

County of San Luis Obispo

Desalination Executable Solution and Logistics (DESAL) Plan



Water Resources Advisory Committee – May 6, 2026



Item Agenda

1. Overview of Project Background, Objective and Goals
2. Review of Scope
3. Presentation of Alternatives and Qualitative Comparison
 - a. Questions on Alternatives
4. Outcome of Community Engagement Sessions
5. High Level Cost Discussion
6. Potential Additional Efforts after Feasibility Study
7. Next Steps and Public Survey

| Background, Objectives and Goals

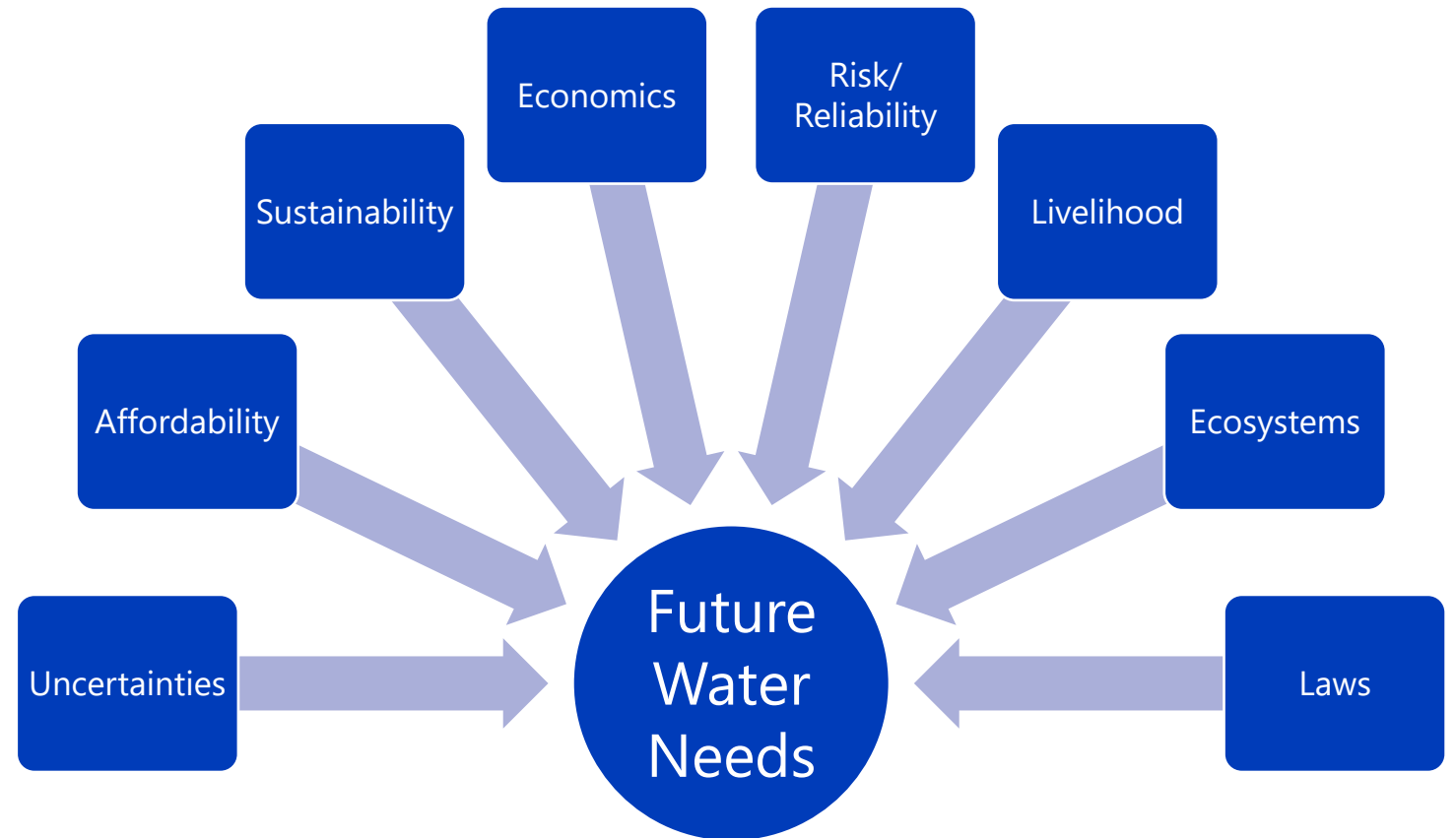
Regional Water Supply Projects Take Decades



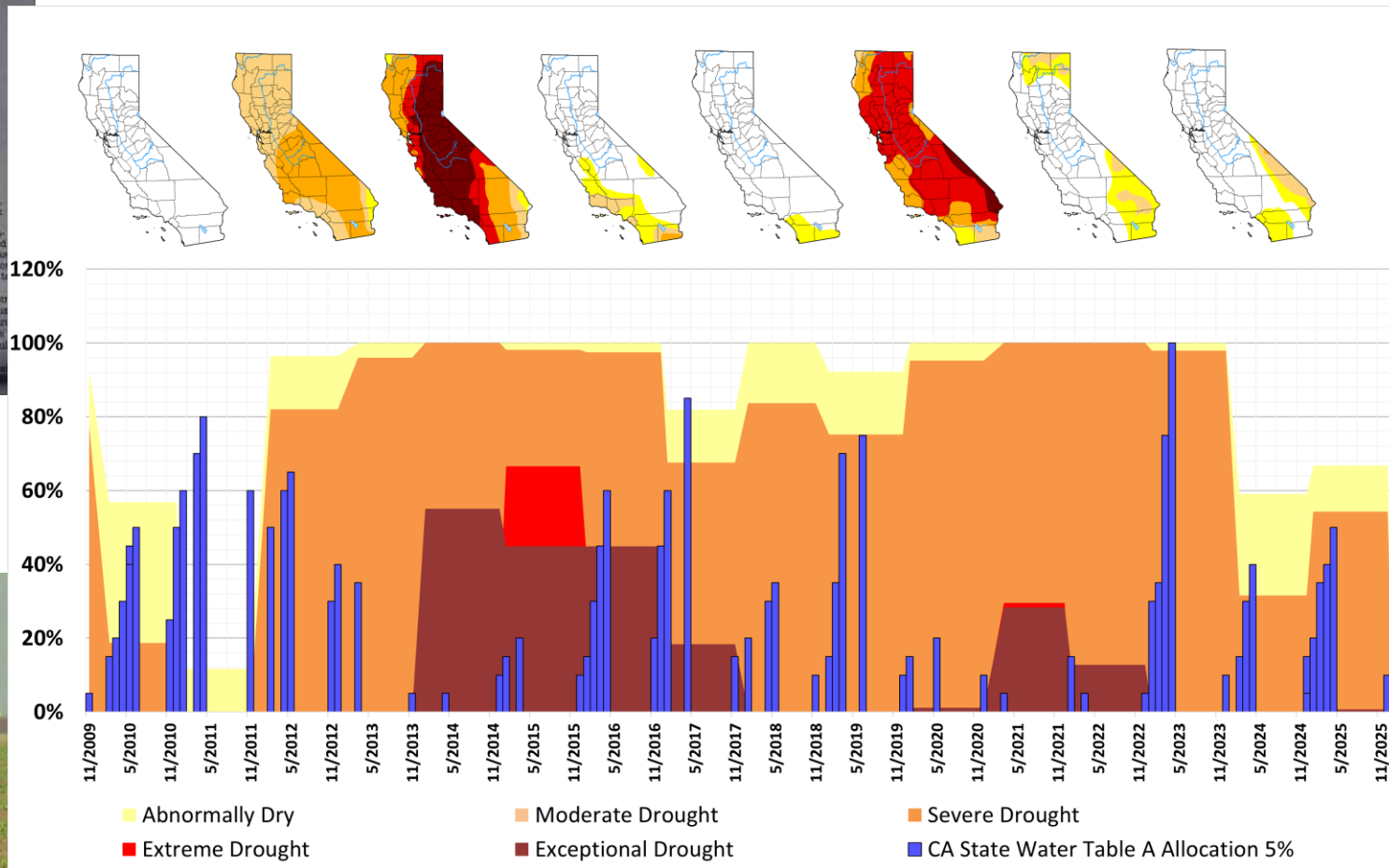
State Water	1960s	1990s	1997
Nacimiento	1950s	2000s	2011
Los Osos Recycled Water	1980s	2000s	2016

