

Desalination Executable Solution and Logistics (DESAL) Plan

Water Resources Advisory Committee – August 5, 2026



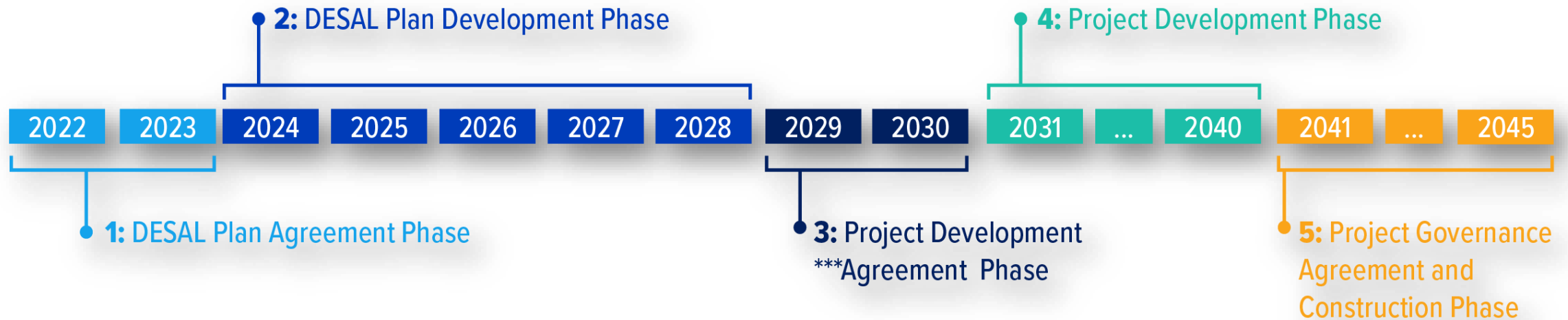
Item Agenda

1. Project Objectives/Timeline
2. Alternatives Evaluation Process and Rough Screened Alternatives
3. Alternatives Cost
4. Benefits of Desal
5. Community Outreach and Survey
6. Potential Future Phases of Work
7. Wrap up

| Project Objectives/Timeline

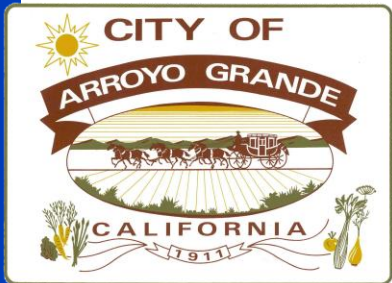
Reminder of Project Goals

1. Consider desalination alternatives for resilient new water supply.
 - a. Develop short-list of alternatives – not selecting a preferred project
2. Progress District's DESAL Plan working with partners, stakeholders.
3. Prepare a report aligned with Title XVI USBR Feasibility Study requirements.



