



PALMDALE WATER DISTRICT

A CENTURY OF SERVICE

April 27, 2023

BOARD OF DIRECTORS

W. SCOTT KELLERMAN
Division 1

DON WILSON
Division 2

GLORIA DIZMANG
Division 3

KATHY MAC LAREN-GOMEZ
Division 4

VINCENT DINO
Division 5

AGENDA FOR A STRATEGIC WATER RESOURCES PLAN SPECIAL MEETING WORKSHOP OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT TO BE HELD AT 2029 EAST AVENUE Q, PALMDALE

WEDNESDAY, MAY 3, 2023

9:00 a.m.

NOTE: To comply with the Americans with Disabilities Act, to participate in any Board meeting please contact Danielle Henry at 661-947-4111 x1059 at least 48 hours prior to a Board meeting to inform us of your needs and to determine if accommodation is feasible.

Agenda item materials, as well as materials related to agenda items submitted after distribution of the agenda packets, are available for public review at the District’s office located at 2029 East Avenue Q, Palmdale. Please call Danielle Henry at 661-947-4111 x1059 for public review of materials.

PUBLIC COMMENT GUIDELINES: The prescribed time limit per speaker is three-minutes. Please refrain from public displays or outbursts such as unsolicited applause, comments, or cheering. Any disruptive activities that substantially interfere with the ability of the District to conduct its meeting will not be permitted and offenders will be requested to leave the meeting. (PWD Rules and Regulations, Appendix DD, Sec. IV.A.)

Each item on the agenda shall be deemed to include any appropriate motion, resolution, or ordinance to take action on any item.

- 1) Pledge of Allegiance.
- 2) Roll Call.
- 3) Adoption of Agenda.
- 4) Action Items – Action Calendar (The public shall have an opportunity to comment on any action item as each item is considered by the Board of Directors prior to action being taken.)
 - 4.1) Workshop, Discussion, and Possible Action on Evaluation Results and Proposed Projects for the Palmdale Water District’s 2022 Strategic Plan. (Assistant General Manager Ly/Woodard & Curran)
- 5) Information Items:
 - 5.1) General Meetings Reports of Directors.
- 6) Adjournment.

DENNIS D. LaMOREAUX,
General Manager
DDL/dh

DENNIS D. LaMOREAUX
General Manager

ALESHIRE & WYNDER LLP
Attorneys



P A L M D A L E W A T E R D I S T R I C T
B O A R D M E M O R A N D U M

DATE: April 25, 2023 **May 3, 2023**
TO: BOARD OF DIRECTORS **Board Workshop**
FROM: Adam Ly, Assistant General Manager
VIA: Mr. Dennis D. LaMoreaux, General Manager
RE: ***AGENDA ITEM NO. 4.1 – WORKSHOP, DISCUSSION AND POSSIBLE ACTION ON EVALUATION RESULTS AND PROPOSED PROJECTS FOR THE STRATEGIC WATER RESOURCES PLAN. (ASSISTANT GENERAL MANAGER LY/WOODARD & CURRAN)***

Recommendation:

Staff recommends the Board review and discuss the evaluation results and proposed project criteria for the Strategic Water Resources Plan.

Alternative Options:

There are no alternative options.

Impact of Taking No Action:

The Strategic Water Resources Plan will be delayed.

Background:

The Board approved a contract with Woodard & Curran (consultant) on May 23, 2022, to update the Strategic Water Resources Plan. Staff and our consultant provided an update of water demands and supplies to the Resources & Facilities Committee on October 13, 2022. Woodard & Curran presented the evaluation criteria to the Board on February 13, 2023. The Strategic Water Resources Plan report is being prepared and our consultant will start the California Environmental Quality Act process once the report is near completion. Staff would like the Board to review and discuss the evaluation results and proposed projects and provide suggested feedback.

Strategic Plan Initiative/Mission Statement:

This item is covered under all six Strategic Initiatives.

This item directly relates to the District's Mission Statement.