Our Opportunities and Challenges Today

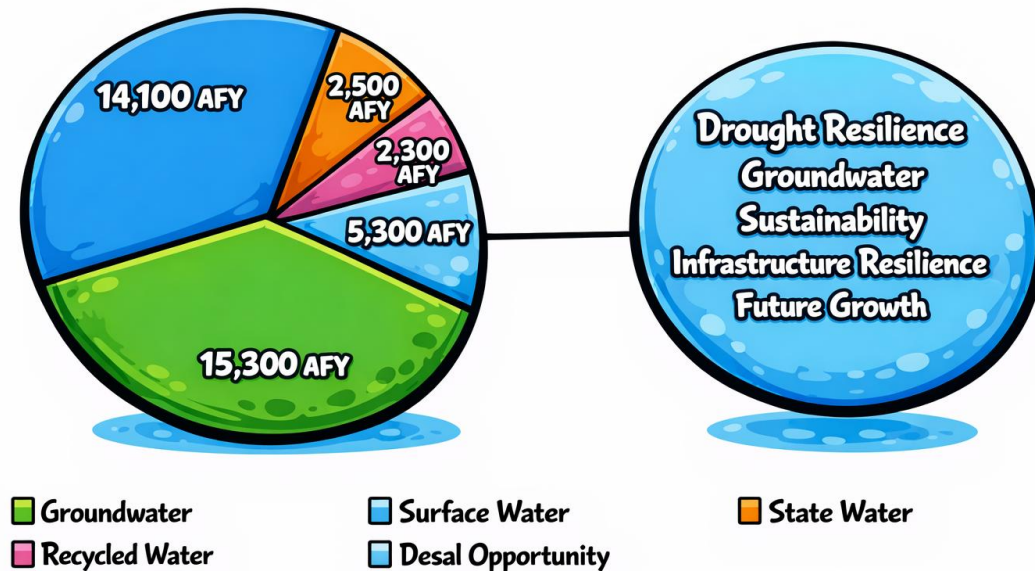
- Water is vital for all
- Everyone has their own perspective on water
- Changing needs/mandates
- Need to balance risk/reliability and costs



Our Supplies are Largely Dependent on Rainfall



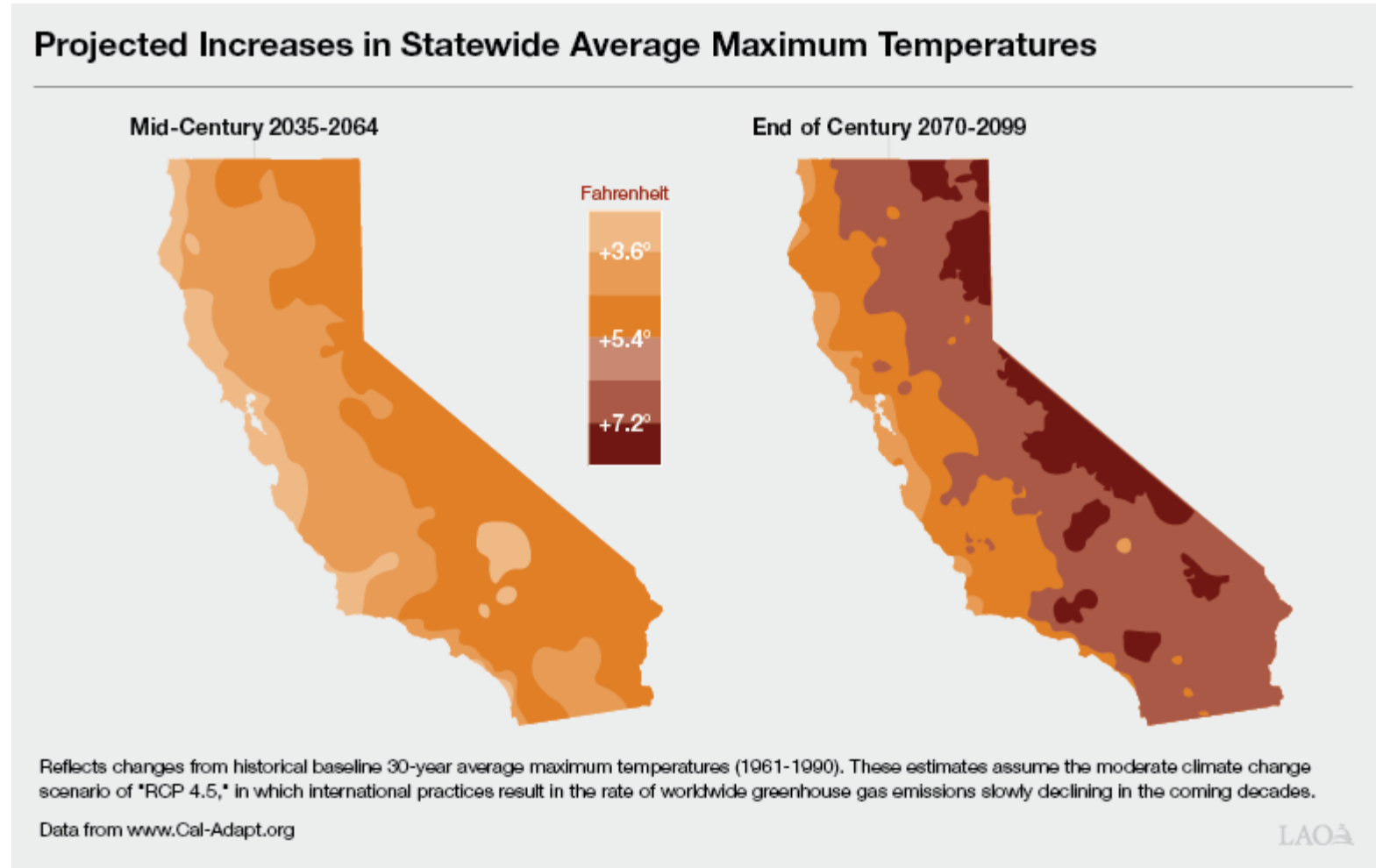
Needs for Considering Alternative Supplies



- Drought cycles projected to increase in frequency and duration
- SGMA requires cut back of groundwater use
- Aging infrastructure leads to unreliability
- Future growth is mandated by CA
- Time to implement is long... need to start planning now

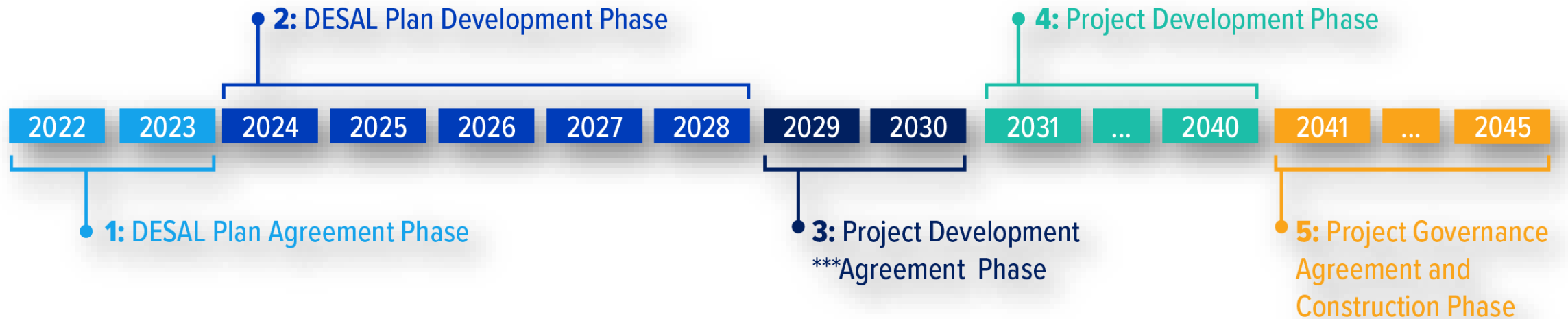
Optimize Existing Resources and Planning for the Future

- Need to be ready if need more water:
 - » Water use efficiency
 - » Recycled Water
 - » Optimize use of surface and ground waters
 - » Ocean desalination



Reminder of Project Goals

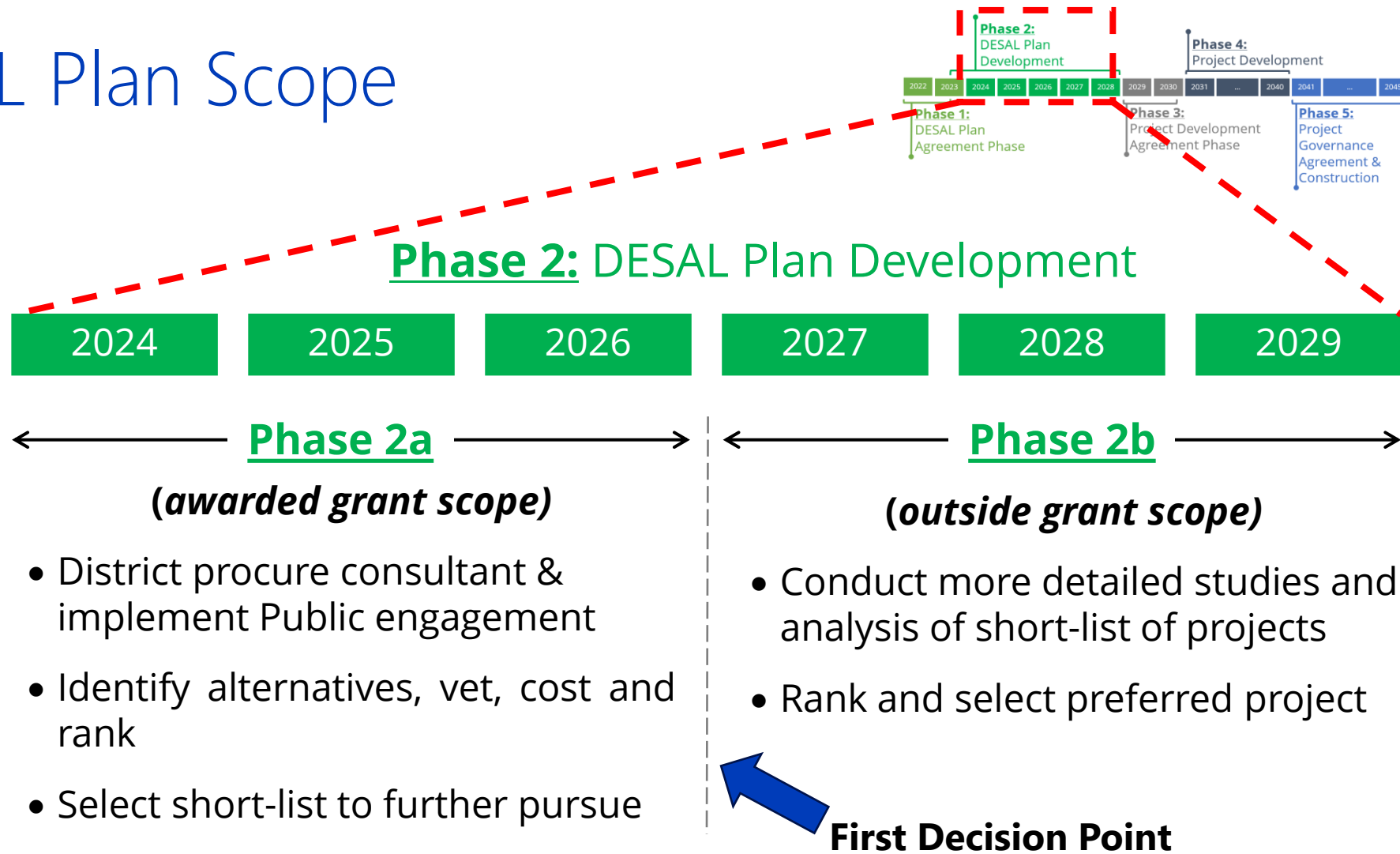
1. Consider desalination alternatives for resilient new water supply.
2. Progress District's DESAL Plan working with partners, stakeholders.
3. Prepare a report compliant with Title XVI USBR Feasibility Study requirements.



