



Water Resources Implementation Strategy

October 16, 2024 Board Meeting





A New Model for Resilience

Calleguas's Board determined that its future will involve greater resilience through partnerships and regional collaboration to develop water supply, storage, conveyance, and programs.

Water Resources Implementation Strategy (WRIST)

- Build on history of extensive regional collaboration to enhance existing partnerships and forge new ones.
- Address long-term water supply reliability and resiliency along with outages.
- Characterize and evaluate portfolios of projects with a regional focus.
- Acknowledge risks and uncertainties and develop an adaptive management plan to address them.



Phased Process

We are here



PHASE 1

**Water Resource Portfolio
Development & Regional
Alignment**

- Establish common goals, desired outcomes, success criteria
- Development of an adaptive preferred portfolio and options
- Delivery framework

PHASE 2

**Regional Implementation
Framework
& Engagement**

- Program brand, purpose & benefit messaging
- Roadmap and strategies for engagement with governing bodies, regulatory agencies, and the community

PHASE 3

**Program Delivery &
Adaptive Management**

- Multi-agency program implementation
- Funding and financing mechanisms
- Adaptive management



WRIST

Interviews

Summer 2023

Interim Work Sessions

March 2024

Partner Workshops

July 2023

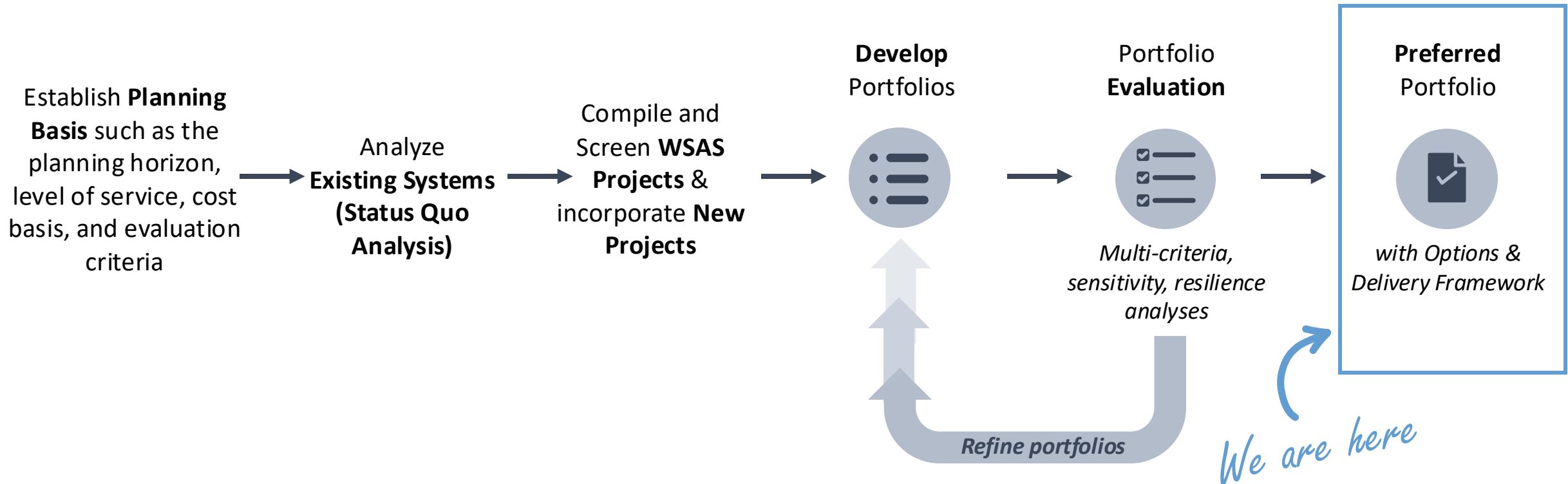
November 2023

April 2024

October 2024

Water Resource Portfolio Development & Regional Alignment

PHASE 1





Status Quo

Status Quo

Local supplies prioritized

Planned projects included

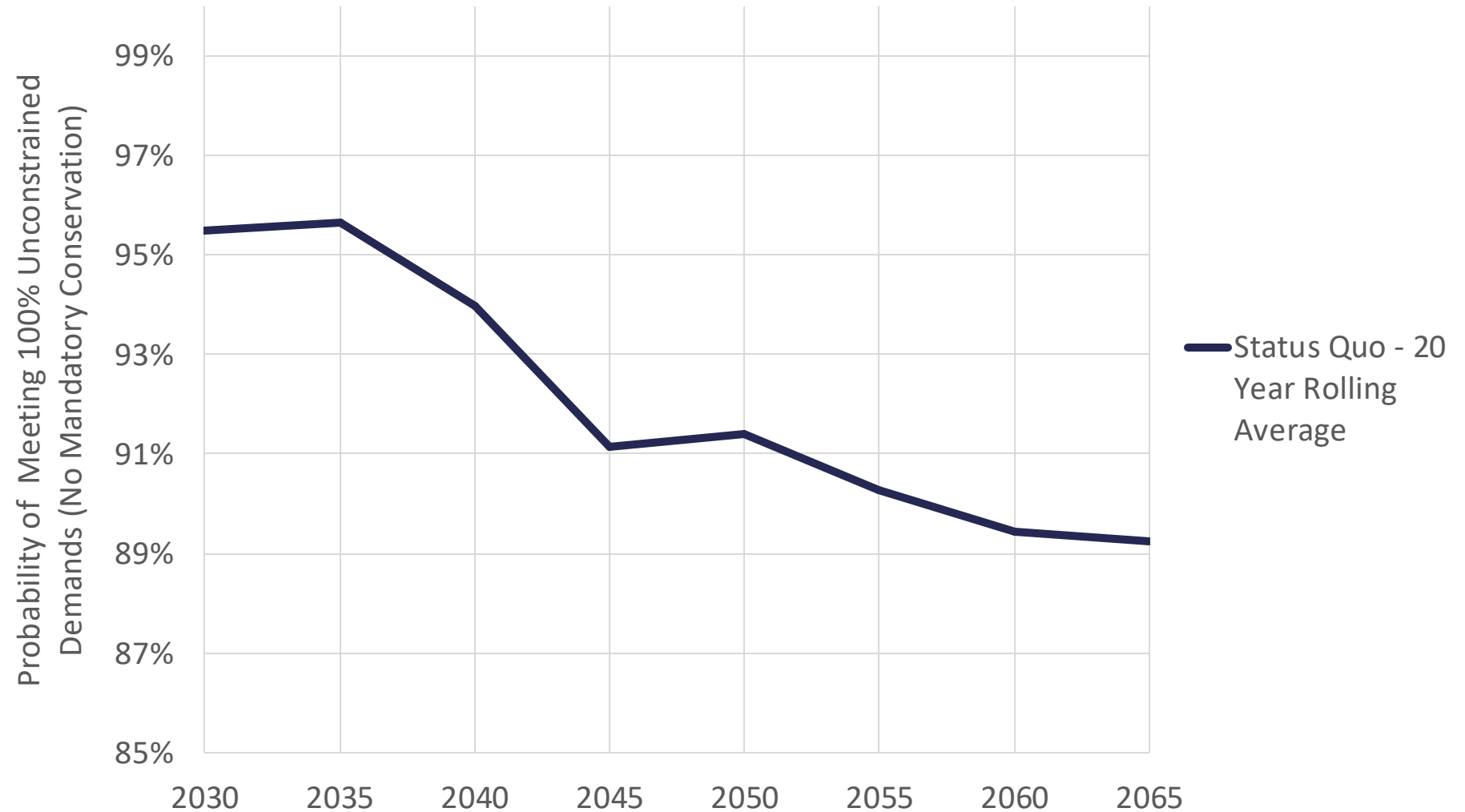
Imported water used to meet remaining demands