Budget:

There is no budget impact.



Palmdale Water District Strategic Water Resources Plan

Stakeholder Meeting #3

May 3, 2023



Meeting Agenda



Provide SWRP overview and schedule



Present alternative portfolio option evaluation results



Discuss selection of preferred alternative portfolio



Review next steps: virtual public workshop & Board meeting



Meeting Objectives



Review alternative portfolio option evaluation results



Solicit input on preferred alternative portfolio

SWRP Overview and Schedule

October 2022

4

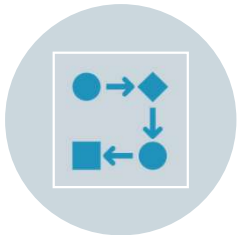
SWRP Overview



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 (10/13/2022)



2. Evaluation Criteria and Alternative Portfolios (2/23/2023)



3. Alternatives Evaluation and Selection (5/2/2023)

SWRP Completed Work

Demand Analysis and Forecast



Baseline Supply Analysis and Forecast



Supply Gaps



Supply and Demand Management Options and Alternatives

Alternative Portfolio Option Results

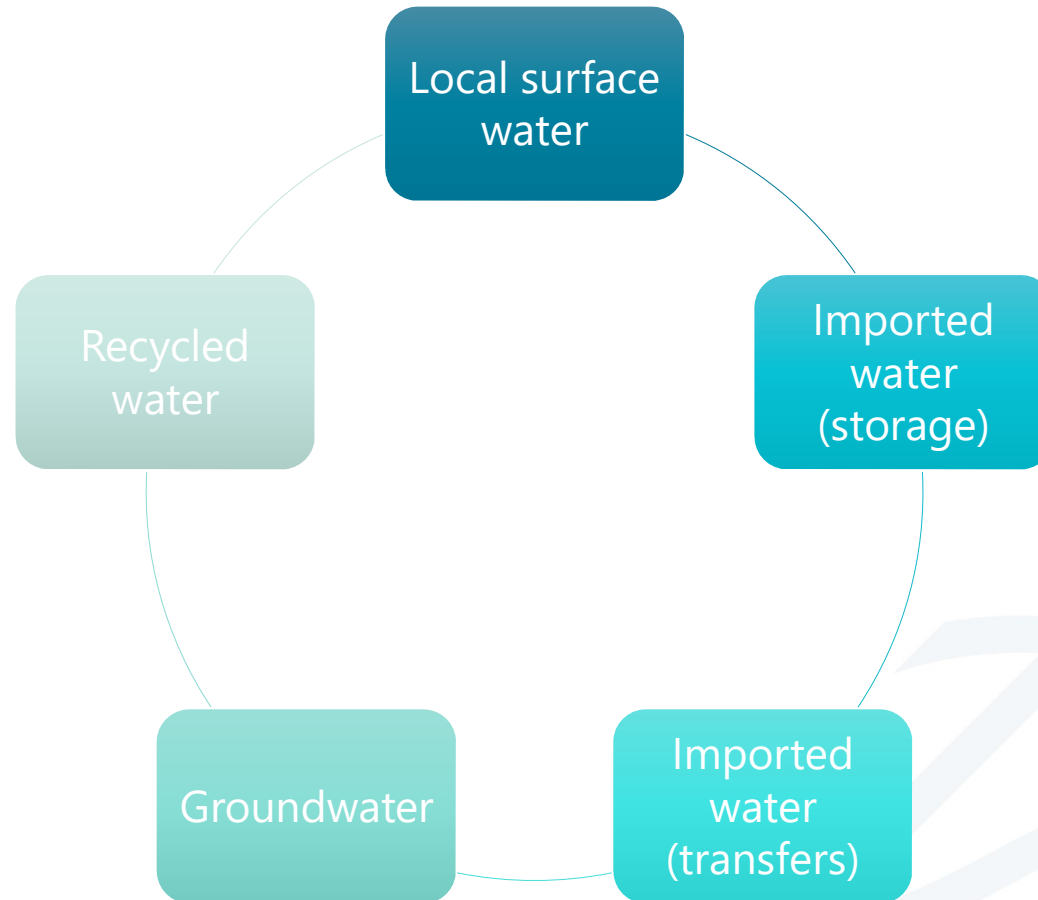
Alternative
Portfolio Options

Imported Water

Recycled Water

Hybrid

Water Supply Options

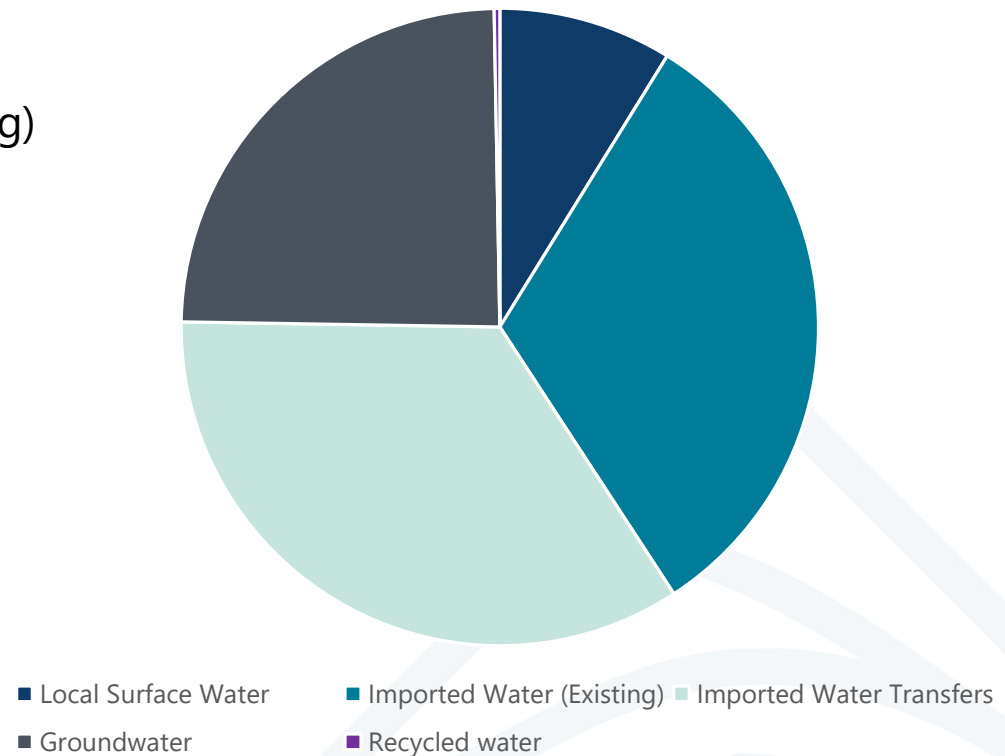


Imported Water Portfolio Options

► Includes:

- Imported water banking (existing and new)
- Imported water tiers
- Well rehabilitations and replacement (existing)
- Conservation (varies)

Projected Water Supply

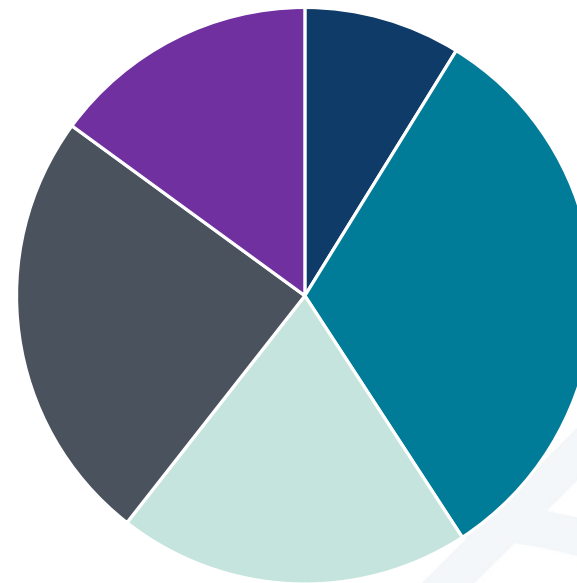


Recycled Water Portfolio Options

► Includes:

- Imported water banking (existing and new)
- Imported water tiers
- Well rehabilitations and replacement (existing)
- Recycled water
- Conservation (varies)

Projected Water Supply



- Local Surface Water
- Groundwater
- Imported Water (Existing)
- Recycled water
- Imported Water Transfers

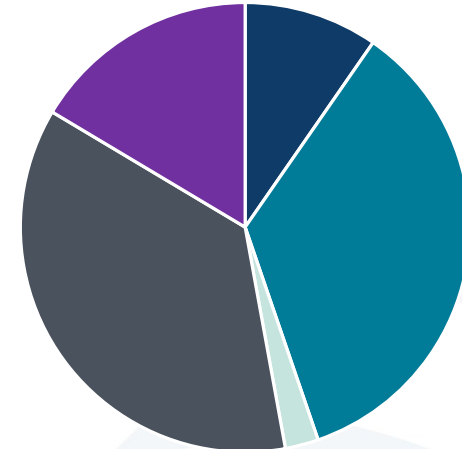
Hybrid Portfolio Options

Projected Water Supply – Imported and Recycled Water Hybrid



- Local Surface Water
- Imported Water (Existing)
- Imported Water Transfers
- Groundwater
- Recycled water

Projected Water Supply – Local Source and Recycled Water Hybrid



- Local Surface Water
- Imported Water (Existing)
- Imported Water Transfers
- Groundwater
- Recycled water