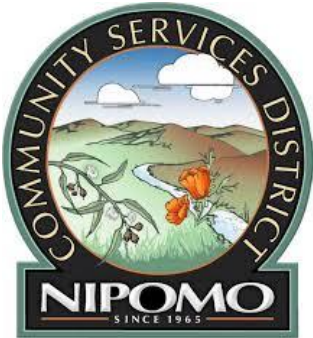
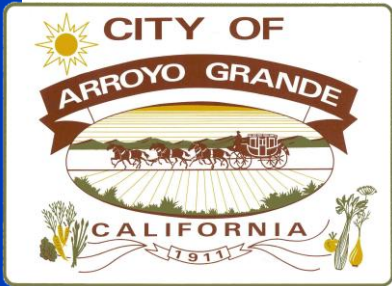
Potential Timeline for Development of a Desalination Project

Review of Scope

DESAL Plan Scope



DESAL Plan Partners

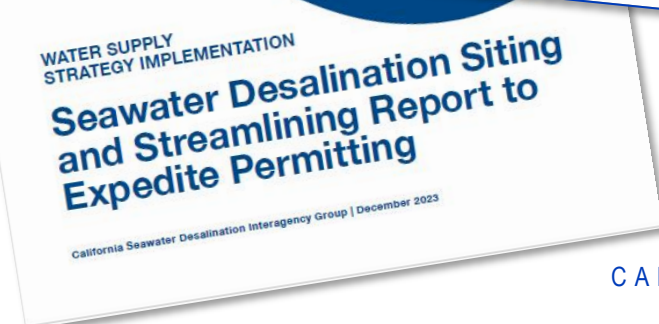


Golden State
Water Company

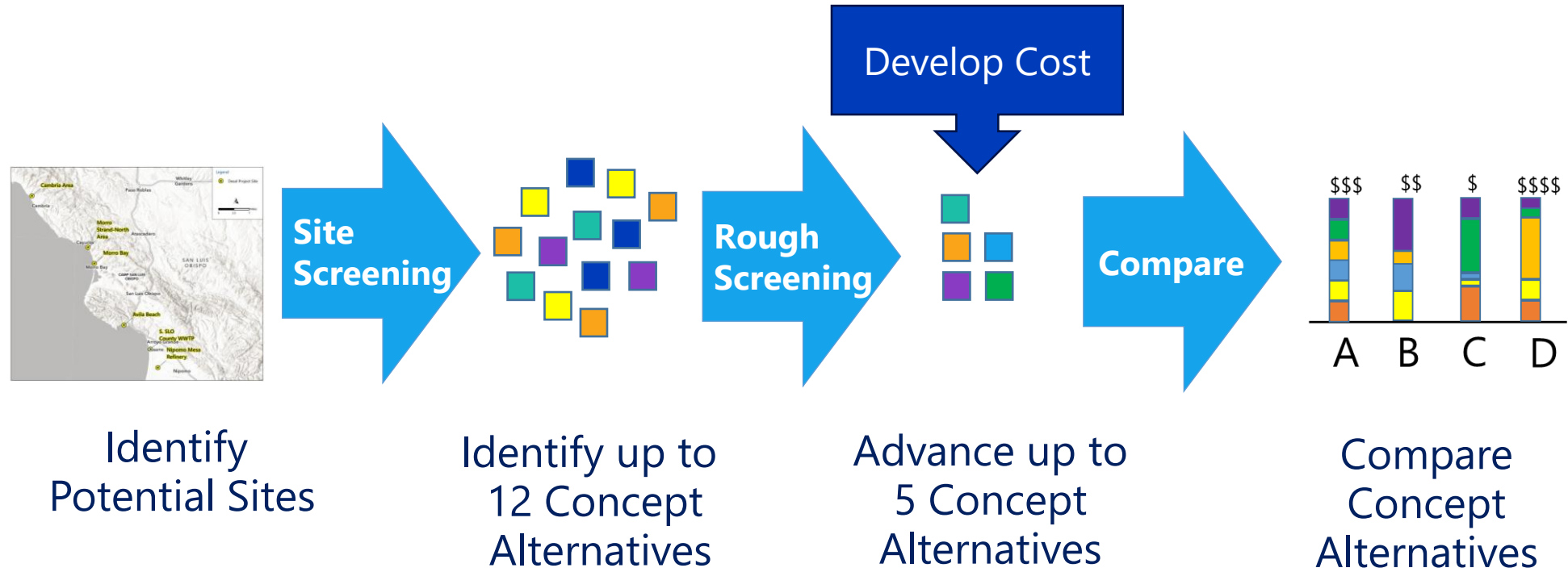


State of CA and Feasibility

- State of CA recognizes Desal is important alternative source of potable water
 - » Goal to increase Desal by 84,000 ac-ft/yr by 2040
- What is Feasibility? **Feasibility = Permittable**
- Ocean Plan and Streamlining Report establish stringent guidelines for Desal:
 - » Requirements for protection of marine ecosystem
 - » Preferred technologies (subsurface intakes, existing outfalls with blending)
 - » Demonstrate need and optimized supply



— This Study Effort is to Identify Feasible Desal Alternatives and Screen to Narrow the Options



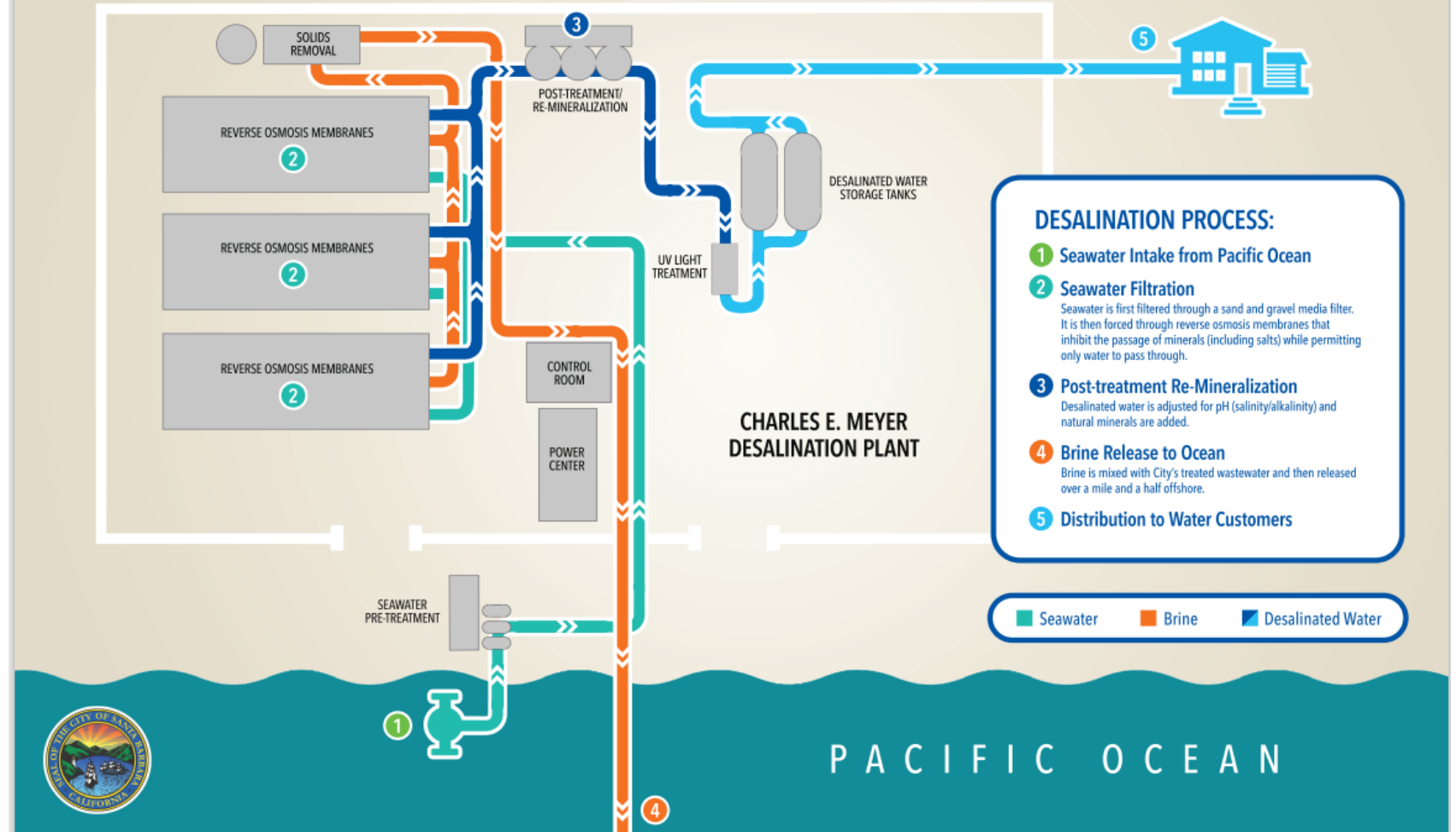
Not Developing a Preferred Alternative, Just comparing the 5 Alternatives

