



Palmdale Water District Strategic Water Resources Plan

Public Workshop

June 13, 2023



**Woodard
& Curran**



Meeting Agenda



Provide SWRP overview



Present supply and demand results



Discuss water supply options



Review Plan Document



Meeting Objectives



Provide overview of SWRP Process



Discuss plan analysis and findings

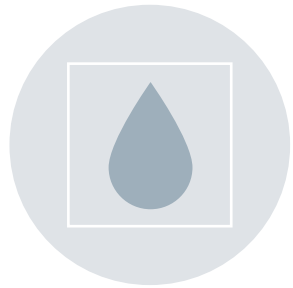


Review plan content

SWRP Overview

October 2022

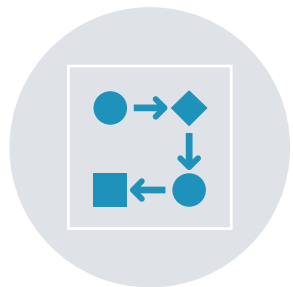
SWRP Overview



Provide a future vision for how PWD will meet its water supply through 2050



Facilitate meaningful engagement



Create a flexible, dynamic planning process



Build a strong technical foundation

Stakeholder Meetings



1. Demand and Supply and Estimated Supply Gaps



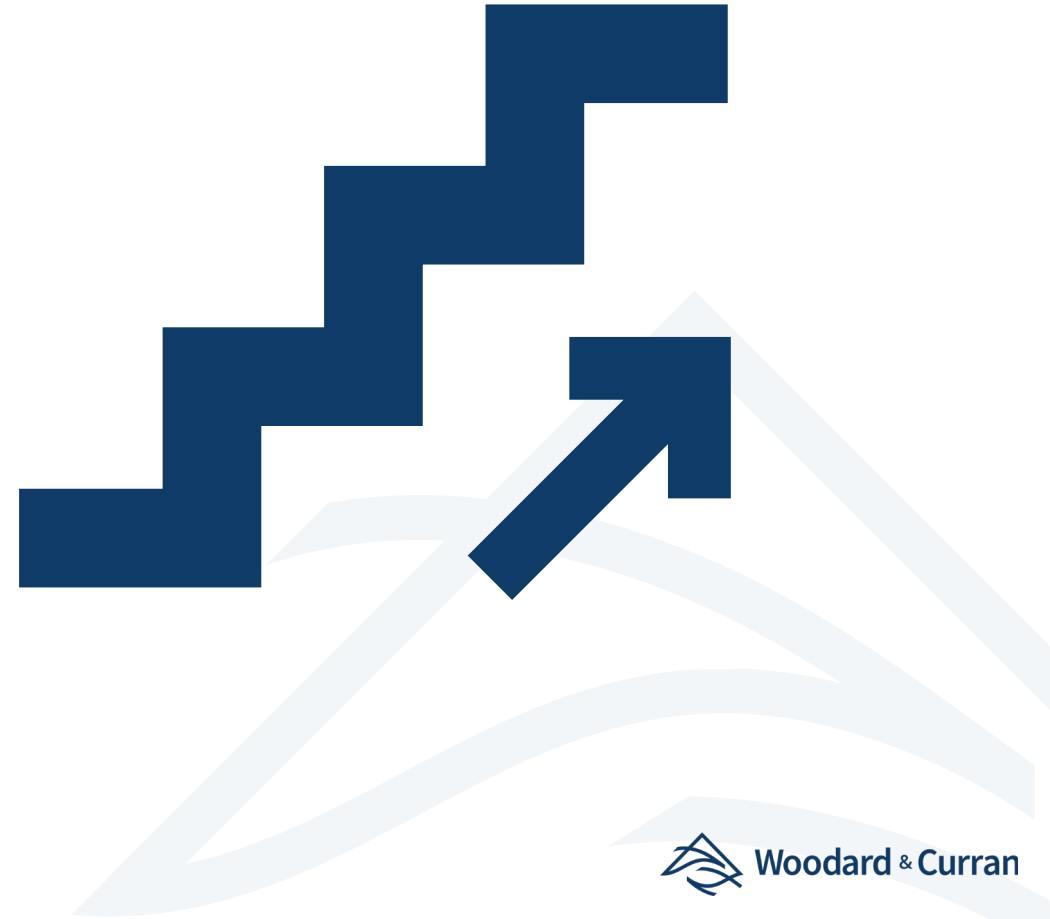
2. Evaluation Criteria and Alternative Portfolios



3. Preferred Alternatives and Evaluation

Next Steps

- ▶ Board to consider adoption in July
- ▶ CEQA process to begin
- ▶ Three Special Studies
 - Biological Resources Assessment
 - Cultural Resources Assessment
 - Paleontological Resources Assessment



Supply and Demand Results

October 2022

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How did we get here?

▶ Data included:

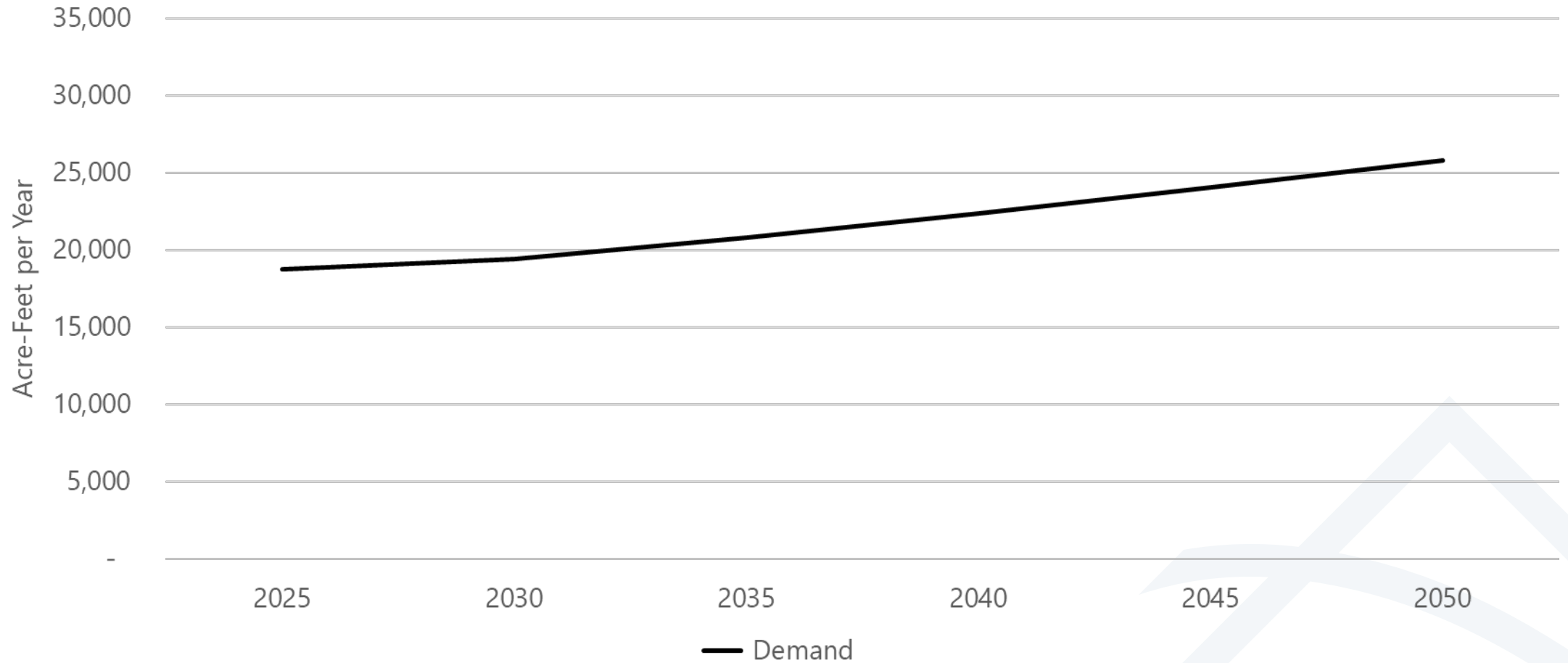
- Hydrology
- Demand by sector
- Supplies
 - Local surface water
 - Littlerock Reservoir
 - Groundwater
 - Adjudication, return flows, federal credit
 - Imported water
 - SWP, transfers
 - Recycled water
 - Entitlement, augmentation, City of Palmdale's entitlement



