

Regional  
**Collaboration**



Visionary  
**Results**

Valley Water

# Countywide Water Reuse Master Plan (CoRe Plan)

## WaterReuse California Chapter Meeting

December 16, 2021



**Valley Water**

**Brown  
AND  
Caldwell**

*with HydroScience Engineers, and Trussell Technologies Inc*

# Topics



1. **Vision:** Goals and Objectives.



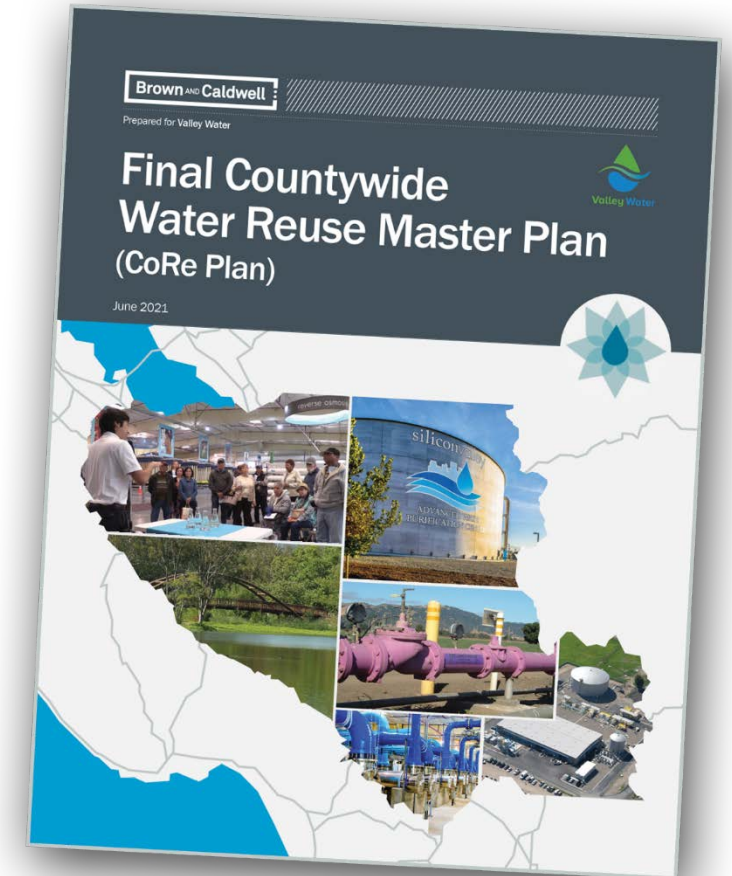
2. **Journey:** CoRe Plan development approach, reuse options evaluated, and key findings.



3. **Path Ahead:** Near-term next steps and foundation for future decision-making.

Abbreviation:

**CoRe Plan = Countywide Water Reuse Master Plan**





# 1. Vision

2. Journey
3. Path Ahead



*with HydroScience Engineers, and Trussell Technologies Inc.*



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# CoRe Plan Goal and Objectives

## Goal:

Identify feasible opportunities for expanding reuse as part of Valley Water's strategy to improve water supply reliability and regional self-reliance

- Aligned with Valley Water's One Water Plan and Water Supply Master Plan 2040
- Through substantial engagement and collaboration with Partner Agencies



## Objectives:

- Integrate existing recycled water systems and expand non-potable reuse (NPR)
- Develop purified water systems in partnership with recycled water producers/suppliers (Partner Agencies) and other interested parties to enable potable reuse