What is Seawater or Ocean Desalination?

Transformation of seawater into drinking water through treatment

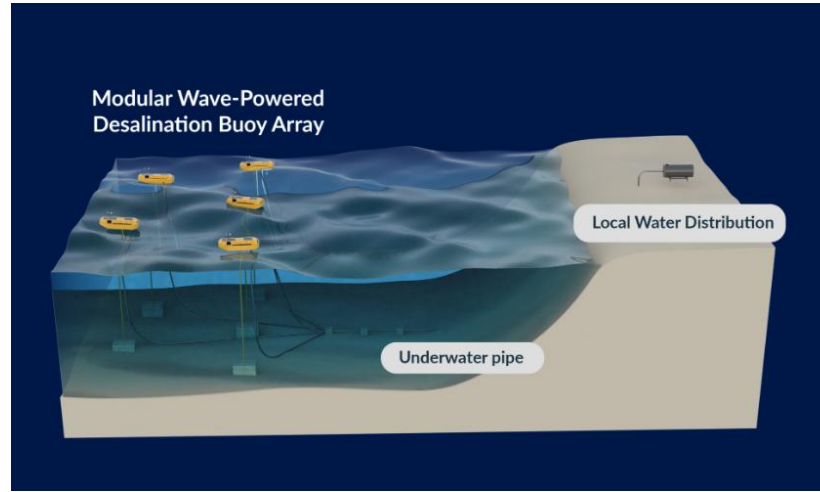
Typically use Reverse Osmosis treatment

How Does Santa Barbara's Desalination Plant Work?

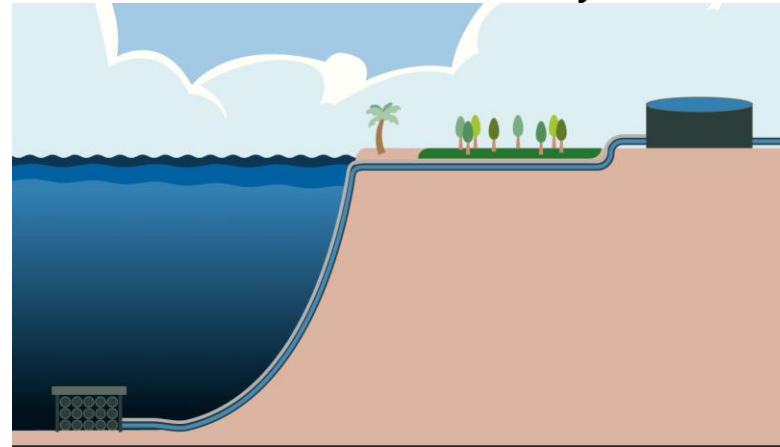


Alternative Technologies

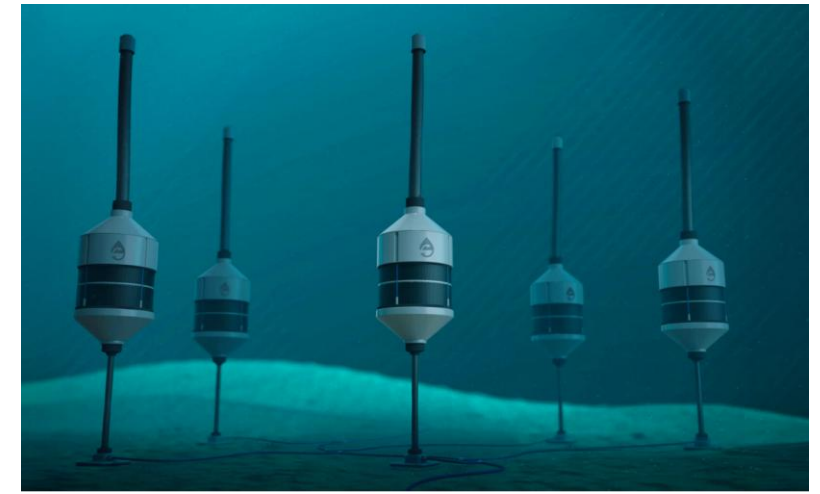
- All Use RO
- None currently permitted in CA
- Not at full scale operation
- Unable to determine costs at this time
- Included in Report as needing more research