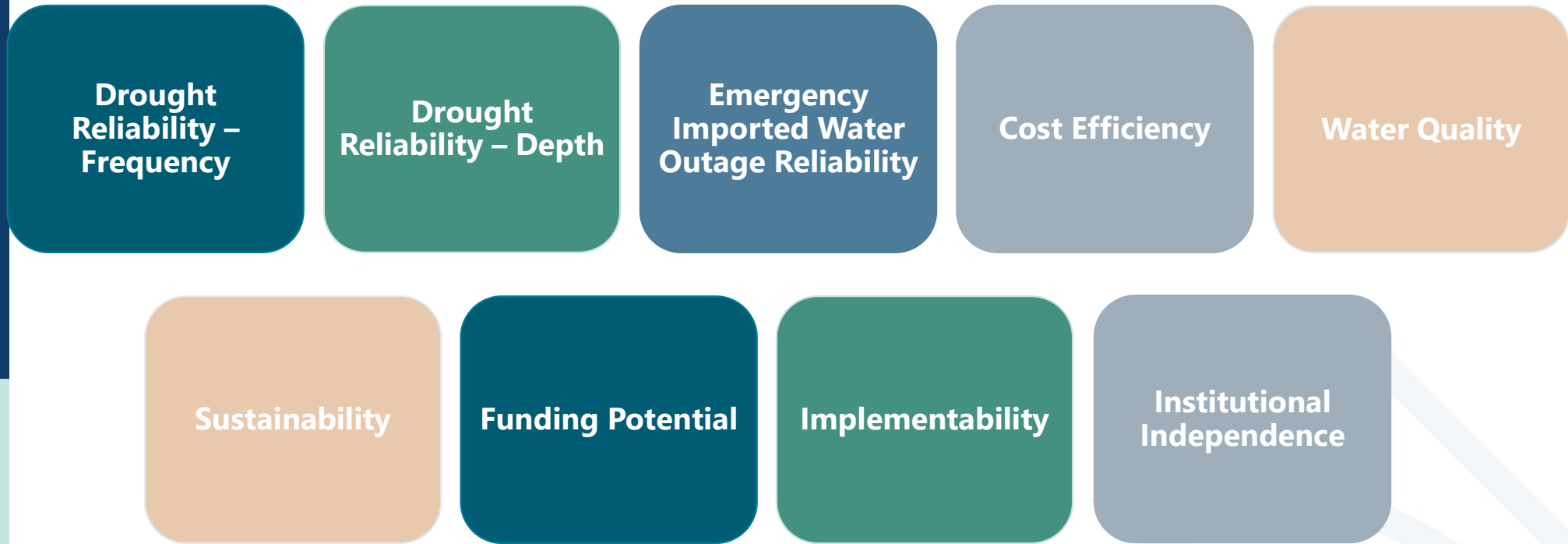
Summary of Alternative Portfolios

Newly Developed

Options	1 IW: Internal Bank	2 IW: External Bank	3 RW Supply: GW Injection	4 RW Supply: Lake Augmentation	5 Hybrid: RW Injection + IW External Bank	6 Hybrid IW/RW: RW Lake Augmentation + IW Internal Bank	7 Hybrid SW/RW: SW Enhancement + RW Injection	8 Hybrid GW/RW: GW Rights + RW Injection	9 Hybrid IW/RW: Alternatives 1+3	10 Hybrid RW: Alternatives 3+4	11 Hybrid GW/RW/SW: Alternative 8+Ditch Enhancements
1. Imported Water, Tier 1											
2. Imported Water, Tier 2											
3. Imported Water, Tier 3			--	--	--	--	--	--	--	--	--
4. Purchase of Antelope Valley Basin Rights											
5. Well Rehabilitation and/or Replacements of Existing Wells											
6. Palmdale Ditch Enhancements											
7. Sediment Removal at Littlerock Reservoir											
8. External Imported Water Storage											
9. Internal Imported Water Storage											
10. Internal Imported Water Storage via Upper Amargosa Water Bank											
11. Nonpotable Reuse	--	--	--	--	--	--	--	--	--	--	--
12. Direct Potable Reuse	--	--	--	--	--	--	--	--	--	--	--
13. Indirect Potable Reuse – Recycled Water Augmentation at Palmdale Lake											
14. Indirect Potable Reuse – Recycled Water Injection											
15. Conservation											

GW: groundwater | IW: imported water | SW: surface water | RW: recycled water

Summary of Revised Evaluation Criteria



Summary of Revised Evaluation Criteria

Drought Reliability – Frequency

Likelihood of experiencing of shortage of 20% or more in 2050

Drought Reliability – Depth

Average depth of shortage in 2050

Emergency Imported Water Outage Reliability

Shortage depth during a 12-month SWP outage

Cost Efficiency

Present value unit cost, including capital, O&M, and water purchase cost, for new supplies and facilities

Water Quality

Loading of TDS applied to the Basin

Summary of Revised Evaluation Criteria

Sustainability

Stewardship of facilities, groundwater basins and/or reservoirs

Funding Potential

Likelihood of future funding program availability

Implementability

Ease of completing environmental documentation and permitting compliance

Phasing potential/adaptability

Institutional Independence

Institutional independence (i.e., PWD control)

Alternative Portfolio Evaluation Results

Criteria	1 IW: Internal Bank	2 IW: External Bank	3 RW Supply: GW Injection	4 RW Supply: Lake Augmentation	5 Hybrid: RW Injection + IW External Bank	6 Hybrid IW/RW: RW Lake Augmentation + IW Internal Bank	7 Hybrid SW/RW: SW Enhancement + RW Injection	8 Hybrid GW/RW: GW Rights + RW Injection	9 Hybrid IW/RW: Alternatives 1+3	10 Hybrid RW: Alternatives 3+4	11 Hybrid GW/RW/SW: Alternative 8 + Ditch Enhancements
Drought Reliability – Frequency	●	●	●	●	●	●	●	●	●	●	●
Drought Reliability – Depth	●	●	●	●	●	●	●	●	●	●	●
Emergency Imported Water Outage Reliability	●	●	●	●	●	●	●	●	●	●	●
Cost Efficiency	●	●	●	●	●	●	●	●	●	●	●
Water Quality	●	●	●	●	●	●	●	●	●	●	●
Institutional Independence	●	●	●	●	●	●	●	●	●	●	●
Sustainability	●	●	●	●	●	●	●	●	●	●	●
Funding potential	●	●	●	●	●	●	●	●	●	●	●
Implementability	●	●	●	●	●	●	●	●	●	●	●