# Partner Agencies



**Recycled  
Water  
Producers  
(WWTP)**

**Palo Alto RWQCP**

**Sunnyvale WPCP**

**San José/Santa Clara RWF**

**SCRWA**



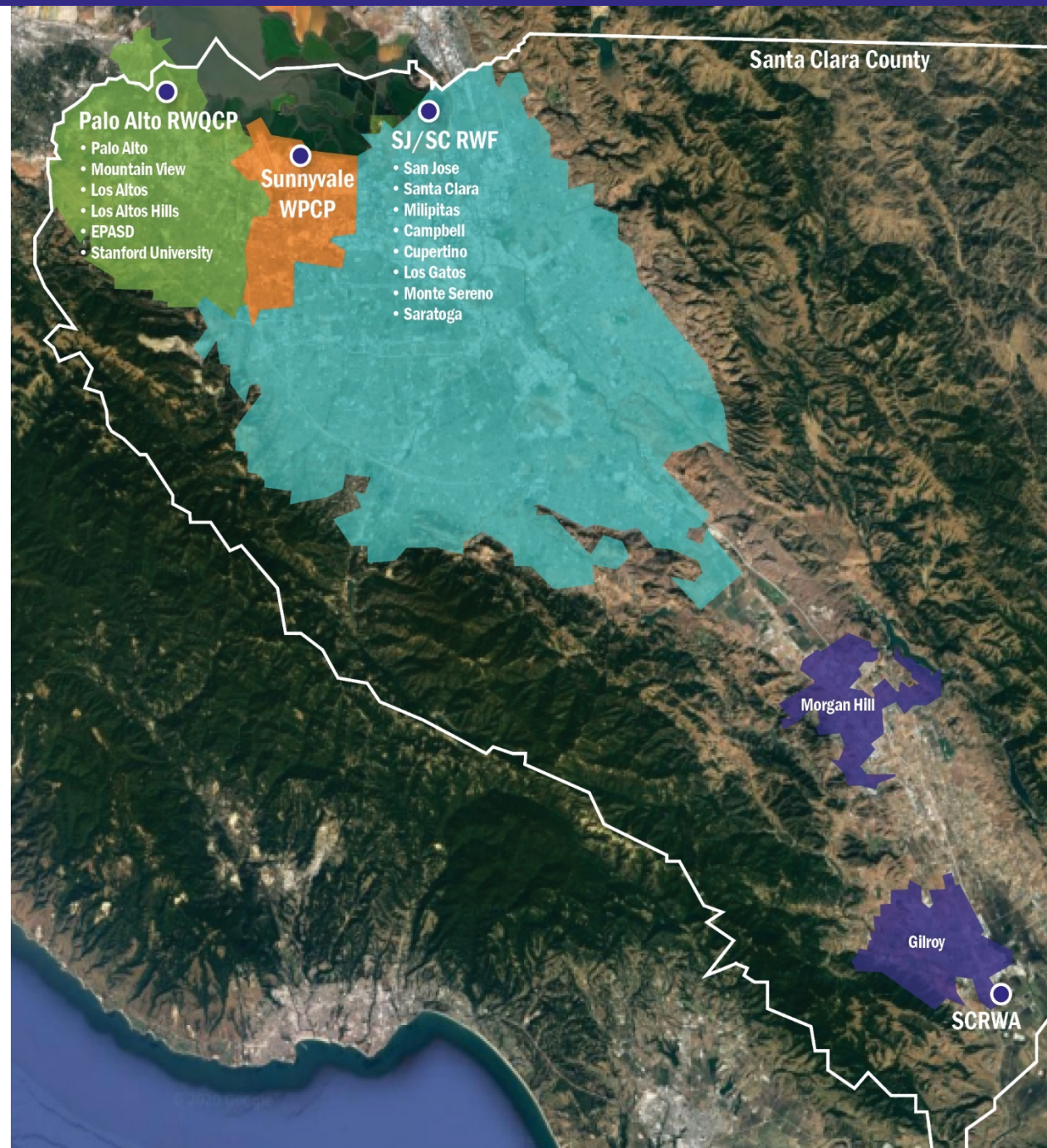
**Recycled Water  
Systems (RWS)**

**Palo Alto/Mountain View RWS**

**Sunnyvale RWS**

**South Bay Water Recycling**

**South County RWS (Gilroy)**



# Multiple Levels of Engagement

## Valley Water

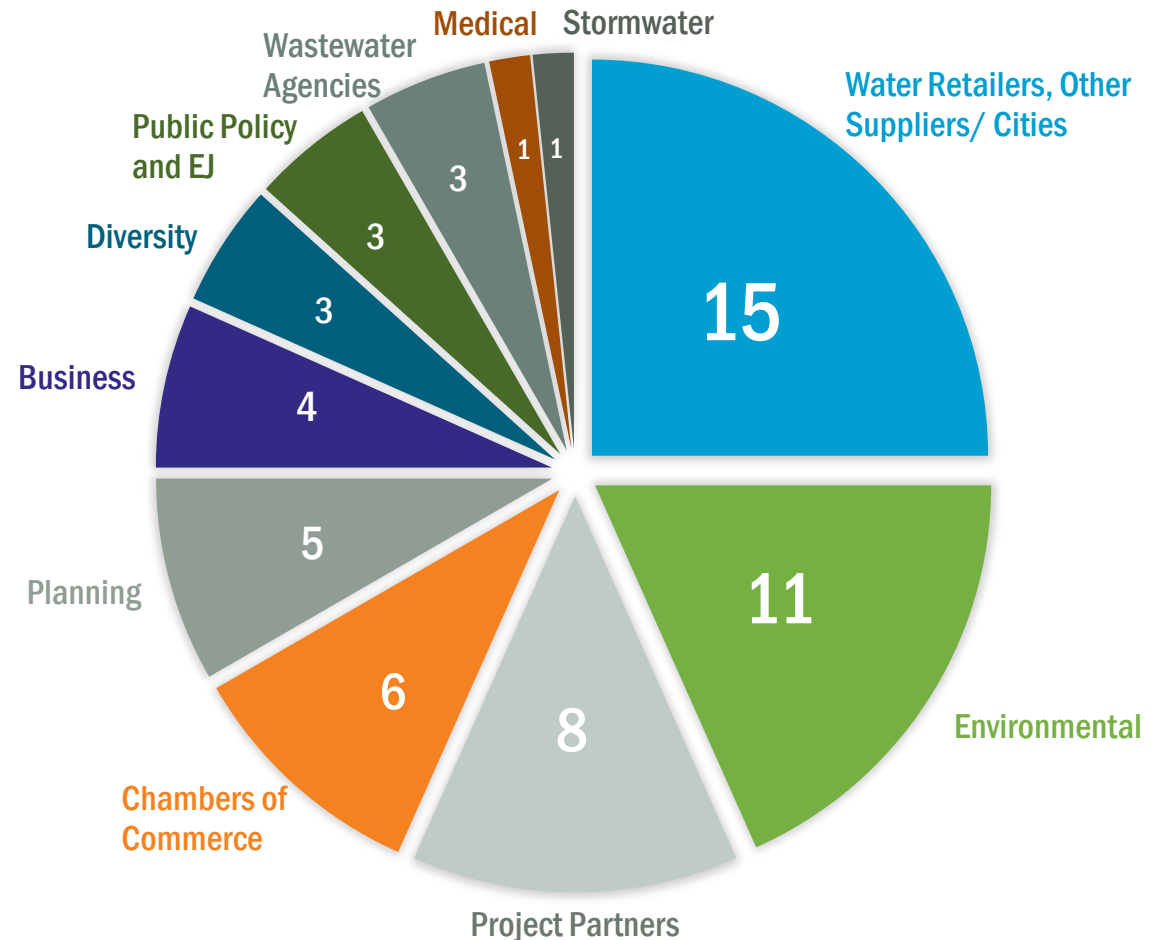
- Board and staff

## Project Partners

- City Councils and staff

## Advisory Groups

- Stakeholders (*chart to right*)
- Regulators
- Independent Advisory Panel (IAP)