Potential Timeline for Development of a Desalination Project

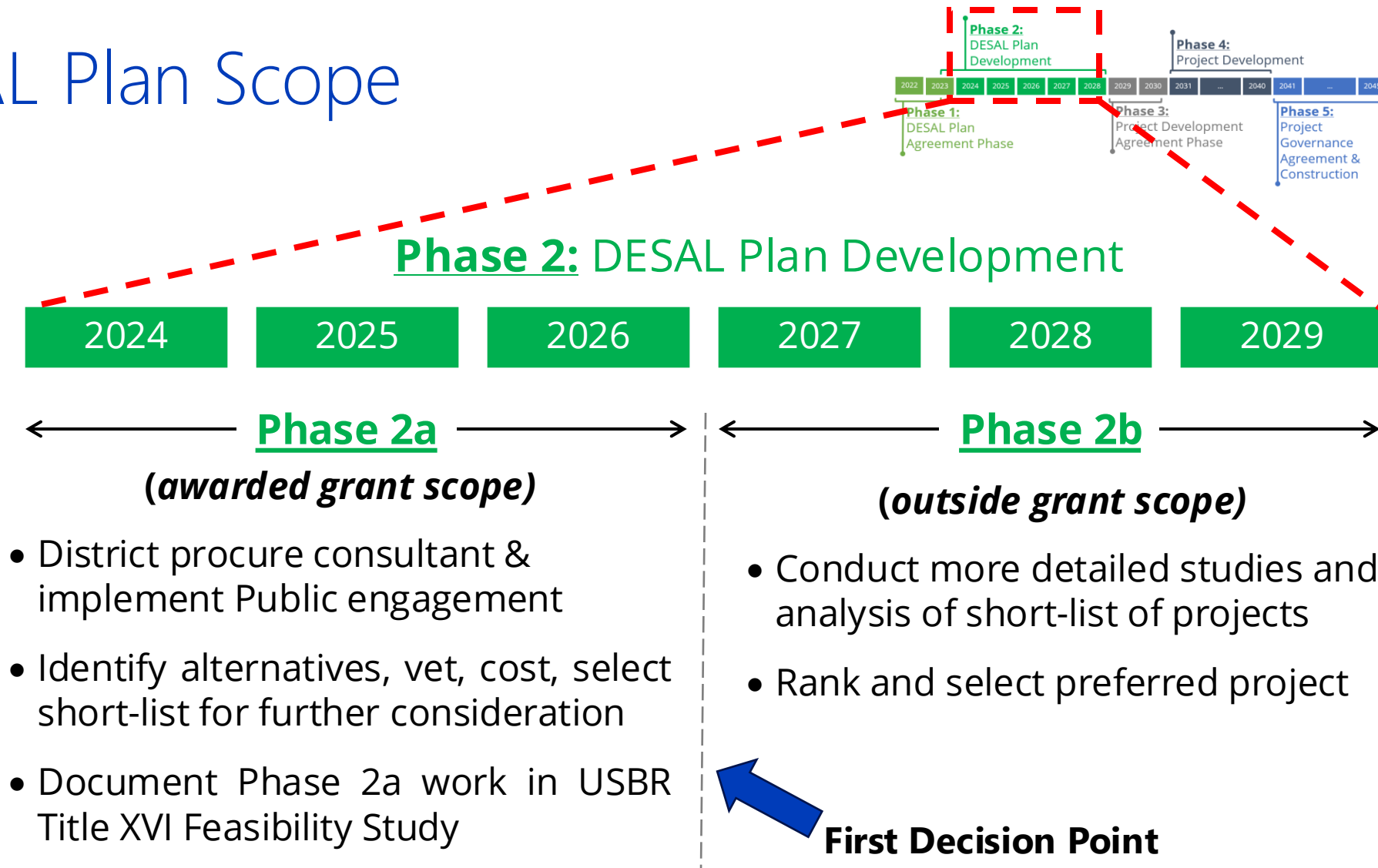
DESAL Plan Partners



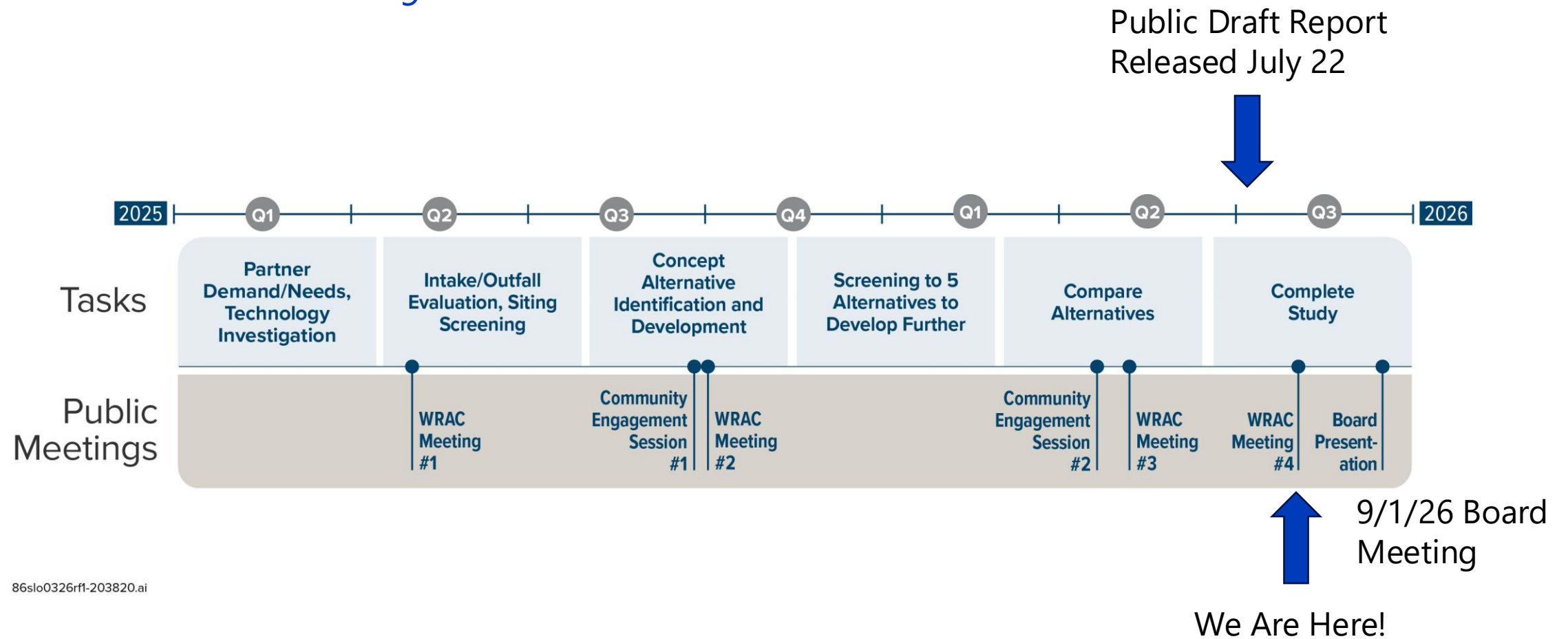
Golden State
Water Company



DESAL Plan Scope



Overview of Project Timeline



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Alternatives Evaluation Process and Rough Screened Alts

Alternative Development

An Alternative =

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



Size of facility (constrained by existing outfall capacity)

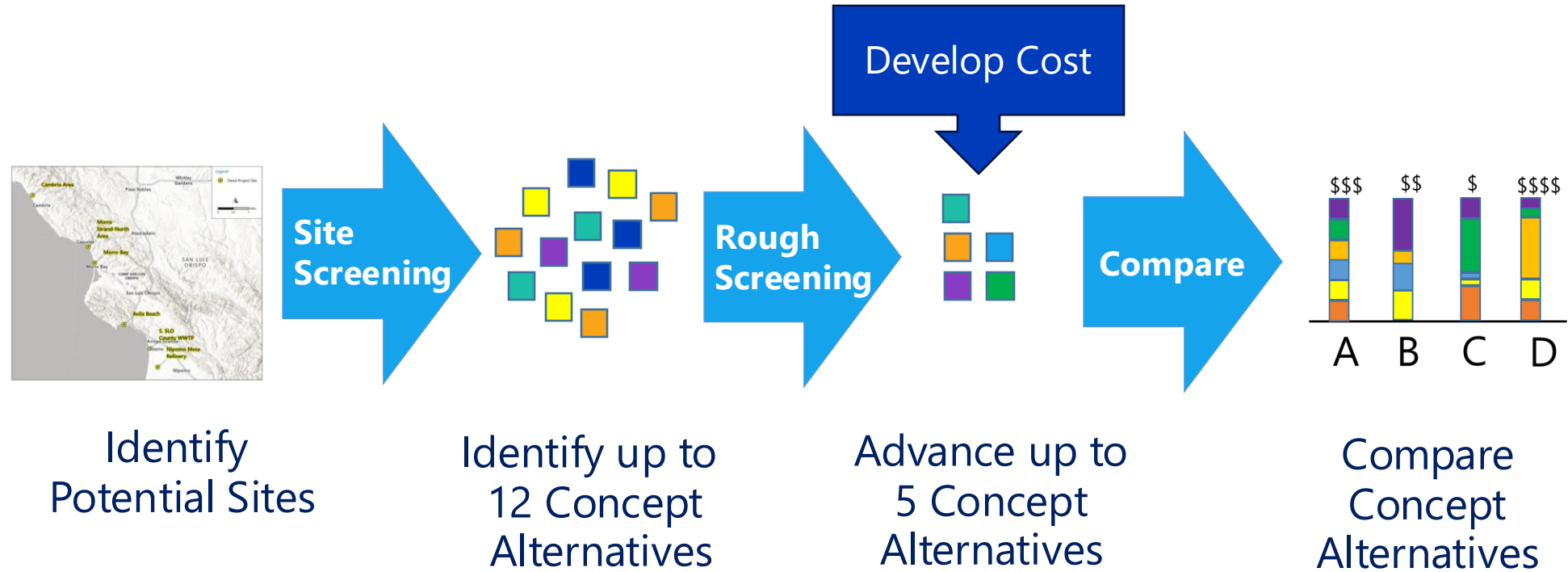


End Users (demands for direct deliveries, potential exchanges)



