

Revised
January 9, 2019



**EASTERN SAN JOAQUIN
GROUNDWATER AUTHORITY**

GWA Advisory Committee
January 9, 2019

Agenda



- Approval of November Meeting Minutes
- Projects and Management Actions
 - Project Review Summary
 - Project Portfolios
- Values Discussion Around Funding
- Monitoring Network and TSS Update
 - Update from DWR
- Situation Assessment Findings Overview
- 3rd Informational Meeting
- February Agenda Items



Projects and Management Actions

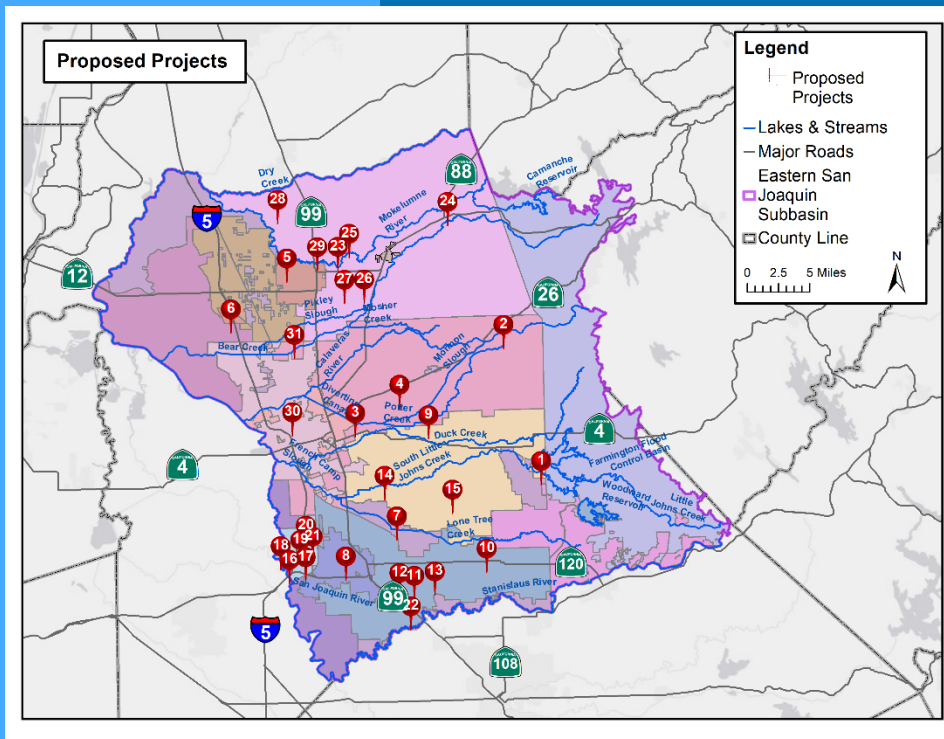
What If We Do Not Implement Projects?



Pumping would need to be reduced by approximately 100,000 AFY, likely to include:

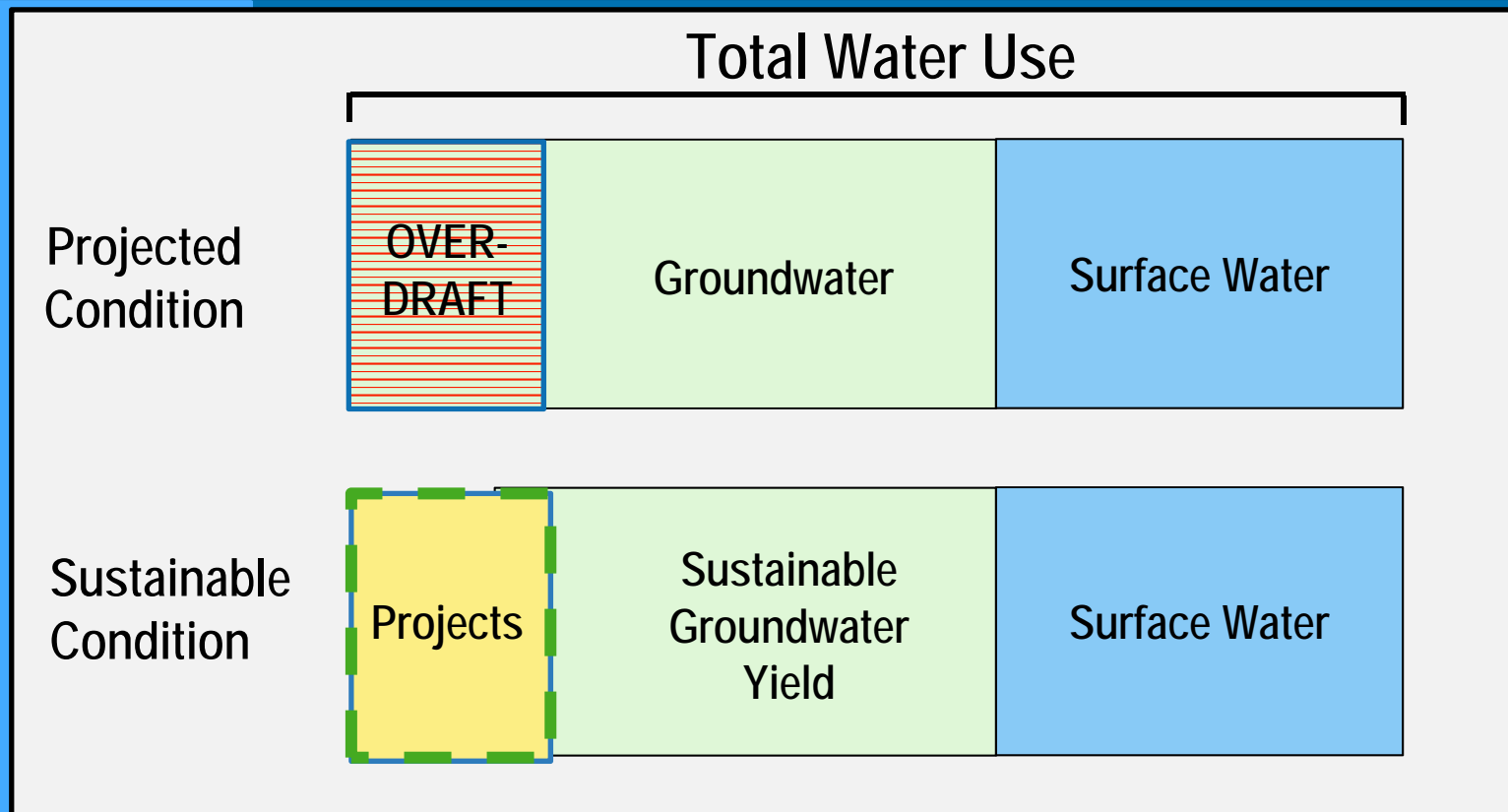
- Pumping restrictions to reduce pumping by ~8-10 percent reduction on a subbasin-wide basis, to be enforced by GSAs
- Meter installation on private pumpers using more than 2 AFY

Preliminary List of Projects



- 1 – Farmington Dam Repurpose Project
- 2 – Lake Grupe In-Lieu Recharge
- 4 – SW Implementation Expansion
- 5 – SW Facility Expansion & Delivery Pipeline
- 6 – White Slough WPCF Expansion
- 7 – Recycled Water Transfer to Agriculture
- 9 – Water Transfers to SEWD and CSJWCD
- 10 – Increase Nick DeGroot SW Deliveries
- 11 – City of Escalon Wastewater Reuse
- 12 – South San Joaquin Stormwater Reuse
- 13 – Pressurization of SSJID Facilities
- 14 – BNSC Intermodal Facility Recharge Pond
- 15 – CSJWCD Capital Improvement
- 22 – City of Ripon Surface Water Supply
- 24 – Mokelumne River Loss Study
- 25 – North System Modernization
- 26 – PDA Banking
- 27 – South System Modernization
- 29 – Winery Recycled Water
- 30 – Advanced Metering Infrastructure
- 31 – Mobilizing Recharge Opportunities

Projects and Management Actions May be Used to Offset Overdraft



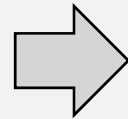
Pathway to Project Implementation



1. Approach

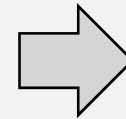
- ★ Regional-scale
- Subregional-scale
- GSA-scale

We are here



2. Funding

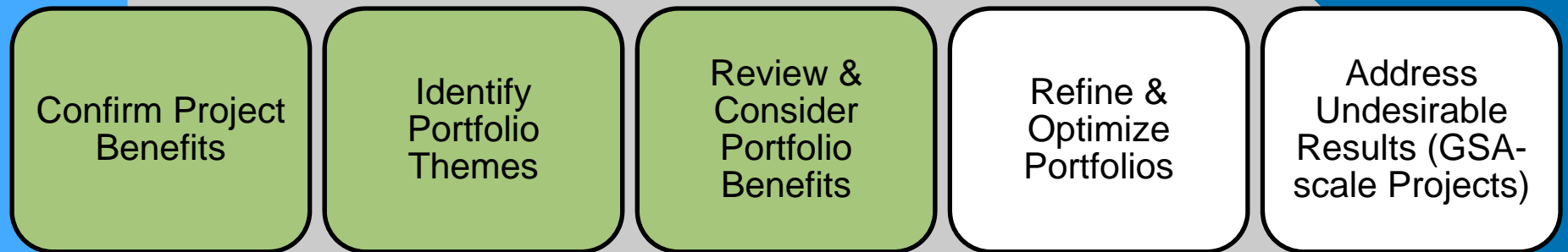
- Regional
- GSA



3. Implementation

- Regional JPA
- Subregion GSAs

Project/Portfolio Development Process





Project Review Summary

Criteria



Projects were reviewed with project proponents using the criteria developed by the Advisory Committee:

1. Implementability
2. Location / Proximity to Area of Overdraft
3. Cost per Volume Water Savings
4. Environmental Benefit / Impact
5. Disadvantaged Community Benefit
6. Water Quality Impact (Positive or Negative)
7. Affordability

Criterion 1: Implementability



Difficulty or ease of implementation in terms of technical complexity, regulatory complexity, institutional consideration, and public acceptance.

Review Guidance:

- No known issues in any category
- Issue in one category
- Issues in two categories
- Issues in three categories
- Surmountable but major issues in all four categories

Criterion 1: Implementability



Distribution:

- Standard municipal projects or prior/current operation assumed to be most easily implemented
- Projects with potential regulatory, financial, public perception, and land acquisition issues assumed to be more challenging

Examples of “Easy to Implement” Projects:

- CSJWCD Capital Improvement Program
- White Slough WPCF Expansion
- Increase Nick DeGroot Surface Water Deliveries
- City of Ripon Surface Water Supply

Criterion 2: Location



Region(s) of beneficial water savings were identified for each project. Project locations were compared to the Q4 2017 groundwater elevations.

Review Guidance:

- Benefits accrue to cone of depression
- Majority of benefits in area with known elevation issues
- Project benefits both areas with & without known elevation issues
- Majority of benefit in area with no known elevation issues
- Project benefits area with no known groundwater elevation issues

Criterion 2: Location



Distribution:

- Projects that directly offset groundwater pumping in areas above the cone of depression assumed to provide greatest benefit
- Projects that benefit areas far outside cone of depression assumed to provide less benefit

Examples of Projects Providing Benefits to Cone of Depression:

- Water Transfers to SEWD and CSJWCD
- Lake Grupe In-Lieu Recharge
- SEWD Surface Water Implementation Expansion

Criterion 3: Cost per Volume Water Savings



Cost per volume was calculated for each project using available estimates for capital costs, annual operations & maintenance costs, project life, and annual water savings. Cost estimates ranged from \$5/AF to \$1500/AF.

Review Guidance:

- \leq \$10/AF
- \leq \$50/AF
- \leq \$200/AF
- \leq \$500/AF
- $>$ \$500/AF

Criterion 3: Cost per Volume Water Savings



Distribution:

- Range of Project Costs from \$4/AF to \$1490/AF

Example Projects with Lowest Unit Cost:

- BNSC Intermodal Facility Recharge Pond
- Lake Grupe In-Lieu Recharge
- SEWD Surface Water Implementation Expansion

Criterion 4: Environmental Benefit / Impact



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Environmental impacts, both positive and negative, were considered for each project based on proposed location, existing environmental conditions, construction requirements, potential for mitigation, and resulting ecosystem or environmental benefit.