1. Vision

# 2. Journey

3. Path Ahead

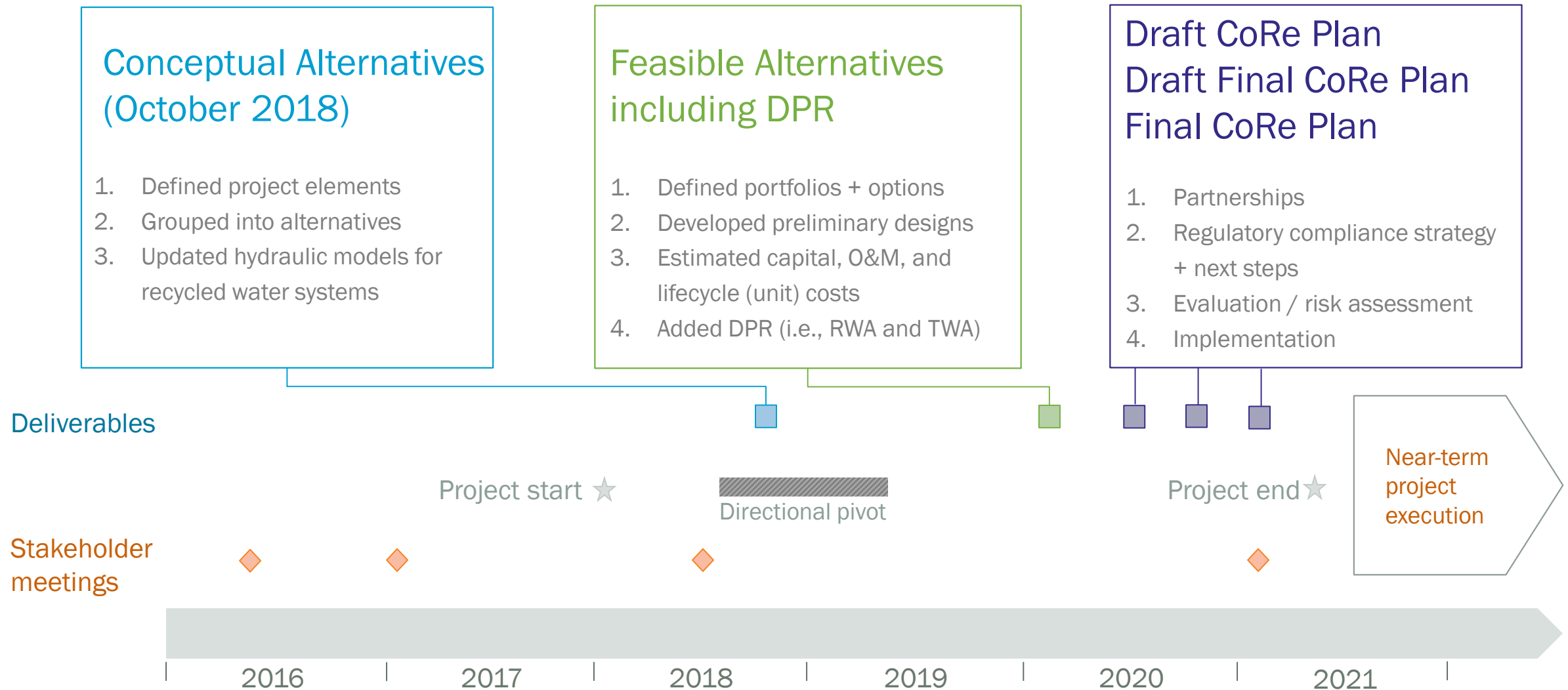


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# Project Background – since 11/18 RWC meeting





# Final CoRe Plan Overview

By the numbers:

**1,000+**

Pages of technical documentation

**60+**

Meetings



**10**

Reuse portfolios developed



**100**

Pages in the CoRe Plan



**60**

Stakeholder entities involved

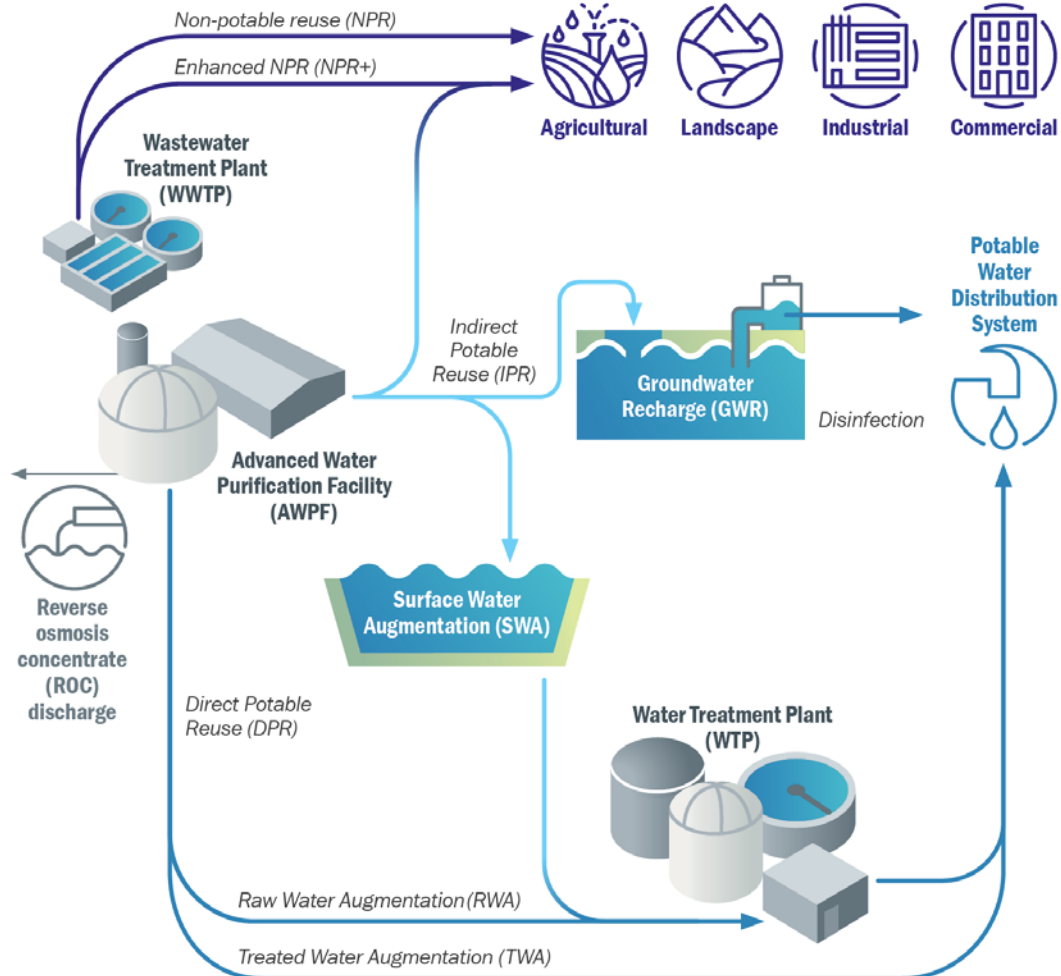
**3**

Years in the making



## 1 Integrated Plan

# Glossary Defines Terms



**Wastewater treatment plant (WWTP)**

**Non-potable reuse (NPR)**

**Enhanced NPR (NPR+)**

**Indirect potable reuse (IPR)**

Groundwater recharge (GWR)

Surface water augmentation (SWA)