Conveyance needed for deliveries/exchanges

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



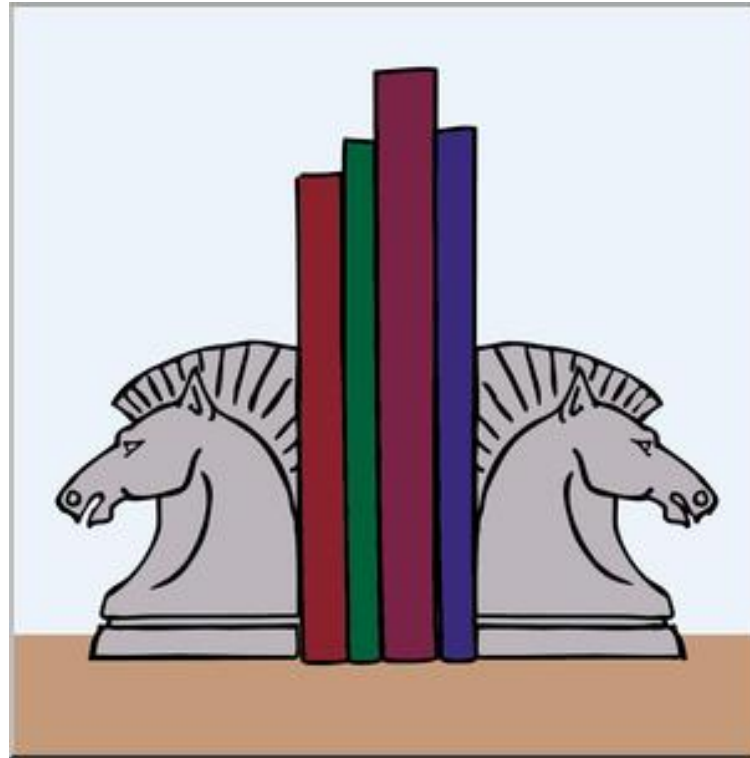
Not Developing a Preferred Alternative,
Just comparing the 5 Alternatives

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
Alternative A – Cambria	Cambria CSD, San Simeon CSD	330-580 AFY (0.3-0.5 mgd)
Alternative B – Cayucos/Estero Marine Terminal	Los Osos CSD, Cambria CSD, San Simeon CSD, potential SWP exchange	930-1,055 AFY (0.8-0.9 mgd)
Alternative C – Morro Bay Area	Los Osos CSD, City of San Luis Obispo, Cal Poly, all Lopez users, Templeton CSD, San Luis Groundwater, Cambria CSD, San Simeon CSD	5,855-7,135 AFY (5.2-7 mgd)
Alternative D – South SLO	Los Osos CSD, City of San Luis Obispo, Cal Poly, all Lopez users, Templeton CSD, San Luis Groundwater, Northern Cities and Nipomo Mesa Management Areas, Nipomo CSD	5,070-6,825 AFY (4.5-6 mgd)
Alternative E – Nipomo Mesa	All Lopez users, Nipomo CSD, Santa Barbara County (optional)	1,805-1,905 AFY (1.6-1.7 mgd)

| Alternatives Costs

Assumptions used in cost analysis

- Costs are in today's dollars (2026) January 2026
- **Construction Contingencies:**
 - » Construction Costs – use 30% contingency
 - » SLO County sale tax applied to 50% of costs – 7.25%
 - » Contractor OH, Mark up, General Conditions – 15%
- **Major assumptions include:**
 - » Traditional intake infrastructure with subsurface slant wells.
 - » Typical open trench pipeline installation – masterplan level costs.
 - » Pipes are sized for an average annual flow. Peaking factors not considered.
 - » Reverse Osmosis Treatment costs developed assuming traditional ocean desal, RO system vendor quotes, standard mechanical process equipment, and chemicals for treatment.
 - » Ocean outfall costs are developed and based on other projects in CA.

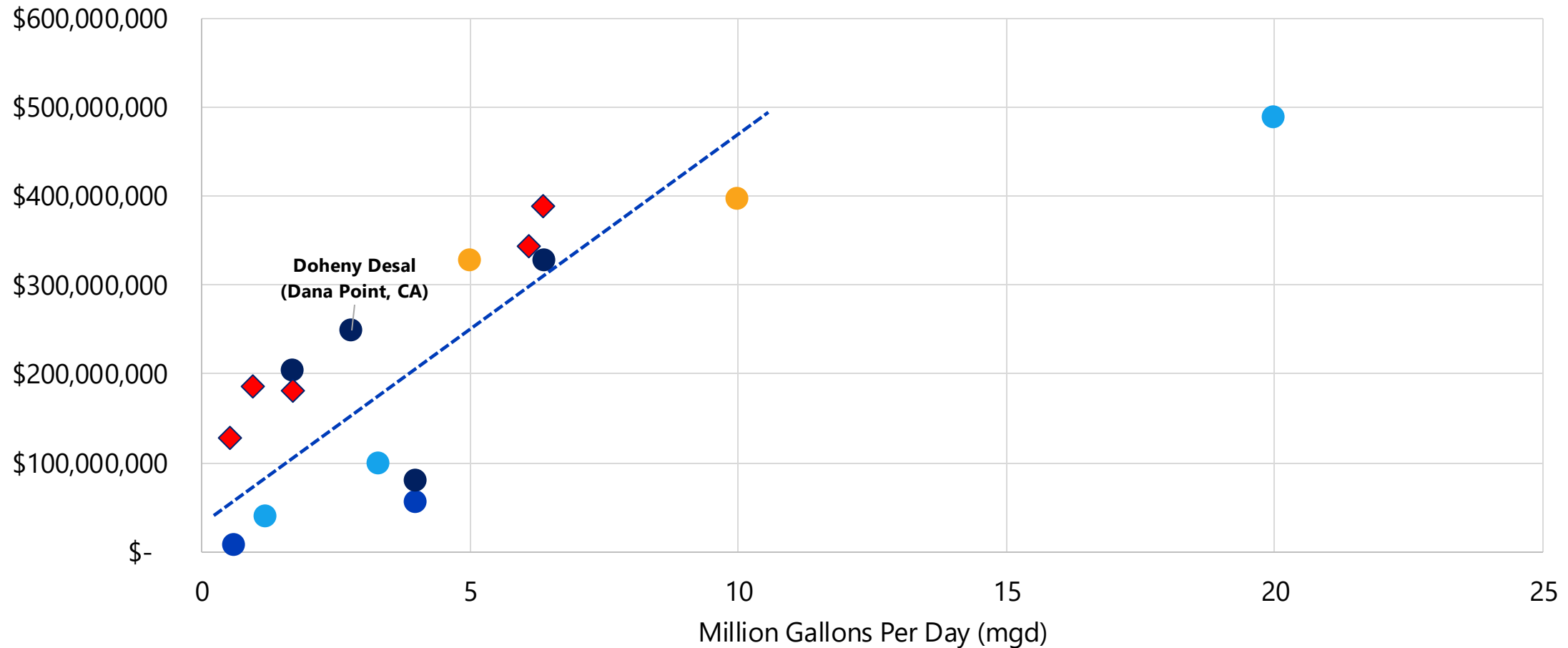
Soft cost assumptions

- **Large part of costs will be soft costs.... Not just construction costs.**
- **Soft Costs (% of Total Construction Cost)**
 - » Planning – 5%,
 - » Engineering and Design - 10%
 - » Environmental Permitting and Mitigation – 10%
 - » Administrative and Legal – 5%
 - » Engineering services during construction, Inspection and Construction Management - 10%