Review Guidance:

- Beneficial environmental impacts with no adverse effects
- No identified adverse environmental impacts
- Potential environmental impacts less than significant
- Potential significant adverse environmental impacts that could be mitigated to less than significant
- Potential significant unavoidable adverse environmental impacts

Criterion 4: Environmental Benefit / Impact



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Distribution:

- Projects using existing Infrastructure assumed to have no / minimal potential impact
- Projects that impact river flow and require installation of several miles of pipeline assumed to have greater potential impact

Example Projects Assumed to Have No / Minimal Potential Impact:

- BNSC Intermodal Facility Recharge Pond
- PDA Banking
- Surface Water Transfers to SEWD and CSJWCD

Criterion 5: DAC Benefit

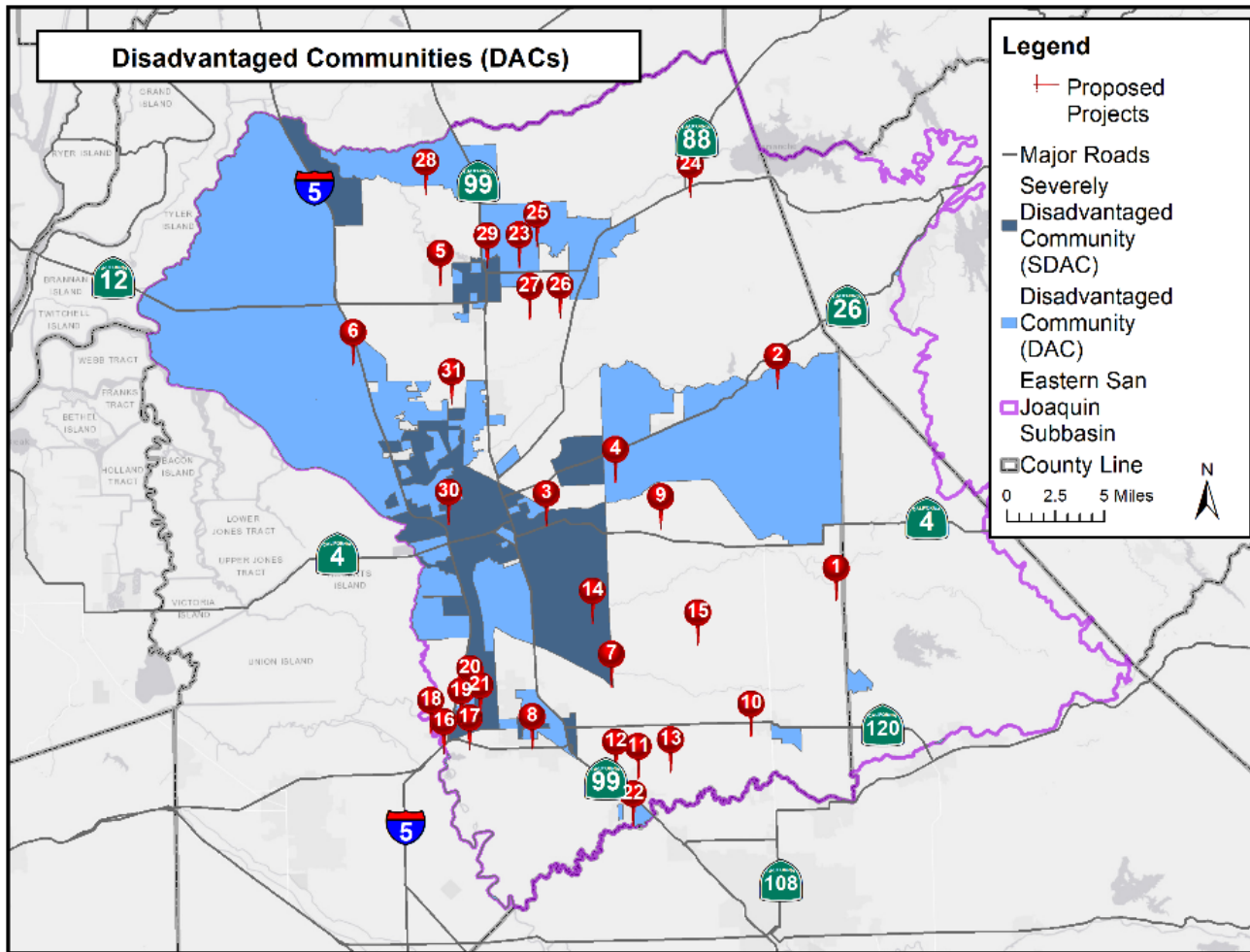


Many projects would at least partially benefit DAC regions, while others may only provide indirect benefits to these areas

Review Guidance:

- All benefits directly accrue to DACs
- Majority of benefit in areas with DACs
- Benefit in areas with and without DACs
- Majority of benefit in areas without DACs
- Indirect benefits to DAC areas

Criterion 5: DAC Benefit



Criterion 5: DAC Benefit



Distribution:

- Projects that provide direct benefits to DACs assumed to have greatest potential to benefit DACs
- Projects that provide only indirect benefits to DACs assumed to have less potential to benefit DACs

Example Projects with Greatest Potential to Benefit DACs:

- Lake Grupe In-Lieu Recharge
- White Slough WPCF Expansion
- BNSC Intermodal Facility Recharge Pond

Criterion 6: Water Quality



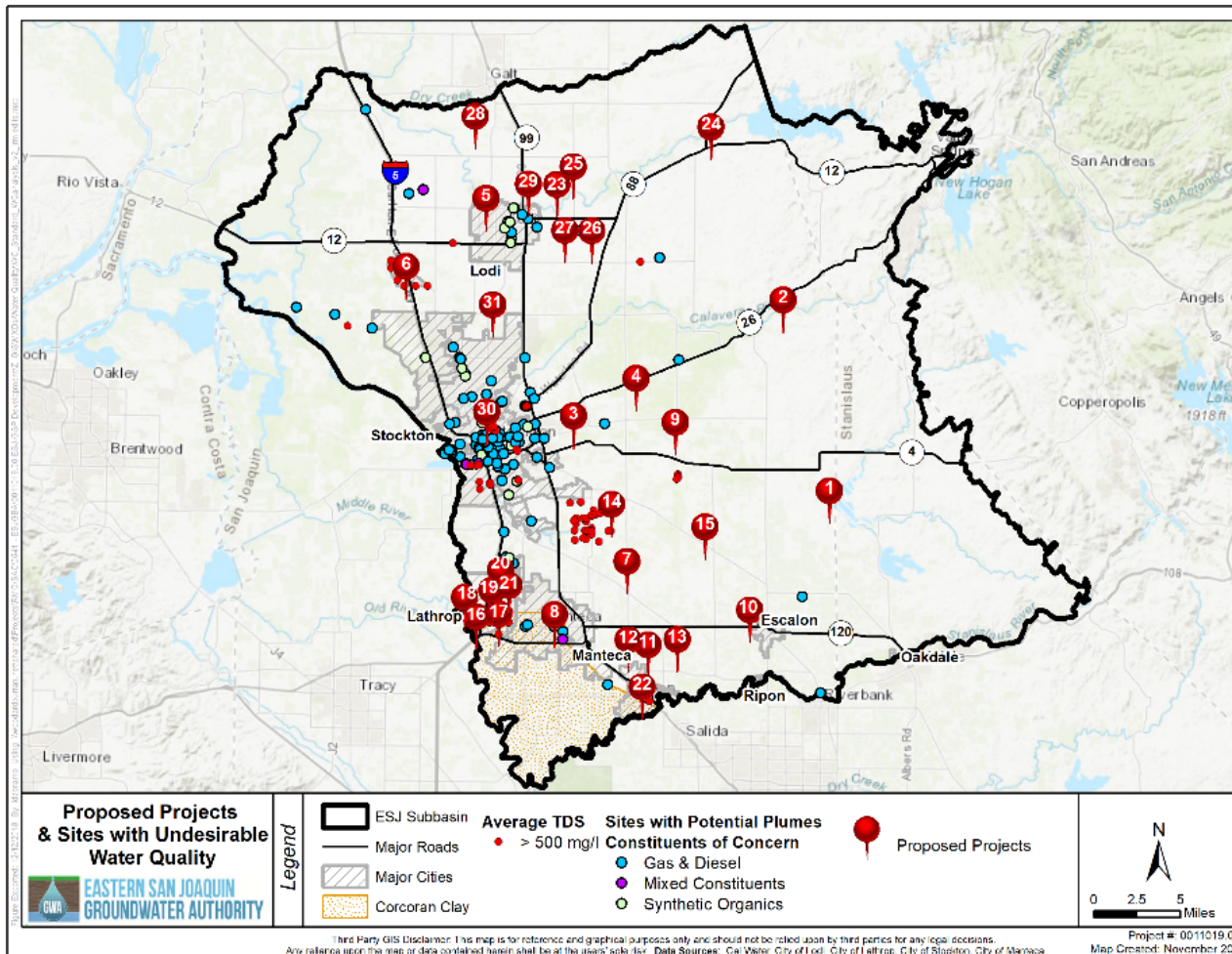
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Potential impacts, both positive and negative, were assessed. Compounds were analyzed using the Water Board's GeoTracker tool including: TDS, gas & diesel, synthetic organics, and other constituents of concern. Projects were screened to avoid areas identified as having potential to create or worsen a plume.

Review Guidance

- Improves water quality in an area of known water quality issues
- Improves water quality in an area with no known water quality issues
- No change in water quality
- Negatively impacts water quality but does not threaten thresholds
- Negatively impacts basin water quality and threatens thresholds

Criterion 6: Water Quality



Criterion 6: Water Quality



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Distribution:

- Projects that improve water quality in areas of known water quality issues assumed to have greatest benefit in this area
- Projects that negatively impact basin water quality assumed to have least benefit in this area

Examples of Projects Providing Water Quality Benefits:

- City of Lodi Surface Water Facility Expansion and Delivery Pipeline
- White Slough WPCF Expansion
- BNSC Intermodal Facility Recharge Pond

Criterion 7: Affordability



Affordability could be assessed at the project level using capital costs only as a high level estimate of total capital needed (capital cost estimates ranged from \$50,000 to \$328,000,000).

