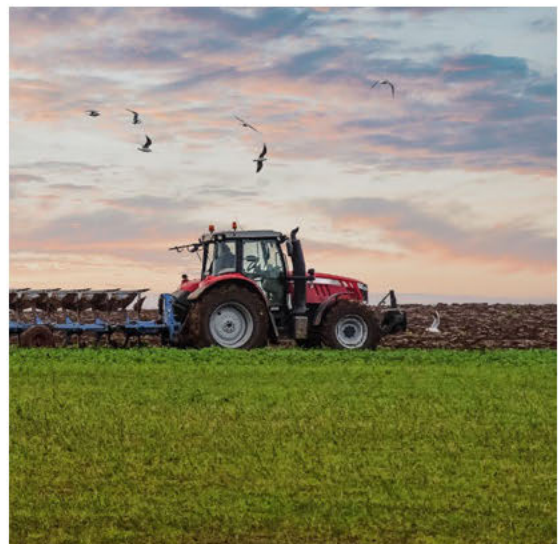
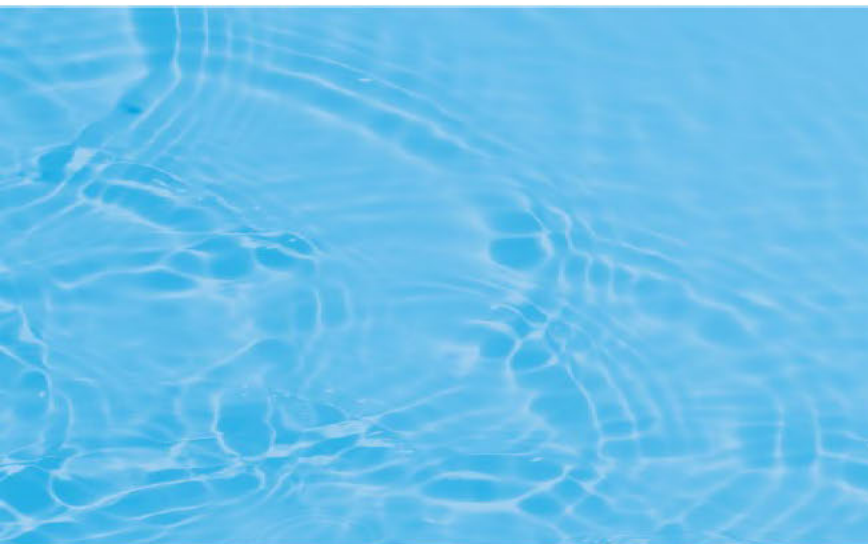




Sacramento Regional County Sanitation District's Harvest Water

WATERSMART: TITLE XVI WIIN ACT WATER RECLAMATION AND REUSE
PROJECTS
(FOA NO. R22AS00115)



March 2022

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WATER RECLAMATION AND REUSE
PROJECTS
(FOA NO. R22AS00115)

HARVEST WATER

Submitted By:

Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

March 15, 2022

TITLE PAGE

Title of WIIN Project: Harvest Water (formerly known as the South Sacramento County Agriculture & Habitat Lands Recycled Water Program)

Applicant Name: Sacramento Regional County Sanitation District (Regional San)

Project Manager: Jose Ramirez, Senior Civil Engineer

Applicant and Project Manager Address: 10060 Goethe Road Sacramento, CA 95827

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TABLE OF CONTENTS

TECHNICAL PROPOSAL AND EVALUATION CRITERIA 4

 Executive Summary..... 4

 Technical Project Description 5

 Background 5

 Project Objectives 6

 Project Description 8

 Evaluation Criteria 11

 Evaluation Criterion 1: Water Supply 11

 Evaluation Criterion 2: Environment and Water Quality 16

 Evaluation Criterion 3: Economic Benefits 21

 Evaluation Criterion 4: Reclamation’s Obligations and Benefits to Rural or Economically Disadvantaged
 Communities 35

 Evaluation Criterion 5: Watershed Perspective 38

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE..... 40

REQUIRED PERMITS OR APPROVALS 47

OTHER FEDERAL FUNDING 48

PROJECT BUDGET 49

 Funding Plan and Letters of Commitment 49

 Budget Proposal..... 50

 Budget Narrative 52

LETTERS OF SUPPORT 57

OFFICIAL RESOLUTION 57

REFERENCES..... 58

APPENDIX A – LETTERS OF COMMITMENT 59

APPENDIX B – LETTERS OF SUPPORT 60

APPENDIX C – OFFICIAL RESOLUTION 61

APPENDIX D – FORM SF 424C..... 62

List of Tables

Table 1: Estimated Construction Costs by Year	21
Table 2: Program Construction Costs.....	22
Table 3: Program Planning and Design Costs.....	22
Table 4: Program O&M Costs	23
Table 5: Replacement Costs by Year.....	23
Table 6: Total Program Costs.....	29
Table 7: Monetized Program Benefits	31
Table 8: Program Benefits and Cost Summary	31
Table 9: Required Permits or Approvals	47
Table 10: Summary of Non-Federal Funding Sources	50
Table 11: Budget Proposal.....	50