● = High score

● = Medium score

● = Low score

GW: groundwater | IW: imported water | SW: surface water | RW: recycled water

Alternative Portfolio Evaluation Results

Criteria	1 IW: Internal Bank	2 IW: External Bank	3 RW Supply: GW Injection	4 RW Supply: Lake Augmentation	5 Hybrid: RW Injection + IW External Bank	6 Hybrid IW/RW: R Lake Augmentati + IW Intern Bank	7	8	9	10	11 Hybrid GW/RW/SW: Alternative 8 + Ditch Enhancements
Drought Reliability – Frequency	●	●	●	●	●	●	●	●	●	●	●
Drought Reliability – Depth	●	●	●	●	●	●	●	●	●	●	●
Emergency Imported Water Outage Reliability	●	●	●	●	●	●	●	●	●	●	●
Cost Efficiency	●	●	●	●	●	●	●	●	●	●	●
Water Quality	●	●	●	●	●	●	●	●	●	●	●
Institutional Independence	●	●	●	●	●	●	●	●	●	●	●
Sustainability	●	●	●	●	●	●	●	●	●	●	●
Funding potential	●	●	●	●	●	●	●	●	●	●	●
Implementability	●	●	●	●	●	●	●	●	●	●	●

Alternative 11 scores equal or better than other alternatives in all categories

● = High score ● = Medium score ● = Low score

GW: groundwater | IW: imported water | SW: surface water | RW: recycled water

Alternative Portfolio Costs

Alternative	Capital Cost (\$)	Water Purchase Cost (\$)	O&M Cost of New Projects (\$/year)	Unit Cost (\$/AF)
Alt 1 IW Internal Bank	\$166.3M	\$242M	\$5.4M	\$3,200
Alt 2 IW External Bank	\$166.3M	\$242M	\$5.4M	\$3,200
Alt 3 RW Injection	\$251.9M	-	\$6.7M	\$2,800
Alt 4 RW Lake Augmentation	\$198.0M	-	\$8.2M	\$2,600
Alt 5 Hybrid RW Injection/External Bank	\$339.9M	-	\$7.0M	\$3,500
Alt 6 Hybrid RW Lake Augmentation/Internal Bank	\$286.0M	-	\$8.5M	\$3,300
Alt 7 Hybrid Local Surface/RW Injection	\$322.0M	-	\$7.7M	\$3,400
Alt 8 Hybrid GW Rights/RW Injection	\$333.4M	\$20M	\$7.1M	\$3,400
Alt 9 Hybrid Internal Bank/RW Injection	\$339.9M	\$201.7M	\$9.7M	\$4,800
Alt 10 RW Lake Augmentation/GW Injection	\$233.0M	-	\$7.5M	\$2,700
Alt 11 Hybrid GW Rights/RW Injection/Ditch Enhancement	\$320.5M	\$10M	\$7.7M	\$3,400

Note: Unit costs assume all projects are implemented at the same time and are for alternatives evaluation only. Scheduling and phasing to be factored in as part of implementation planning.