**Direct potable reuse (DPR)**

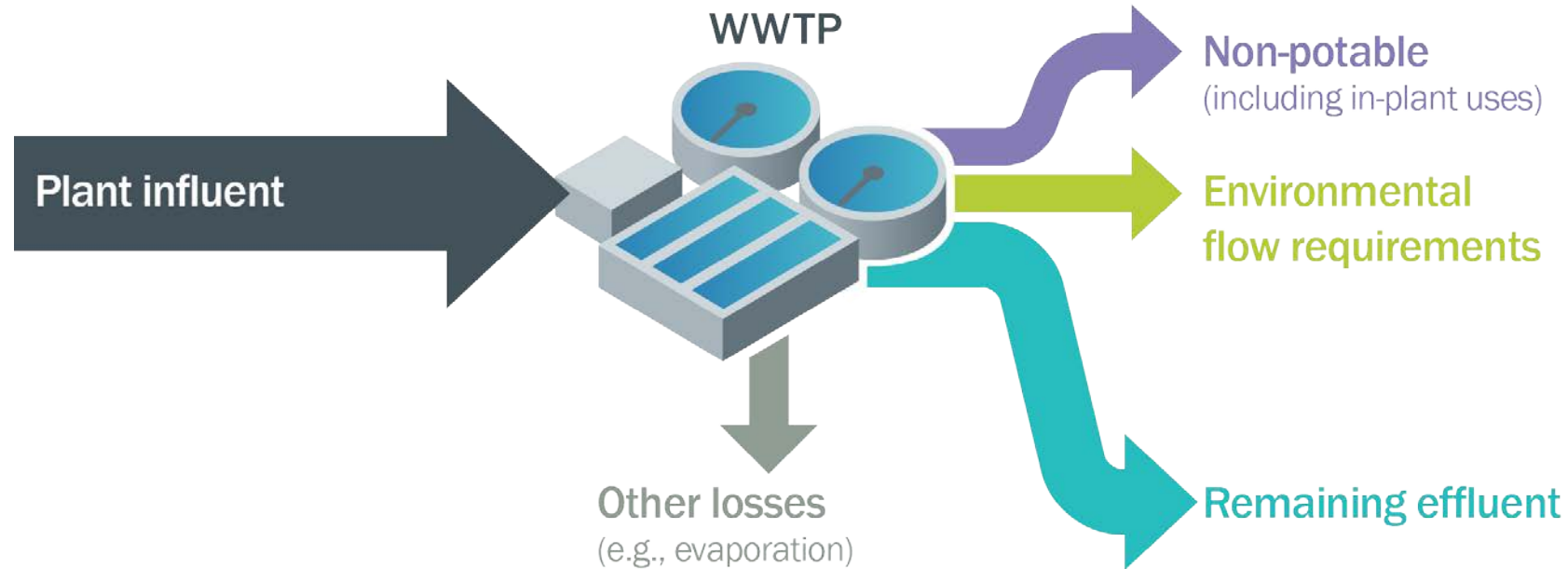
Raw water augmentation (RWA)

Treated water augmentation (TWA)

**Advanced water purification facility (AWPF)**

**Water treatment plant (WTP)**

# Source Water Availability

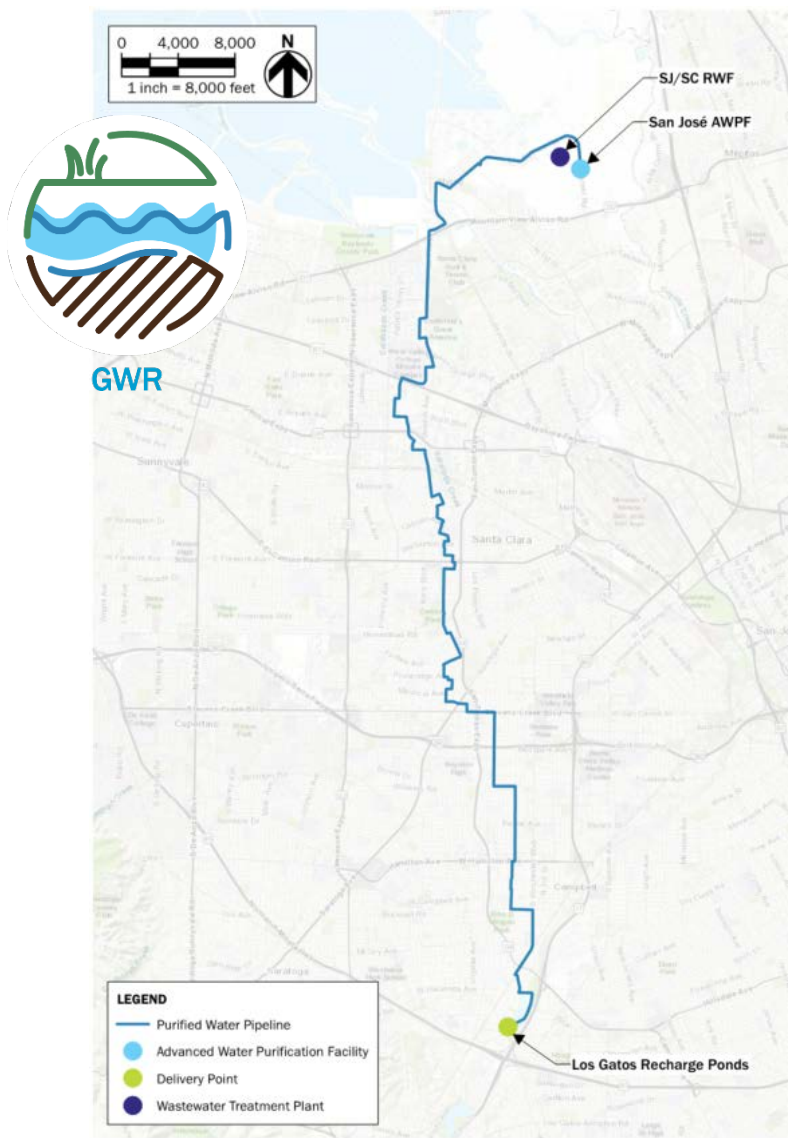


| Potential annual yield of purified water for potable reuse, considering producer and source water availability |                                    |
|--|------------------------------------|
| Facility   | Potential yield (AFY) <sup>a</sup> |
| San José AWPf  | 24,000                             |
| Palo Alto AWPf   | 11,700 – 13,200                    |
| Sunnyvale AWPf   | 5,500 – 9,800                      |
| Palo Alto and Sunnyvale (combined)   | 17,300 <sup>b</sup> – 23,000       |
| Morgan Hill Satellite AWPf   | 1,900                              |