Las Posas ASR used during drought years

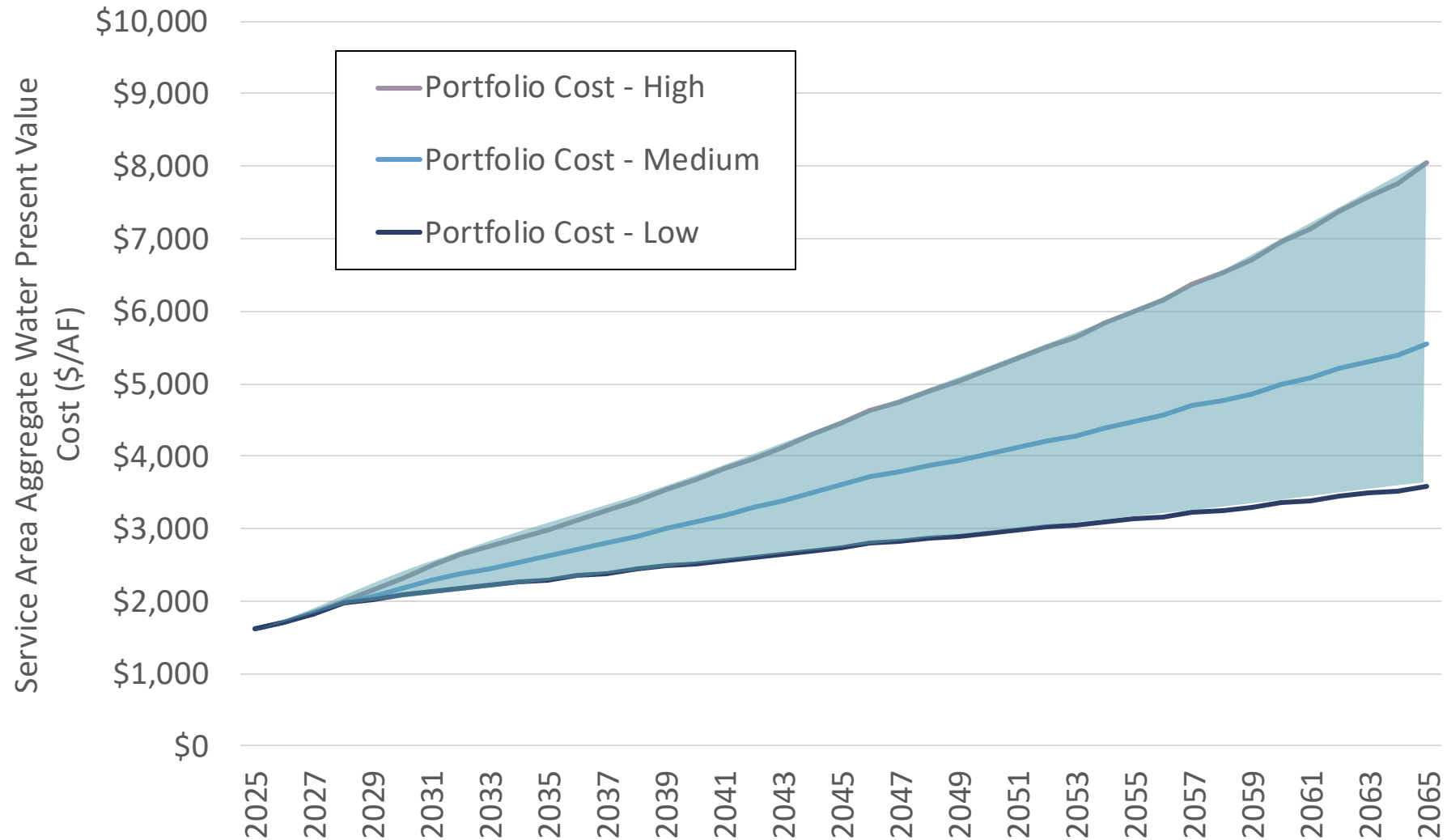
Conservation needed in some years to mitigate shortages

Status Quo - Reliability

Overall decline
in reliability
over time



Status Quo - Costs



An aerial photograph of a large, cylindrical, light-colored industrial water tank. The tank is situated on a concrete pad with various pipes and valves. It is surrounded by a chain-link fence. In the background, there are agricultural fields, some covered with white plastic mulch, and a dirt road with several cars parked. The landscape is arid, with brown hills and mountains under a clear blue sky. The text "Portfolio Analysis Methodology" is overlaid in white, centered over the tank, with a white horizontal line underneath it.

Portfolio Analysis Methodology

List of Projects

Background

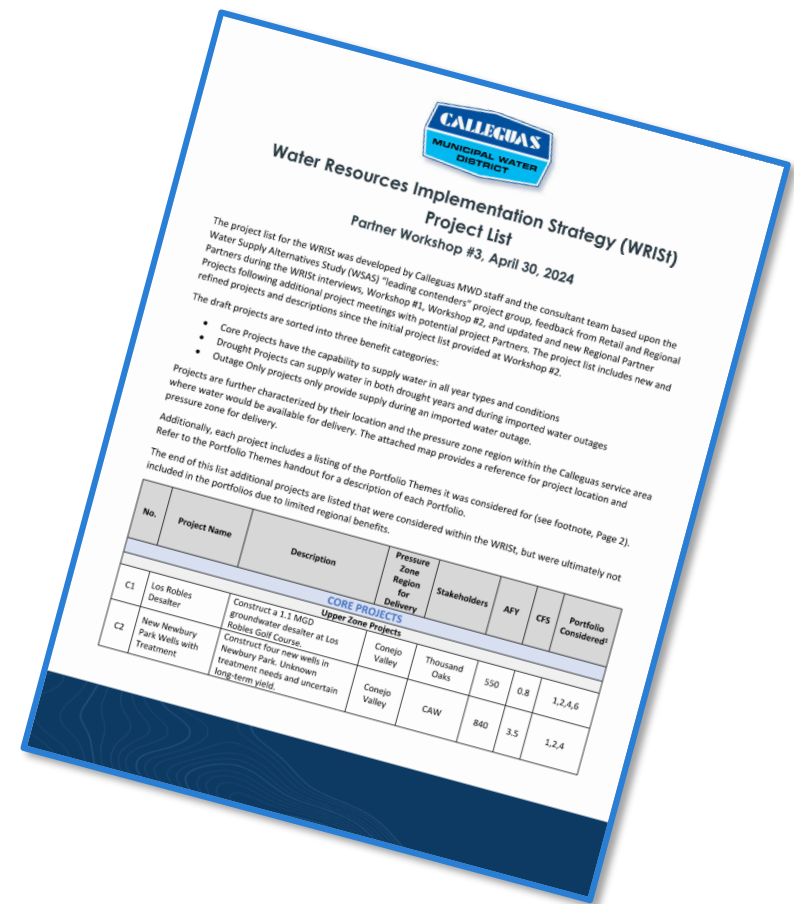
- Initially developed from WSAS “leading contender” group of projects with refinement.
- Additional conceptual projects added based on feedback from previous Workshops, Partner Interviews, and follow-up meetings with Regional Partners
- Categorized by benefit:

Core Projects
- All conditions

Drought and Outage Projects
- Dry year/outages

Outage Only
- Imported water outages

- Sorted by Pressure Zone Region (see map)
- 27+ projects considered
- 23 projects grouped into portfolios