Review Guidance:

- \leq \$1,000,000
- \leq \$10,000,000
- \leq \$25,000,000
- \leq \$50,000,000
- $>$ \$50,000,000



Project Portfolios

Preliminary Project Portfolios



Goal: Assemble preliminary groupings (“portfolios”) of projects that together would offset overdraft at the subbasin scale

Process

- Initial portfolios were developed around themes discussed by Advisory Committee
- Next Steps
 - Review and discuss strengths and weaknesses of preliminary groupings
 - Identify “hybrid” groupings that better meld the benefits and drawbacks of each portfolio

Preliminary Project Portfolios



Preliminary portfolio themes:

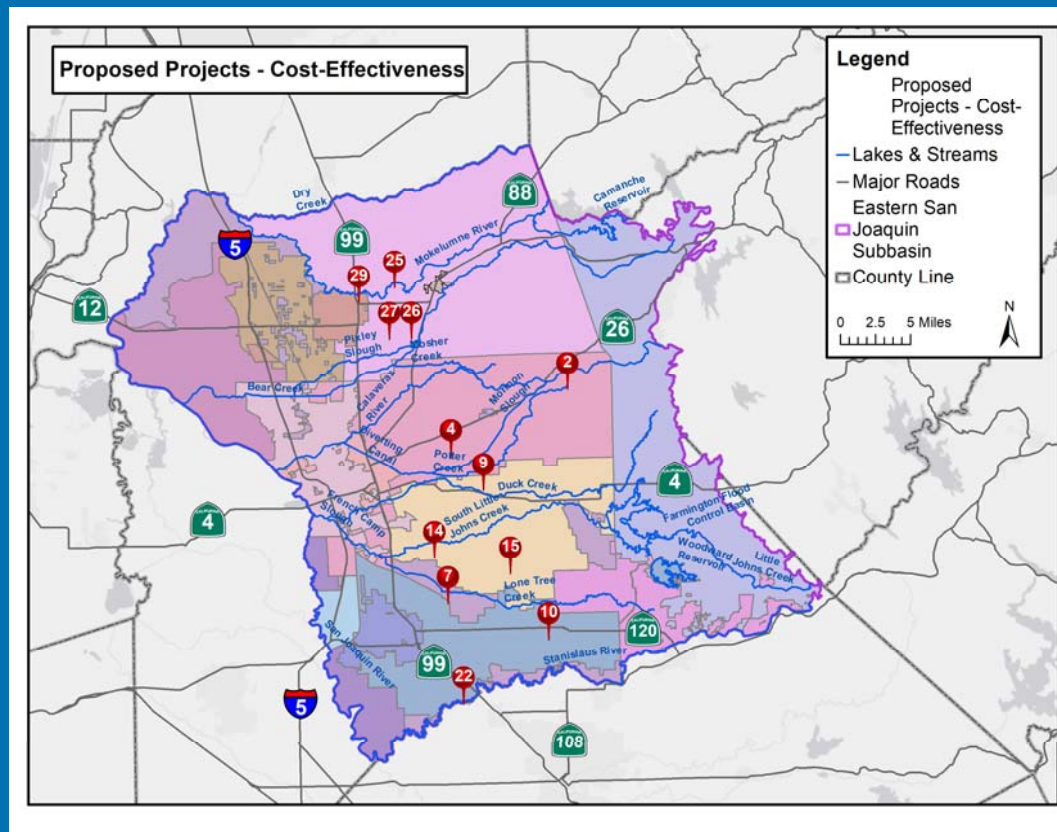
- Cost-Effectiveness
- Regional Diversity
- Minimized Infrastructure
- Environmental Benefit
- DAC Benefit
- Impact to Cone of Depression
- Fast Implementation
- Small-Volume Projects
- Large-Volume Projects

Portfolio 1: Cost-Effectiveness

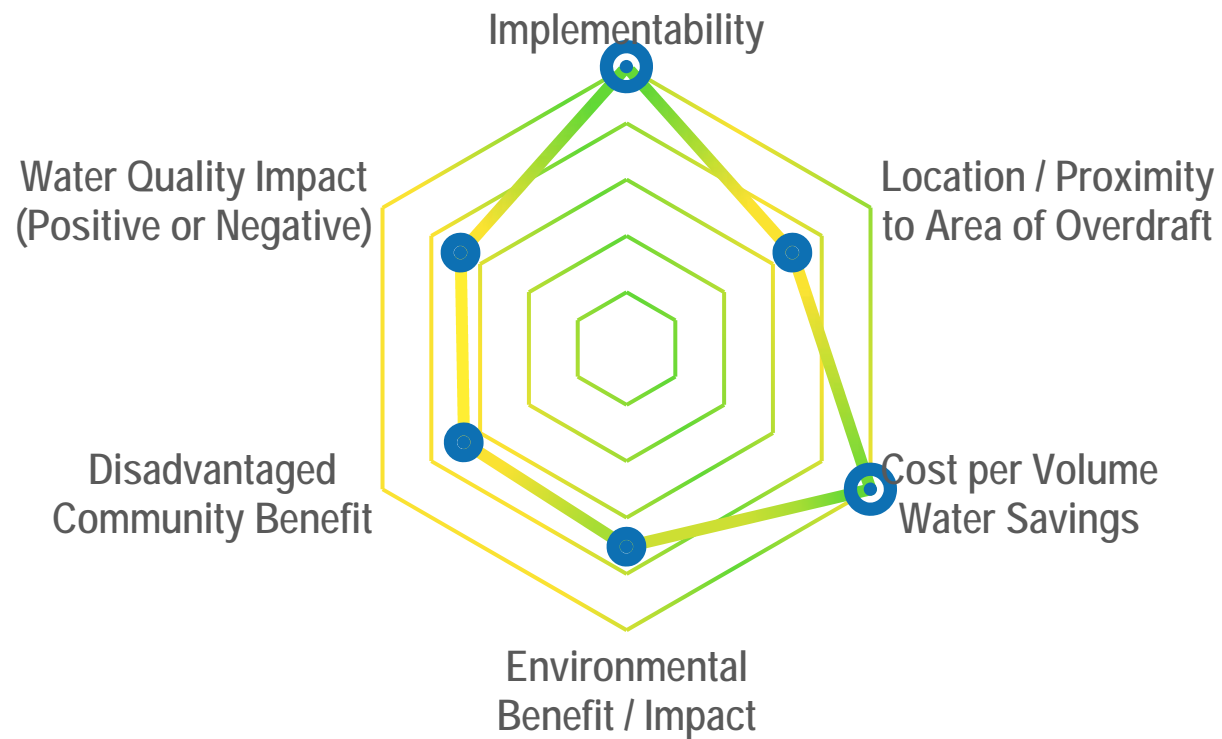


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
Lake Grupe In-Lieu Recharge	\$900,000	4,500	\$4.00
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
PDA Banking	\$5,500,000	4,000	\$34.38
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
South System Modernization	\$13,000,000	4,500	\$72.22
North System Modernization	\$11,000,000	2,600	\$105.77
Winery Recycled Water	\$5,500,000	750	\$183.33
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
Increase Nick DeGroot SW Deliveries	\$16,289,000	2,015	\$269.46
Recycled Water Transfer to Agriculture	\$58,015,000	5,193	\$372.39
TOTAL	\$131,754,000	99,558	\$129.20

Portfolio 1: Cost-Effectiveness



Portfolio 1: Cost-Effectiveness

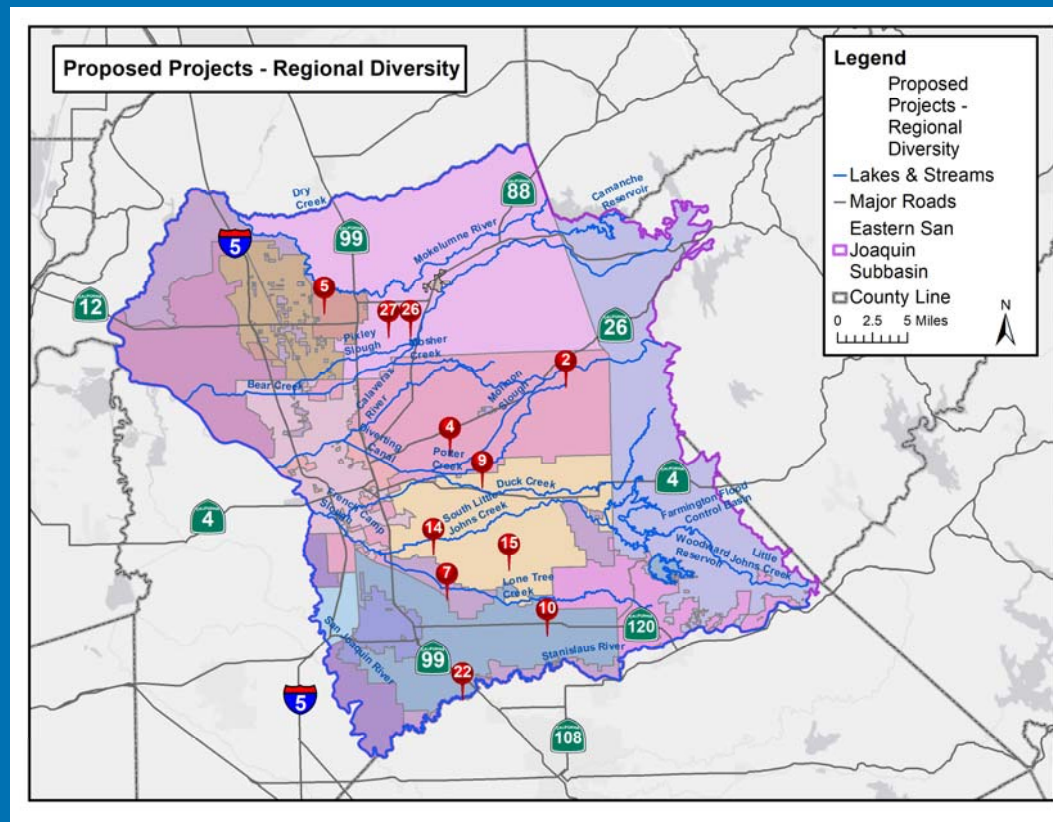


Portfolio 2: Regional Diversity

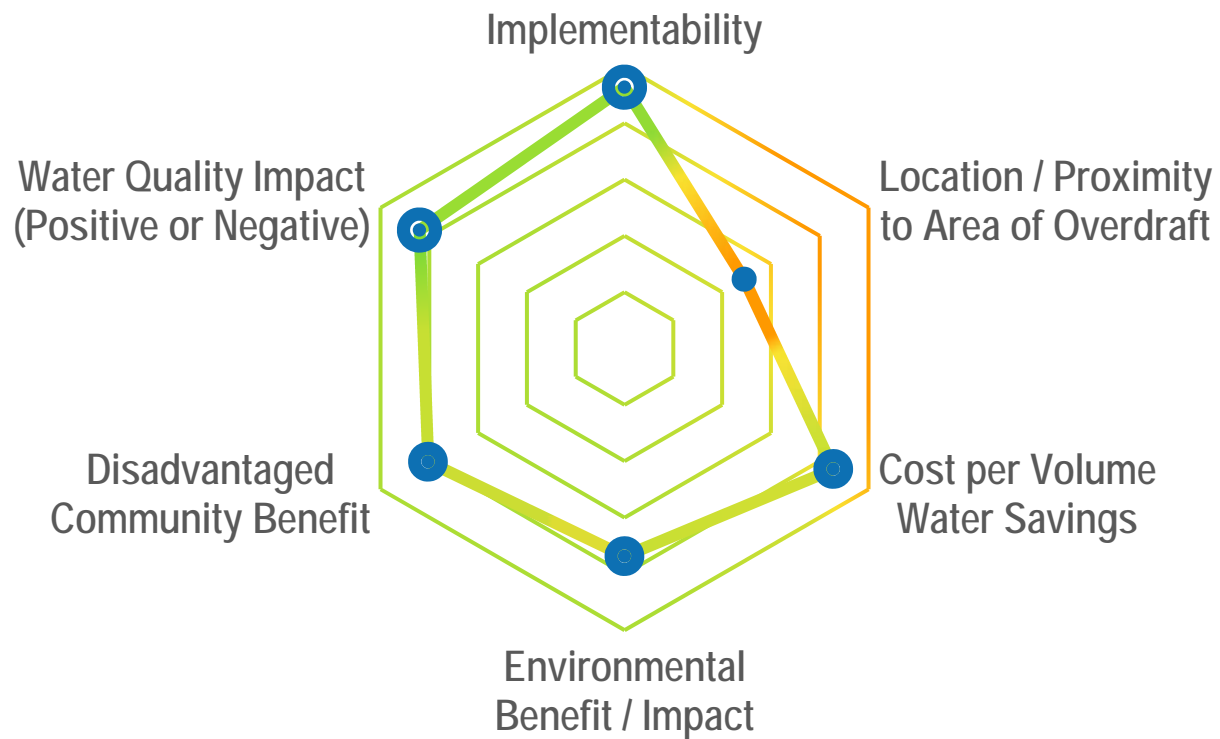


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
PDA Banking	\$5,500,000	4,000	\$34.38
Increase Nick DeGroot SW Deliveries	\$16,289,000	2,015	\$269.46
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
Recycled Water Transfer to Agriculture	\$58,015,000	5,193	\$372.39
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
Lake Grube In-Lieu Recharge	\$900,000	4,500	\$4.00
South System Modernization	\$13,000,000	4,500	\$72.22
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
TOTAL	\$189,454,000	100,958	\$147.82