Wave Powered Desal Buoys



Deep Sea Plant, using depth for energy savings



Deep Sea Buoy, using depth for energy savings

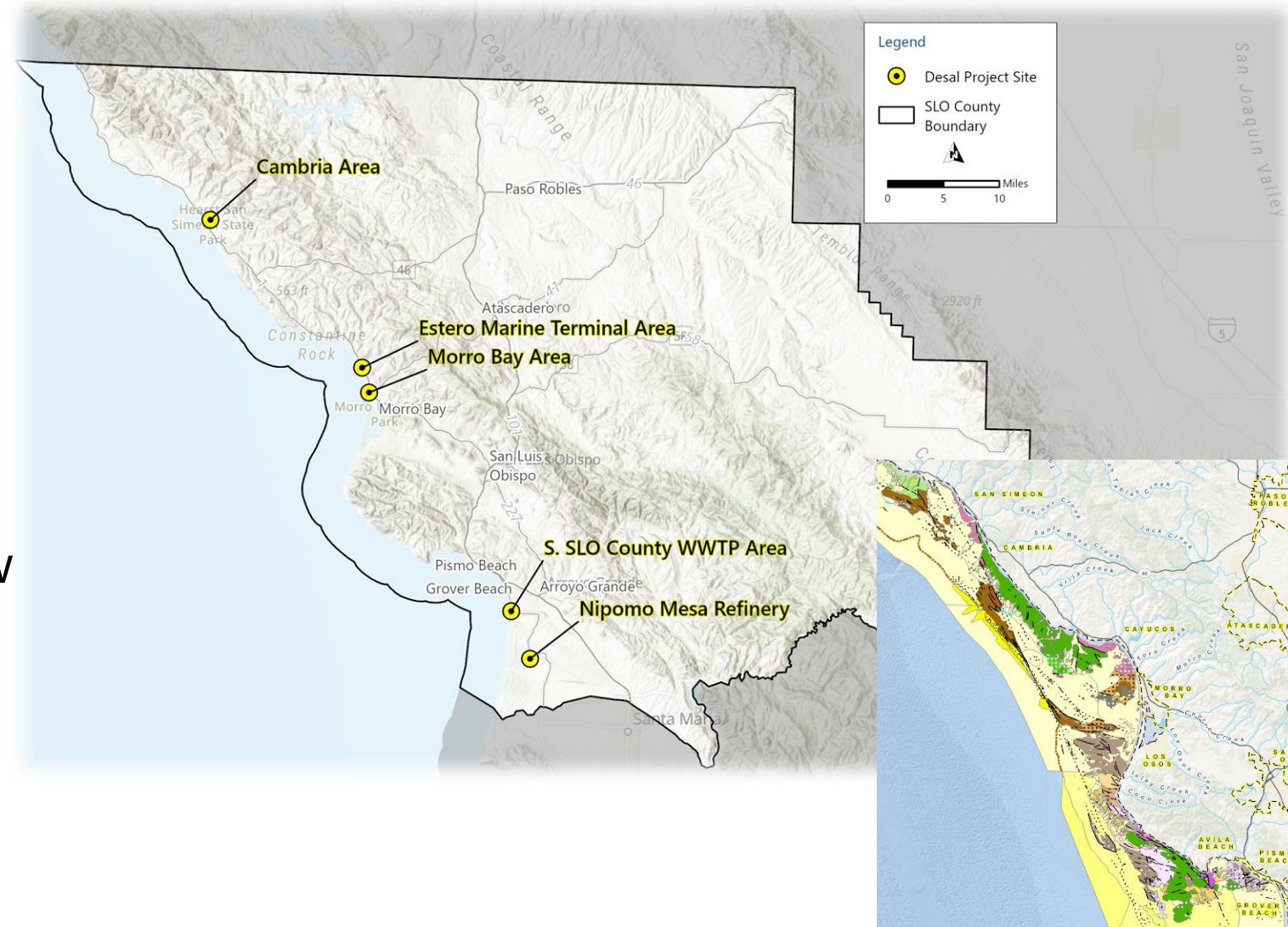


Surface Buoy with Low-impact intake

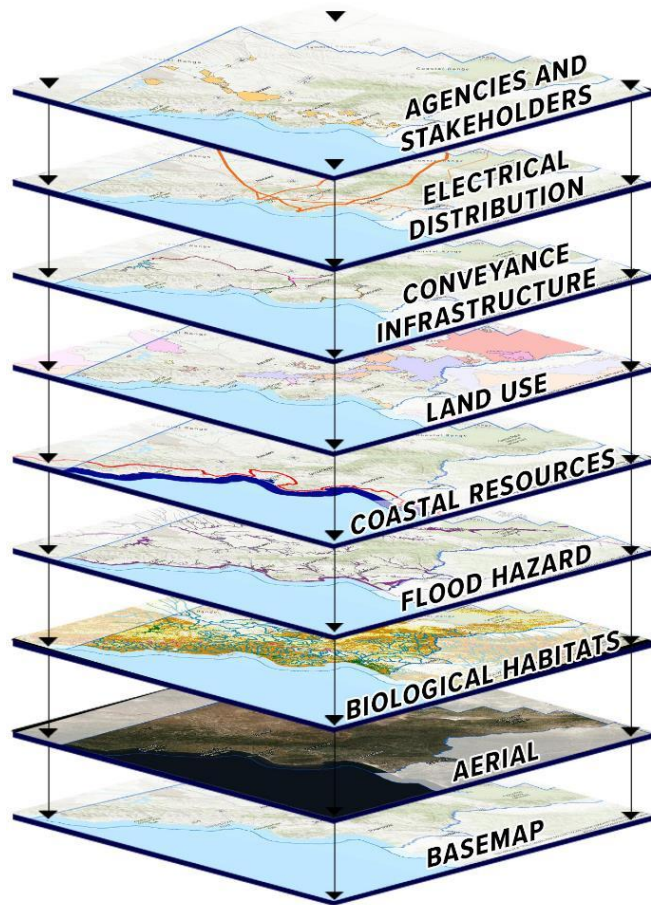
Alternatives

Consolidated Sites for Further Evaluation

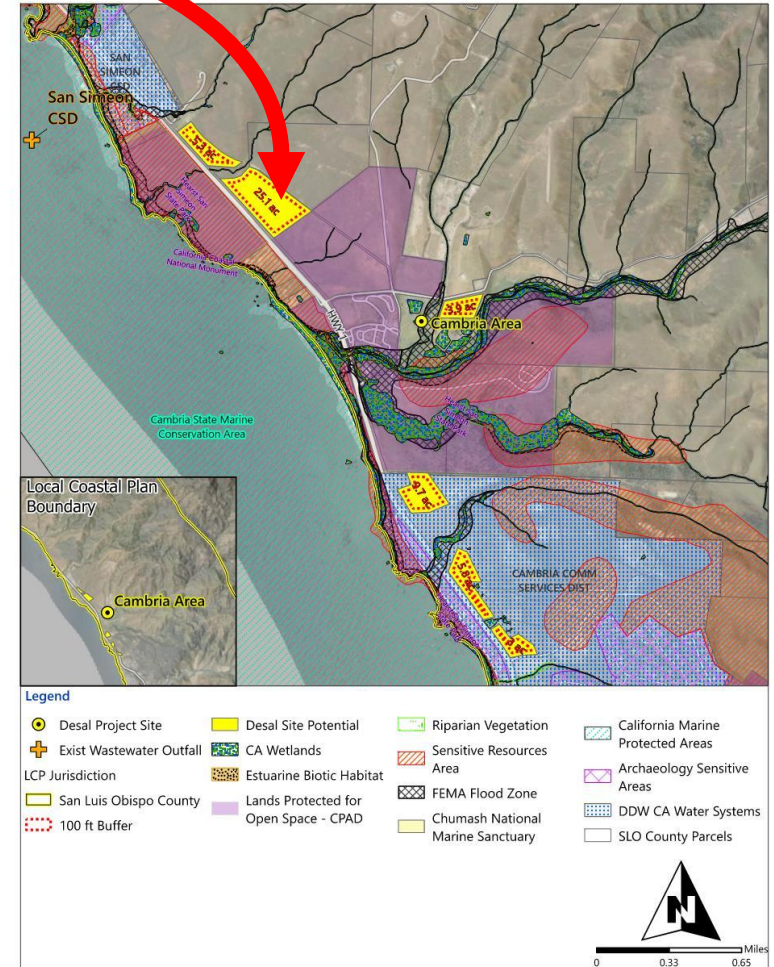
- Sites represent geographic areas not exact locations
- Removed sites with unsuitable hydrogeology (e.g. Diablo)
- Using existing outfalls where possible
- Some locations will require new outfall as existing outfalls are too small



Rough Screening



Identify Areas of Least Potential Impact



Alternative Development

An Alternative =

Site for an ocean intake, outfall, and desal treatment plant



Size of facility (constrained by existing outfall capacity)



End Users (demands for direct deliveries, potential exchanges)



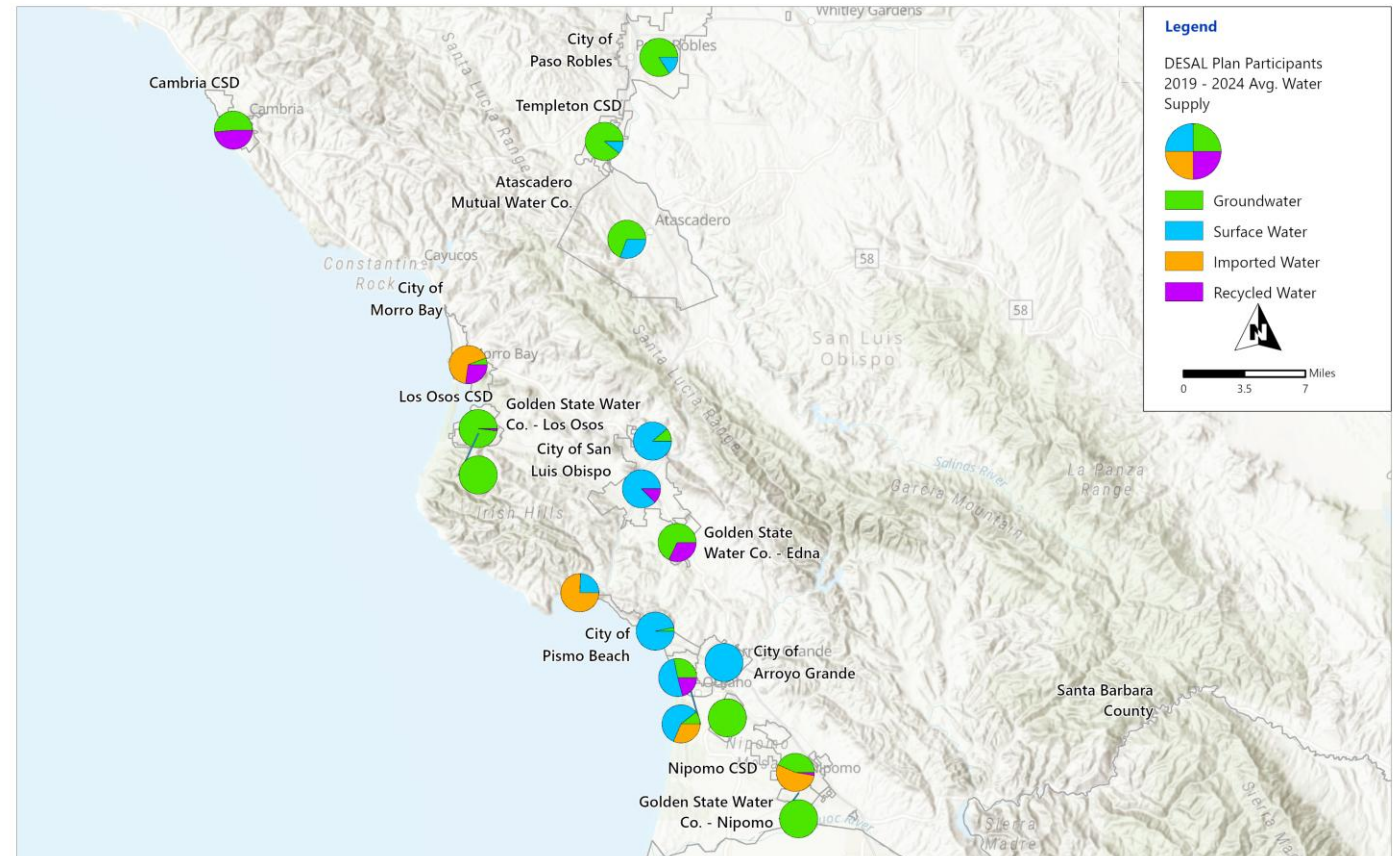
Conveyance needed for deliveries/exchanges