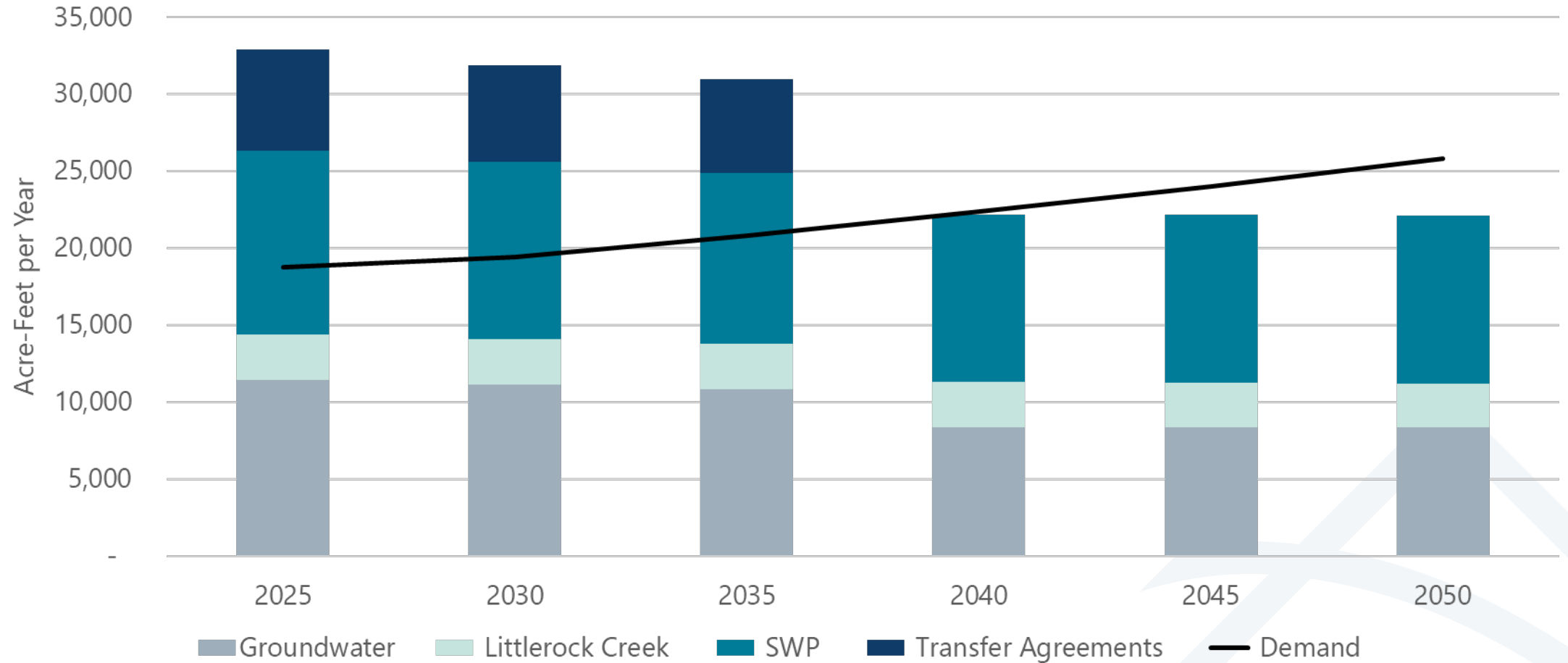
Shortage Frequency and Depth

	2025	2030	2035	2040	2045	2050
Shortage probability	59%	65%	81%	98%	100%	100%
Average annual shortage (AF)	788	952	1,163	2,815	4,136	5,924
Average annual shortage (% of demand)	4%	5%	6%	13%	17%	23%
Maximum annual shortage (AF)	4,266	5,273	6,885	8,840	10,931	13,990
Max annual shortage (% of demand)	23%	27%	33%	39%	45%	55%

Projected Water Demands



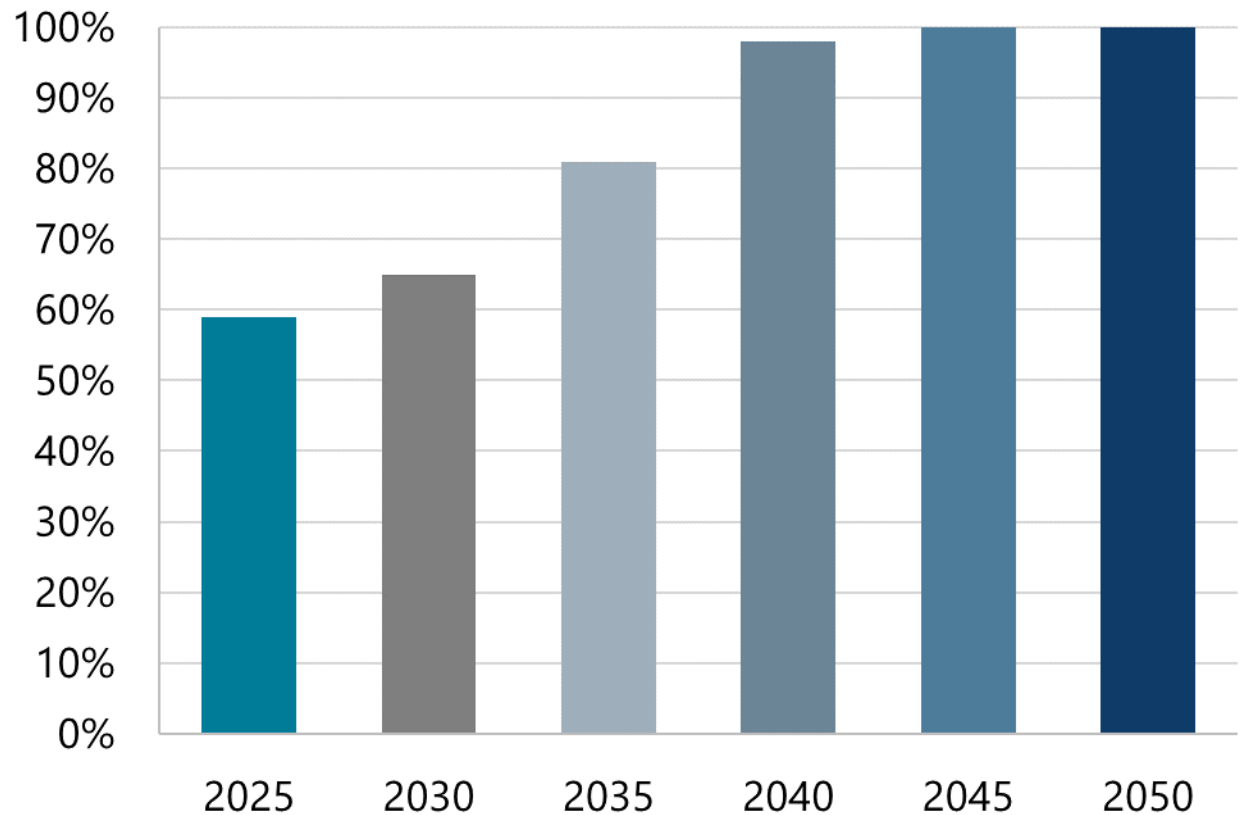
Projected Water Supplies



Supply Gaps: Key Takeaways

- ▶ Shortages anticipated every year starting 2045
- ▶ Annual shortages may range between 3% and 23% of total demand
- ▶ Maximum shortages may range between 17% and 55% of demand