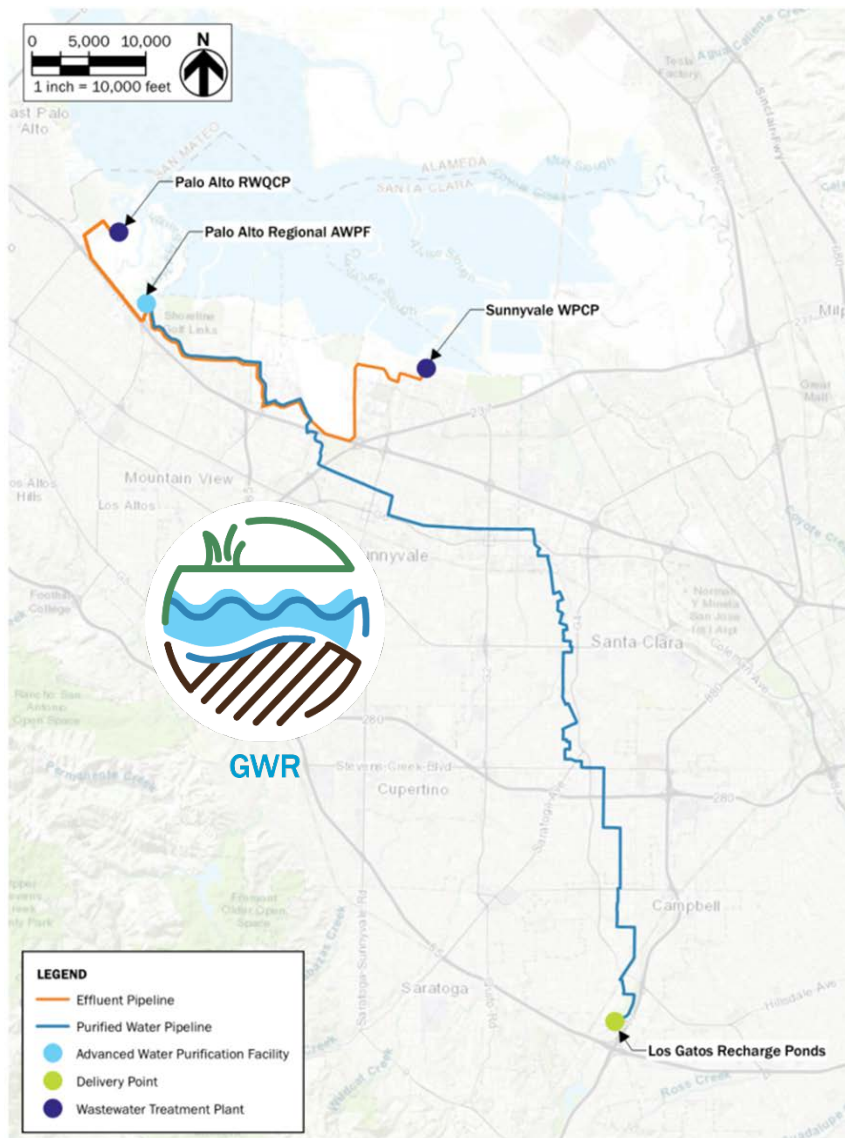
Note:  
24,000 AFY  
Potable  
Reuse Goal

# GWR to Los Gatos Recharge System

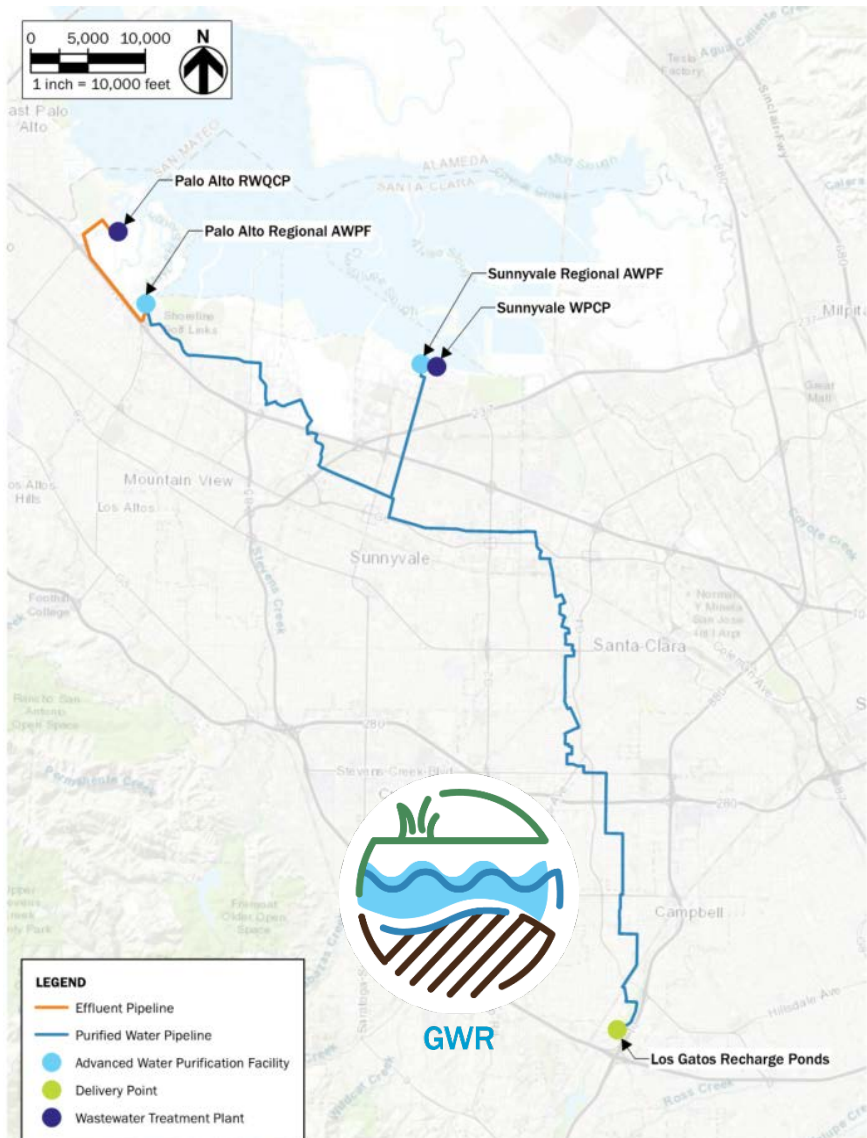
(Portfolio 1a)



(Portfolio 2a)