PORTFOLIO THEMES

Project Map

Map provides location of projects, benefit category, and Pressure Zone Region



Evaluate Project Risk and Uncertainties

- Feasibility Risks & Uncertainties
 - **Technical Complexity** around project construction and operation
 - **Institutional Complexity** focuses on institutional relationships needed for project implementation
 - **Permitting & Regulatory Complexity** considers regulatory and permitting pathway for implementation
- **Reliability Risk** evaluates the project's source of supply and its reliability
- For each category, projects are scored as **high**, **medium**, or low

Project Risk Scores

Step 1

| Project | Technical Complexity | Institutional Complexity | Permitting/Regulatory Complexity | Reliability Risk | Risk Score |
|---|----------------------|--------------------------|----------------------------------|------------------|------------|
| Ocean Desalination | ● | ● | ● | | High |
| In-Lieu Storage in Lake Casitas and Groundwater Exchange | | ● | ● | ● | High |
| Oxnard Plain Basin Program | | ● | ● | ● | High |
| South Oxnard Plain Brackish Water Treatment Facility | ● | ● | ● | | High |
| New Newbury Park Wells | ● | ● | ● | ● | High |
| IPR-GWR in Simi Valley Basin | ● | ● | ● | | Med |
| OH System Fe/Mn Treatment | | | ● | ● | Med |
| Simi Valley Desalter | | ● | ● | | Med |
| Oxnard AWPf and GW Injection | ● | | ● | | Med |
| Oxnard AWPf and GW Recharge via Surface Spreading | | ● | ● | | Med |
| Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits | | | ● | ● | Med |
| Alternative Delivery of Imported Water – Pipeline from Castaic Lake & WTP | ● | | ● | | Med |
| LACWWD 29 Interconnection through LVMWD | ● | ● | | ● | Med |
| Additional Pumping by Oxnard Wells | | | ● | ● | Med |
| New Springville Area Well and Agreement to Deliver Water During an Outage | | ● | | ● | Med |
| Los Robles Desalter | ● | | | ● | Med |
| Expansion of Camrosa Non-Potable Water System | | | | ● | Med |
| Expand North Pleasant Valley Desalter | | ● | | | Med |
| Moorpark Desalter | | ● | | | Med |
| Additional Aquifer Storage and Recovery – Santa Paula Basin | | ● | | ● | Med |
| In-Lieu Storage in Lake Casitas and Delivery | | ● | ● | | Med |
| Santa Rosa Valley Desalter/ Recharge/ IPR | | | ● | | Low |
| West - East Transmission | ● | | | | Low |
| External Groundwater Bank | | ● | | | Low |

● = High Risk/Complexity ● = Med Risk/Complexity None = Low Risk/Complexity

Purpose and Scope

Evaluate different supply and storage project investment strategies (portfolios) to improve District-wide reliability and resilience while managing long-term costs.

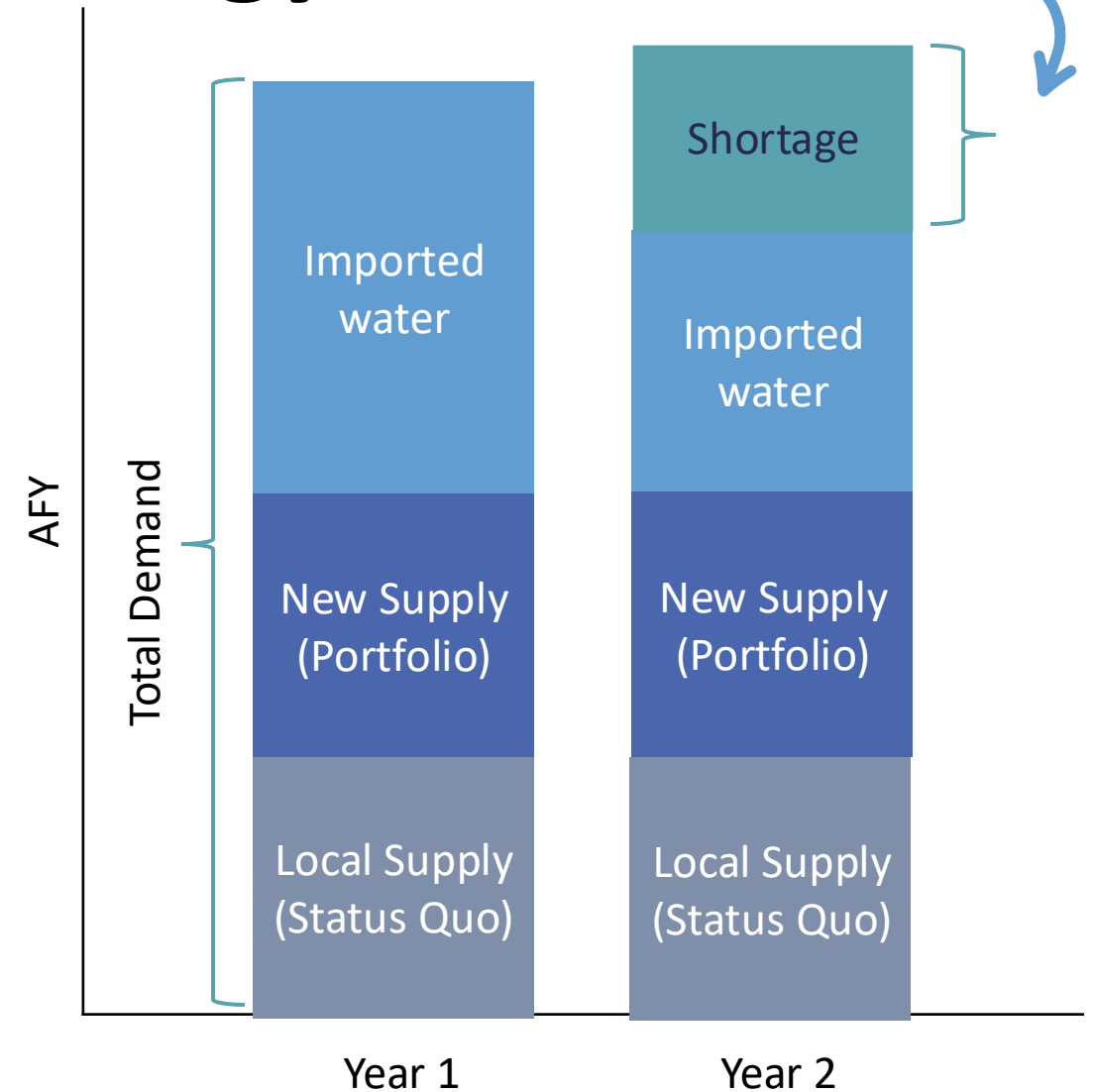
Analyze on a Retail Partner, pressure zone region, and a regional, aggregate basis to meet District-wide demands considering system configuration and delivery constraints.

Compare portfolios to the Status Quo.