Cost comparison - Summary

Project Component	Alternative A Cambria Area	Alternative B Cayucos/EMT Area	Alternative C Morro Bay Area	Alternative D South SLO County WWTP Area	Alternative E Nipomo Mesa Area
Construction Subtotal, \$M	\$127.5	\$186.5	\$389.0	\$344.7	\$181.5
Soft Costs Subtotal, \$M	\$51.0	\$74.6	\$155.6	\$137.9	\$72.6
Total Capital Costs, \$M	\$178.6	\$261.0	\$544.6	\$482.6	\$254.1
Annual O&M Costs (\$M/yr)	\$10.6	\$14.8	\$63.8	\$55.5	\$20.2
Total Estimated Max Yield (AFY)	330 - 580 AFY	1,055 AFY	7,135 AFY	6,825 AFY	1,905 AFY
Annualized Unit Cost \$/AFY using max supply	\$24,943	\$19,344	\$10,020	\$9,150	\$13,071

Comparison to Other Desal Projects



● Constructed ● Cancelled ● Design ● Assessment ◆ SLO DESAL Plan Alternatives

Alternative A - Details and Construction Cost Breakdown

Alternative	Partners Served	Capacity Range/Outfall
Alternative A – Cambria	Cambria CSD, San Simeon CSD	330-580 AFY (0.3-0.5 mgd) New Outfall

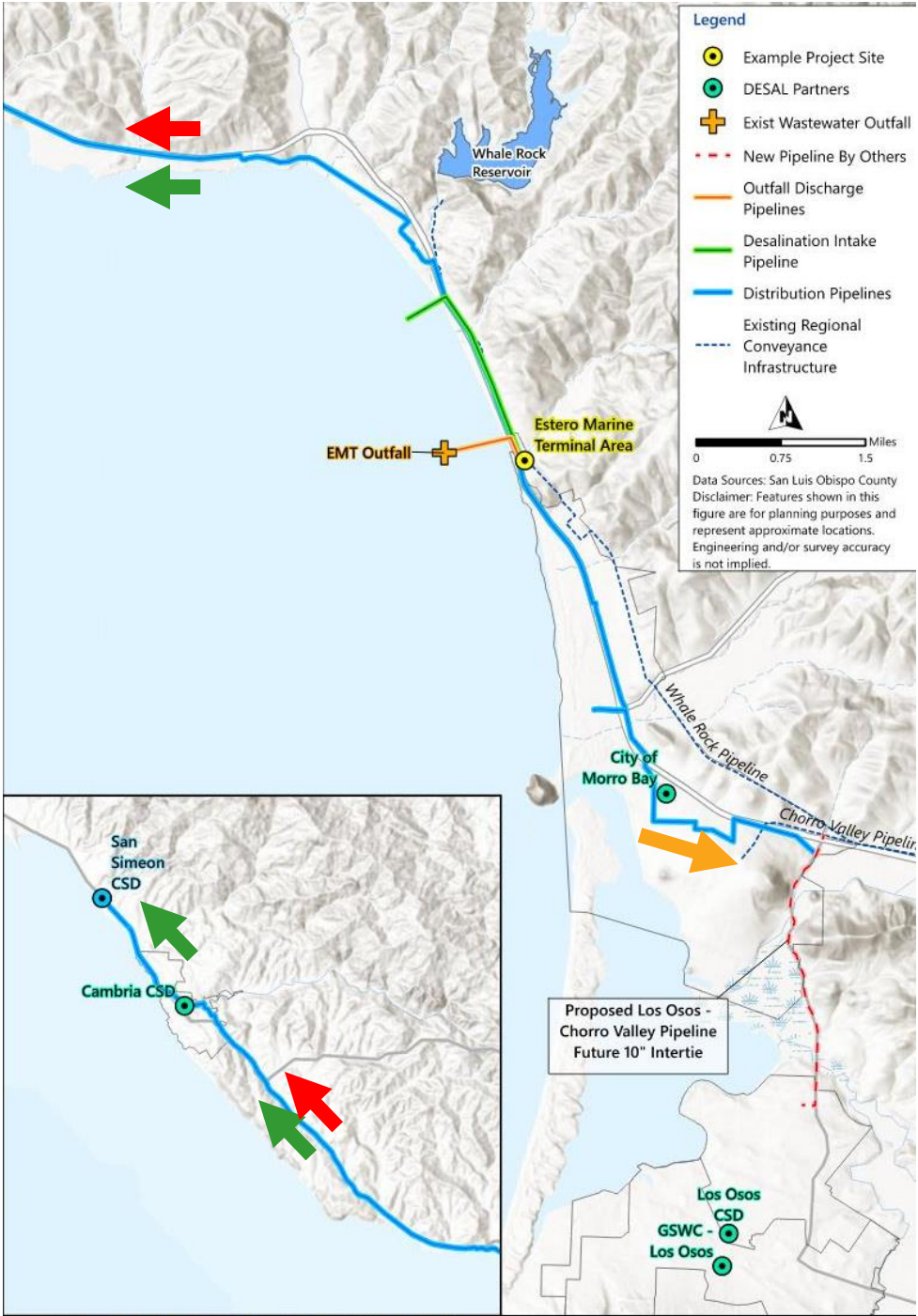
Construction Cost Breakdown	
Project Component	Estimated Costs
Ocean Intake Infrastructure	\$36,318,000
Brine Discharge Infrastructure	\$20,327,000
Treatment Facility	\$50,269,000
Treated Water Infrastructure	\$11,035,000
To Cambria Pipeline Segment	\$7,914,000
To San Simeon Pipeline Segment	\$1,690,000
Total Estimated Construction Costs	\$127,553,000



Alternative B - Details and Construction Cost Breakdown

Alternative	Partners Served	Capacity Range/Outfall
Alternative B – Cayucos/Estero Marine Terminal	Los Osos CSD, Cambria CSD, San Simeon CSD, potential SWP exchange	930-1,055 AFY (0.8-0.9 mgd) EMT Outfall