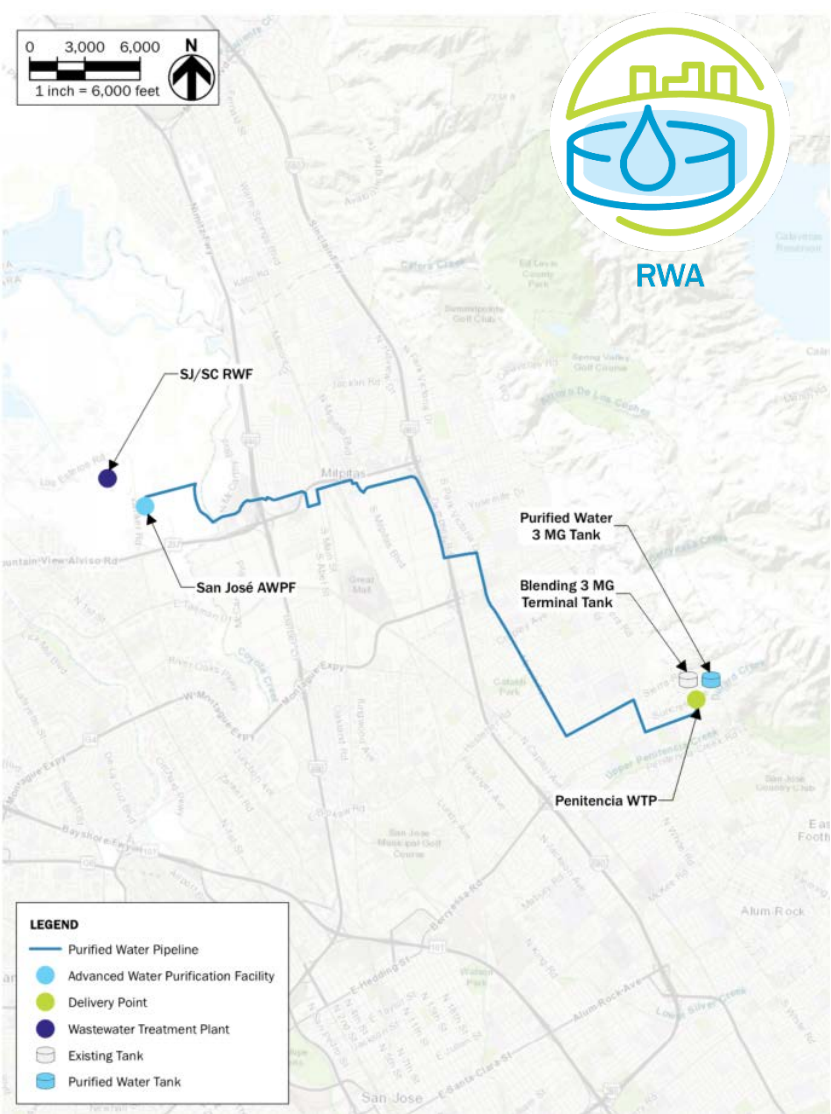
(Portfolio 4)





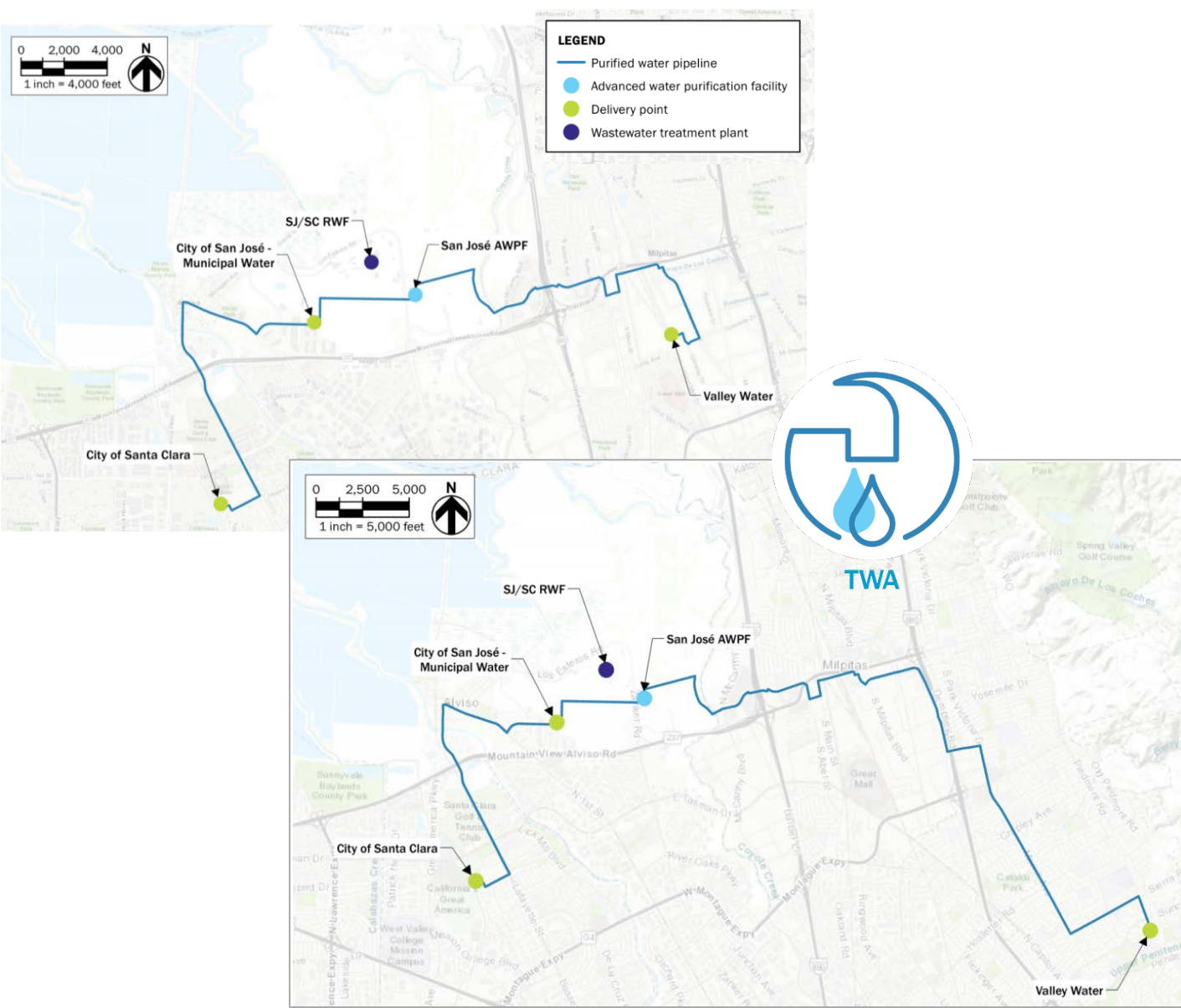
# RWA to Penitencia WTP

(Portfolio 1b)

