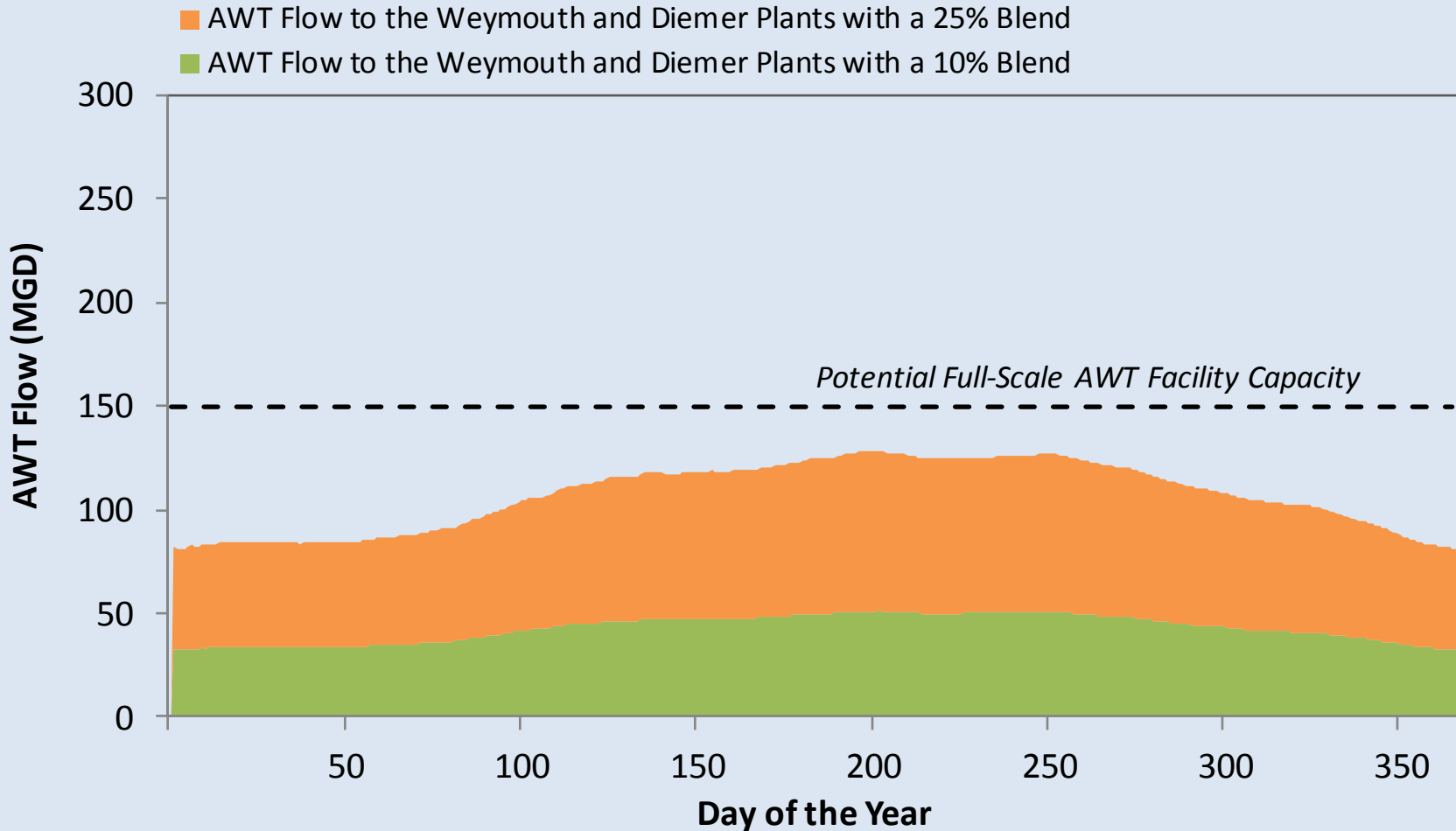
# POTENTIAL AWT FLOWS TO WEYMOUTH AND DIEMER PLANTS



*\*Based on median daily average flow at the Weymouth and Diemer plants that ranged from 143 to 261 mgd and 120 to 293 mgd, respectively, in 2009 -2018.*