Potential Demands and End User Requests

Water use – now and in future

- Develop baseline water use
- Surveyed 20 County water agencies
- Diverse response on where Desal's role fits in
- Approx 5,300 AFY (4.7 mgd) of Desal use identified by partner needs
- Other potential use identified for supply resiliency and groundwater sustainability

Total Partner demands ≈ 40,000 Acre-feet/year (AFY)



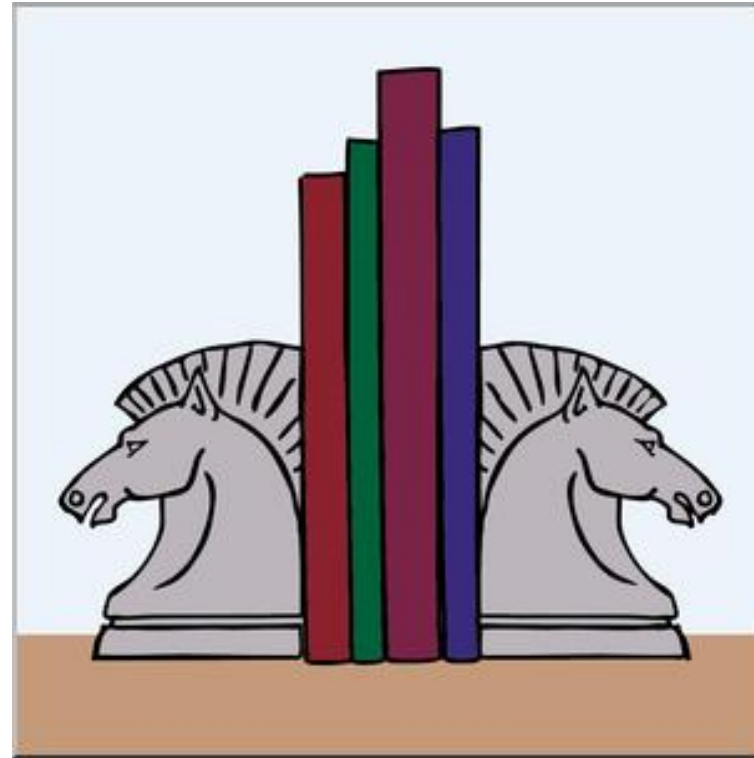
Philosophy for Developing Alternatives - Bookends

SIZE

Small: Meets partners' requested demands



Large: Addresses water supply and resilience issues



GEOGRAPHY

North: Serves north and mid-coast users



South: Serves south coast users

BREADTH

Local: Local users only



Regional: Serves broader area

Overview of 5 Rough Screened Alternatives

Alternative	Partners Served	Capacity Range	Outfall/Total Piping
Alternative A – Cambria	Cambria, San Simeon	330-580 AFY (0.3-0.5 mgd)	New Outfall 15 miles
Alternative B – Cayucos/Estero Marine Terminal	Los Osos, Cambria, San Simeon, potential SWP exchange	930-1,055 AFY (0.8-0.9 mgd)	Estero Marine Terminal Outfall 32 miles
Alternative C – Morro Bay Area	Los Osos, San Luis Obispo, Cal Poly, all Lopez users, Templeton, San Luis Groundwater, Cambria, San Simeon	5,855-7,855 AFY (5.2-7 mgd)	Morro Bay Outfall 41 miles
Alternative D – South SLO	Los Osos, San Luis Obispo, Cal Poly, all Lopez users, Templeton, San Luis Groundwater, Northern Cities and Nipomo Mesa Management Areas, Nipomo	5,070-6,825 AFY (4.5-6 mgd)	South SLO County CSD Outfall 32 miles
Alternative E – Nipomo Mesa	All Lopez users, Nipomo, Santa Barbara County (optional)	1,805-1,905 AFY (1.6-1.7 mgd)	Nipomo Mesa Outfall 22 miles

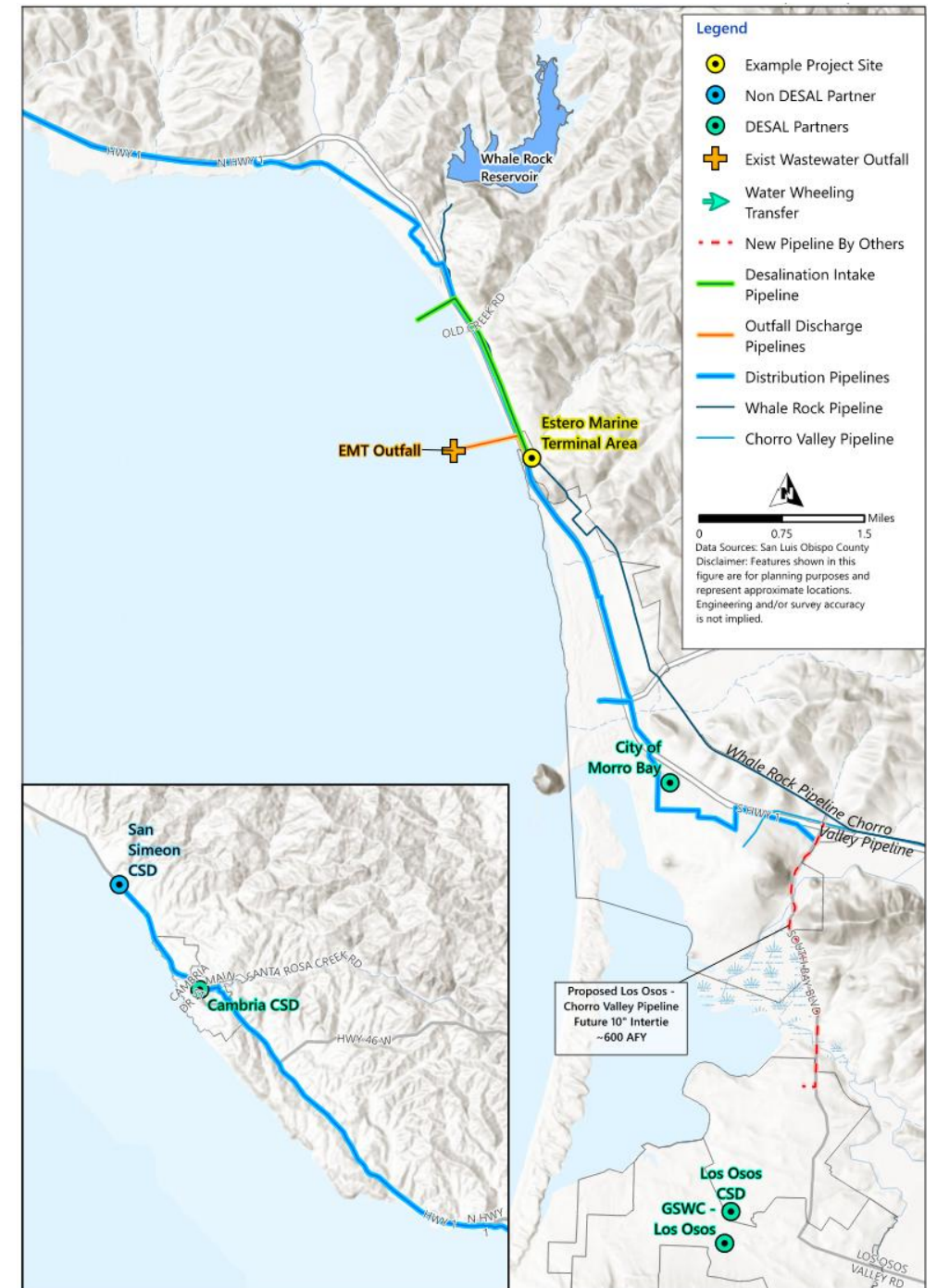
Alternative A – Cambria Area Local Deliveries

- 330 – 580 AFY (0.3 - 0.5 mgd)
- Potential Users: Cambria and San Simeon
- New Outfall
- Avoid existing Marine Protected Areas - relocate intake and outfall North of San Simeon
- Approx 15 miles total of pipeline



Alternative B – Cayucos/ Estero Marine Terminal

- 930 – 1,055 AFY (0.8 - 0.9 mgd)
- Potential Users: Cambria, San Simeon, Los Osos
- Use existing Estero Marine Terminal outfall
- Optional: Exchange with South County users via Lopez pipeline and State Water Project at Morro Bay
- Approx 32 miles total of pipeline