List of Figures

Figure 1: Harvest Water Service Area	9
Figure 2: Harvest Water Facilities Map.....	10
Figure 3: Cumulative Water Storage Under 2030 Climate Change Conditions	12
Figure 4: Increased Water Volume in Cosumnes River with Program.....	17
Figure 5: Overview of Species Locations.....	20
Figure 6: Depth to Groundwater Levels in Program Area	25
Figure 7: Percentage of Time with Groundwater Within 25 ft of Ground Surface	26
Figure 8: DACs in the Program Area.....	36
Figure 9: DACs in Regional San Service Area	37

TECHNICAL PROPOSAL AND EVALUATION CRITERIA

EXECUTIVE SUMMARY

Date: March 15, 2022
Applicant: Sacramento Regional County Sanitation District
City: Sacramento
County: Sacramento
State: California

The Sacramento Regional County Sanitation District (Regional San) is applying for \$24,005,808 in grant funding from the U.S. Bureau of Reclamation (Reclamation) under the Water Infrastructure Improvements for the Nation (WIIN) grant program. Funds will be used for planning, design, and construction of Harvest Water (formerly known as the *South Sacramento County Agriculture and Habitat Lands Recycled Water Program*). The proposed Program has the potential to deliver up to 50,000 acre-feet per year (AFY) of Title 22 disinfected tertiary treated recycled water from the Sacramento Regional Wastewater Treatment Plant (SRWTP) to the unincorporated south Sacramento County for agricultural and habitat enhancement uses. Facilities include the Harvest Water Pump Station (HWPS) and approximately 14 miles of transmission pipelines, 25 miles of distribution mains, as well as on-farm connection assemblies at each property. Other benefits of the Program include proactively restoring and managing the groundwater in the southern portion of the County, improving the stream flows in the lower Cosumnes River, enhancing groundwater-dependent riparian habitats and wetlands, sustaining prime agricultural lands, and improving the regional water supply reliability. Reclamation funding is critical to the Program. The grant funds available under this Funding Opportunity Announcement would fund the planning, design, and construction of the Program, including additional environmental and permitting documents (for costs incurred between July 12, 2017 and September 30, 2025).

TECHNICAL PROJECT DESCRIPTION

BACKGROUND

Regional San is a special district providing regional wastewater conveyance and treatment services throughout the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Sacramento, West Sacramento; the communities of Courtland and Walnut Grove; and unincorporated Sacramento County, California. Regional San is the non-Federal project sponsor for this Program.

The Sacramento groundwater basin is split into three zones – North, Central and South. The Harvest Water program area overlies the Central Sacramento groundwater basin, which is under the jurisdiction of the Sacramento Central Groundwater Authority (SCGA). This basin currently supplies water for several agencies and private pumpers within the Sacramento region. Groundwater levels in the Central basin have declined during the middle to late part of the twentieth century, mainly as a result of pumping to meet agricultural and municipal water demands in the basin. Proactive water supply management activities over the past two decades have resulted in more stable conditions in the groundwater basin. However, the available groundwater storage in the Central basin can provide significant opportunities for potential groundwater accounting and conjunctive use operations in the basin. In the 1990s, various parties in the Sacramento area identified the need to collaborate on the long-term usage and management of water supplies. The Water Forum was created with a diverse group of participants to find solutions to the water dilemmas. The resulting Water Forum Agreement focuses on two objectives and seven elements and has guided the water management activities in Sacramento to the present day. The two primary and coequal objectives of the Water Forum Agreement are:

1. Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030; and
2. Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River.

Lowered groundwater levels have also resulted in a disconnect of river base flows in the Cosumnes River during certain times of the year. The Cosumnes River, which runs along the southeastern edge of the Program area, is the only river in the western Sierra with no major dams and thus relies on groundwater to provide base flows for fish and wildlife. The lowered groundwater levels have therefore resulted in undesirable impacts to the riparian vegetation and riparian habitat along the river.

By supplying recycled water for agricultural irrigation in the southern portion of Sacramento County, the proposed Program would offset a portion of agricultural pumping in the region, thus increasing groundwater storage in the basin. This would benefit the region by improving groundwater levels in the Central Basin through in-lieu recharge. As a result of higher stream flows in the Cosumnes River due to the increased groundwater levels and less streamflow losses, the riparian vegetation and riparian habitat along the Cosumnes would benefit.

There are also several wetlands in the region managed by the Stone Lakes NWR, the Cosumnes River Preserve, and other public and private entities. When needed, these wetlands are supplied with water from the lakes within the region. Harvest Water would include a component to provide recycled water to the wetlands, and thus, protect the wetland habitat during drought conditions.

The proposed Program would also assist in the long-term fulfillment of the Water Forum Agreement for conjunctive use of surface and groundwater supplies in the County. The in-lieu recharge would be an important element in the development of a groundwater bank for this region of the County. Without groundwater accounting and the in-lieu recharge program, future development would most likely cause additional stress on the groundwater conditions in the Central Basin.