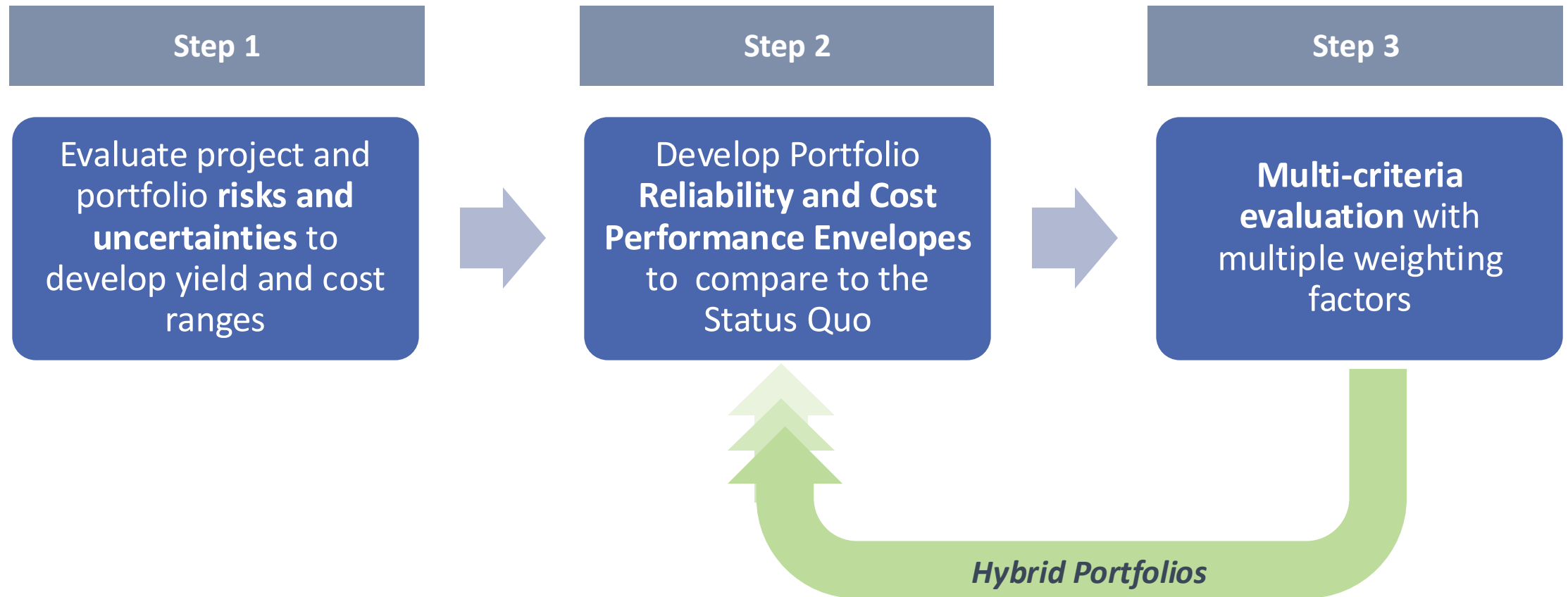
Portfolio Analysis Methodology

Evaluate the Frequency and Magnitude of shortage for each projection

- **Statistical analysis to evaluate portfolio performance using 96 imported water supply projections provided by Metropolitan**
- **Demand Envelope:**
 - Retail UWMP (Increasing Demand)
 - Calleguas UWMP (Flat Demand)
 - Urban Water Use Objective (UWUO) (Decreasing Demand)
- **Local supplies are initially used to meet demands**
- **Available imported water is used to meet remaining demands**



Portfolio Analysis Methodology



Multi-Criteria Evaluation

- **Lifecycle Costs** (\$/AF)
- **Capacity Costs** (\$/CFS)
- **Reliability:** Average reliability over the planning period
- **Resilience:** Conservation required during a 6-month imported system outage
- **Adaptability:** Scored based on the number of projects that can be phased

Multiple weighting factors were applied to the evaluation criteria

Portfolio Analysis



Portfolio Themes

Lowest Cost: Lowest lifecycle cost to meet minimum level of service.

Local Supply and Control: Maximizes local supply, treatment, and infrastructure; minimizes dependence on imported water.

Imported Water System Optimization: Augments imported system and supplies, internal and external storage, and maximizes utilization of existing imported water infrastructure.

Reliability and Resilience: Enhances level of service performance, less sensitivity to costs and other criteria.

Adaptability Emphasis: Readily adapts over time and under changing demand conditions, less sensitivity to costs and other criteria.

Groundwater Sustainability and Recycled Water Emphasis: Increases supply reliability while also supporting groundwater sustainability and recycled water utilization.

Portfolio Findings



Investment in local supply projects provides greater reliability at a lower long-term cost relative to the Status Quo, while significantly reducing demand for imported water.



Investment in local supplies and local storage provides the greatest reliability and resilience but will require West to East Transmission to fully utilize all supplies and increases portfolio costs.



Drought storage projects provide increased reliability but have high unit costs due to the high cost of imported (stored) water and infrequent use.



Local projects can be adaptively phased to incrementally increase reliability while moderating cost impacts.

Thematic Portfolios

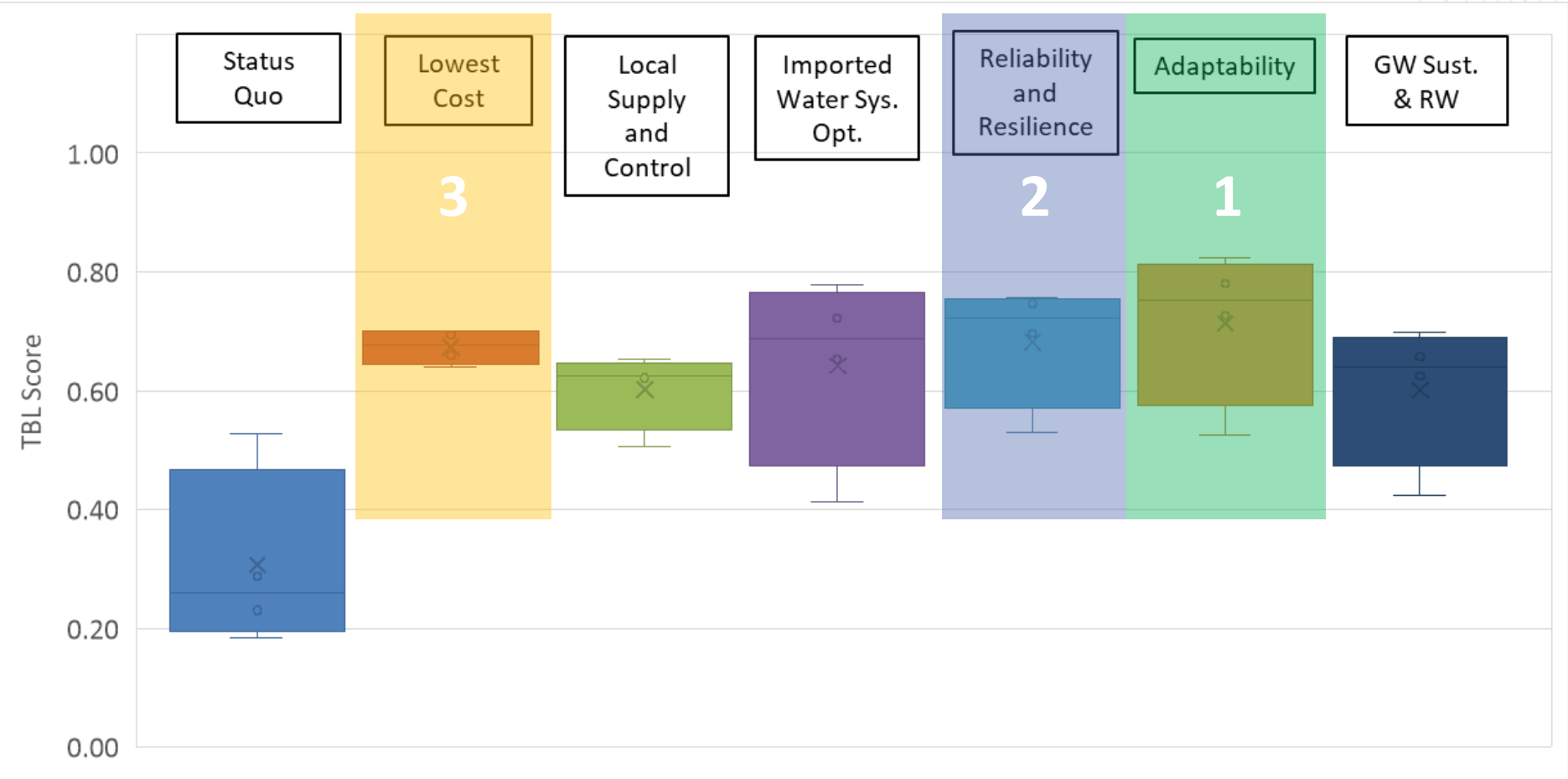
| Project Name | Lowest Cost Portfolio | Local Supply and Control | Imported Water System Optimization | Reliability and Resilience | Adaptability Emphasis | GW Sustainability and RW Emphasis |
|--|-----------------------|--------------------------|------------------------------------|----------------------------|-----------------------|-----------------------------------|
| Los Robles Desalter | X | X | | | | X |
| New Newbury Park Wells with Treatment | X | X | | X | | |
| Oxnard AWPf and GW Recharge via Surface Spreading | X | X | | X | X | X |
| South Oxnard Plain Brackish Water Treatment Facility (UWCD Extraction Barrier Brackish Water Treatment Project with conveyance to Calleguas) | | X | | | X | X |
| Santa Rosa Valley Desalter/ Recharge/ IPR | X | X | | X | X | X |
| Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits | X | X | | | | |
| Expansion of Camrosa Non-Potable Water System | X | X | | | | |
| West - East Transmission | | X | X | X | X | X |
| Ocean Desalination | | | | | X | |
| Expand North Pleasant Valley Desalter Capacity | | X | | X | | X |
| Simi Valley Desalter | X | | | | | |
| External Groundwater Bank | | | X | | X | |
| Oxnard Plain Basin Program | | | X | X | X | X |
| Additional Aquifer Storage and Recovery – Santa Paula Basin | | | X | | | |