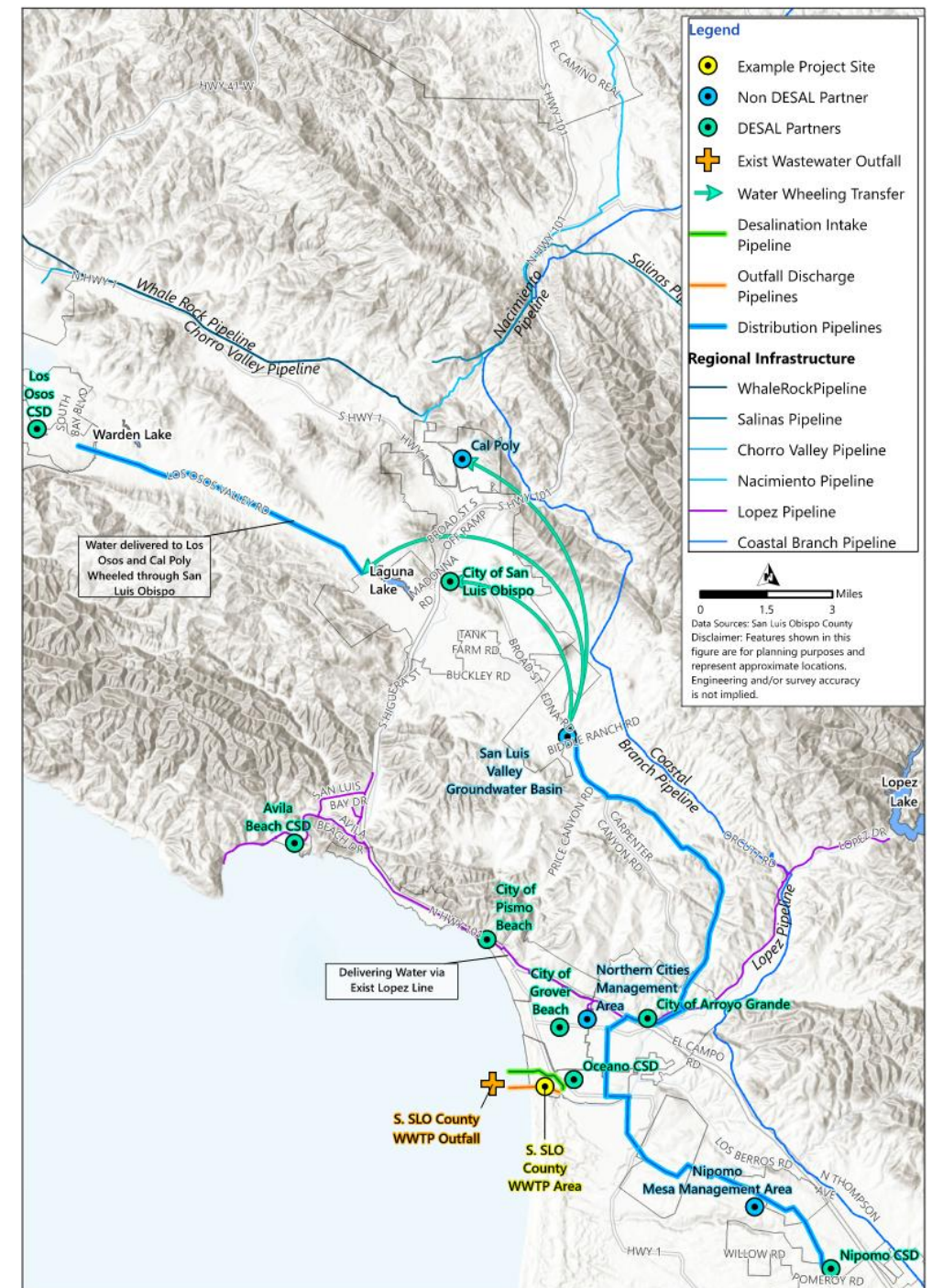
Alternative C – Morro Bay Area

- 5,855 – 7,885 AFY (5.2 - 7 mgd)
- Potential Users: Los Osos, SLO, Cal Poly, all South County Lopez users, Templeton, San Luis GSAs
- Optional users: Cambria/San Simeon or Santa Barbara County
- Exchanges via Lopez/SWP and Nacimiento pipelines.
- Use existing MB Outfall
- Approx 46 miles total of pipeline



– Alternative D – South SLO County Area

- 5,070 – 6,825 AFY (4.5 – 6 mgd)
- Potential Users: SLO, Cal Poly, all South County Lopez users, Northern Cities and Nipomo Mesa Management Areas, Nipomo, Templeton, San Luis GSA,
- Potential new pipeline to Los Osos for higher delivery
- Use existing South SLO County WWTP Outfall
- Wheel Water through SLO
- Potential Exchanges with North County via Nacimiento
- Approx 31 miles total of pipeline



Alternative E – Nipomo Mesa Refinery

- 1,805 - 1,905 AFY (1.6 - 1.7 mgd)
- Potential Users: All South County Lopez users, Nipomo
- Optional to Santa Barbara County via State Water Project
- Use existing refinery outfall.
- Increase South County offset with exchange via Lopez pipeline and SWP.
- Approx 21 miles total of pipeline



Questions on Alternatives?

Community Engagement Session & Related Outreach

Community Engagement

- Website updates, FAQs, email blasts, media/social media
- Community Engagement Virtual Session: 9/15
- Online Community Survey: 8/25 – 9/22
- Public Workshops – 4/20 and 4/21
 - Presentation and video on website
 - Fact sheet on website

San Luis Obispo County Desalination Executable Solution and Logistics (DESAL) USBR Feasibility Study

BACKGROUND

As a coastal region, San Luis Obispo County has an opportunity to explore ocean desalination as a reliable and resilient water supply to help adapt to climate uncertainties and address future water needs. A United States Bureau of Reclamation (USBR) WaterSMART grant has provided our region with funding support to study the feasibility of developing seawater desalination as a new source of water for our community.



DESAL PLAN FEASIBILITY STUDY

The San Luis Obispo County Flood Control and Water Conservation District (District) and the sixteen (16) DESAL Plan Partners are in Phase 2: DESAL Planning Phase to prepare a feasibility study evaluating and comparing desalination project alternatives. This study will identify potential desalination locations and conceptual conveyance configurations associated with project needs while considering environmental, social and physical constraints of each project alternative.

No final decisions will be made during this phase. The feasibility study findings will support meaningful dialogue among partner communities on how desal could potentially help meet the region's long-term water supply goals and support a water-secure future.

TIMELINE



provides
to better
outline
complete,
support

Desalination Executable Solution and Logistics (DESAL) Plan

Community Engagement Sessions – April 20 and 21, 2026

www.slocounty.ca.gov/DESAL

Themes of Major Comments at Public Meetings

- Understanding terminology
- Regional water supply portfolio and whether new/more water is needed
- Water allocation and uses
- Cost, affordability and "who pays"
- Environmental impacts, especially marine and coastal habitats
- Permitting and regulatory concerns
- Alternative locations and site-specific concerns
- Fairness, equity, and regional benefit
- Governance, decision making, and trust
- Infrastructure, feasibility and logistics
- Timeline, urgency and future planning
- Technology and alternatives
- Relationship to growth and future development
- Energy and climate

Plan for Additional Outreach

- Update FAQs currently on website to address some of the questions asked at community sessions
- Open Public Survey to email list of interested parties and posted on website
- Post Draft Feasibility Study Report on website for public review and comments (via online portal)
- Additional public meetings:
 - » August WRAC meeting to review Draft Report
 - » Board of Supervisors – Sept 1st

Public Survey – June 2026

- Goal of survey is to help educate and inform while also soliciting input
- Gain understanding of public knowledge of water supplies and resiliency/risks
- Identification of local concerns and issues
- Focus on what comes next

- Comments/Thoughts?

Questions/Comments on Community Engagement?

High Level Costs

Costs of Water Supplies in the County (last 3 yrs)

- State Water Project Costs
 - » \$1,300 - \$2,100/ac-ft
- Nacimiento Water
 - » \$1,300 - \$1,800/ac-ft
- Lopez
 - » \$2,000 - \$2,400/ac-ft
- BUT – what is the cost when there is no water?
- Each of these supplies has vulnerabilities and issues with supply reliability

Recent/On-going Approved Desal Projects

- Cal Am (Monterey) (4.8 mgd, expandable to 6.4 mgd, designed):
 - » Significant opposition and question of need delayed project for years
 - » Soft costs were very expensive given the significant environmental permitting efforts.
- Doheny Desalination (5 mgd expandable to 15 mgd, in design):
 - » First facility using preferred technologies of subsurface intake and blended brine discharge
 - » Oct 2025 cost estimates range from \$3,000 – 3,700/ac-ft
- Santa Barbara (3 mgd, operating):
 - » Reactivated (rebuilt) desalination facility that was previously permitted
 - » Allowed to use existing intake (with new screens) and outfall
 - » 2020 estimate of \$3,194/ac-ft