Portfolio 2: Regional Diversity



Portfolio 2: Regional Diversity

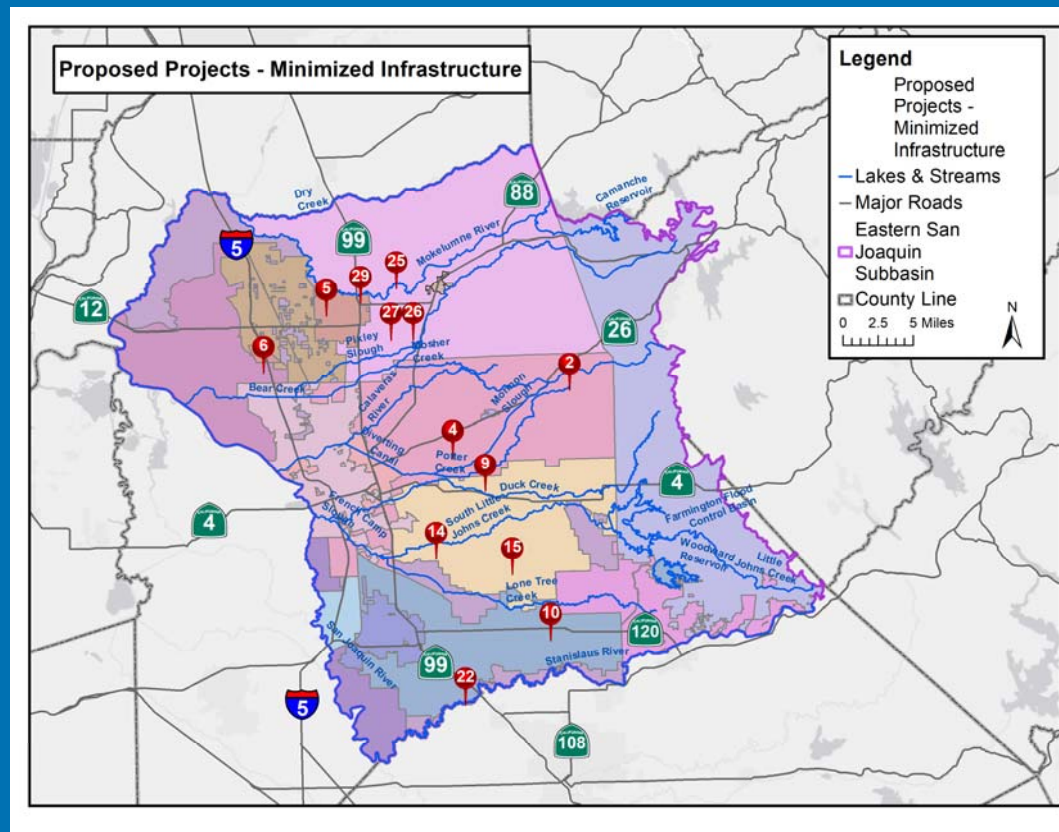


Portfolio 3: Minimized Infrastructure

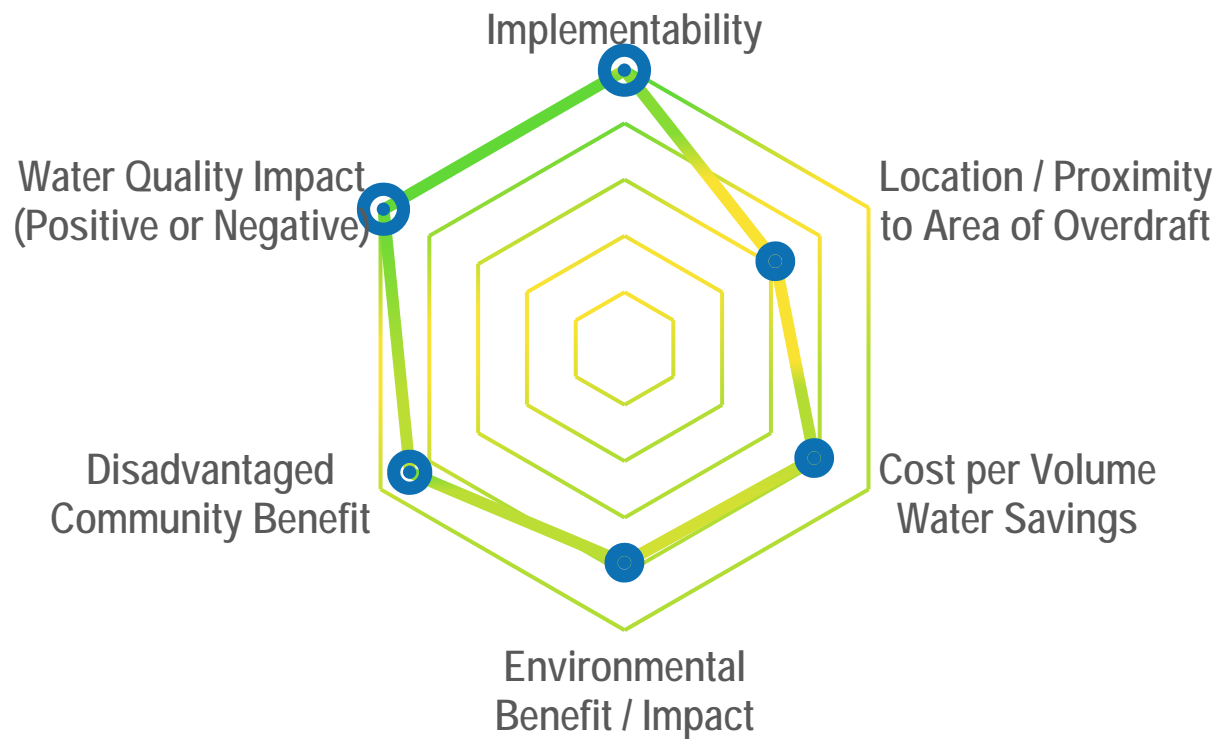


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
Lake Grupe In-Lieu Recharge	\$900,000	4,500	\$4.00
South System Modernization	\$13,000,000	4,500	\$72.22
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
PDA Banking	\$5,500,000	4,000	\$34.38
White Slough WPCF Expansion	\$6,000,000	568	\$352.27
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
Winery Recycled Water	\$5,500,000	750	\$183.33
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
Increase Nick DeGroot SW Deliveries	\$16,289,000	2,015	\$269.46
North System Modernization	\$11,000,000	2,600	\$105.77
TOTAL	\$153,939,000	99,683	\$136.46

Portfolio 3: Minimized Infrastructure



Portfolio 3: Minimized Infrastructure

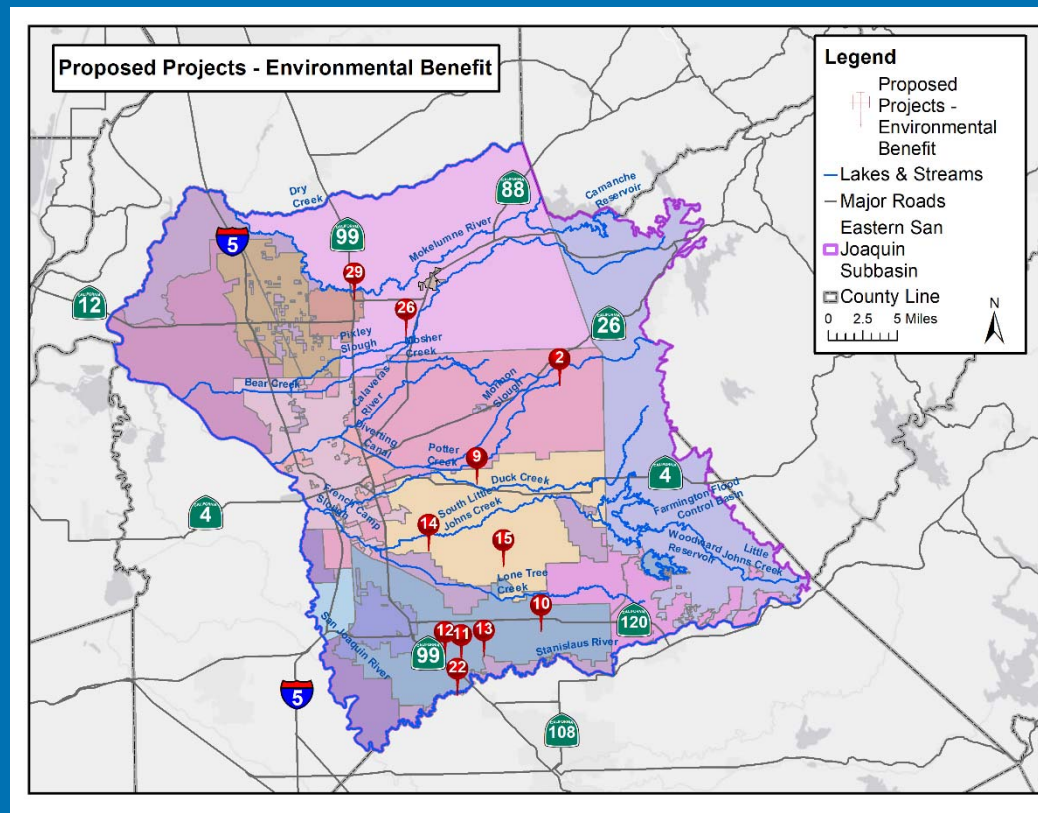


Portfolio 4: Environmental Benefit

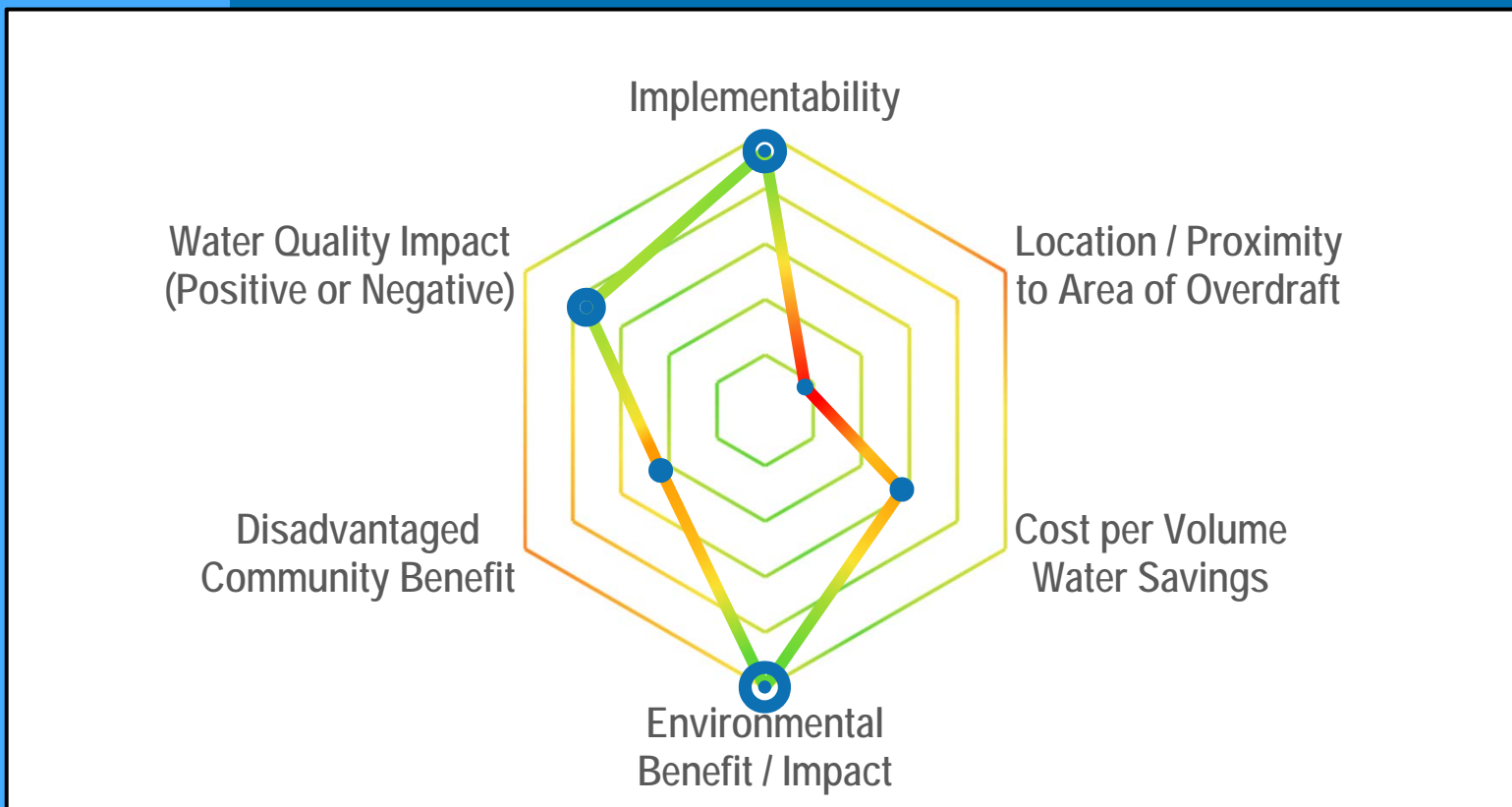


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
PDA Banking	\$5,500,000	4,000	\$34.38
City of Escalon Wastewater Reuse	\$30,000,000	672	\$1,488.98
Winery Recycled Water	\$5,500,000	750	\$183.33
South San Joaquin Stormwater Reuse	\$30,900,000	1,100	\$936.36
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
Pressurization of SSJID Facilities	\$583,000,000	30,000	\$647.78
Lake Grupe In-Lieu Recharge	\$900,000	4,500	\$4.00
Increase Nick DeGroot SW Deliveries	\$16,289,000	2,015	\$269.46
TOTAL	\$691,391,023	100,037	\$316.31