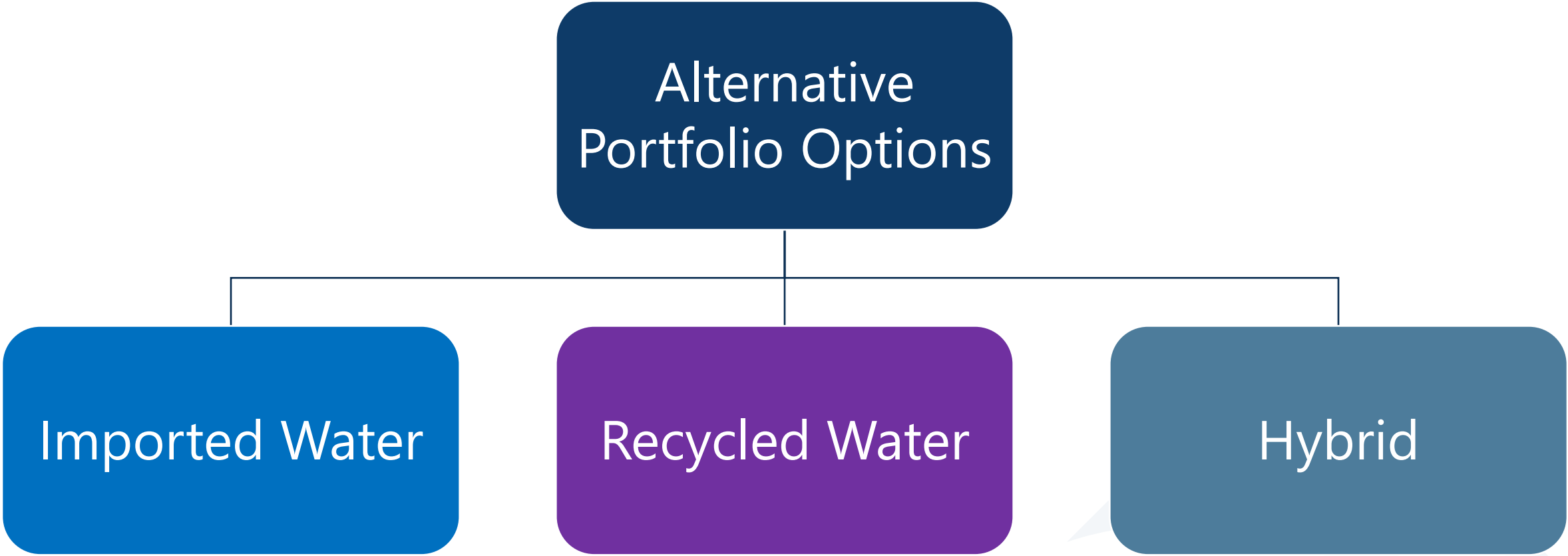
Projected Shortage Frequency



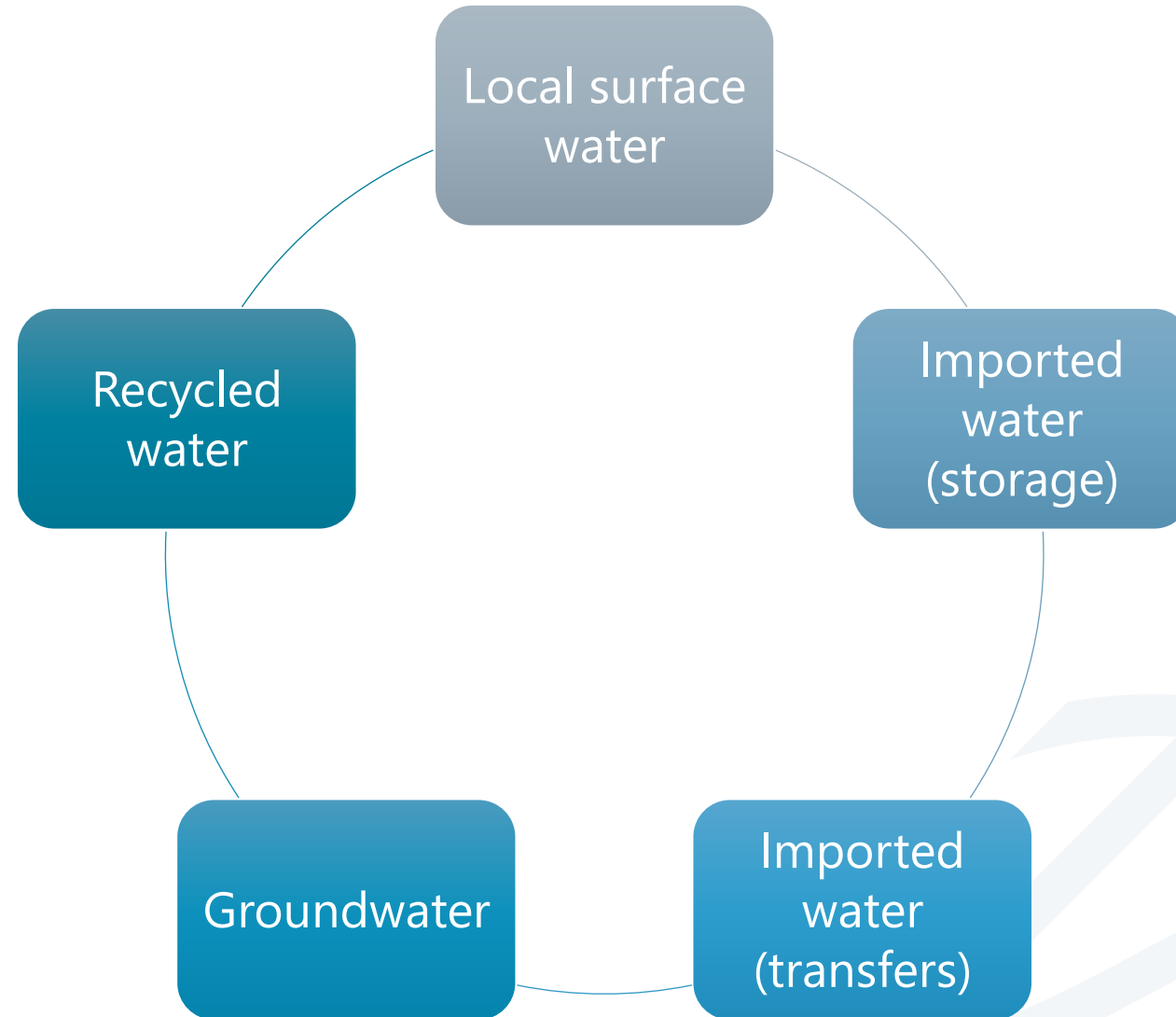
Water Supply Options

October 2022

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Water Supply Options



Summary of Revised Evaluation Criteria

**Drought
Reliability –
Frequency**

**Drought
Reliability – Depth**

**Emergency
Imported Water
Outage Reliability**

Cost Efficiency

Water Quality

Sustainability

Funding Potential

Implementability

**Institutional
Independence**

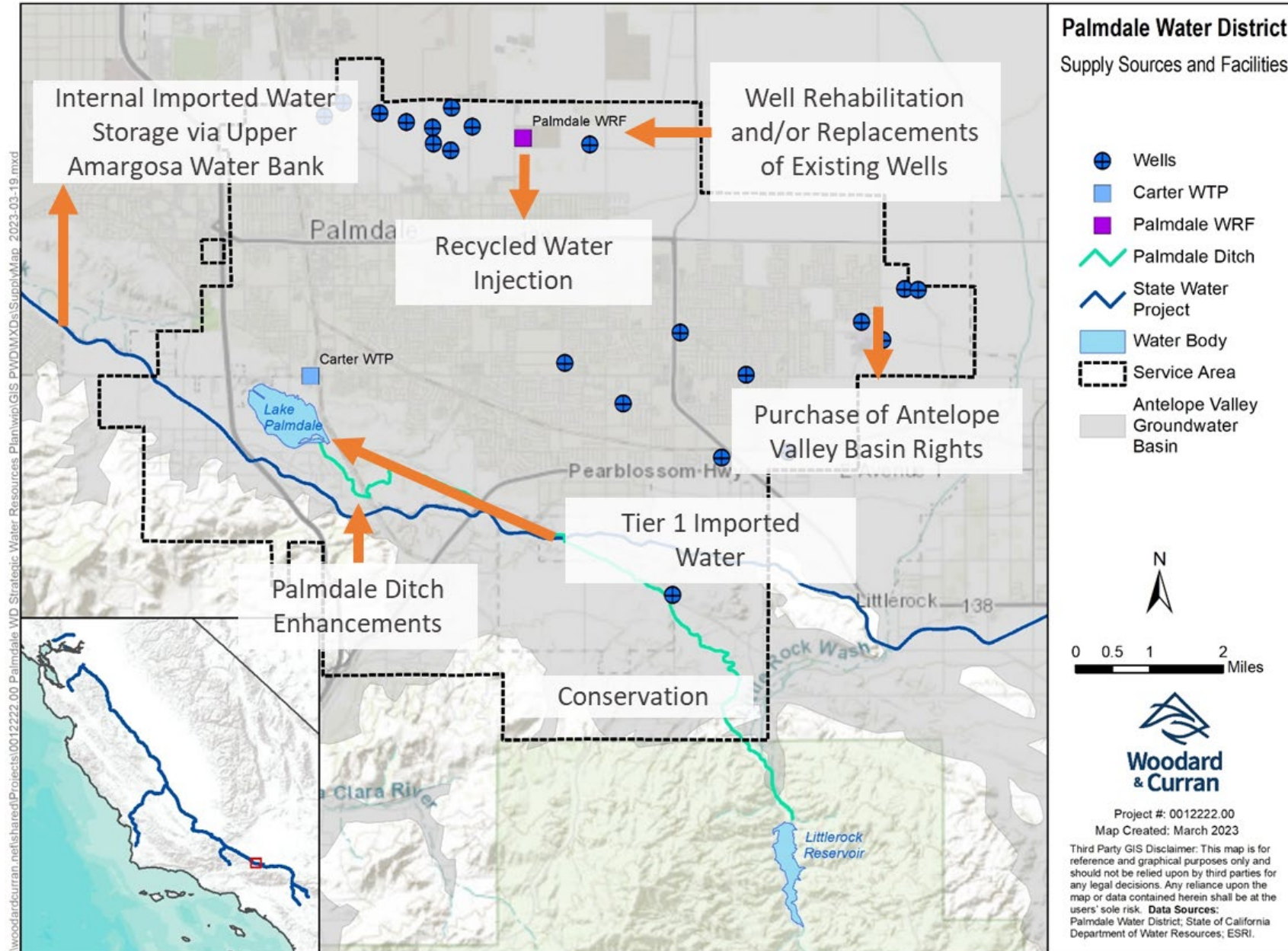
Preferred Alternative Portfolio – Alternative 11

► Includes:

- Purchase of Antelope Valley Basin Rights – 1,000 AF
- Well rehabilitations and replacement of existing wells
- Palmdale Ditch Enhancements – 1,500 AF
- Indirect Potable Reuse: Recycled Water Injection – 4,500 AF
- Conservation – variable
- Imported Water Storage via Upper Amargosa Water Bank
- Imported water, Tier 1 (Article 21 water) – 740 AF

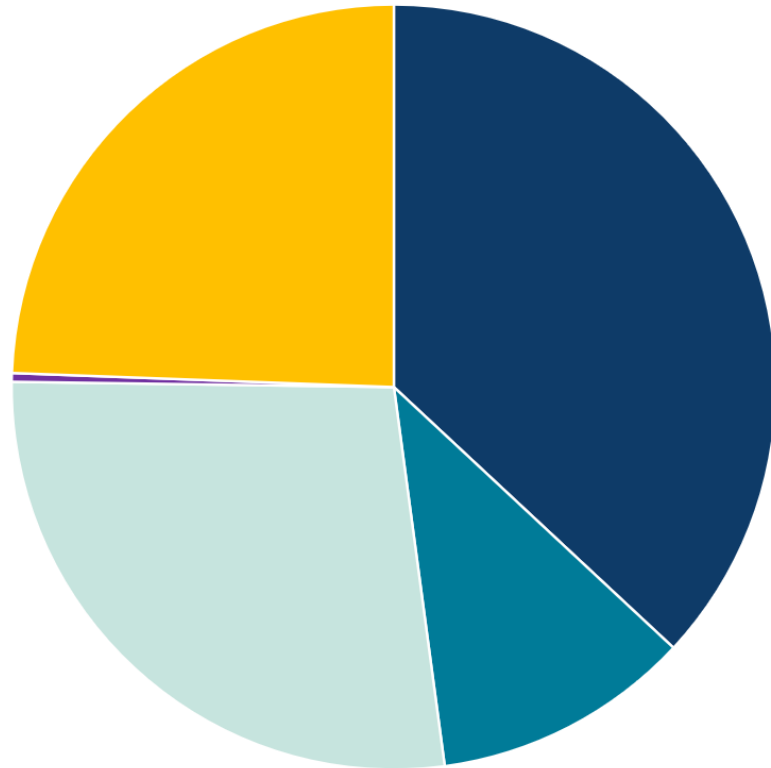
Capital Cost (\$)	Water Purchase Cost (\$)	O&M Cost of New Projects (\$/year)	Unit Cost (\$/AF)
\$320.5M	\$10M	\$7.7M	\$3,400