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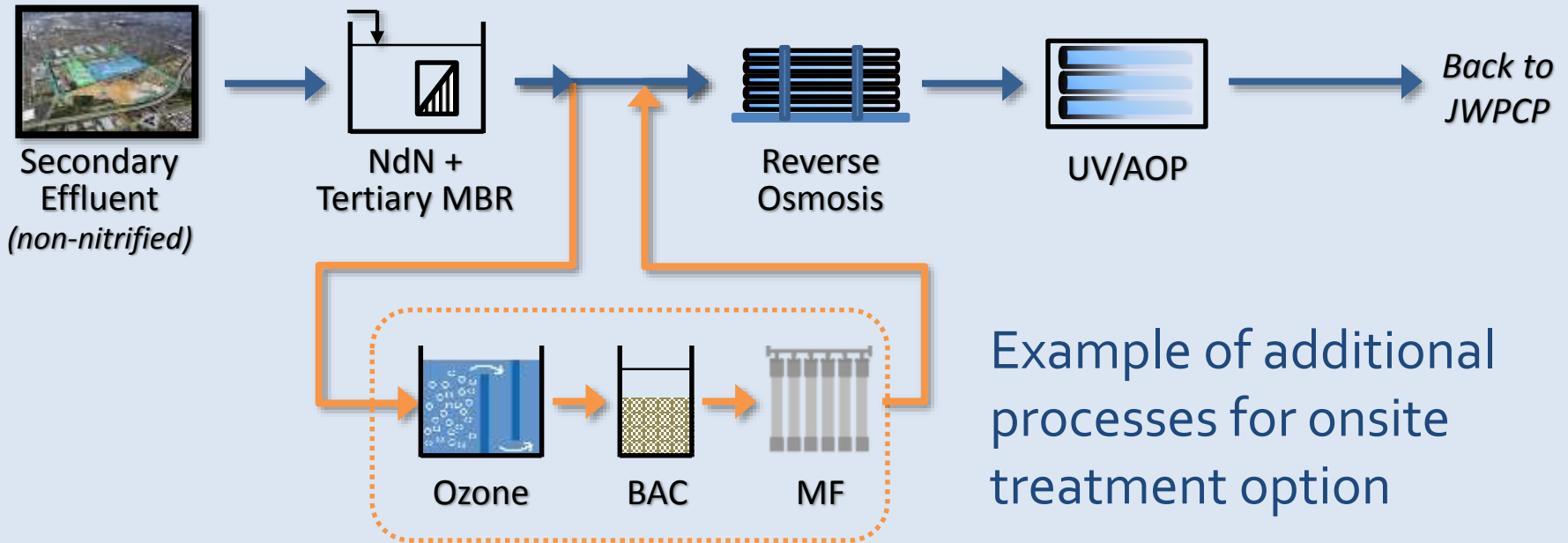
# RAW WATER AUGMENTATION DEVELOPMENT ROADMAP

# — DEMONSTRATION TESTING OBJECTIVES —

- Demonstrate efficacy of additional treatment processes for pathogen and chemical control
- Demonstrate appropriate treatment train (for onsite or satellite facility) to meet anticipated RWA regulatory requirements
- Develop and evaluate water quality criteria and blending strategies for advanced treated water upstream of drinking water treatment plants
- Develop, evaluate, and optimize analytical methods for detecting microbial and chemical contaminants