Portfolio 4: Environmental Benefit



Portfolio 4: Environmental Benefit

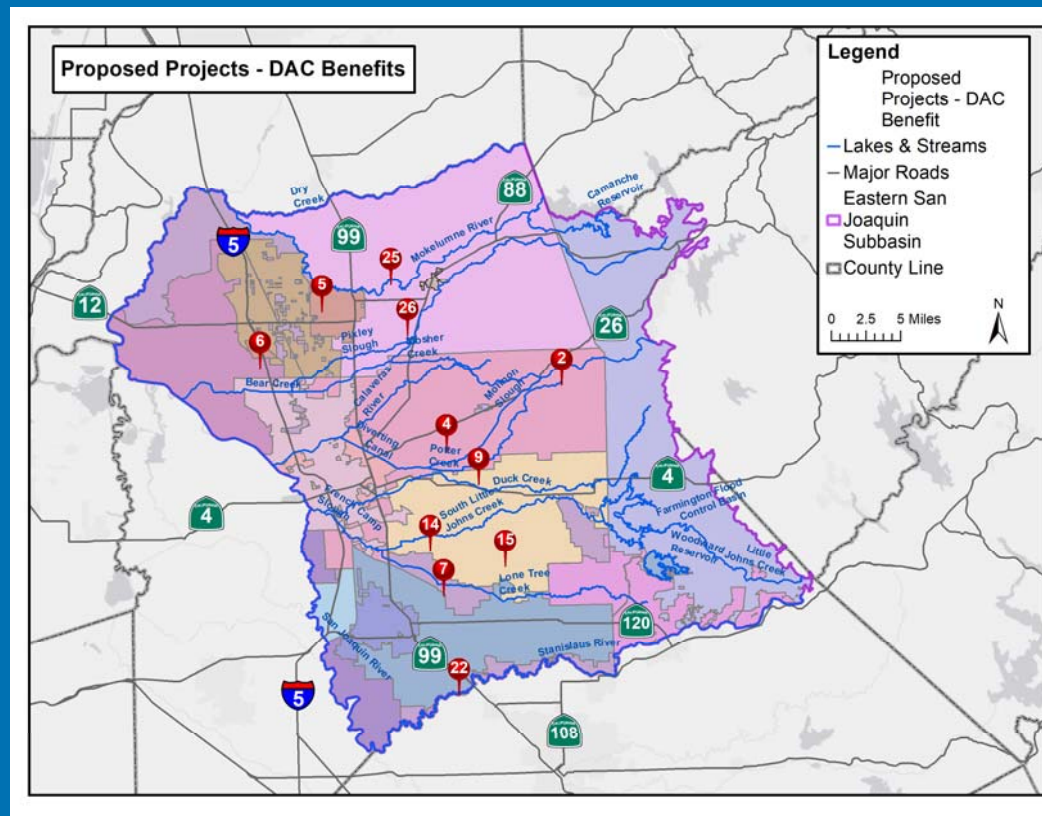


Portfolio 5: DAC Benefit

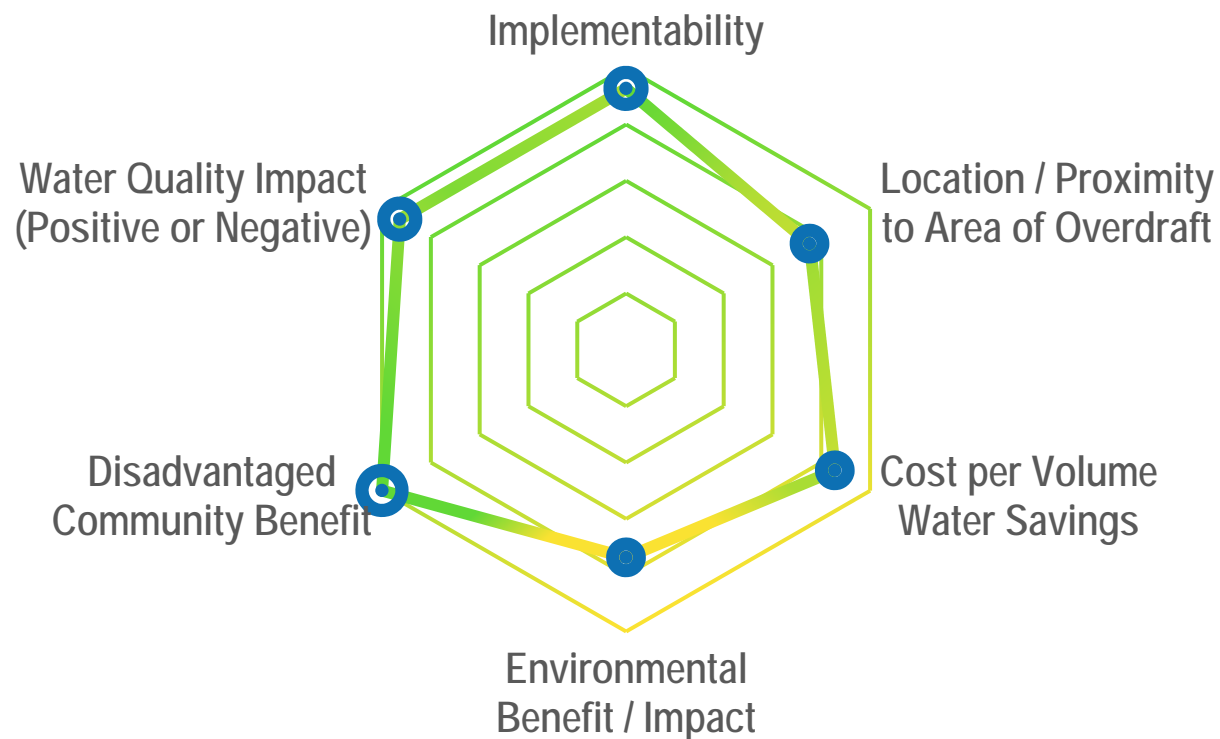


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
Lake Grube In-Lieu Recharge	\$900,000	4,500	\$4.00
White Slough WPCF Expansion	\$6,000,000	568	\$352.27
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
Recycled Water Transfer to Agriculture	\$58,015,000	5,193	\$372.39
North System Modernization	\$11,000,000	2,600	\$105.77
PDA Banking	\$5,500,000	4,000	\$34.38
TOTAL	\$177,165,000	97,611	\$148.87