Construction Cost Breakdown	
Project Component	Estimated Costs
Ocean Intake Infrastructure	\$42,007,000
Brine Discharge Infrastructure	\$1,733,000
Treatment Facility	\$62,937,000
Treated Water Infrastructure	\$10,573,000
To Cambria/San Simeon Pipeline Segment	\$43,459,000
To San Simeon Pipeline Segment	\$11,293,000
To Los Osos Pipeline Segment	\$14,453,000
Total Estimated Construction Costs	\$186,455,000



– Alternative C – Details and Construction Cost Breakdown

Alternative	Partners Served	Capacity Range/Outfall
Alternative C – Morro Bay Area	Los Osos CSD, City of San Luis Obispo, Cal Poly, all Lopez users, Templeton CSD, San Luis Groundwater, Cambria CSD, San Simeon CSD	5,855-7,135 AFY (5.2-7 mgd) Morro Outfall

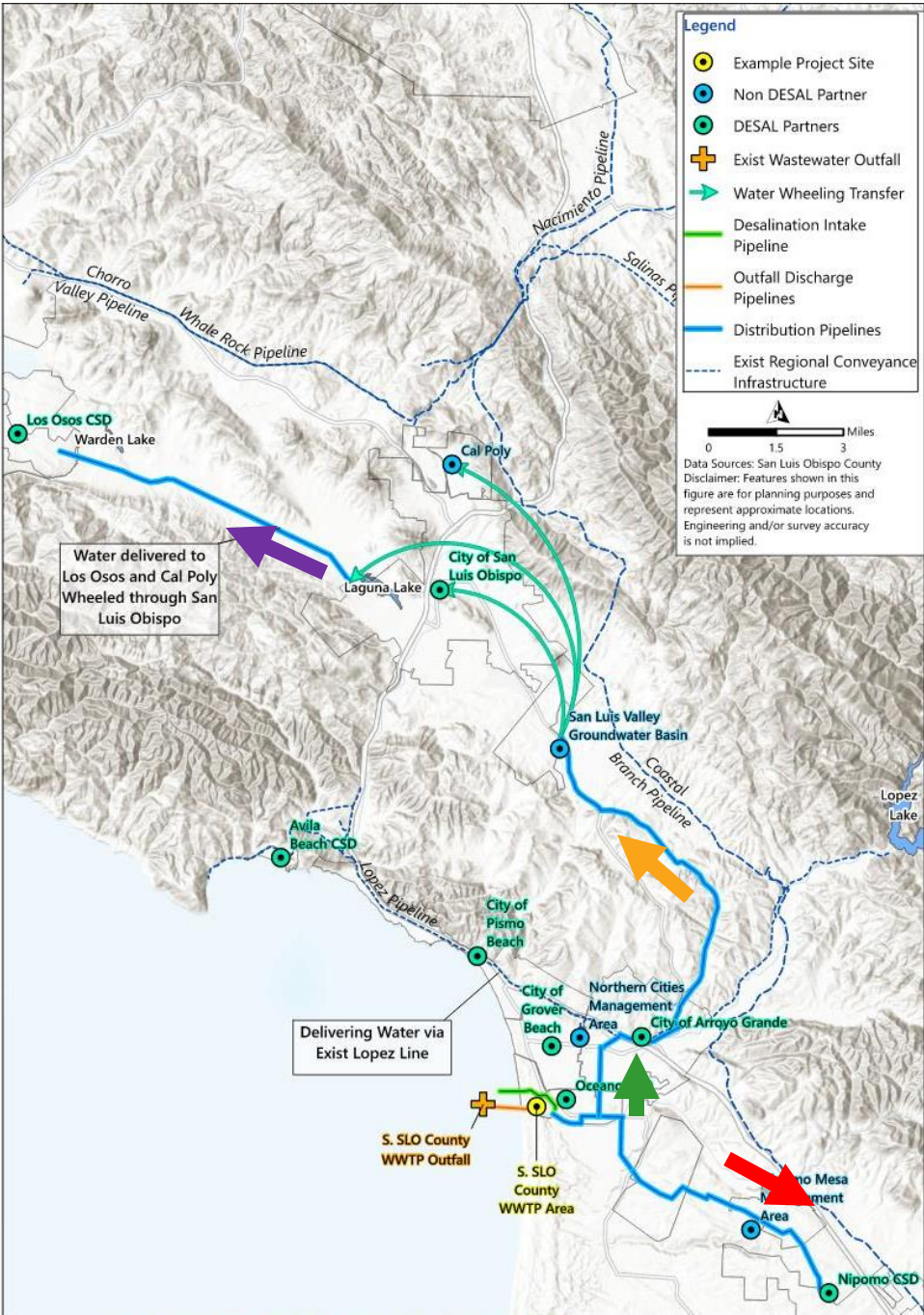
Construction Cost Breakdown	
Project Component	Estimated Costs
Ocean Intake Infrastructure	\$123,822,000
Brine Discharge Infrastructure	\$5,715,000
Treatment Facility	\$126,306,000
Treated Water Infrastructure	\$15,852,000
To Cambria/San Simeon Pipeline Segment	\$50,292,000
To San Simeon Pipeline Segment	\$3,765,000
To Los Osos Pipeline Segment	\$15,467,000
To SLO Pipeline Segment	\$43,795,000
To SWP Pipeline Segment	\$4,013,000
Total Estimated Construction Costs	\$389,027,000



– Alternative D - Details and Construction Cost Breakdown

Alternative	Partners Served	Capacity Range/Outfall
Alternative D – South SLO	Los Osos CSD, City of San Luis Obispo, Cal Poly, all Lopez users, Templeton CSD, San Luis Groundwater, Northern Cities and Nipomo Mesa Management Areas, Nipomo CSD	5,070-6,825 AFY (4.5-6 mgd) SSLOCSD Outfall