Preferred Alternative Portfolio – Alternative 11

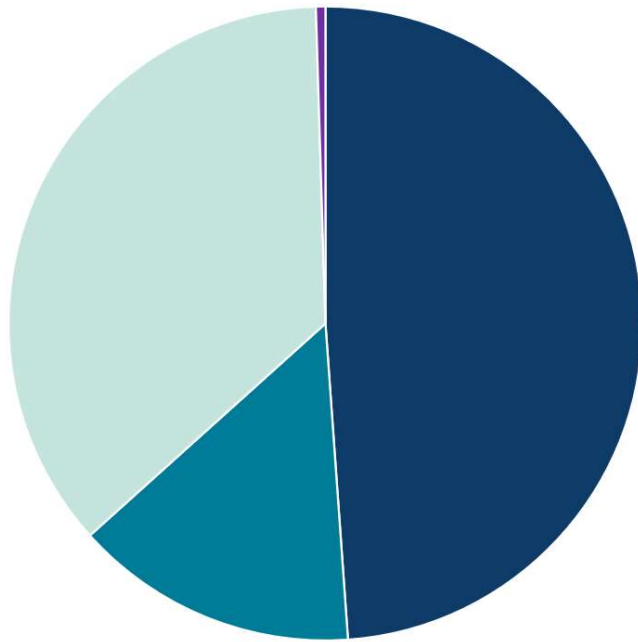
► Includes:

- 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

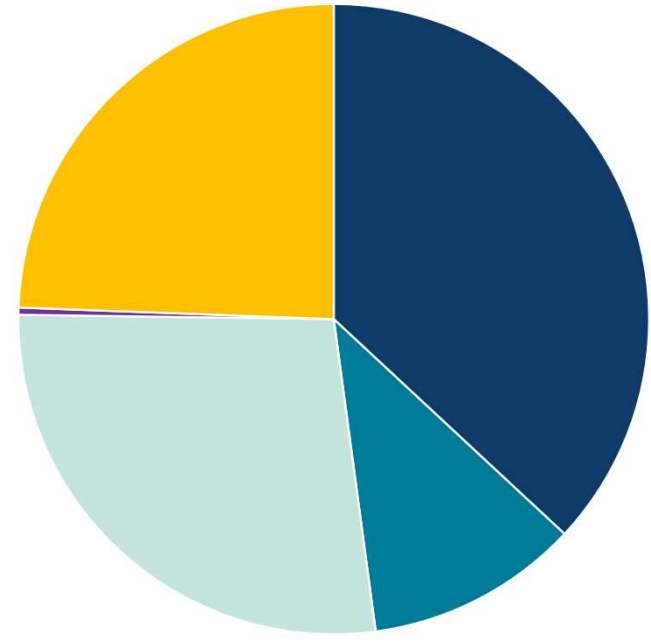
Capital Cost (\$)	Water Purchase Cost (\$)	O&M Cost of New Projects (\$/year)	Unit Cost (\$/AF)
\$320.5M	\$10M	\$7.7M	\$3,400

Baseline Water Supply

Current Water Supply (2020)



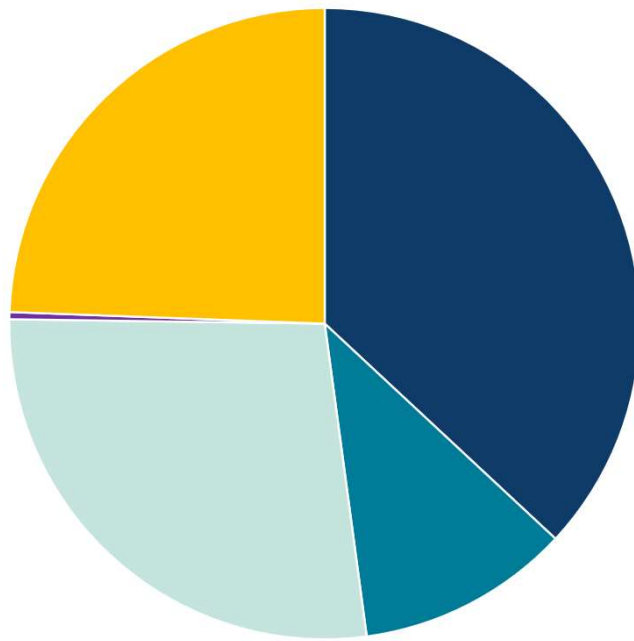
Projected Baseline Water Supply (2050)