Portfolio 5: DAC Benefit



Portfolio 5: DAC Benefit

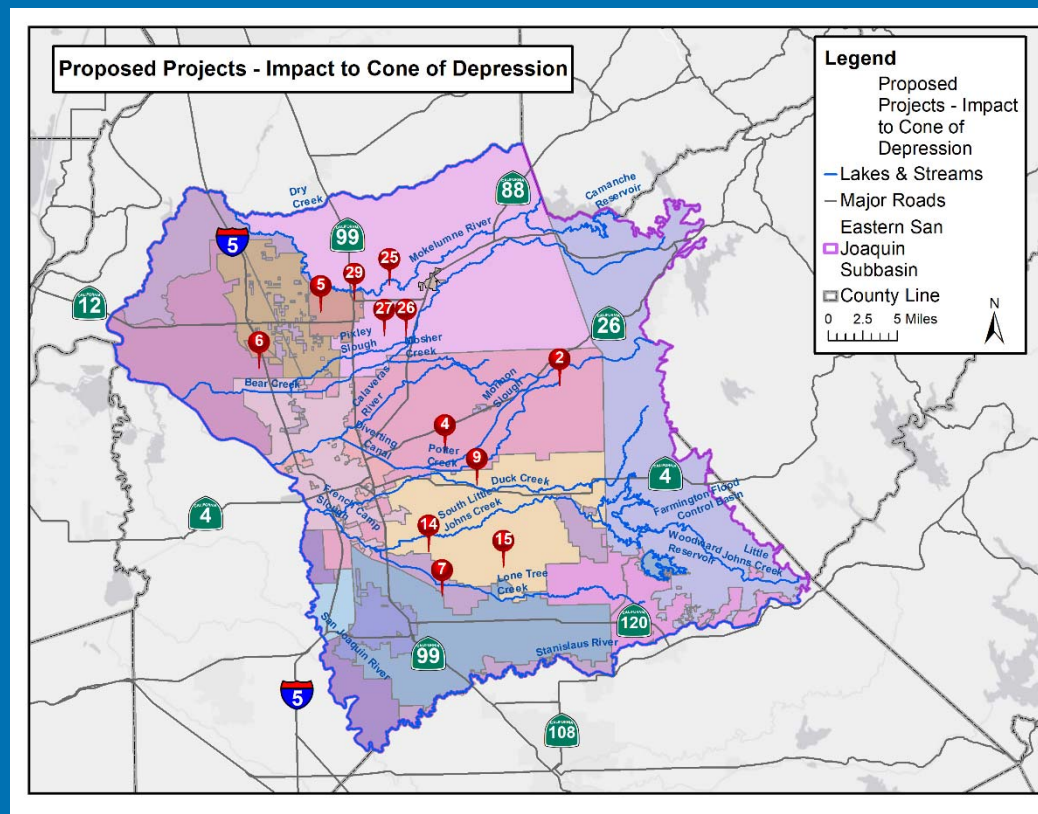


Portfolio 6: Impact to Cone of Depression

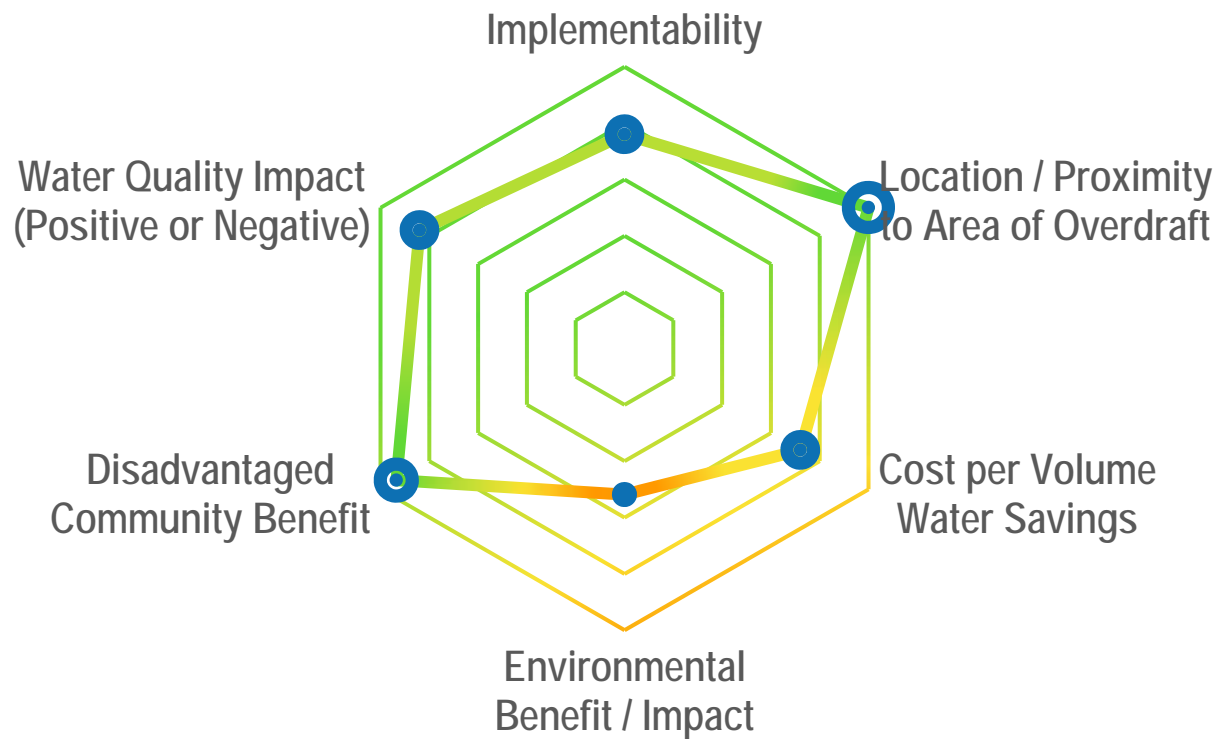


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
Lake Grube In-Lieu Recharge	\$900,000	4,500	\$4.00
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CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
Winery Recycled Water	\$5,500,000	750	\$183.33
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
White Slough WPCF Expansion	\$6,000,000	568	\$352.27
Recycled Water Transfer to Agriculture	\$58,015,000	5,193	\$372.39
TOTAL	\$187,065,000	96,861	\$151.83

Portfolio 6: Impact to Cone of Depression



Portfolio 6: Impact to Cone of Depression

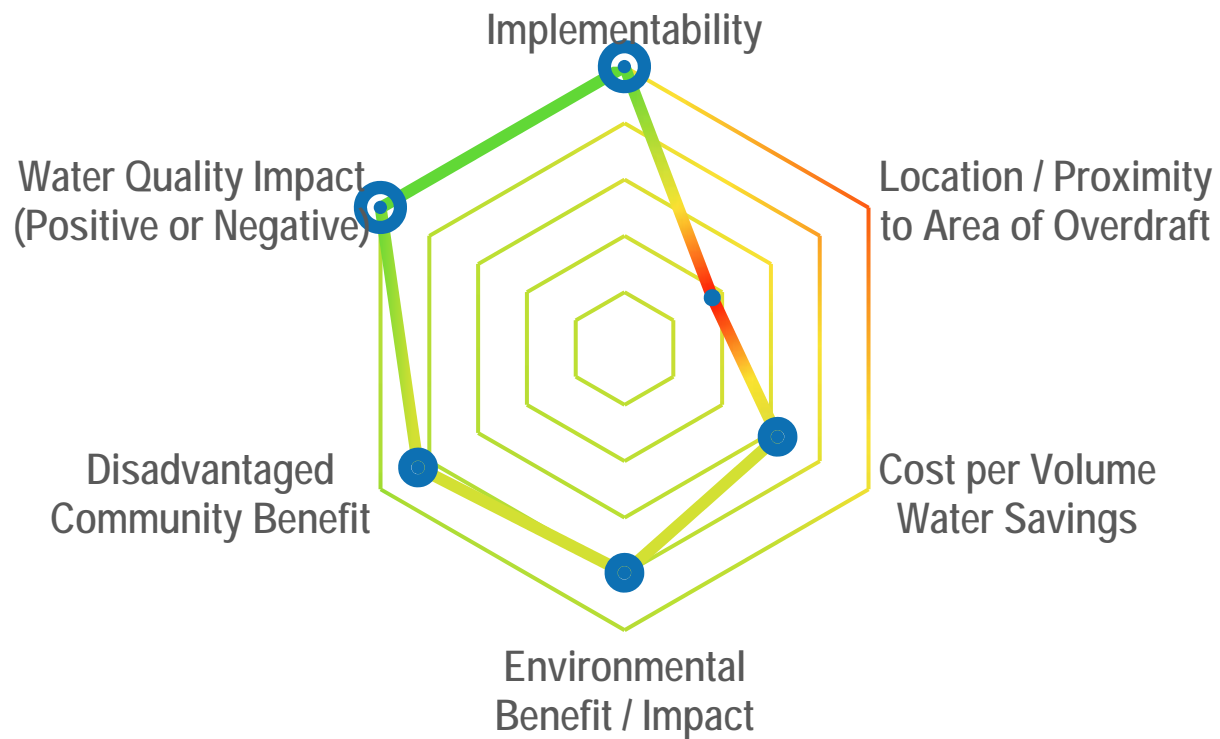


Portfolio 7: Fast Implementation



Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
BNSC Intermodal Facility Recharge Pond	\$150,000	1,000	\$5.00
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
White Slough WPCF Expansion	\$6,000,000	568	\$352.27
South System Modernization	\$13,000,000	4,500	\$72.22
Lake Grupe In-Lieu Recharge	\$900,000	4,500	\$4.00
PDA Banking	\$5,500,000	4,000	\$34.38
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
Increase Nick DeGroot SW Deliveries	\$16,289,000	2,015	\$269.46
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
City of Escalon Wastewater Reuse	\$30,000,000	672	\$1,488.98
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
TOTAL	\$167,439,000	97,004	\$146.28

Portfolio 7: Fast Implementation

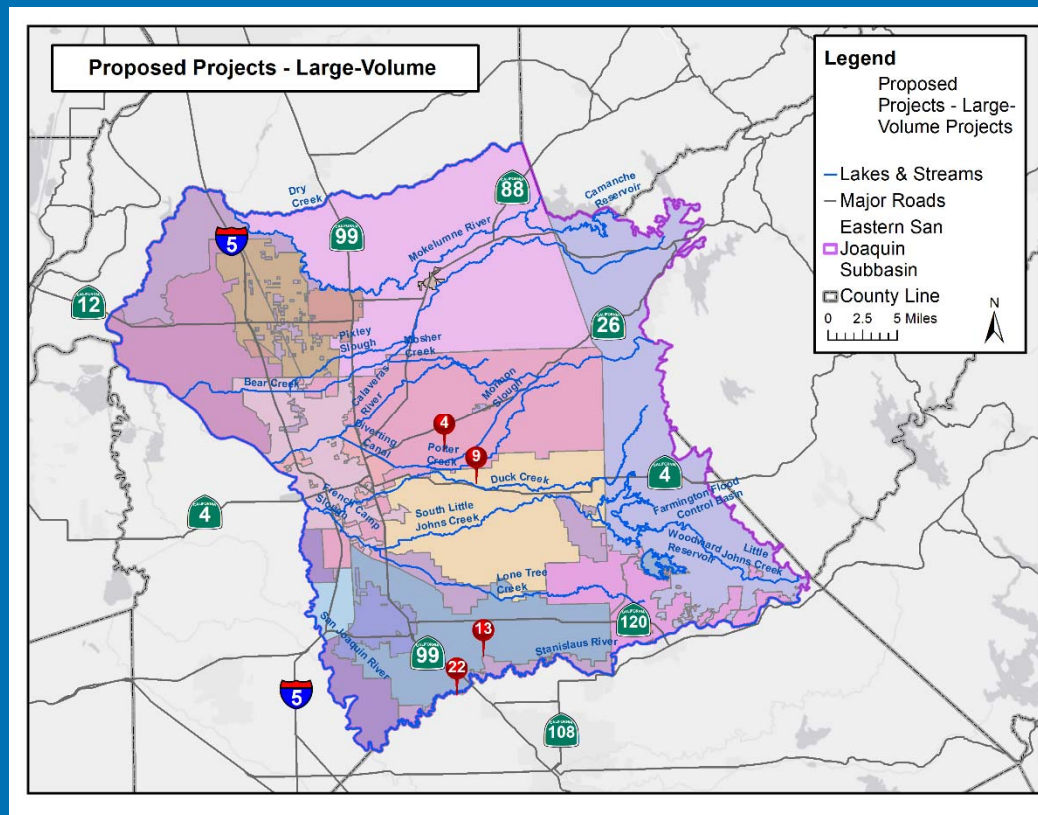


Portfolio 8: Large-Volume Projects

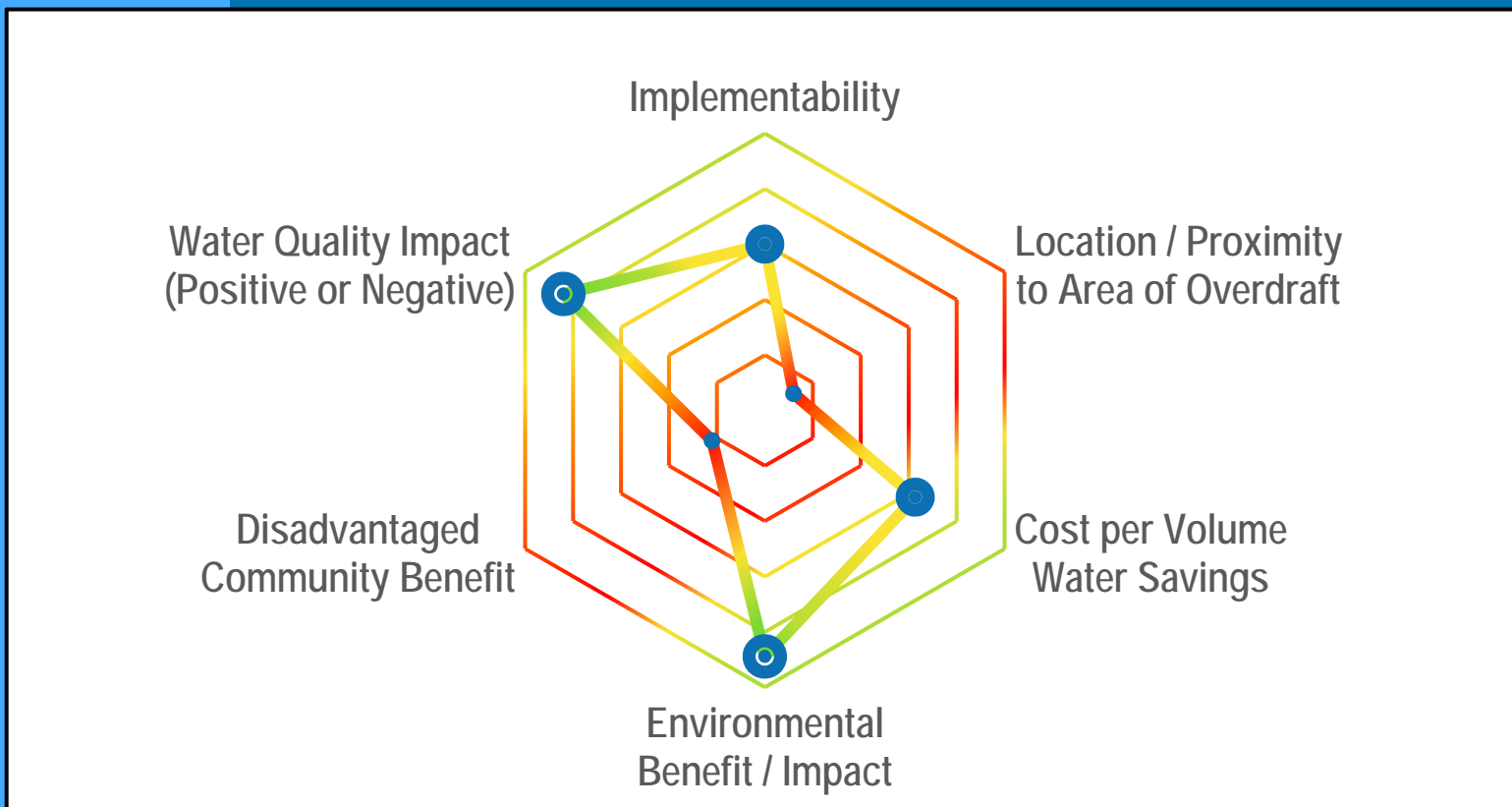


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
Water Transfers to SEWD and CSJWCD	\$9,000,000	45,000	\$200.00
Pressurization of SSJID Facilities	\$583,000,000	30,000	\$647.78
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
TOTAL	\$602,850,000	100,000	\$288.70