Core Projects

Drought & Outage Projects

Thematic Portfolio Scoring

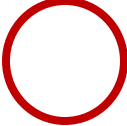


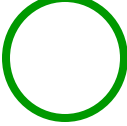
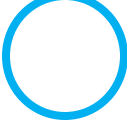

Higher scores are better

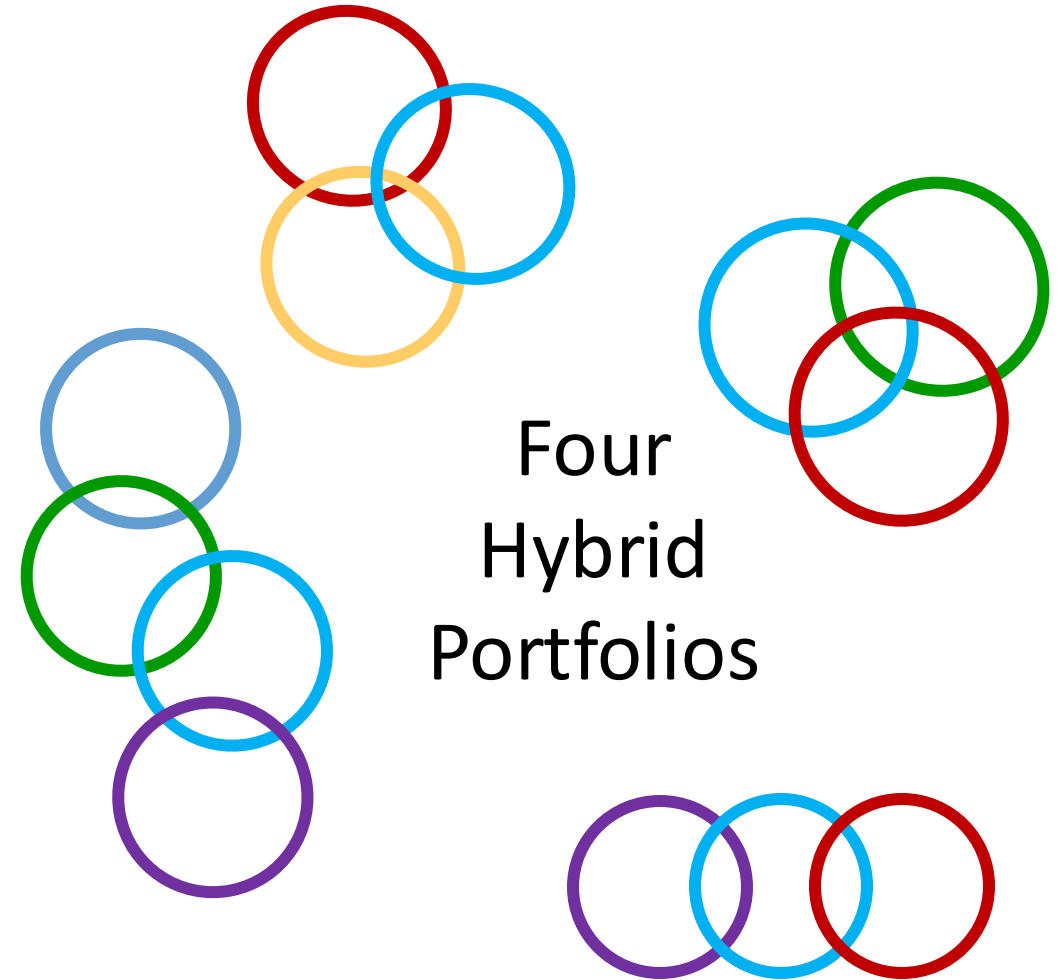


The image shows a large industrial facility, possibly a power plant or refinery, with a complex network of pipes, valves, and machinery. The structure is supported by a steel frame with several truss-like beams. The walls are made of brick, and there are several windows. A yellow crane is visible in the upper right corner. The overall scene is dimly lit, with a blueish tint. The text "Hybrid Portfolios" is overlaid in the center in a white, sans-serif font, with a white horizontal line underneath it.