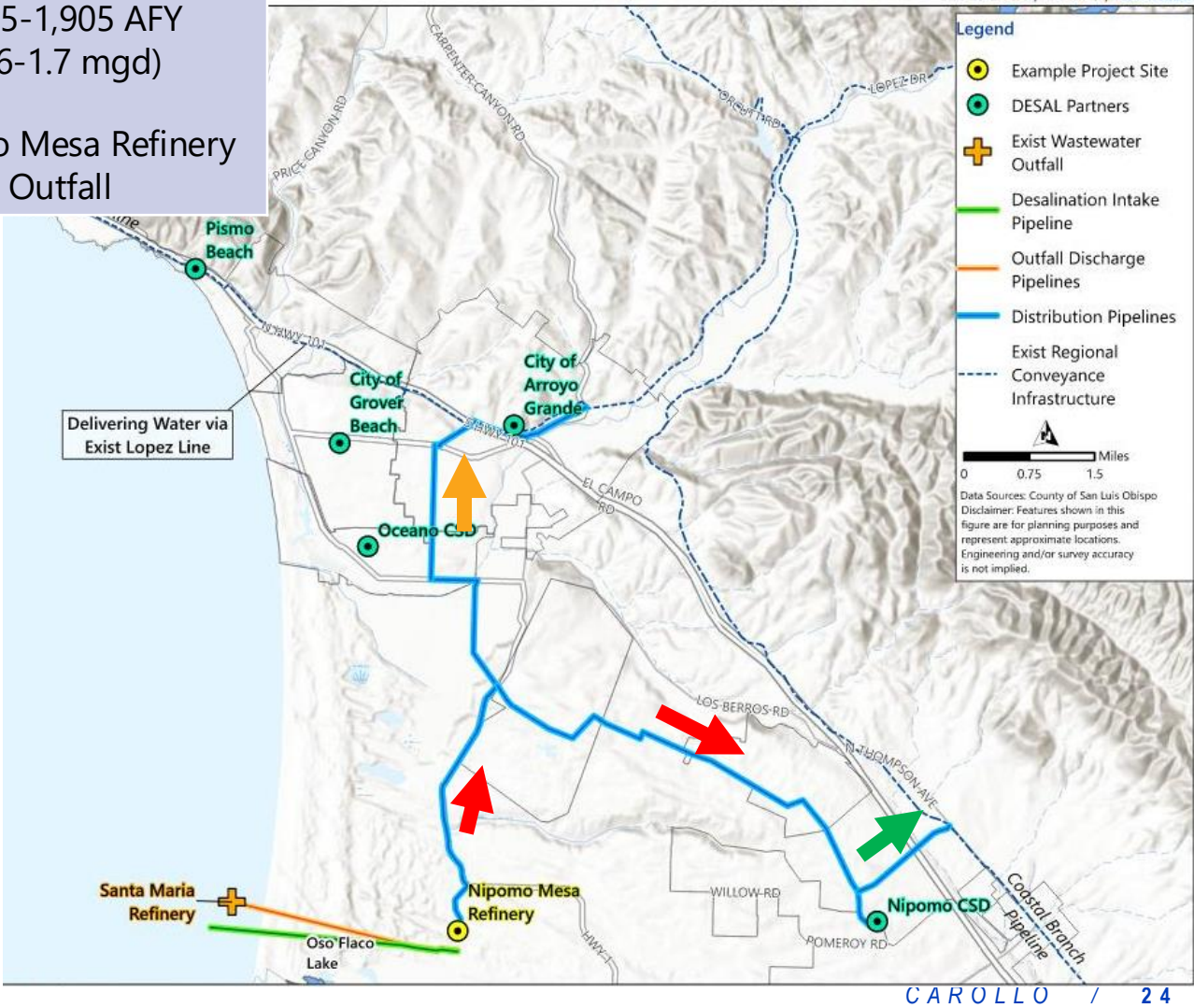
Construction Cost Breakdown	
Project Component	Estimated Costs
Ocean Intake Infrastructure	\$94,276,000
Brine Discharge Infrastructure	\$6,752,000
Treatment Facility	\$141,254,000
Treated Water Infrastructure	\$20,783,000
To Nipomo Pipeline Segment	\$18,866,000
To Lopez Pipeline Segment	\$17,324,000
To SLO Pipeline Segment	\$27,684,000
To Los Osos Pipeline Segment	\$17,758,000
Total Estimated Construction Costs	\$344,697,000



Alternative E - Details and Construction Cost Breakdown

Alternative	Partners Served	Capacity Range/Outfall
Alternative E – Nipomo Mesa	All Lopez users, Nipomo CSD, Santa Barbara County (optional)	1,805-1,905 AFY (1.6-1.7 mgd) Nipomo Mesa Refinery Outfall

Construction Cost Breakdown	
Project Component	Estimated Costs
Ocean Intake Infrastructure	\$50,945,000
Brine Discharge Infrastructure	\$12,772,000
Treatment Facility	\$71,350,000
Treated Water Infrastructure	\$17,823,000
To Nipomo CSD Pipeline Segment	\$14,373,000
To SB County Pipeline Segment	\$1,076,000
To South County Pipeline Segment	\$13,155,000
Total Estimated Construction Costs	\$181,494,000