Preferred Alternative Portfolio – Alternative 11

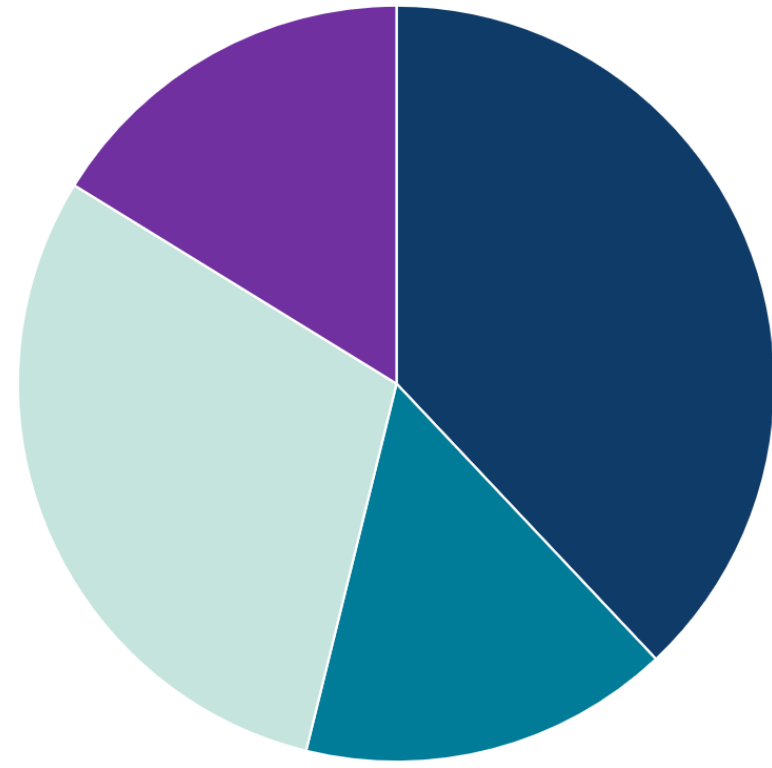


Preferred Alternative Portfolio – Alternative 11

Projected Baseline Water Supply (2050)



Projected Alt 11 Water Supply (2050)



■ Imported Water ■ Local Surface Water ■ Groundwater ■ Recycled Water ■ Unmet Demand

Preferred Alternative Portfolio – Alternative 11

Projected Water Supply Shortage Frequency and Depth of Unmet Demand – 2050

	Baseline	Alternative 11
Shortage Probability	100%	3%
Average Annual Shortage (AF)	6,700	5
Average Annual Shortage (% of demand)	28%	0%
Maximum Annual Shortage (AF)	10,416	77
Maximum Annual Shortage (% of demand)	40%	0.3%

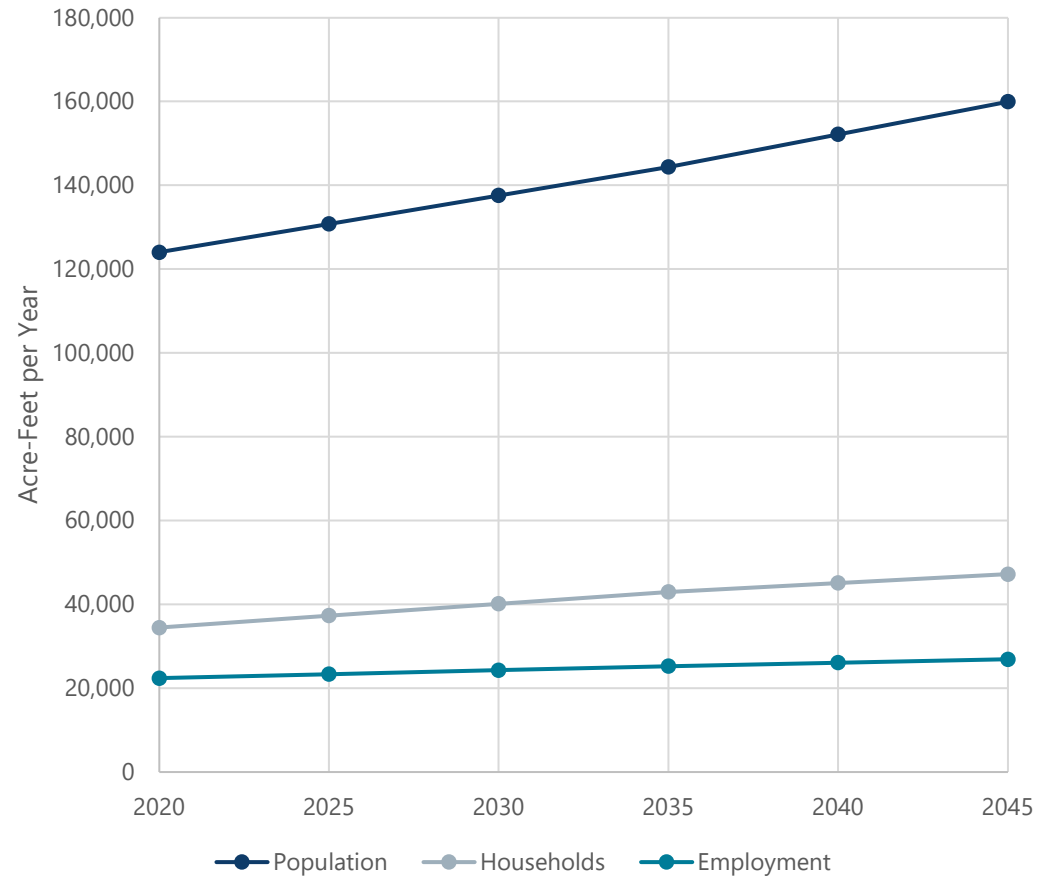


Plan Document

Plan Contents

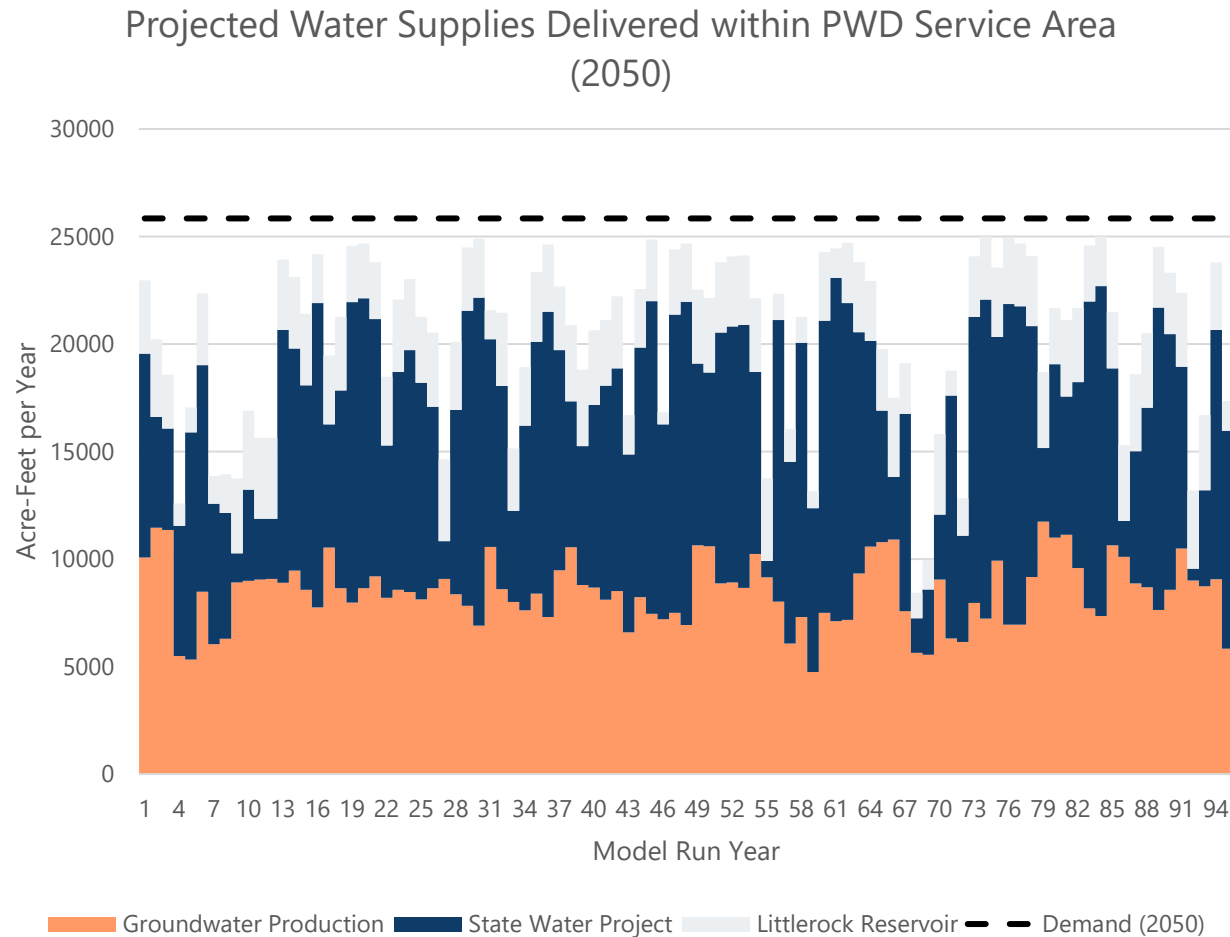
- ▶ Executive Summary
- ▶ Introduction
- ▶ Demand Forecast
- ▶ Baseline Supply Forecast
- ▶ Options Development and Descriptions
- ▶ Alternative Descriptions and Evaluation
- ▶ Implementation
- ▶ Financing Plan
- ▶ References