Portfolio 8: Large-Volume Projects



Portfolio 8: Large-Volume

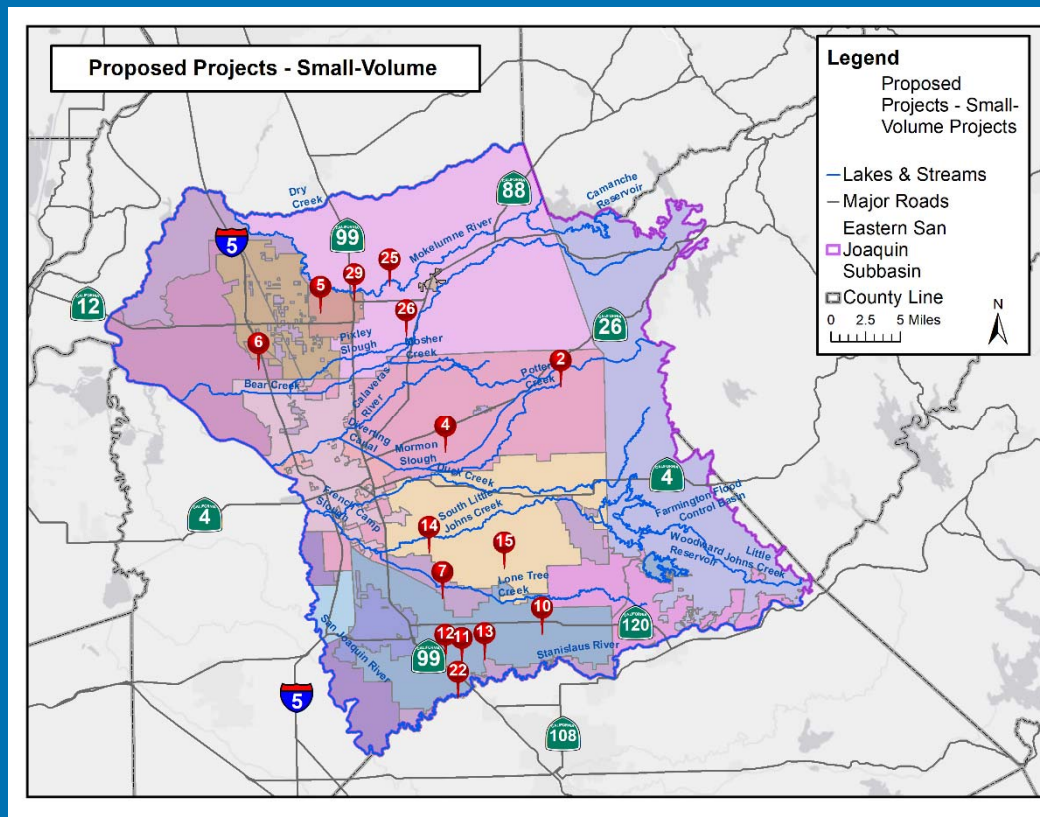


Portfolio 9: Small-Volume Projects

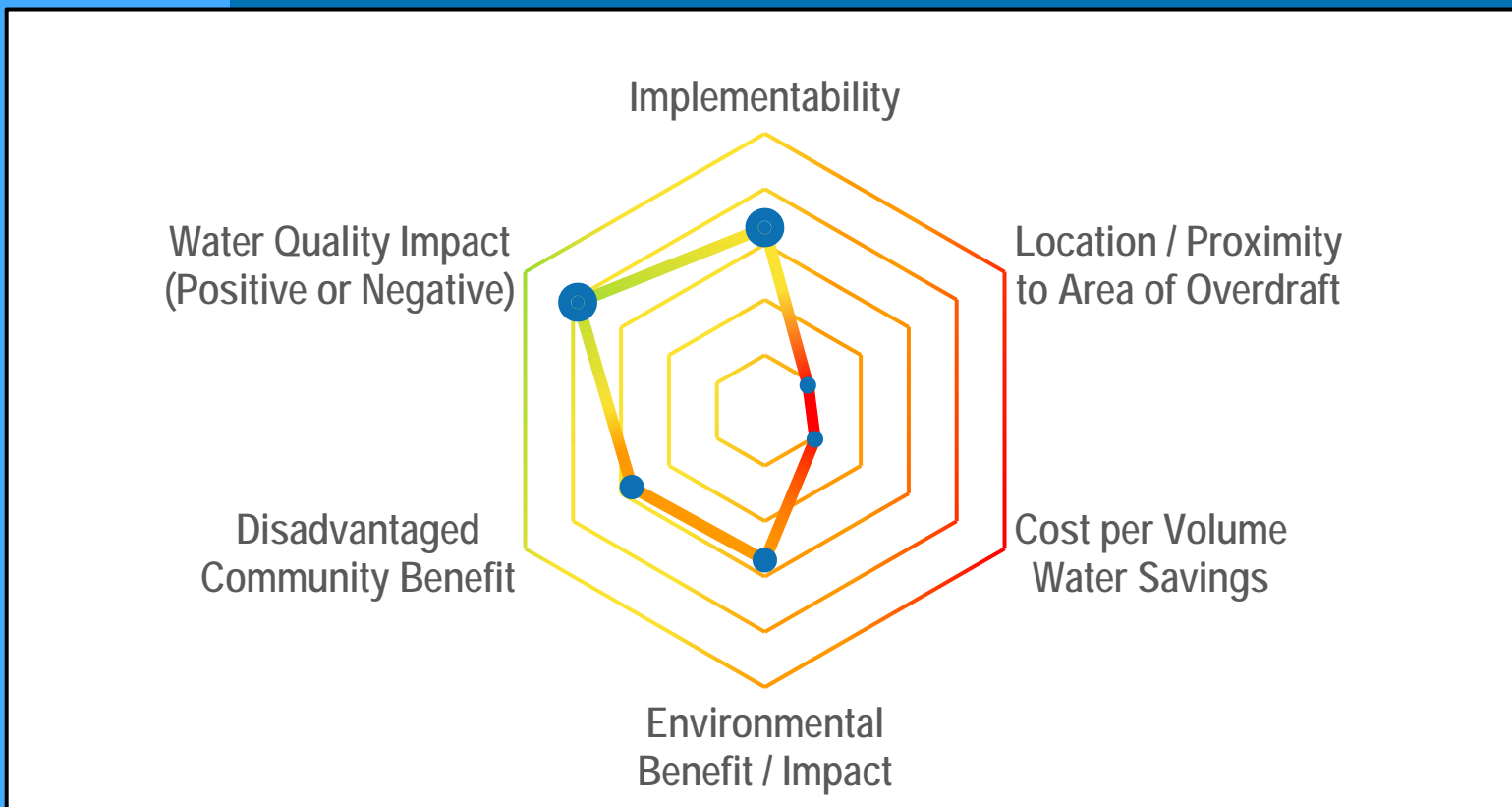


Project Description	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
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Lake Grupe In-Lieu Recharge	\$900,000	4,500	\$4.00
SW Facility Expansion & Delivery Pipeline	\$74,200,000	4,750	\$520.70
CSJWCD Capital Improvement Program	\$1,550,000	5,000	\$10.33
Recycled Water Transfer to Agriculture	\$58,015,000	5,193	\$372.39
City of Ripon Surface Water Supply	\$8,600,000	6,000	\$47.78
SW Implementation Expansion	\$2,250,000	19,000	\$7.89
Pressurization of SSJID Facilities	\$583,000,000	30,000	\$647.78
TOTAL	\$846,854,000	91,647	\$305.52

Portfolio 9: Small-Volume Projects



Portfolio 9: Small-Volume



Portfolio Comparison



Portfolio	Lifecycle Cost	Water Savings (AFY)	Unit Cost (\$/AF)
1. Cost-Effectiveness	\$131,754,000	99,558	\$129.20
2. Regional Diversity	\$189,454,000	100,958	\$147.82
3. Minimized Infrastructure	\$153,939,000	99,683	\$136.46
4. Environmental Benefit	\$691,391,023	100,037	\$316.31
5. Disadvantaged Community Benefit	\$177,165,000	97,611	\$148.87
6. Impact to Cone of Depression	\$187,065,000	96,861	\$151.83
7. Fast Implementation	\$167,439,000	97,004	\$146.28
8. Large-Volume	\$602,850,000	100,000	\$288.70
9. Small-Volume	\$846,854,000	91,647	\$305.52

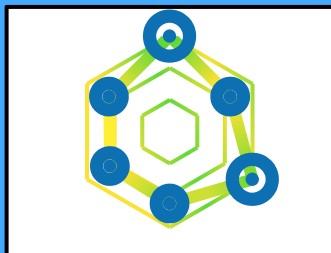
Implementability
Water Quality
DAC Benefit
Environmental

Location
Cost / Volume

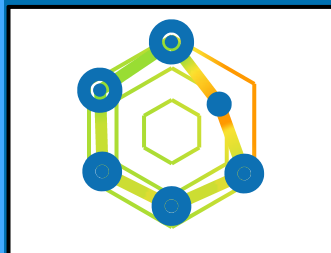
Portfolio Comparison



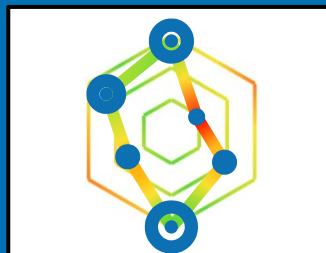
Cost-Effectiveness



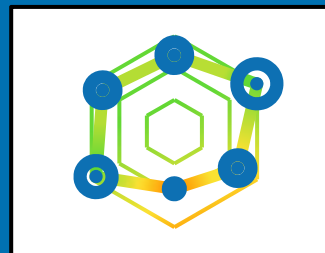
Regional Diversity



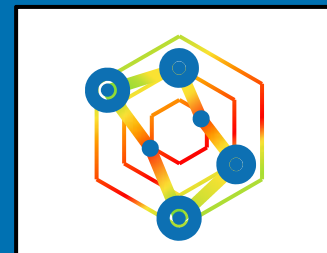
Environmental Benefit



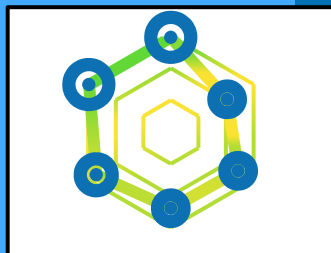
Impact on Cone of Depression



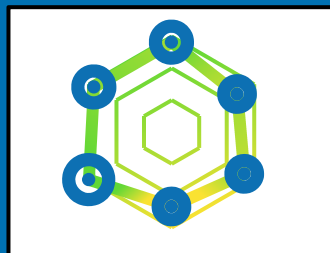
Large Projects



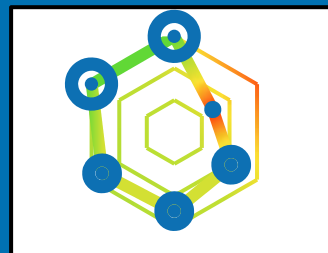
Minimize Infrastructure



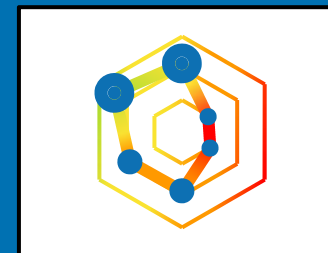
DAC Benefit



Fast Implementation



Small Projects



Other Categories of Projects



Considered for Long-term Implementation:

- Farmington Dam Repurpose Project
- Mobilizing Recharge Opportunities Project
- Advanced Metering Infrastructure Project