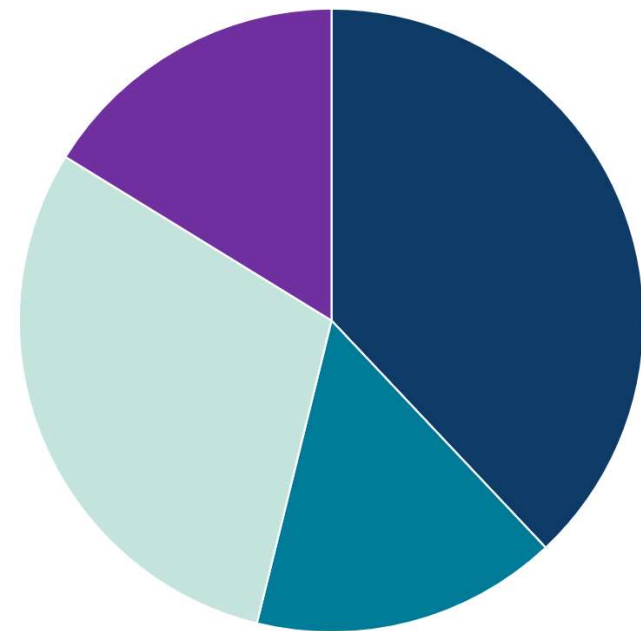
■ Imported Water ■ Local Surface Water ■ Groundwater ■ Recycled Water ■ Unmet Demand

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%

Discussion on Preferred Alternative Portfolio

1. What are your impressions of Alternative 11?
2. Is there anything else that should be considered that was not already considered when selecting the preferred alternative?
3. Do you support moving forward with Alternative 11 as the preferred alternative in the SWRP document?

Next Steps

- ▶ Woodard & Curran will revise the preferred alternative based on your feedback today
- ▶ Developing implementation schedule
- ▶ Developing costs for existing developments versus new developments
- ▶ Next meetings:
 - Virtual public workshop to present Final SWRP prior to CEQA process on June 13
 - Board meeting to present Final SWRP in late June

Water Demands from New Development

- ▶ Population in PWD's service area is projected to increase by 48,000
- ▶ Single family population is projected to increase by 40,000
 - Existing residential areas expected to densify (increase from 3.6 persons per housing unit to 4 persons per housing unit)
 - New residential areas expected to be built to meet remaining population growth
- ▶ Demands expected to increase in both existing single family residential areas and in new developments

5-year Demand Increases from New Developments						
	2025	2030	2035	2040	2045	2050
Single-Family Residential	973	1,425	1,903	2,485	3,075	3,676
Multi-Family Residential	36	37	80	90	95	100
CII, Other, Fire Service, Irrigation, Construction, Losses	177	282	608	691	724	809
Total Additional Demand from New Development	1,186	1,744	2,591	3,266	3,894	4,585

Projects and Capital Costs

Groundwater: Maintain current well production and purchase additional groundwater rights

- Complete rehab/replacement of existing wells (\$50.3M)
- Purchase 1,000 AFY of new groundwater rights (\$10M)
- Construct 5 new production wells and connect to the distribution system (\$40.5M)

Recycled Water: Maximize beneficial use of recycled water

- Construct 5.3 mgd advanced water purification facility (AWPF) and injection wells (\$103.6M)
- Construct 10 new production wells and connect to the distribution system (\$70M)

Local Surface Water: Maintain storage capacity and reduce water loss from Littlerock Reservoir

- Continue ongoing sediment removal activities at Littlerock Reservoir
- Enclose Palmdale Ditch (\$18.1M)

Imported Water: Store imported water to buffer against drought periods

- Store unused imported water in the Antelope Valley Basin via the Amargosa Water Bank (already constructed)
- Construct 4 new wells to pump additional water stored via the Amargosa Water Bank (\$28M)



Thank you!