Demand Forecast



- ▶ Historic Trends
- ▶ Service Area Growth
- ▶ Demand Forecast Methodology
- ▶ Demand Forecast

Baseline Supply Forecast



- ▶ Supply Overview
 - Imported Water
 - Groundwater
 - Local Surface Water
 - Recycled Water
 - Baseline Supply Projections
- ▶ Baseline Supply and Demand Comparison
 - Analysis Methodology
 - Baseline Supply vs. Demand Results

Options Development and Descriptions

Options Development

Options Descriptions

Imported Water Options

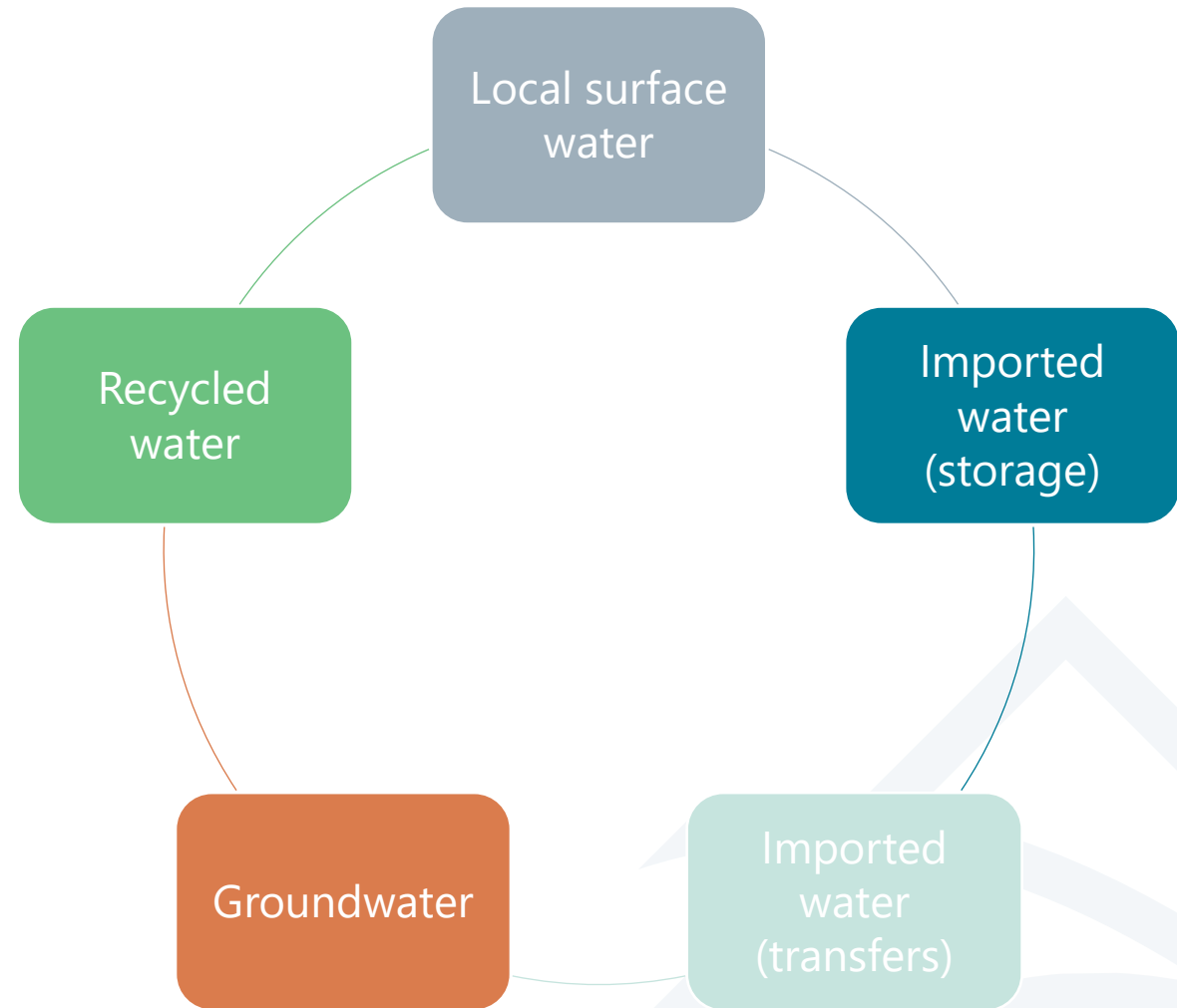
Local Groundwater Options

Local Surface Water Options

Recharge/Banking Options

Recycled Water Options

Demand Management Options



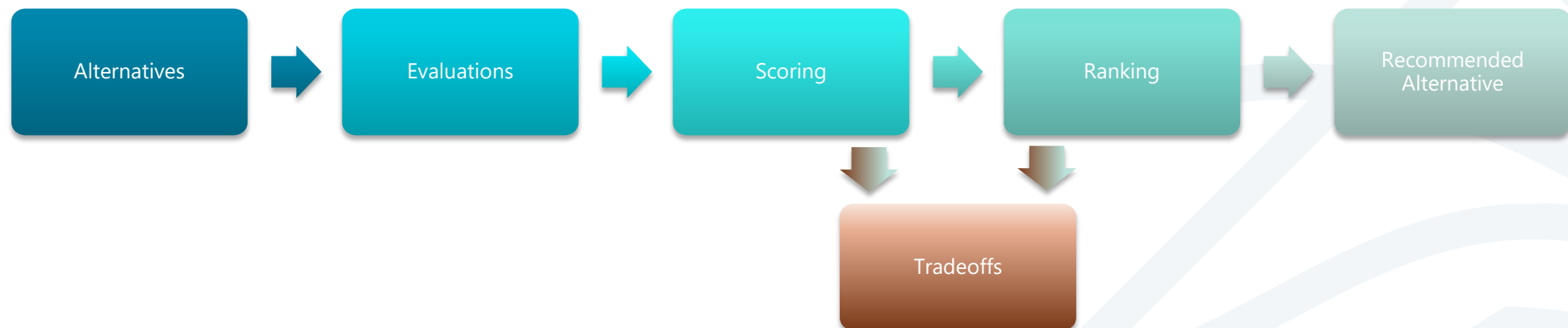
Alternative Descriptions and Evaluation

▶ Alternatives Development

- Alternative 1 – Imported Water
- Alternative 2 – Imported Water
- Alternative 3 – Recycled Water (Groundwater Injection)
- Alternative 4 – Recycled Water (Surface Water Augmentation)
- Alternative 5 – Hybrid Imported Water/Recycled Water (External Banking and Recycled Water Injection)
- Alternative 6 – Hybrid Imported Water/Recycled Water (Internal Banking and Surface Water Augmentation)
- Alternative 7 – Hybrid Surface Water/Recycled Water
- Alternative 8 – Hybrid Groundwater/Recycled Water
- Alternative 9 – Hybrid Imported Water/Recycled Water
- Alternative 10 – Recycled Water Injection and Surface Water Augmentation
- Alternative 11 – Hybrid Groundwater/Recycled Water/Surface Water