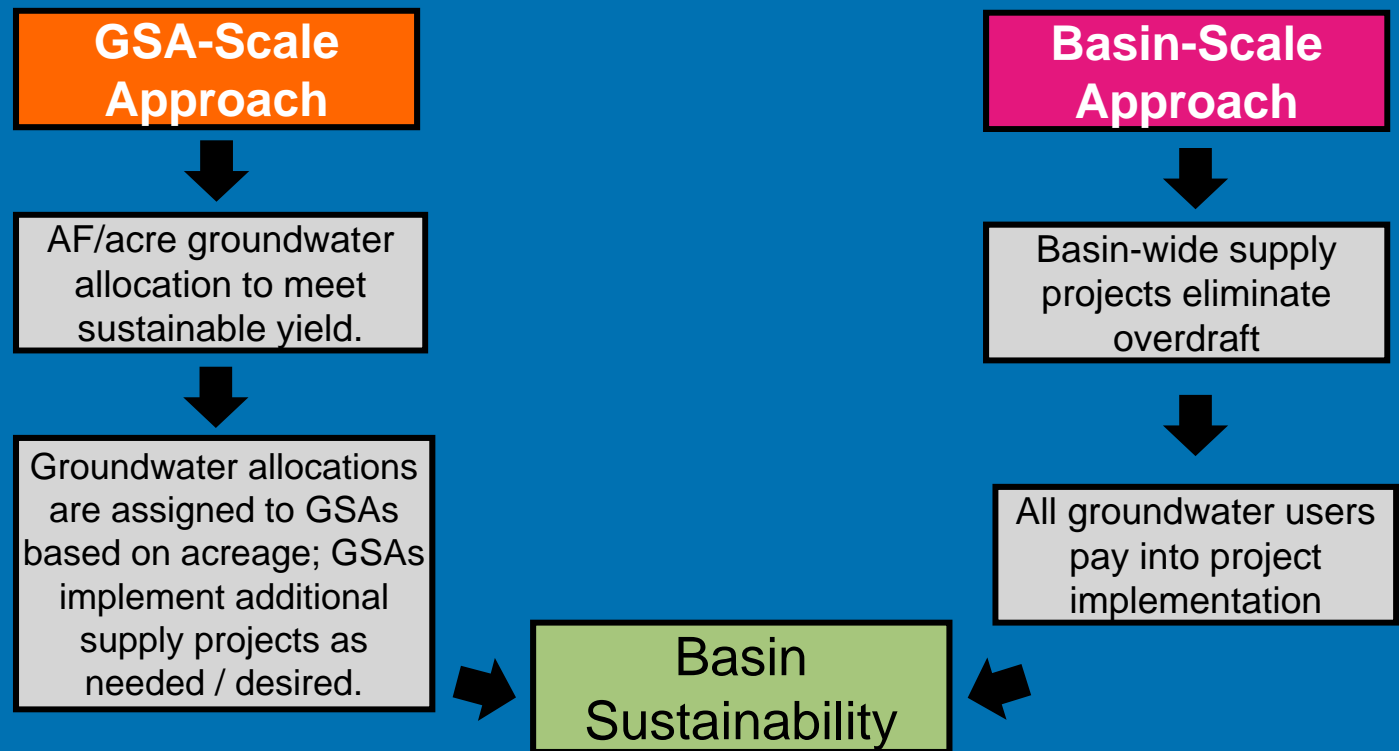
Considered for Monitoring and Verification:

- Mokelumne River Loss Study



Values Discussion Around Funding

Approaches to Financing Projects



Discussion: Benefits of Basin-Wide Solution

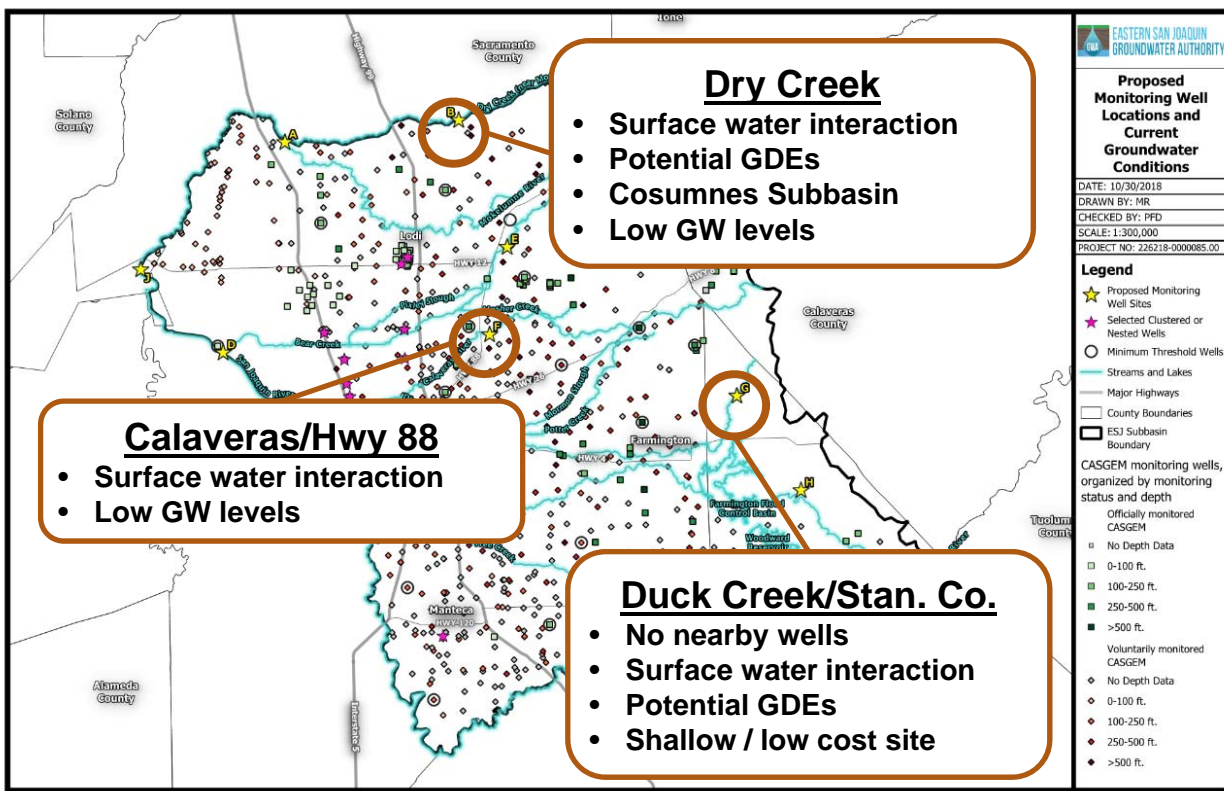


- Overall cost-effectiveness and economies of scale
- Consistent with scale of SGMA compliance
- Well-positioned for outside funding
- Reduces burden to raise funding at the GSA scale
- Some SGMA compliance and administration measures must be implemented at the basin-scale, such as:
 - Monitoring and reporting
 - Validation and verification
 - GSP updates



Monitoring Network and TSS Update

3 Locations Approved



In November, the Board approved 3 locations to be included in the TSS funding application monitoring well request.

Well Siting Specifics



A meeting was held on December 19 with SEWD, NSJWCD, and Eastside GSA to discuss well siting specifics.

Objective: Identify exact well siting locations with consideration to access, proximity to streams, and property ownership

Outcome: Primary and alternate parcels identified for installation of each of the three wells

Next Steps



- TSS application is being finalized



Update from DWR



Situation Assessment Findings Overview

What is the Situation Assessment?



The Situation Assessment findings were developed based on third-party interviews with the members of the Groundwater Sustainability Workgroup. Findings were presented to the Workgroup on December 12.

Full report can be found here: www.esjgroundwater.org/Agendas

Objective #1: Understand and document stakeholder concerns

Objective #2: Incorporate feedback into plan development process

Situation Assessment Findings



Example Recommendations – Workgroup Discussions:

- Consider options for side bar conversations, where people can learn about specific issues (e.g., ad hoc work)
- Increase time for discussions by providing a tighter recap of the previous meeting
- Provide some space and latitude in meetings, to follow where the group wants to go
- Involve decision-makers in workgroup meetings
- Provide a timeline for technical deliverables
- Create a process for adding new attendees and dropping members who don't attend.

Situation Assessment Findings



Example Recommendations – Relationship to Decision-Making:

- Clarify whether/how comments will be incorporated into plan development
- Clarify the work that needs to be done by the Workgroup (e.g., clarify what kind of input and comments the GWA is seeking)
- Define the mission, goals and objectives for the workgroup.
- Look at bringing other voices into the governance structure to bring in new thinking and help with outreach.

Situation Assessment Findings



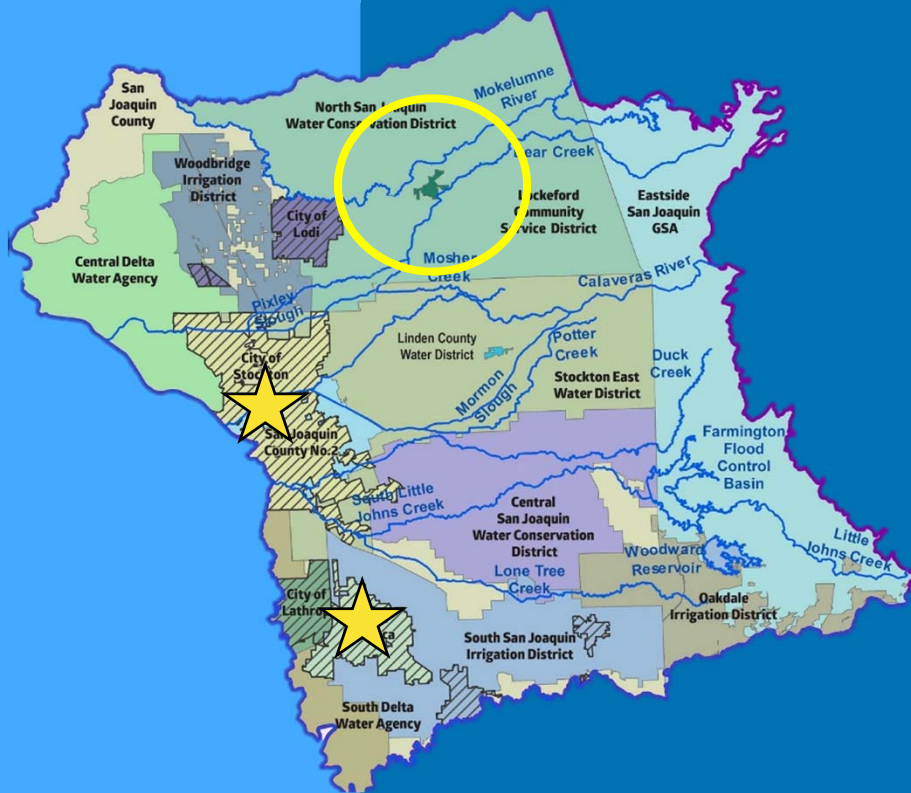
Example Recommendations – Public Outreach:

- Make information understandable for the average person – explain the legislation, what it looks at, and the timeline.
- Approaches to share information and distribute the draft GSP:
 - Arrange for a newspaper interviews and articles
 - Partner with other activities
 - Distribute information in utilities correspondence or property tax bills
 - Post recordings of meetings for the GWA and technical AC
 - Create a speakers bureau
 - Use newsletters, ag alerts
 - Create a “How to be involved” toolkit
 - Encourage every GSA to provide a recap of monthly outreach efforts. Support the individual GSAs in reaching out to constituents.
 - Make stakeholder and public meetings meaningful / relevant to the process



3rd Informational Meeting

3rd Informational Meeting



- The 3rd informational meeting will be held at the Lockeford Community Center

February 12th, 6:30-8 p.m.
Lockeford Community Center
19258 N. Jack Tone Rd
Lockeford, CA 95237



February Agenda Items

February Agenda Items



- Projects and Management Actions
- Financing
- Monitoring Networks



**EASTERN SAN JOAQUIN
GROUNDWATER AUTHORITY**

**GWA Advisory Committee
January 9, 2019**