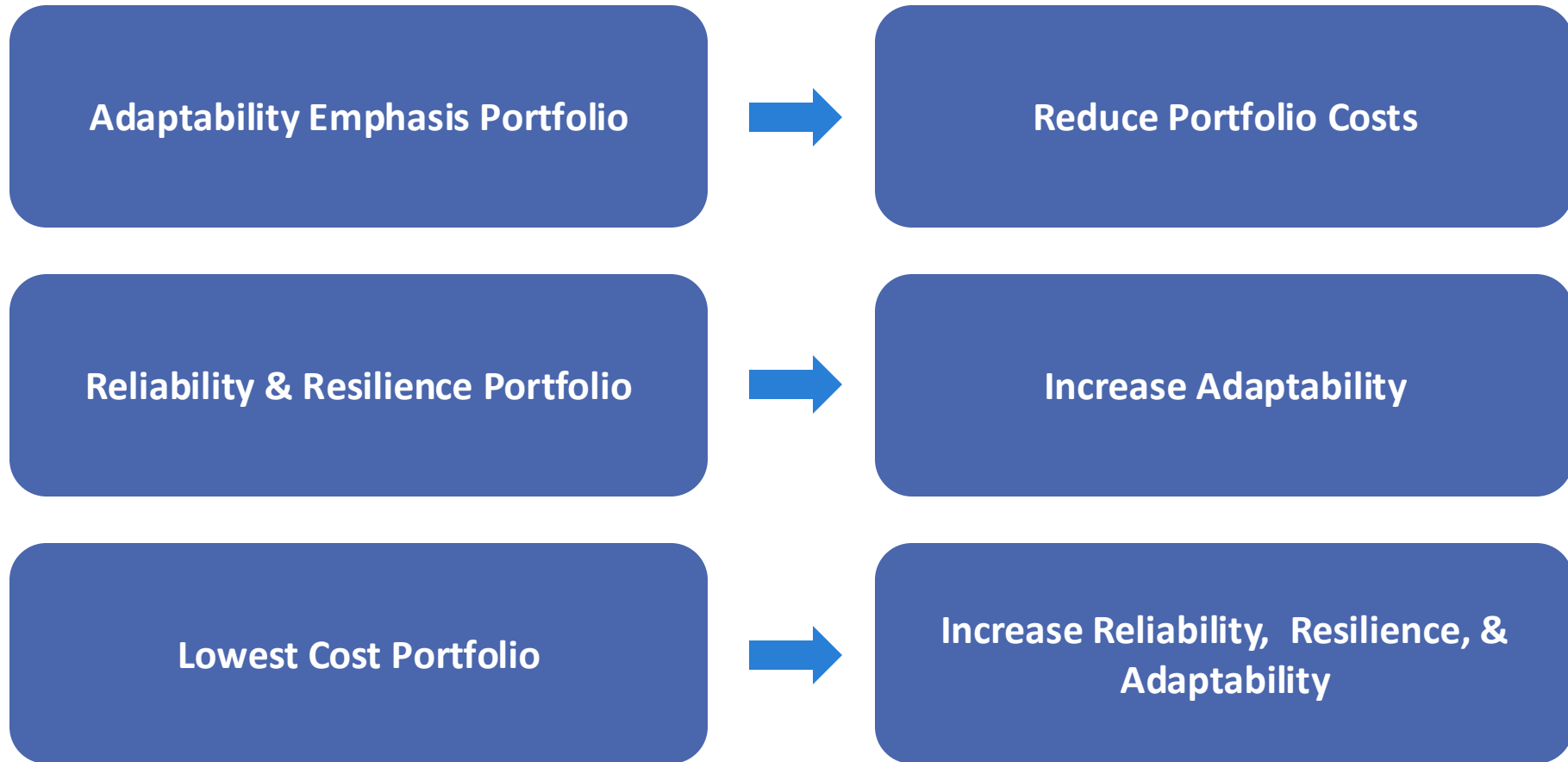
Hybrid Portfolios

WRIST Portfolios

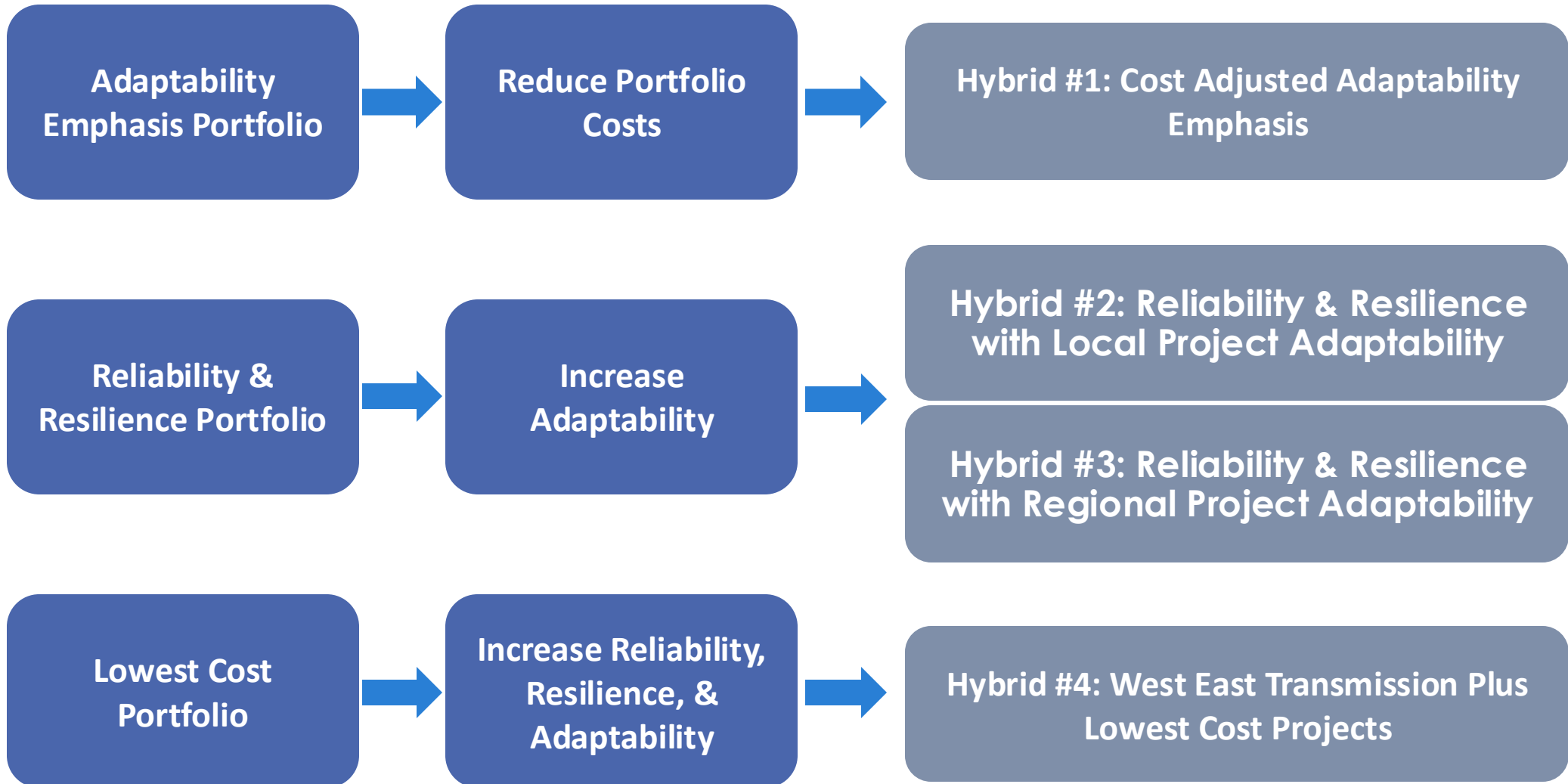
-  Lowest Cost
-  Local Supply & Control
-  Imported Water Optimization
-  Reliability & Resilience
-  Adaptability Emphasis
-  Groundwater Sustainability and Recycled Water Emphasis