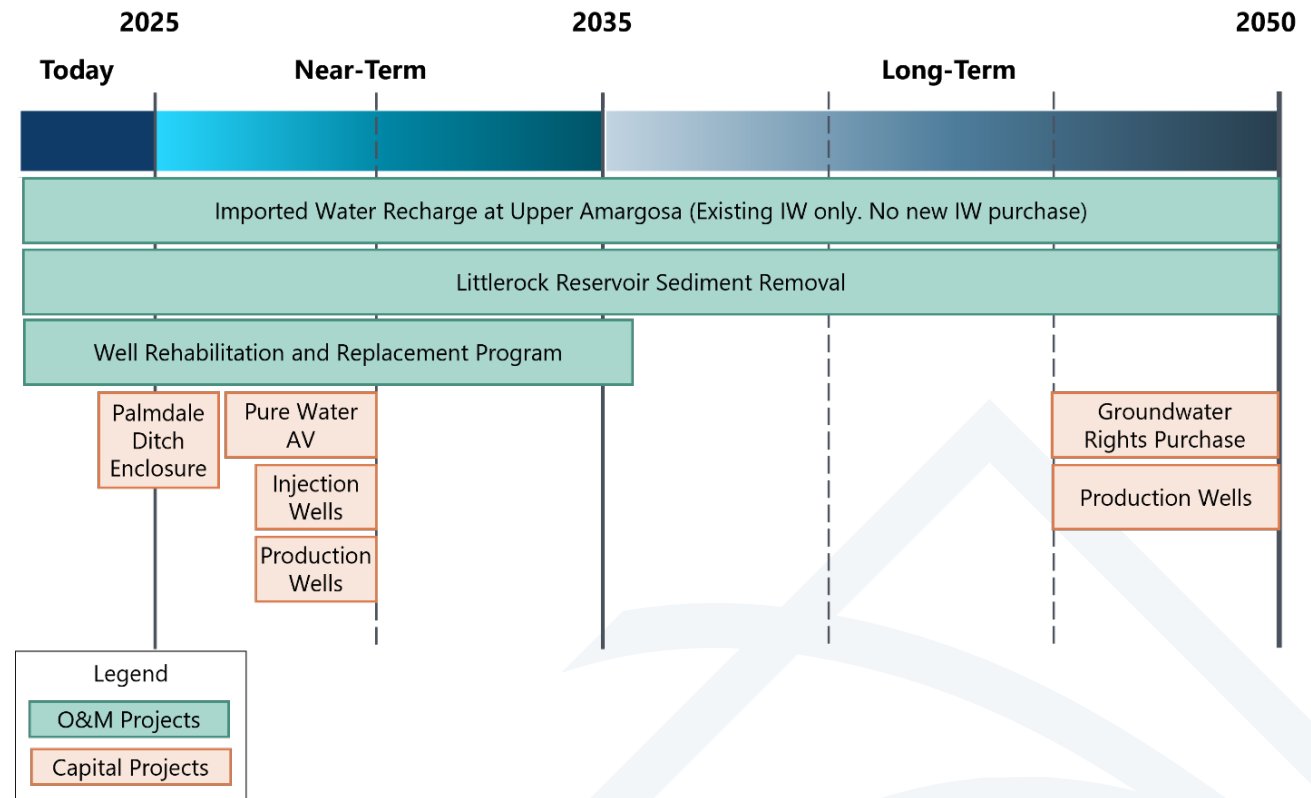
Alternative Descriptions and Evaluation

- ▶ Summary of Water Supply Shortages and Unmet Demands
 - Alternatives Evaluation
 - Evaluation Criteria
 - Alternative Evaluation
 - Alternative Summary Scores
 - Alternative Ranking Results and Selection of Preferred Alternative
 - Analysis of Preferred Alternative with Delta Conveyance Project



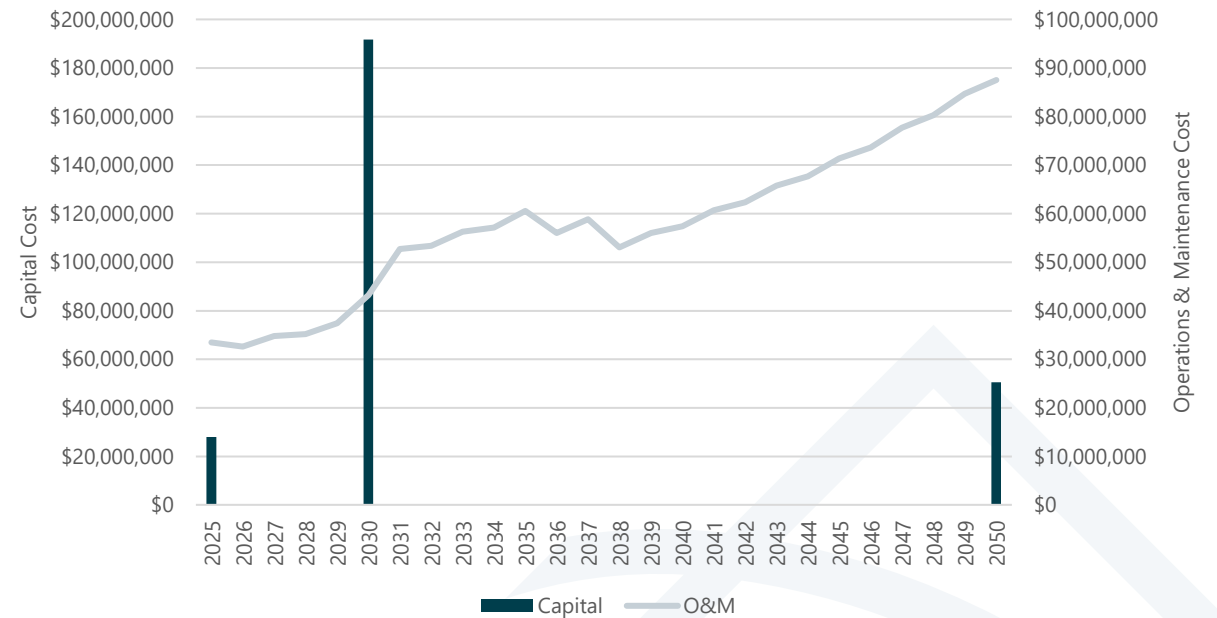
Implementation

- ▶ Preferred Alternative Summary
 - Implementation Plan
 - Imported Water
 - Groundwater
 - Recycled Water
 - Littlerock Reservoir
 - Conservation
- ▶ Implementation Schedule
- ▶ Projected Costs
- ▶ Adaptive Management



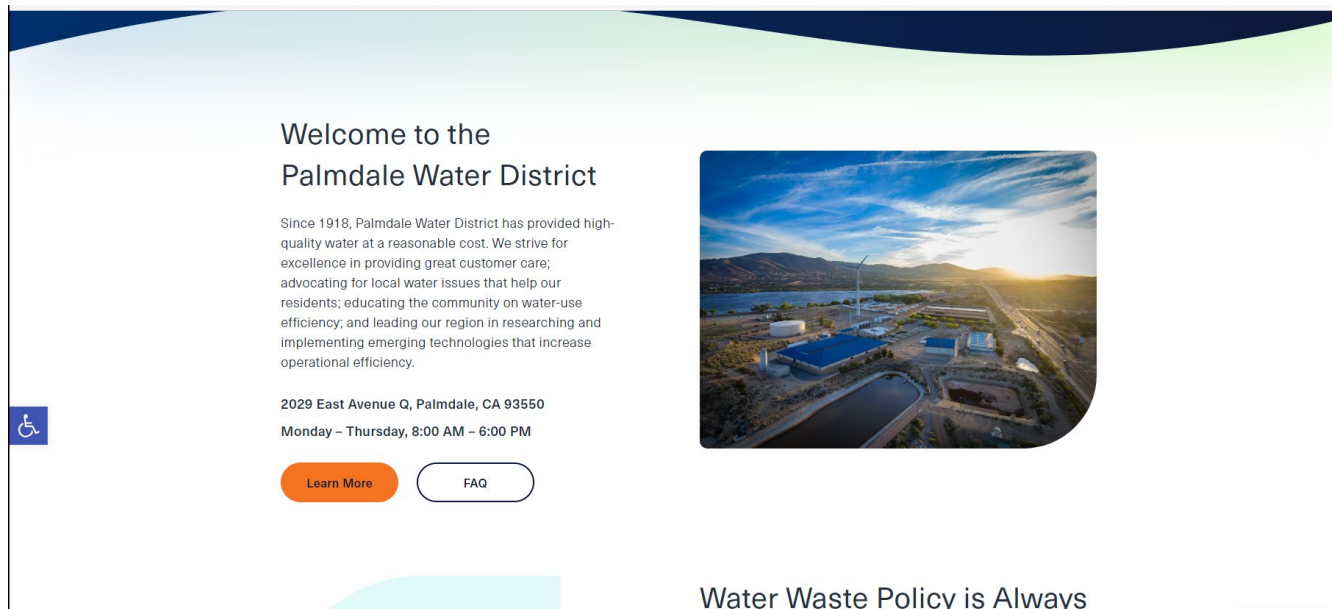
Financing Plan

- ▶ SWRP Financing Principles
- ▶ Financing Options
- ▶ Projected Cash Flow Requirements
- ▶ Financing Strategies
 - Water Supply Connection Fee
 - Water Rates
- ▶ Financing Plan Summary



How to Review/Comment on the Plan

- ▶ The Plan will be available on palmdalewater.org by the end of July
 - We will email this group of attendees when it is available
- ▶ Written comments can be submitted to mvallarta@woodardcurran.com
 - Please use "Palmdale WD SWRP" in the subject line



Welcome to the
Palmdale Water District

Since 1918, Palmdale Water District has provided high-quality water at a reasonable cost. We strive for excellence in providing great customer care; advocating for local water issues that help our residents; educating the community on water-use efficiency; and leading our region in researching and implementing emerging technologies that increase operational efficiency.

2029 East Avenue Q, Palmdale, CA 93550
Monday – Thursday, 8:00 AM – 6:00 PM

[Learn More](#) [FAQ](#)

Water Waste Policy is Always

The screenshot shows a website header with a dark blue and light green gradient. On the left, there is a blue square with a white accessibility icon. The main content area contains the title 'Welcome to the Palmdale Water District', a paragraph of text, contact information, and two buttons: 'Learn More' (orange) and 'FAQ' (white with a blue border). To the right of the text is a rounded rectangular image of a water treatment facility. At the bottom of the screenshot, the text 'Water Waste Policy is Always' is visible.