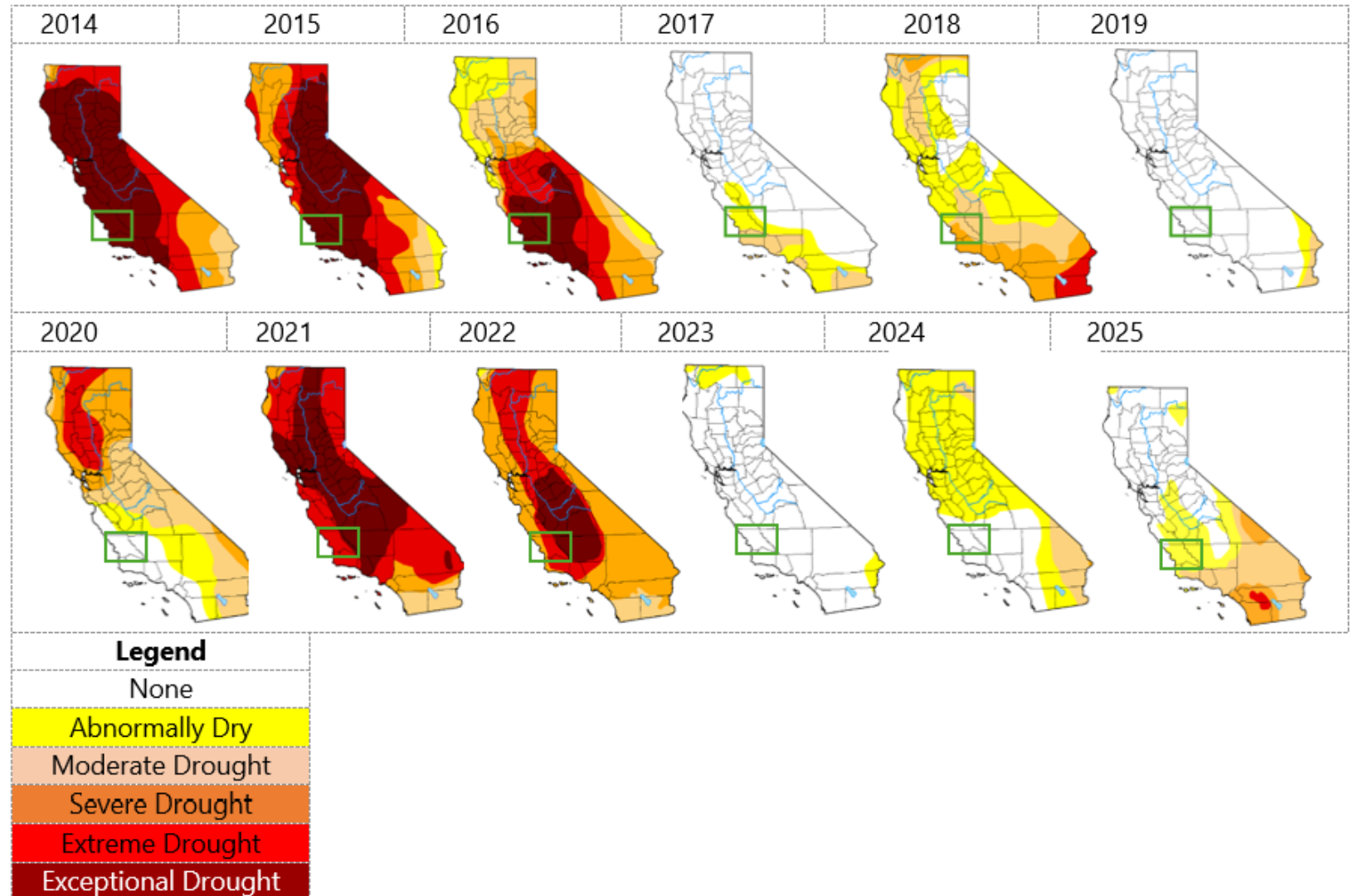
Benefits of Desal

Benefit Calculations and Assumptions

- Countywide key economic indicators report:
 - » Gross regional product is \$24.5 billion (B)
 - » \$1.6B in sales tax, quarterly
 - » 100,400 jobs
 - » Tourism accounts for 10 percent of the County's gross domestic product, creating jobs and driving local economic prosperity.
 - » An estimated \$2.4B is spent on tourism and over 24,580 jobs are supported by the tourist industry.
- Biggest benefit of a desalination project is avoiding drought impacts

History of Droughts

- From 2014 to 2025, total of 8 years of dry to drought conditions, or nearly 67 percent of the time.
- Extreme to exceptional drought 30-40 % of time
- Life of project $\approx$ 30 yrs
 - » Likely to have extreme to exceptional drought many times (9-12) over life of project



Source: United States Drought Monitor

Benefits Calculations for Avoiding Drought Impacts

- Studies found reductions in water 15 to 30 percent leads to reduction in economic output by 0.8 to 4.6 percent (Boarnet et al. 2022) for retail and other services. An economic study for Ventura showed that a 20 percent water cutback would result in 5-10 percent reduction in tourism dollars.
- Costs of a water shortage requiring a 20 percent water cutback (6,460 AFY based on 32,300 AFY current total use) are:
 - » **Reduction in Tax revenue:** Using \$1.6B in sales tax revenue and that a 20% supply = 2% decrease in economic output countywide. **$2\% \times \$1.6B \text{ in sales tax revenue} = \32 M loss.**
 - » **Reduction in tourism:** Using \$2.4B spent on tourism each year and assuming a 20% water supply cutback could result in a 10% decrease in tourism dollars. **$10\% \times \$2.4B \text{ tourism industry} = \$240M \text{ loss.}$**
 - » **Job losses in tourism:** Over 24,580 jobs are supported by the tourist industry. Assume a 5 percent reduction in jobs at a lower hourly wage and partial year.
 $5\% \times 24,580 \text{ jobs} \times \$20/\text{hour} \times 40 \text{ hours/week} \times 20 \text{ weeks/year} = \$19.6M.$

Other Costs To Utilities and Consumers

- Impact on local utilities to administer programs requiring a 20% curtailment. Ventura documented a cost of \$235,000 for a 20% curtailment. Using this cost as representative of utility costs, and given that there are 16 partner utilities, the cost for utilities is:
 - » Loss of revenue and administrative costs to manage water reductions = **\$0.24 million per year per utility X 16 partners = \$3.8M**
- Economic benefit for Single Family Residential (SFR) households from avoiding water use curtailments has been estimated for Southern California:

Curtailment Level	\$/AF loss for Each Stage	Loss by Stage	Total Loss
Water curtailment at 10%	2,017	\$6.5 million	\$6.5 million
Water curtailment at 20%	2,932	\$9.5 million	\$16.0 million
Water curtailment at 30%	3,376	\$10.9 million	\$26.9 million
Based on 32,300 AFY total demands X 10% Cutback = 3,230 AF for each 10% increment. Based on Buck et al, 2016; all \$ values updated from 2015 to 2026 levels based on CPI			

Summary of Benefits of Avoided Water Shortage

Type of Benefit	Description	Level and Value (M = millions)	Beneficiaries
Avoided economic impacts of water supply shortages	Reduced/avoided loss of economic output, jobs, incomes, and tax revenues associated with a 20% curtailment.	- Reduction in Tax revenue: = \$32 M - Reduction in tourism: = \$240 M - Job losses in tourism: = \$19.6 M	Local residents, water-reliant businesses, employees of local businesses, and the local government.
Avoided expense of managing drought curtailment (Avoided utility expense of \$0.24 million per year per utility and 16 utilities).	Cost of personnel and materials to establish, communicate, and enforce an effective curtailment program.	\$3.8 M	All households, businesses, and other customers served water
Household losses related to reduction of consumer surplus for 20% water curtailment	Economic welfare individuals derive from water related activities	\$16 M	All households
Total Benefit of Avoiding 1- 20% water shortage		\$311.4 M	

Benefit of Avoiding two 20% water shortages (6460 AFY) over life of project

Element	Cost in millions	Benefit in millions
Capital cost of regional project to supply at least 6,460 AFY	\$483 M (Alt D) <u>or</u> \$544 M (Alt C)	
Avoided cost of 1- 20% water shortage over life of project		\$311.4M
Avoided cost of 2 nd - 20% water shortage over life of project		\$311.4 M
Total	\$483 M – \$ 544 M	\$622.8 M
Benefit/Cost Ratio		1.14 – 1.3 Benefits exceed cost if avoid two 20% water shortages over life

| Community Engagement Session & Related Outreach

Community Engagement Conducted

- Website updates, FAQs, email blasts, media/social media throughout the project
- Virtual Public Session: 9/15/25
- Online Community Survey: 8/25/25 – 9/22/25
- Public Sessions: 4/20/26 and 4/21/26
 - Presentation and video on website
 - Fact sheet on website
- Online Community Survey: 6/10/26 – 7/8/26

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.