Rationale for Hybrid Portfolios



Hybrid Portfolios



Portfolios

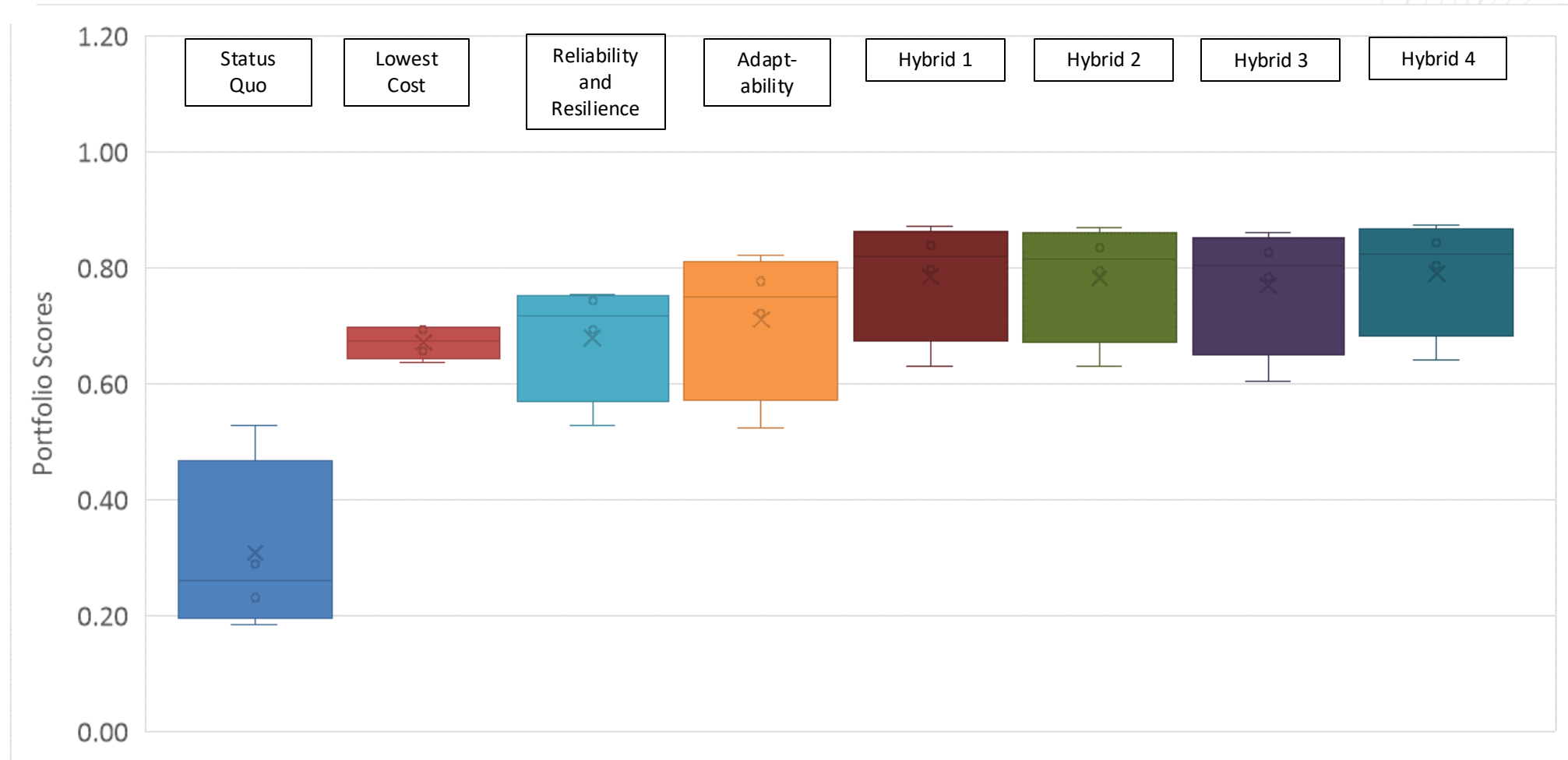
| Project Name | Hybrid #1: Cost Adjusted Adaptability Emphasis | Hybrid #2: Reliability and Resilience With Local Project Adaptability | Hybrid #3: Reliability and Resilience With Regional Project Adaptability | Hybrid #4: WET plus Low Cost Projects |
|--|--|---|--|---------------------------------------|
| New Newbury Park Wells with Treatment | X | X | X | X |
| Oxnard AWPf and GW Recharge via Surface Spreading | X | X | X | X |
| South Oxnard Plain Brackish Water Treatment Facility (UWCD Extraction Barrier Brackish Water Treatment Project with conveyance to Calleguas) | X | X | | X |
| Santa Rosa Valley Desalter/ Recharge/ IPR | X | X | X | X |
| Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits | X | X | X | X |
| Expansion of Camrosa Non-Potable Water System | | X | | X |
| West - East Transmission | X | X | X | X |
| Expand North Pleasant Valley Desalter Capacity | X | X | X | X |
| External Groundwater Bank | X | | X | |
| Oxnard Plain Basin Program | X | X | X | |
| Additional Aquifer Storage and Recovery – Santa Paula Basin | | | | X |

Core Projects

Drought & Outage Projects

Portfolio Scoring

Higher scores are better



A photograph of a water treatment plant interior, featuring large blue industrial pipes and machinery. The scene is dimly lit with a blue color cast. Several pipes are labeled with yellow text: 'FILTER INLET' on a pipe in the upper left, 'BACKWASH SUPPLY' on a pipe in the upper right, and 'TO WASTE' on a pipe in the lower left. A large blue valve or component is in the foreground. The background shows more industrial equipment and a concrete floor.

Recommendations

Draft Preferred Portfolio

Common to all Hybrid Portfolios

- Oxnard AWPf Expansion and IPR Project
- Northern Reach of Calleguas Creek Watershed Desalter Project
- Santa Rosa Valley Desalter/ Recharge
- West-East Transmission
- New Newbury Park Wells with Treatment
- Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits

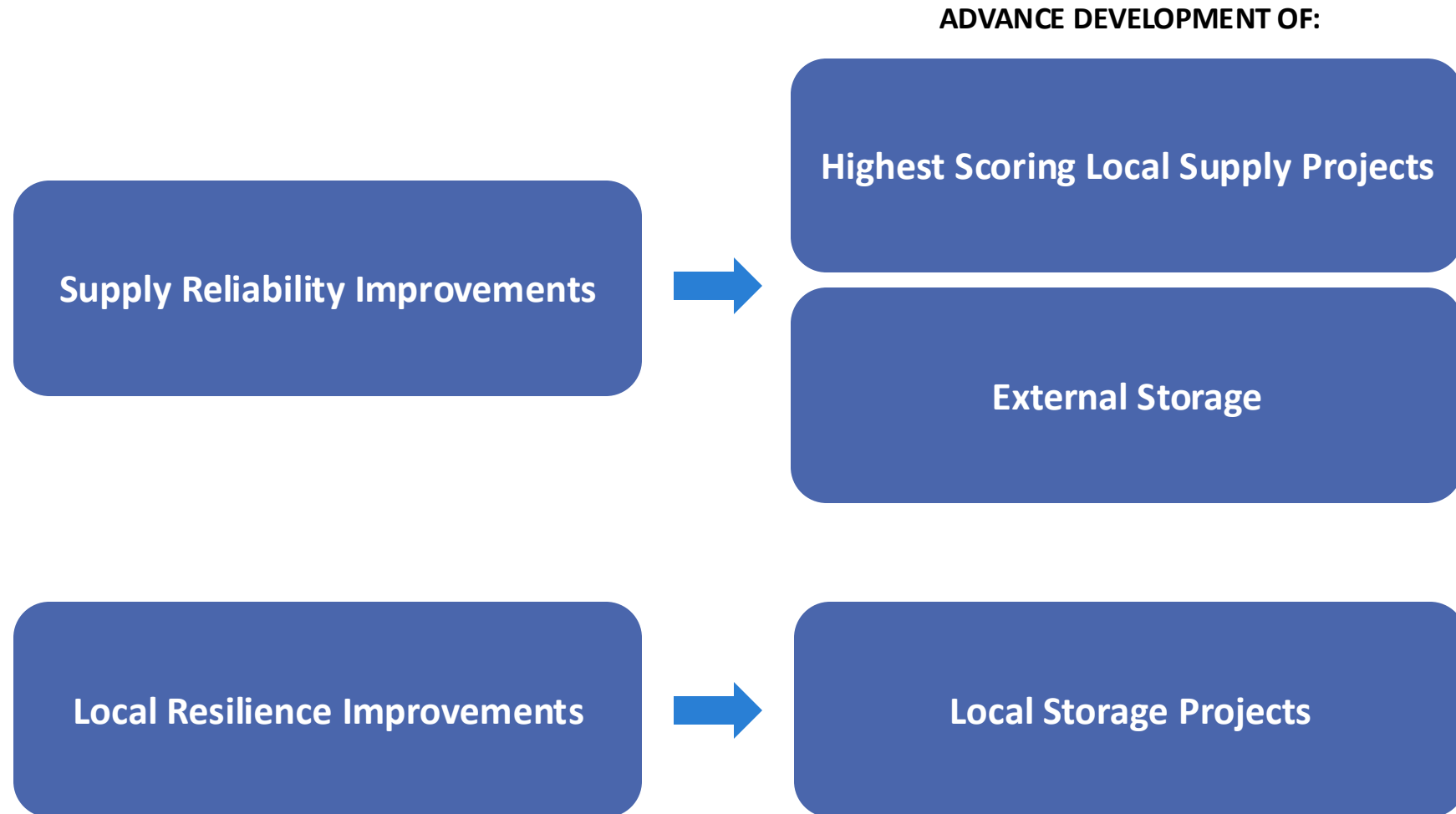
Other Top Performing Projects from Hybrid Portfolios