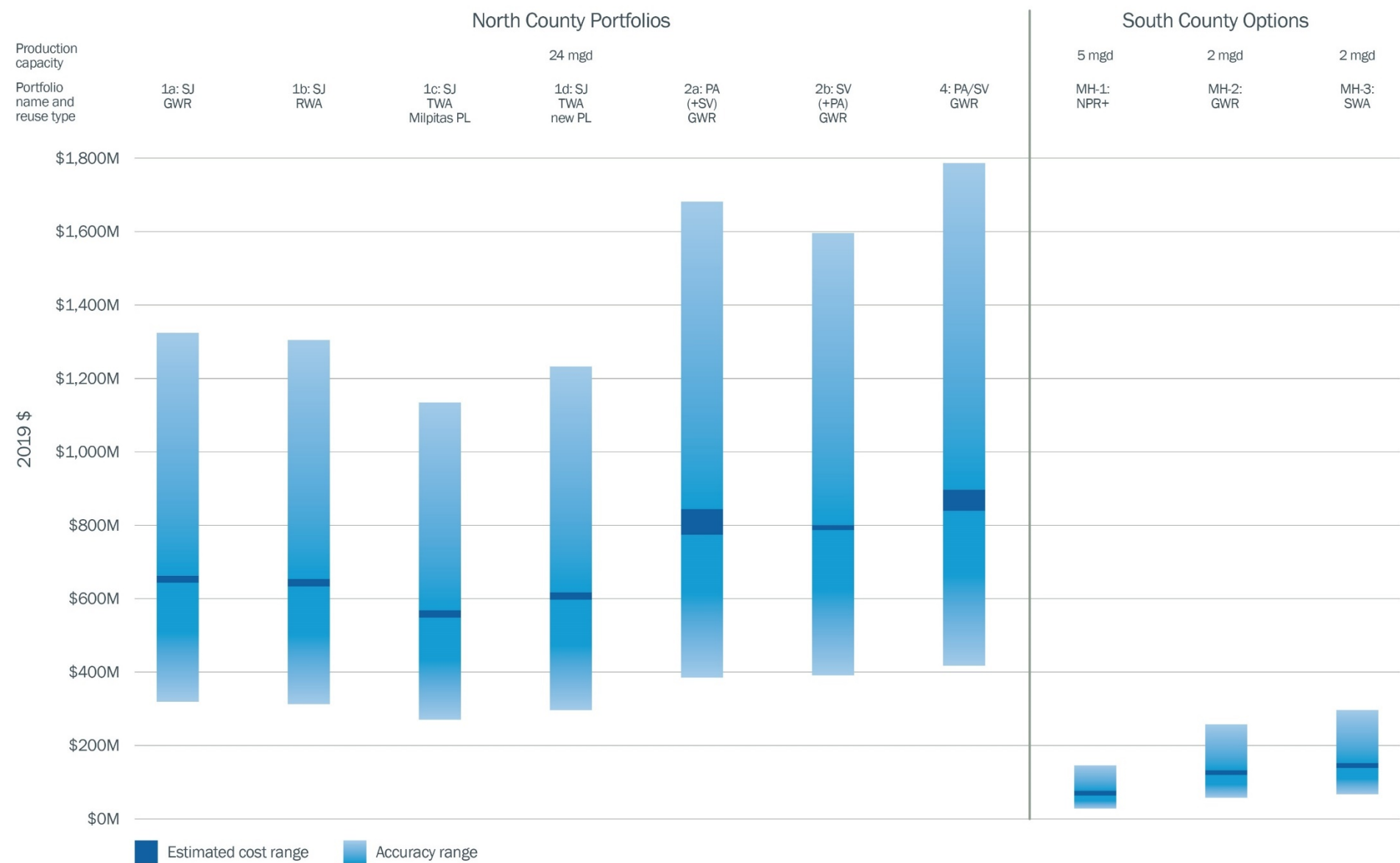


# TWA via Milpitas or PW Pipeline

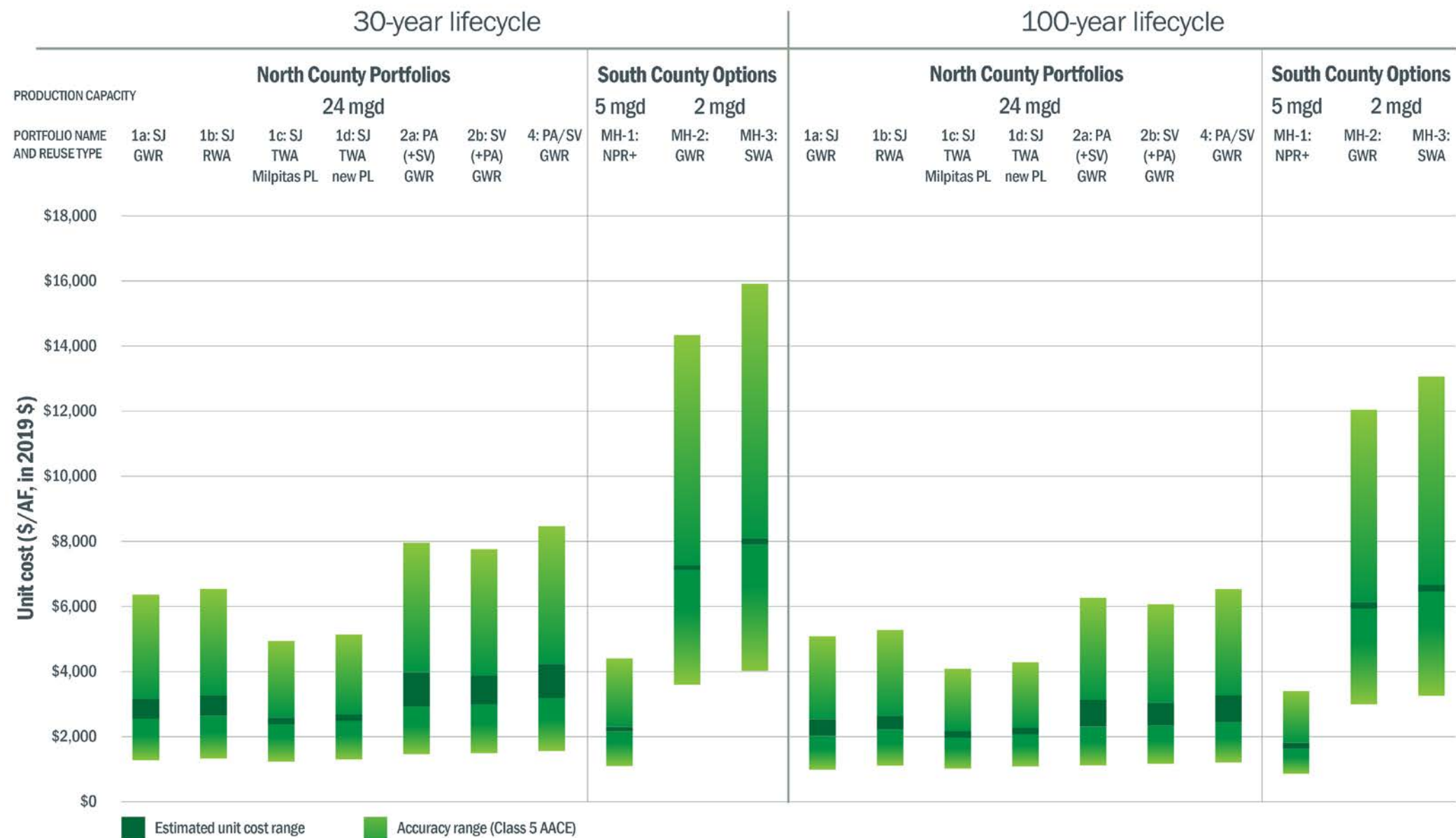
(Portfolios 1c and 1d)