Additional Discussion

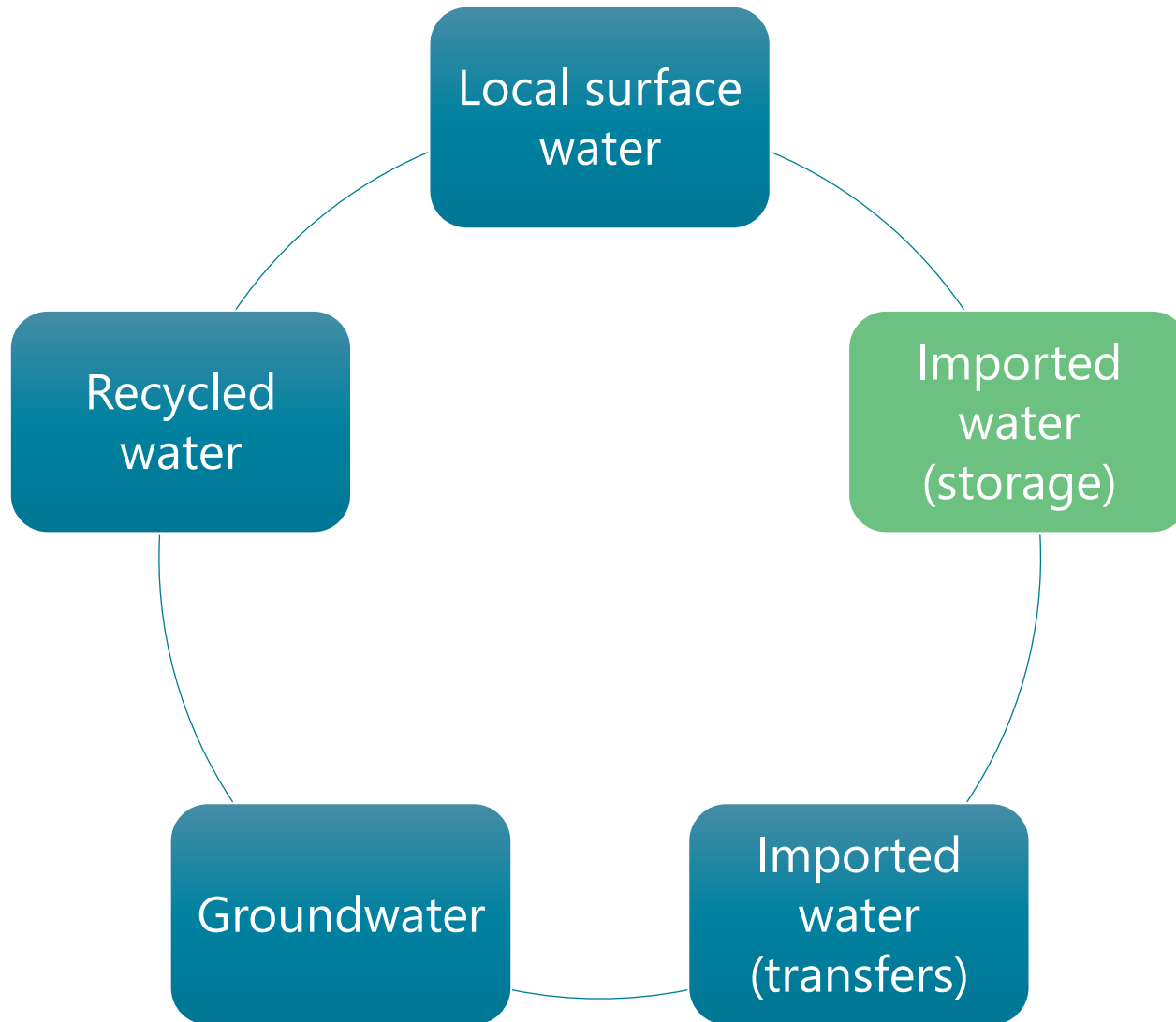
Thank you!



Woodard
& Curran

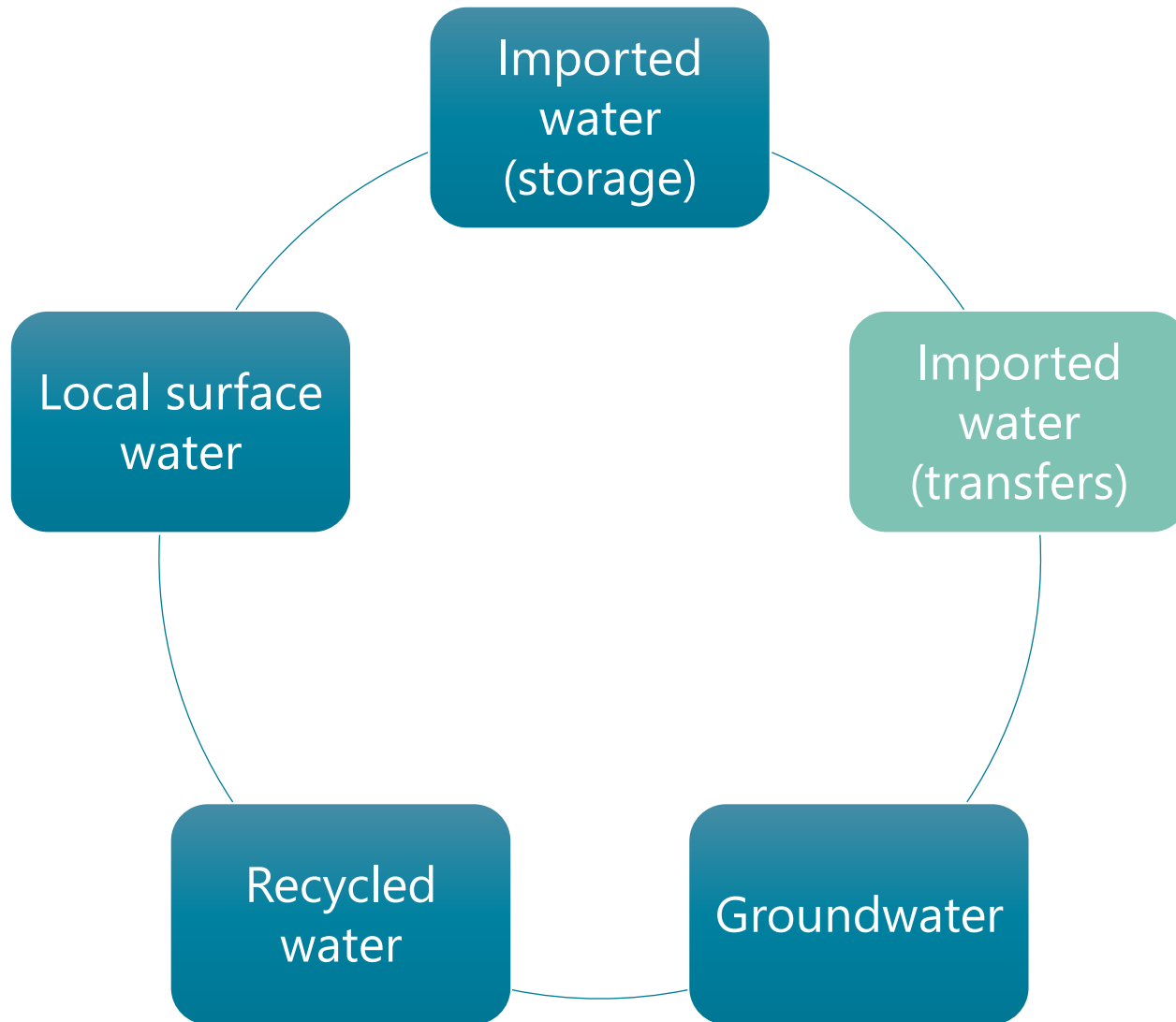


Water Supply Options



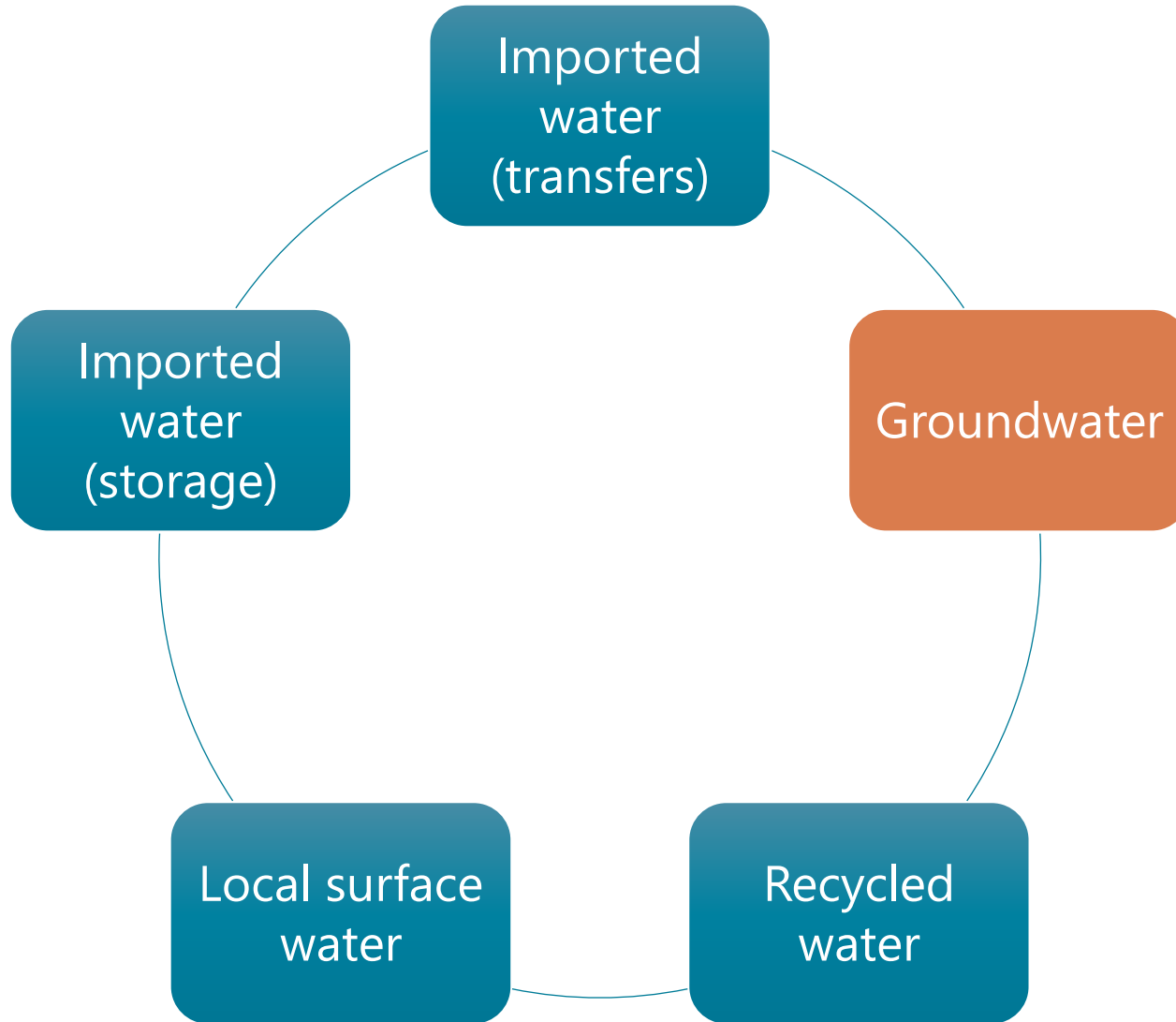
- SWP storage north of Delta
- SWP storage in San Joaquin Valley
- SWP storage in Antelope Valley
- SWP storage south of PWD
- Recharge imported water in Big Rock Creek area