# DEMONSTRATION FACILITY TESTING OPTIONS FOR RWA

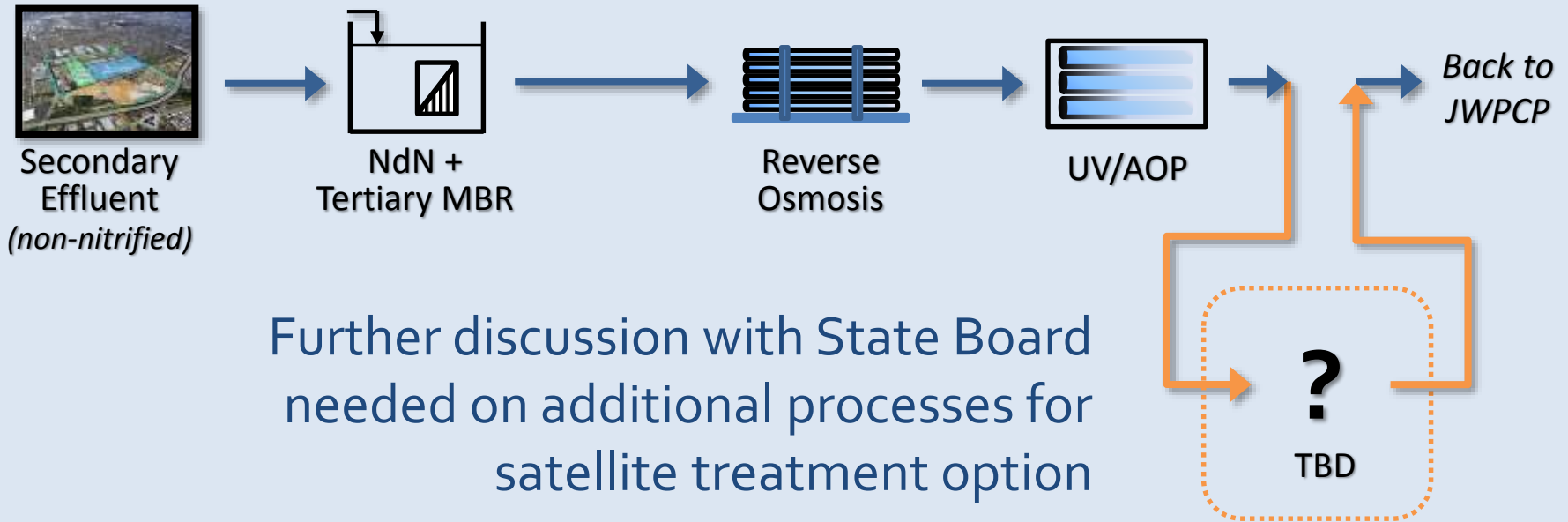


- Additional processes could be applied at pilot or demonstration scale in various treatment train configurations





# DEMONSTRATION FACILITY TESTING OPTIONS FOR RWA



- Additional processes could be applied at pilot or demonstration scale in various treatment train configurations



# PRELIMINARY COSTS FOR RWA DEVELOPMENT

RWA Treatment Facility Type	System Option	Capital	O&M
Onsite Treatment	Pilot Scale (10-50 gpm)	\$4.4M – \$4.8M <sup>+</sup>	\$5.5-\$6.5M/yr <sup>^</sup>
	Demonstration Scale (0.5 mgd)	\$12.8 M	
Satellite Treatment	Pilot Scale	TBD*	
	Demonstration Scale	TBD*	

<sup>+</sup>Cost varies depending if pilot system is integrated/fixed or trailer-based

\*Further discussion needed with State Board regarding potential satellite facility options

<sup>^</sup>Includes conservative assumptions for staff, O&M, chemicals, and analytical costs

NOTE: The costs above are not included in earlier Implementation Options budget estimates.