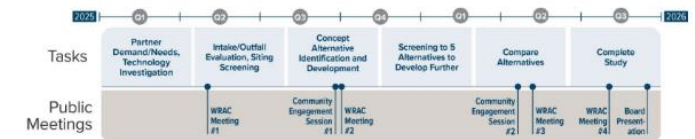


DESAL PLAN FEASIBILITY STUDY

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



Desalination Executable Solution and Logistics (DESAL) Plan

Community Engagement Sessions – April 20 and 21, 2026

www.slocounty.ca.gov/DESAL

provides
to better
outline
complete,
support

Public Survey #2 Overview: June/July 2026

- Educate and inform while soliciting community input
- Understand public perspectives on regional water supply challenges and ocean desalination
- Identify priorities, concerns and information needs
- Inform future communications and engagement
- 355 voluntary responses from throughout SLO Co region

These survey results provide valuable insight into the perspectives of individuals who chose to participate. Because participation was voluntary and response rates varied by subregion, the findings should be viewed as identifying themes and areas for future engagement rather than representing the views of the county population as a whole.

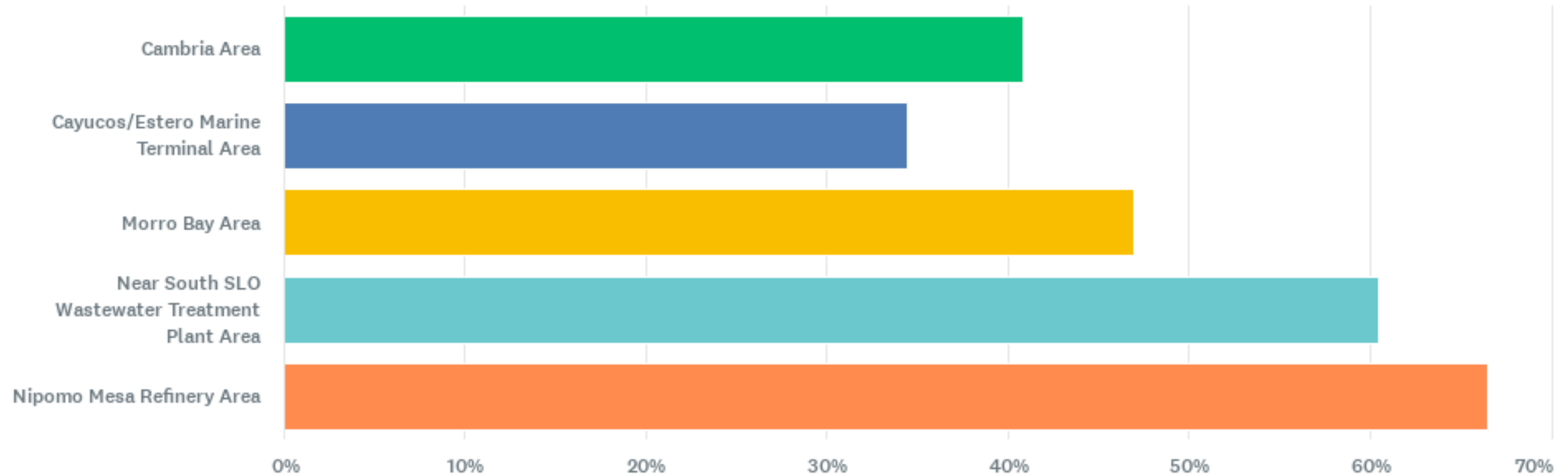
Survey: Headline Findings

- ~75% believe the region will not have sufficient water supplies to meet future needs
- ~82% support continuing to explore and invest in new water supply infrastructure
- Most respondents are familiar with ocean desalination
- ~69% have a somewhat to positive impression of desalination, while 26% have a somewhat to negative impression

Most Requested Topics for Future Communications

- Cost comparisons among alternatives
- Environmental permitting and marine impacts
- Regional water supply needs and resilience
- How desalination fits within a diversified water portfolio
- Next steps in the planning process

Site Areas Recommended for Further Study



Major Themes from Open-Ended Comments

- Openness to ocean desalination, pending further study
- Provide more in-depth information and comparisons of ocean desalination and other water supply strategies
- Future water supply tenuous and action needs to be taken—various strategies offered for what action (e.g. enhanced conservation, desal, no growth)
- Concerns about energy use and sources
- Concerns about cost of desalination and how it compares to other water strategies
- Need more education about desalination plants and operations
- Anything implemented must be protective of the ocean environment
- Most interest in South County site areas
- Some North Coast respondents express an opposition to a Morro Bay site

What We Learned

To the extent further study of desalination proceeds, future communication could help:

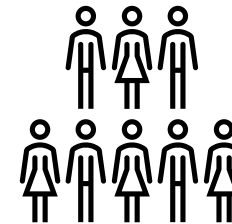
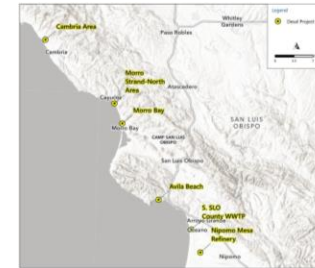
- Compare desalination alongside other water supplies strategies
- Continue explaining costs, tradeoffs and funding considerations
- Provide clear information on marine protections and environmental review
- Explain regional planning context and partner roles
- Expand focused outreach in communities—potential host sites and partner agencies

Potential Future Phases of Work

Additional actions beyond study if pursued further

Near-Term:

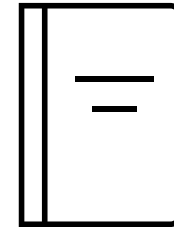
- Partner agreements and Memorandums of Understanding (MOUs)
- Narrow down the alternatives – select a couple for additional investigation, determine who participating (which partners, others like GSAs?)
- Economics Benefits study – for funding and public/partners
- Additional Community Outreach and Education



Additional actions beyond study if pursued further

Mid-Term:

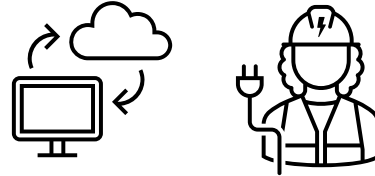
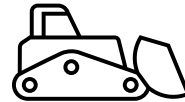
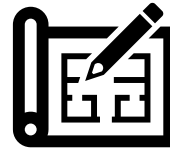
- Pilot and demonstration projects
- Site specific investigations – soils, hydrogeology, marine studies, outfall dilution/condition, coastal risks/hazards, energy studies, treatment siting, existing infrastructure needs, pipeline corridors....
- Basis of Design Report to better define projects
- Permitting 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



| Wrap Up

— Wrap Up of DESAL Feasibility Study (Phase 2A)

- Public Comment Period open until August 7
 - » DESAL Plan Comment Form at slocounty.ca.gov/desal
- Final report posted and presented to Board September 1

| Thank You!