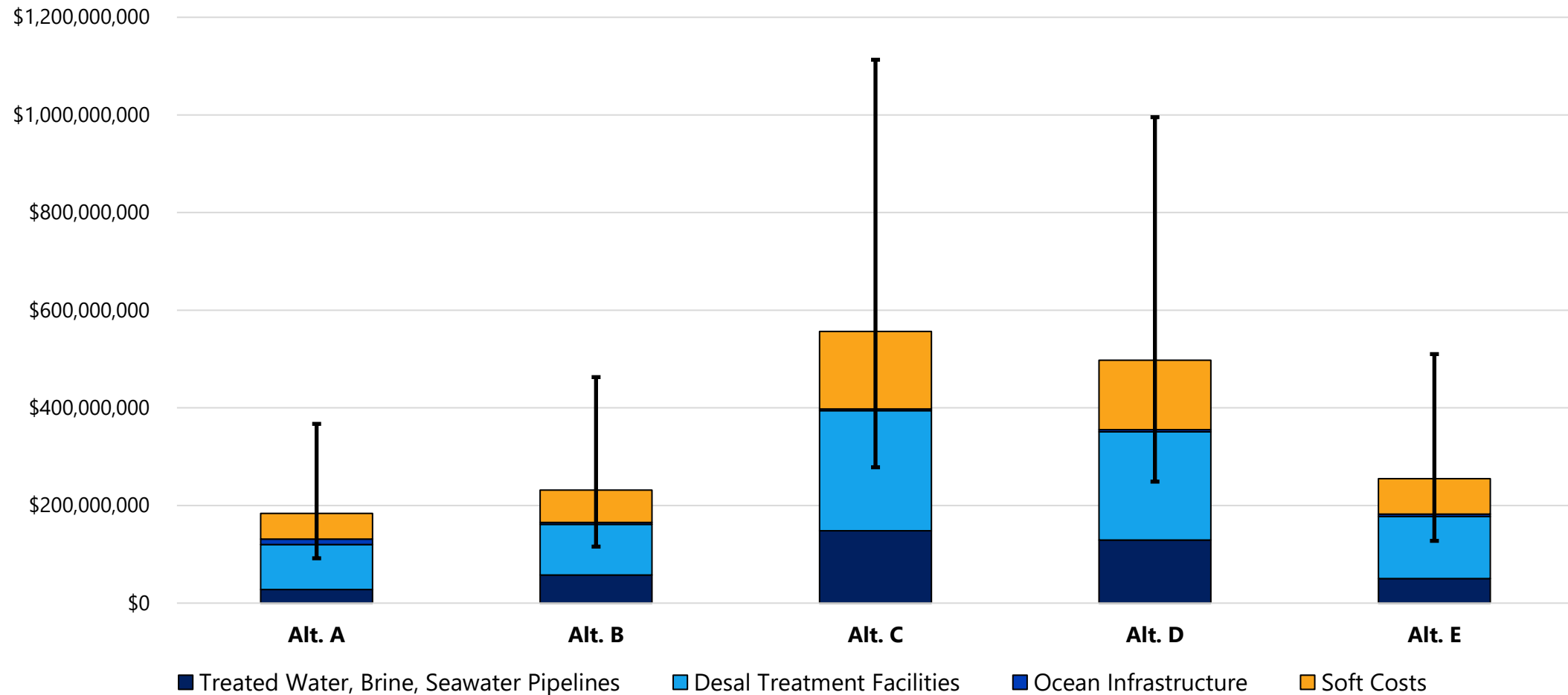
Categories of Costs and Uncertainties

Category	Includes	Certainty of Cost	Reason
Ocean Infrastructure	<ul style="list-style-type: none"> Subsurface Intakes New Outfall (Cambria) Outfall retrofits 	Medium	<ul style="list-style-type: none"> Site specific soils affect sizing for intakes All outfalls will need retrofitting-diffusers, need to model dilution Existing outfall conditions unknown
Desal Treatment	<ul style="list-style-type: none"> Pretreatment Reverse Osmosis Post Treatment 	Low to Medium	<p>Not many Desal facilities built in CA</p> <p>Permitting effort can be extensive</p> <p>Getting equipment costs</p>
Pipelines	<ul style="list-style-type: none"> From intake to treatment From treatment site to outfall From treatment to end users 	Medium - High	<p>Unit costs of pipelines well known</p> <p>Can make assumptions about installation techniques</p> <p>Some site specific differences</p>

Assumptions for Cost Estimates

Included in Cost	Not Included in Cost
Today's dollars, no escalation	Condition of existing infrastructure and needed improvements
Construction Cost of Ocean Infrastructure, Treatment and Pipelines	O&M – not yet determined, Life Cycle Costs – not yet determined
Contingency, Taxes, Contractor Overhead	Land Acquisition
Soft costs (as percentage) including: <ul style="list-style-type: none"> • Legal/admin • Permitting • Engineering Design • CEQA • Environmental mitigation • Construction management 	Mitigation for environmental justice or community benefits

Alternatives Range of Preliminary Cost Comparison – Capital Costs only



Notes:

- 1) New outfall costs included for Alternative A. Approximate outfall improvement costs included for Alternatives B-E.
- 2) AACE Class 5 Estimate: Accuracy Range +100%, -50% of Total Project Costs

Potential Additional Efforts Following This Study

—
There are many regulatory agencies that would be involved in permitting a project



**State Water
Resources
Control Board**



**CALIFORNIA DEPARTMENT OF
WATER RESOURCES**



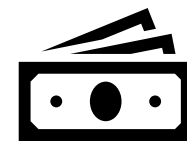
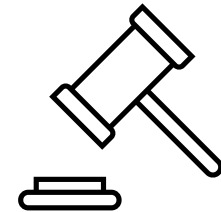
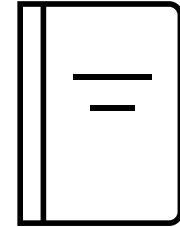
**CALIFORNIA
OCEAN
PROTECTION
COUNCIL**



Additional actions beyond study if pursued further

Mid-Term:

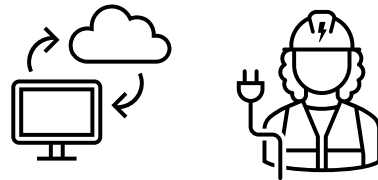
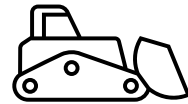
- Site specific investigations – soils, hydrogeology, marine studies, outfall dilution/condition, coastal risks/hazards, energy studies, treatment siting, existing infrastructure needs, pipeline corridors....
- Pilot and demonstration projects
- Permitting and CEQA
 - » Define need, demonstrate optimized water use
 - » Permitting discussions and required investigations
 - » Environmental Impact Report
- Governance, Financing/Funding Studies and Negotiations



Additional actions beyond study if pursued further

Longer-Term:

- Design
- Construct
- Operate



Next Steps

Next Steps



Public Survey

» June 2026

Draft Report

» Posted in July 2026

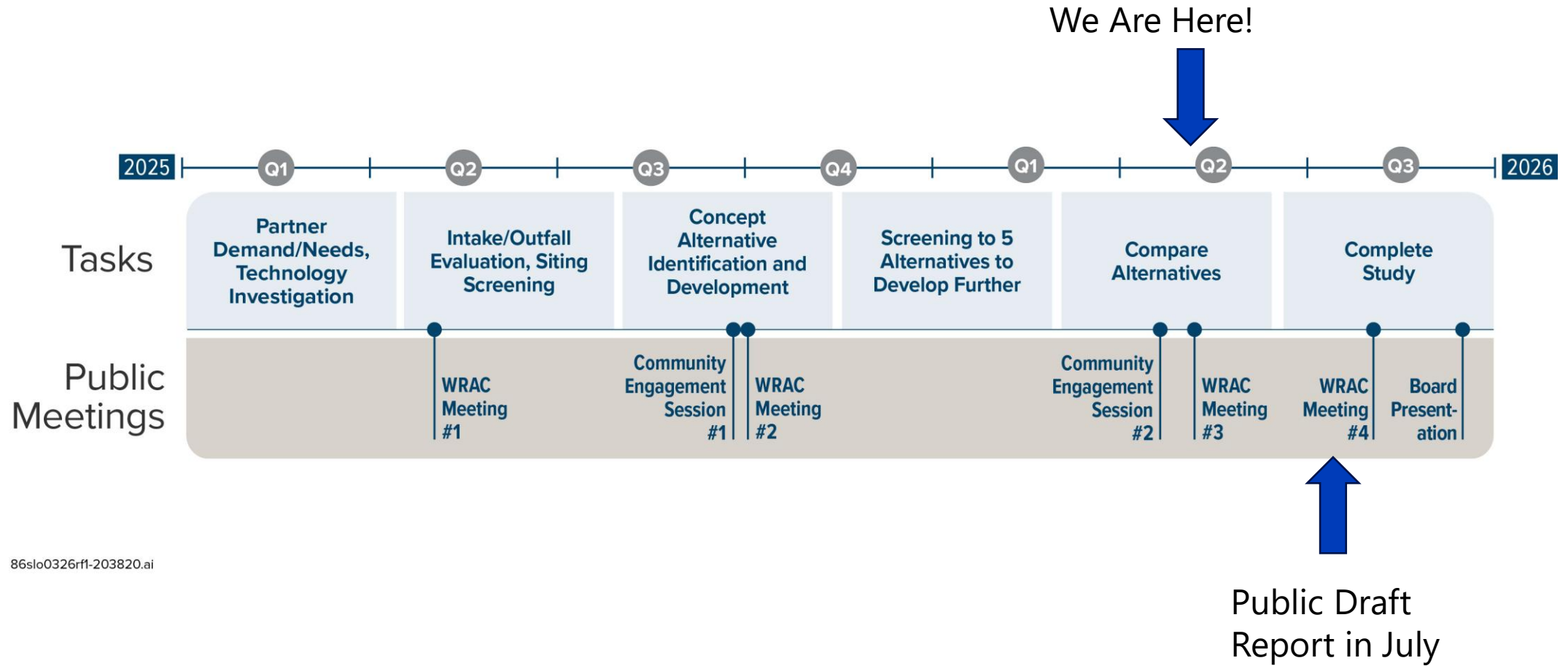
Public presentations at WRAC:

» Aug 2026

County Board of Supervisors

» Sept 1 2026

Next Steps



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Thank You