Water Supply Options



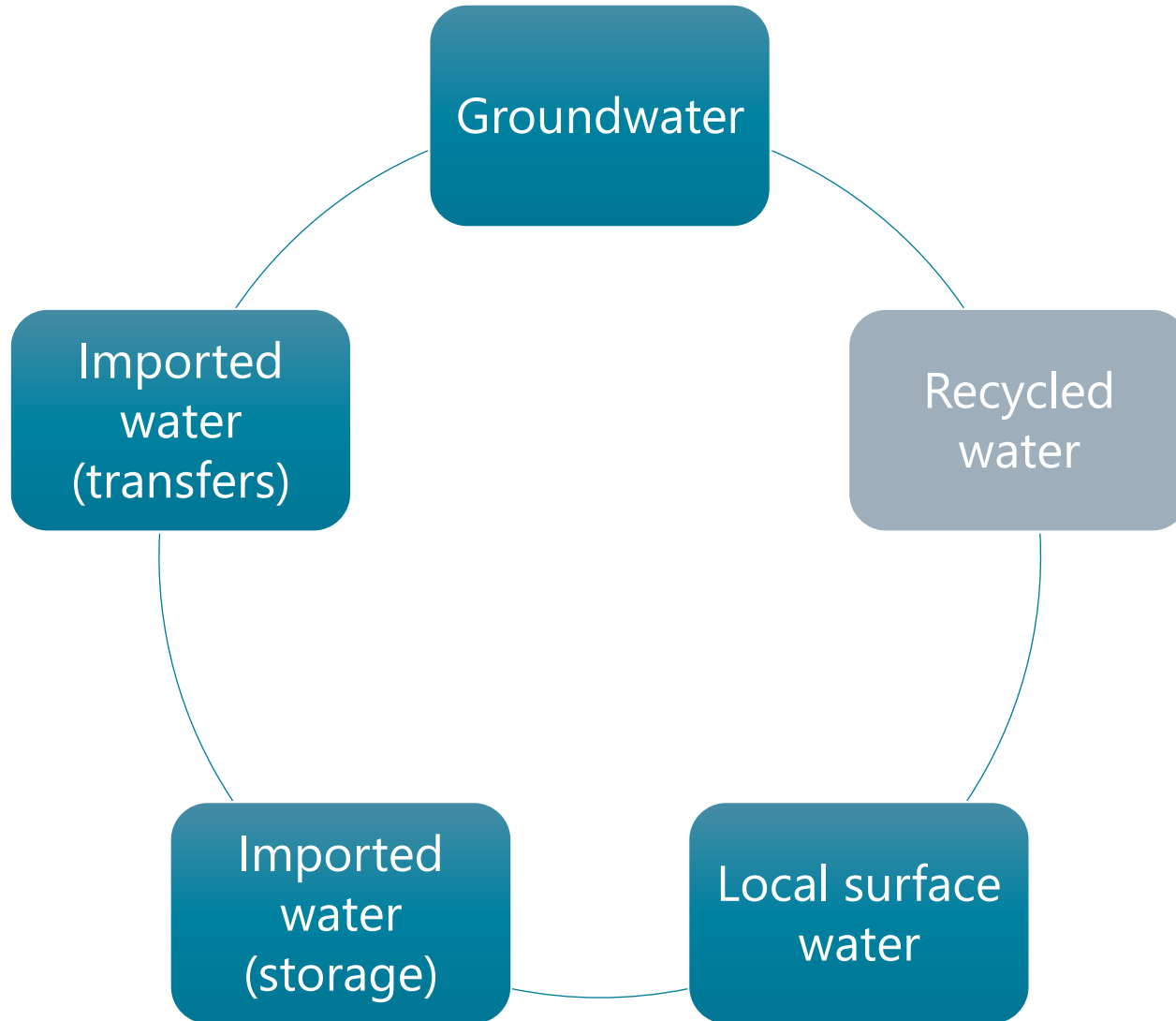
- SWP transfers with UWCD
- Renegotiate with Butte County for Table A SWP Water
- Excess wet year water (Article 21)
- SWP Wet-Year (1 Year)
- SWP Long-Term Lease
- Permanent Transfer SWP/CVP Water
- Table A SWP Water
- CVP Water
- Non-SWP Water PRE-14
- Seawater desalination

Water Supply Options



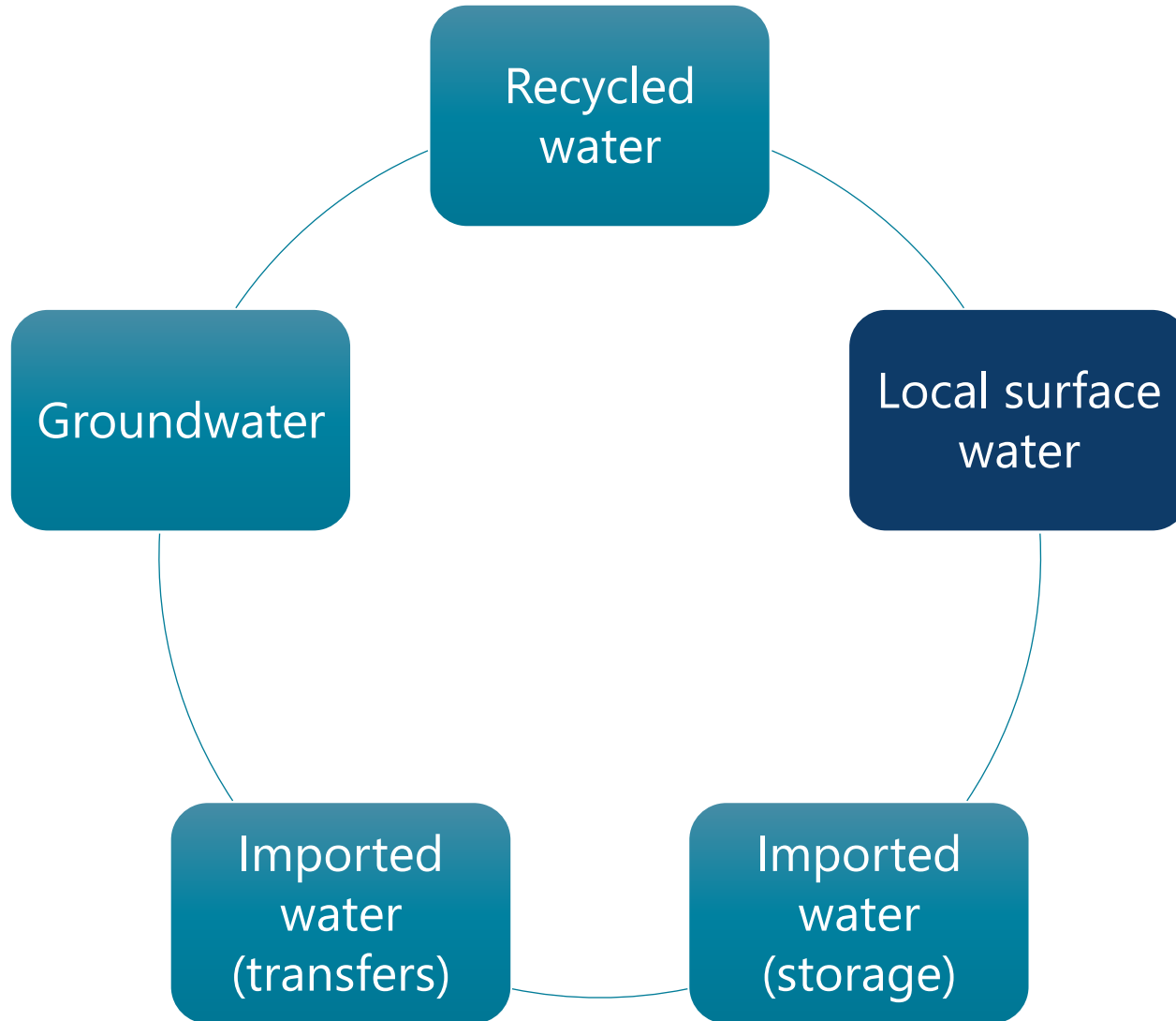
- Well replacements

Water Supply Options



- Partner with LACSD to develop recycled water
- PWRP deliveries for nonpotable use
- PWRP recharge in Palmdale Lake
- PWRP recharge in groundwater

Water Supply Options



- Sediment removal at Littlerock Creek Dam
- Pipe water from Littlerock Dam to Lake Palmdale