# Estimated Capital Costs



# Estimated Lifecycle Unit Costs



# Evaluation + Risk Analysis = Support Decision-Making

Criteria built into the CoRe evaluation tool



Economics



Countywide  
(regional)  
supply reliability



Environmental  
impacts and benefits  
and sustainability



Ease of  
implementation  
and regulatory  
compliance



Engineering  
feasibility

*18 sub-criteria further define the 5 criteria and distinguish scoring*



# Regulatory Considerations

## Public Health

Pathogens

Chemicals

Source control

Monitoring and control

Retention and response time

TMF capacity

## Environmental Compliance

SF Basin Plan

California Toxics Rule

SNMP

Anti-degradation

Chlorine residual

# Final CoRe Plan Value and Key Take-Aways



Baseline to support ongoing collaboration and reuse partnerships



Consistent method for evaluating availability of treated wastewater for reuse



Options for reaching up to 24,000 AFY of Countywide reuse



Feasibility of potable reuse types (GWR, SWA, RWA, TWA)



Potential future opportunities (interties, RWA/TWA, onsite reuse)



Right-sizing infrastructure, including conveyance pipelines



Decision support tools (risk analysis, alternatives evaluation)

1. Introduction
2. Countywide Reuse Project Status

# 3. Path Ahead



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# Project Delivery Method

Using Design-Build-Finance-Operate-Maintain (DBFOM) Delivery Method.

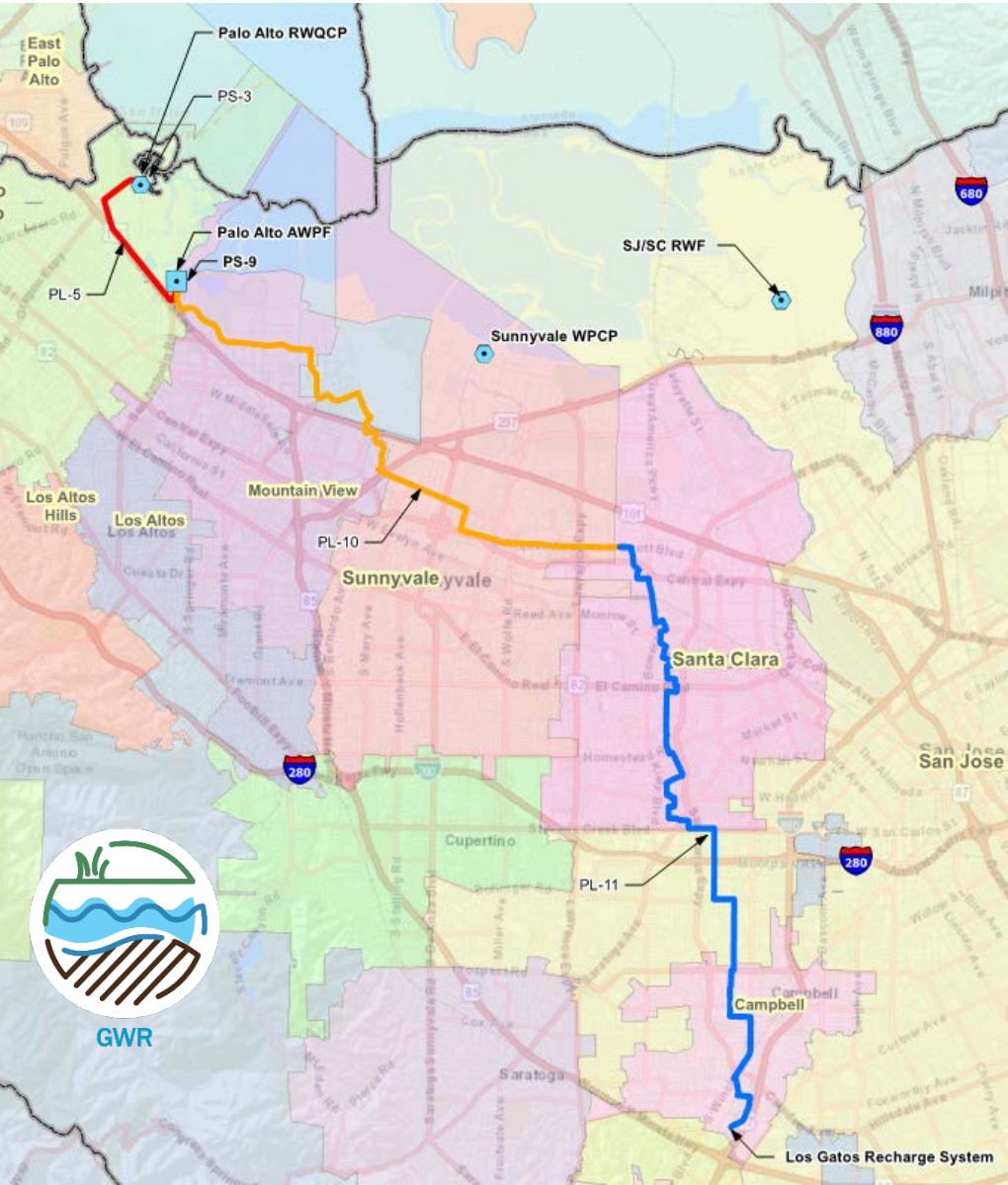
*A private entity delivers the project, Valley Water retains ownership and partners with the private entity as part of a P3.*



**(P3) Public Private Partnership**



# Near-Term 10 mgd Project Concept



## Next Steps for Implementation

### Partnerships Ongoing collaboration and discussion



Water Supply  
Planning  
Potable Reuse  
Goals

#### SOURCE WATER

Identify Availability of  
Source Water

Secure  
Agreements  
for Source Water  
Assurance

Re-evaluate Source Water Conditions and  
Expansion Potential

#### DESIGN + CONSTRUCTION

Preliminary Design

Detailed Design

Construction

Operations

#### FUNDING + RATES

Estimate Program Cost and Analyze Rate Impacts

Identify Funding Source  
and Cost Sharing

Secure  
Funding

#### LAND + EASEMENTS

Identify Parcels

Acquire Land and Easements

State Board  
Action

#### REGULATORY COMPLIANCE

Finalize RWA/  
TWA Regulations

Regulatory Compliance  
Strategy and Plan

Final Permitting

Ongoing Regulatory  
Compliance Adaptations

EIS/R

#### PUBLIC OUTREACH

Conduct Public Outreach



Thank you.  
Questions?



*with HydroScience Engineers, and Trussell Technologies Inc.*



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