- Additional ASR in Santa Paula Basin
- Oxnard Plain Program
- South Oxnard Plain Brackish Water Treatment Facility (UWCD Extraction Barrier Brackish Water Treatment Project with conveyance to Calleguas)
- External Groundwater Bank
- Expansion of Camrosa Non-Potable Water System

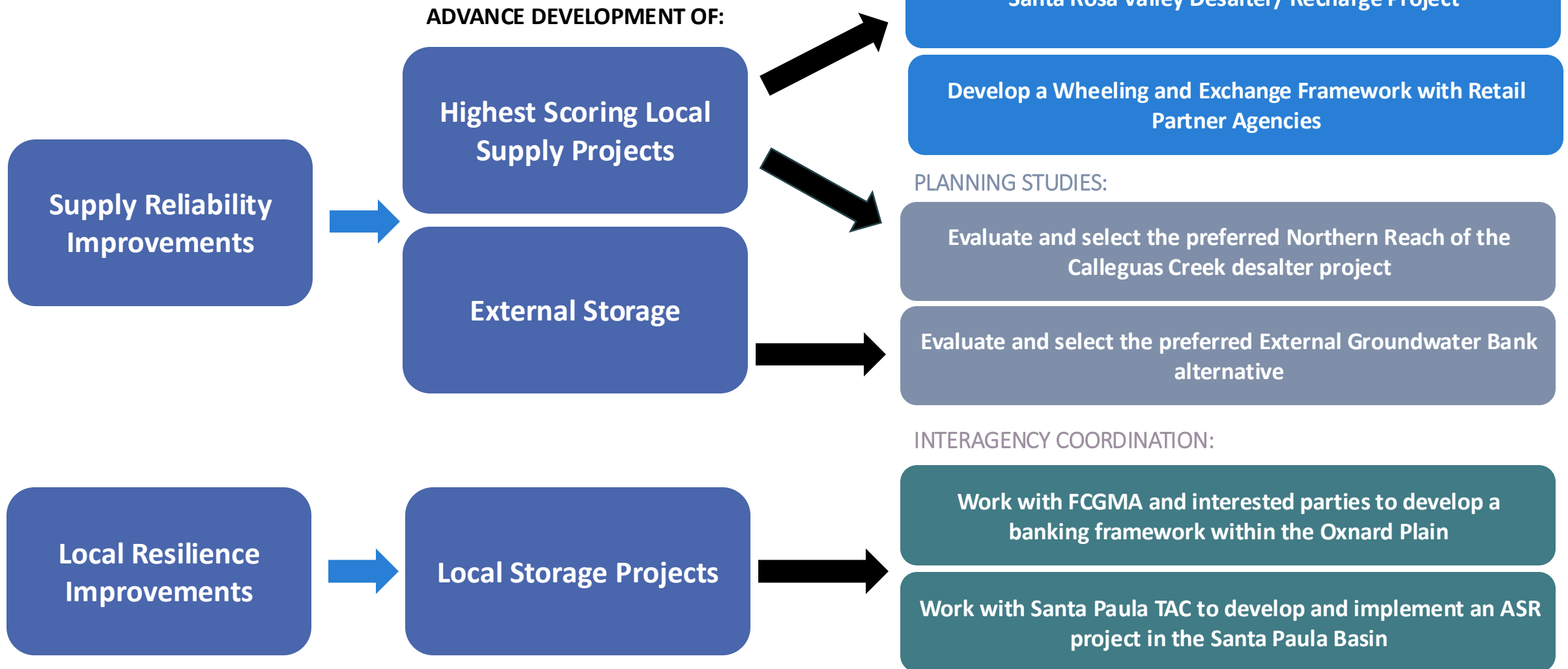
Draft Preferred Portfolio and Options

| Project | Risk | Optional Projects |
|---|------|----------------------|
| Oxnard AWPf Expansion and IPR Project | Med | |
| Northern Reach of Calleguas Creek Watershed Desalter Project (NPV, Moorpark, Simi Desalter) | Med | |
| Santa Rosa Valley Desalter/ Recharge/ IPR | Low | |
| West-East Transmission | Low | |
| New Newbury Park Wells with Treatment | High | Los Robles Desalter |
| Increase Pleasant Valley Basin Pumping Capacity to Extract Camrosa Water District Credits | Med | |
| Oxnard Plain Program | High | Lake Casitas Storage |
| Additional ASR in Santa Paula Basin | Low | |
| South Oxnard Plain Brackish Water Treatment Facility | High | Ocean Desalination |
| External Groundwater Bank | Low | |
| Expansion of Camrosa Non-Potable Water System | Med | |

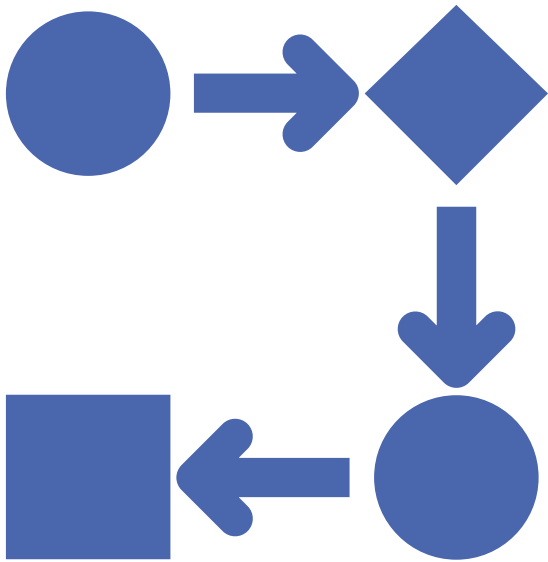
Rationale for No Regret Actions



No Regret Actions



Adaptive Management Approach



- **Implement No Regret Actions first**
- **At future decision points, evaluate then-current conditions to determine:**
 - The need and timing of additional projects from the Preferred Portfolio.
 - Optional projects should Preferred Portfolio projects not come to fruition.

Next Steps



Through 2024

Wrap up Phase 1 WRISt Report



2025

Initiate Phase 2:

- Engage Partners
- Further Develop Projects



Questions?