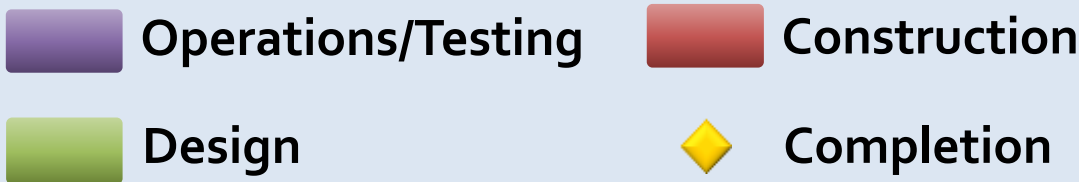
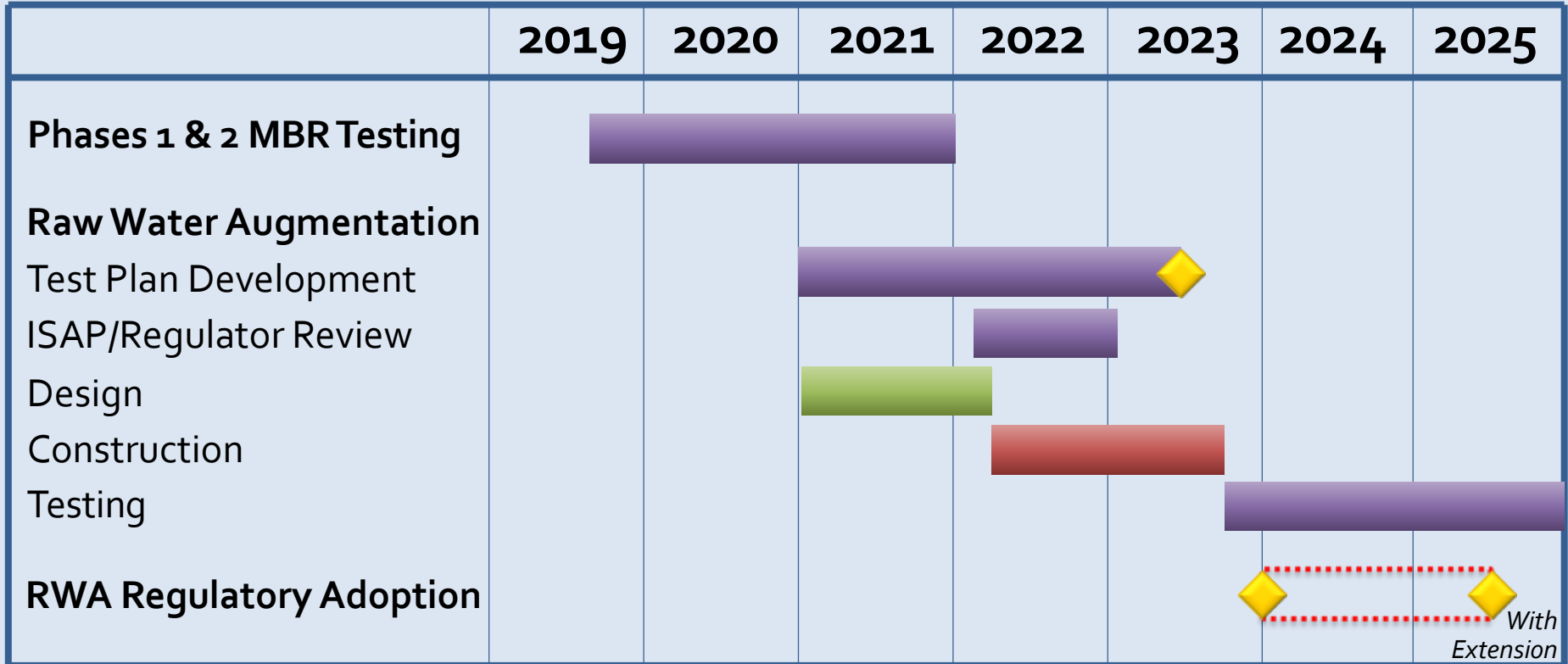


# POTENTIAL ENGAGEMENT IN REGULATORY DEVELOPMENT

- Engage in ongoing industry research to support RWA regulatory development
- Research findings would support RWA process design and testing
- Engage and assist State Board in the development of raw water augmentation regulatory criteria
- Potential risks with testing prior to final regulatory criteria include:
  - Exploratory research and/or redesign of treatment processes
  - Risk balanced through close coordination with the State Board and Independent Scientific Advisory Panel (ISAP)



# DEMONSTRATION FACILITY PRELIMINARY TESTING SCHEDULE



# RWA SUGGESTED NEXT STEPS

- Begin RWA test plan development and treatment process design in 2021
  - Design and construction of RWA treatment processes at demonstration facility would require future Board action
- Begin RWA testing with draft regulatory criteria in 2023, prior to State Board's final adoption of raw water augmentation regulations
- Support research and collaborate with regulators and stakeholders in development of raw water augmentation regulations



# WRAP-UP / NEXT STEPS

# NEXT STEPS

- Receive input on implementation options and DPR opportunities
- Will compile ideas and suggestions heard today
- Board Workshop #2 later this fall
  - White Paper #2: “Planning, Agreements, and Financial Considerations” prior to workshop
- Both workshops will contribute to preparation of potential Board actions
- Future potential actions related to RWA development will follow



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