In addition, the State Water Resources Control Board (SWRCB) adopted a Recycled Water Policy in 2009 that sets goals of increasing recycled water use over 2002 levels by at least one million AFY by 2020 and by at least two million AFY by 2030. The proposed Program would aid in meeting the State's goal of maximizing the use of recycled water and Regional San's goal of recycling 30 to 40 million gallons per day by 2025.

Regional San has also coordinated efforts with Reclamation and has completed a Feasibility Study that has been approved and accepted by Reclamation. The Program is currently listed as an authorized project under Title XVI and the Bureau has determined the Program's Feasibility Study meets the requirements contained in the Reclamation Manual Directives and Standards WTR-11-01 for Title XVI feasibility studies. The Program is included on a list of Title XVI eligible projects that was transmitted to Congress on July 12, 2017.

PROJECT OBJECTIVES

Regional San's purpose in developing Harvest Water is to:

- Meet Regional San's goal of recycling 30 to 40 million gallons per day of its treated wastewater by 2025;
- Support California's recycling goal of 2 million AFY by 2030;
- Improve water quality by restoring groundwater levels and increasing in-stream flows in the Cosumnes River
- Restore depleted groundwater levels up to 35 feet within 15 years and helps advance the goal of basin sustainability under the Sustainable Groundwater Management Act (SGMA)
- Support and increase riparian and wetland habitat on over 5,000 acres
- Support a variety of threatened species, such as Swainson's Hawk, Sandhill Cranes and Giant Garter Snake
- Increase frequency of Cosumnes River instream flows to support fall-run Chinook Salmon
- Support the State and U.S. Bureau of Reclamation goals for increased use of recycled water

- Provide reliable agricultural water supplies and drought resiliency.

Regional planning efforts have identified the need to use recycled water as an element of regional water supply. The proposed Program would deliver recycled water to irrigated lands in southern Sacramento County for agricultural and habitat lands. The Program benefits or helps accomplish the following:

- Increases regional self-reliance and integrated water management across all levels of government – This Program has been ranked as a high priority Program in the American River Basin Integrated Regional Water Management Plan (IRWMP);
- Helps achieve the Delta Reform Act and Delta Plan’s co-equal goals of water supply reliability and ecosystem protection;
- Addresses the Governor’s Drought Proclamation and Water Action Plan with a long-term solution to provide additional water supplies for future drought conditions, helping the region manage and prepare for dry periods;
- Helps protect and enhance the Delta by providing benefits to endangered species in the Delta ecosystem and its tributaries, including the Cosumnes River, Sacramento River and Mokelumne River;
- Increases volume of groundwater in storage by approximately 245,000 acre-feet within 10 years, and approximately 450,000 acre-feet in 40 years; and
- Helps achieve SWRCB’s statewide goal and Basin Plan policy for water recycling by providing up to 50,000 AFY of recycled water.

PROJECT DESCRIPTION

Harvest Water will serve up to 50,000 AFY of recycled water produced from the EchoWater Project to approximately 16,000 acres of agricultural and habitat lands in southern Sacramento County. The proposed recycled water service area includes portions of unincorporated south Sacramento County and portions of the Stone Lakes National Wildlife Refuge (NWR) as shown in **Figure 1**. The recycled water service area is generally bounded to the south by the Cosumnes River Preserve, to the north primarily by Bilby Road and Kammerer Road, and lies primarily between Interstate 5 (I-5) and Highway 99, both of which run in a north-south direction. A small portion of the service area is bisected by I-5.

The Program proposes to use Title 22 tertiary-treated recycled water produced from Regional San's upgrade to the Sacramento Regional Wastewater Treatment Plant (SRWTP), known as the EchoWater project, for irrigating agricultural and habitat lands. The EchoWater project is currently being constructed and is anticipated to be operational prior to 2024.

The recycled water will be supplied by constructing new recycled water transmission and distribution systems. The proposed facilities include a pump station, 14 miles of recycled water transmission pipelines and 25 miles of distribution mainlines and service laterals, appurtenant and facilities. The proposed pump station will be located within the SRWTP site. Transmission pipelines and distribution mains would be located on County and city streets and rural roads, primarily within public road rights-of-way (ROW), although distribution mains may also occur on private lands. The service connection laterals would generally be located on private agricultural lands or dirt roads. Recycled water would be delivered to agricultural and habitat lands.

The average annual amount of recycled water delivered to participating irrigation customers and NWR wetlands at Program implementation, anticipated for 2025, would be up to 50,000 AFY. Recycled water would be delivered year-round to approximately 16,000 acres of irrigated farmlands for in-lieu use during the irrigation season and wintertime application to support habitat lands during the non-irrigation season. The Program would be designed to provide two-thirds of the maximum monthly agricultural irrigation demand, which, on an annual basis, ranges between approximately 32,500 AFY and 37,000 AFY. During peak demand, the remaining irrigation needs exceeding the amount provided by the Program (approximately 9,200 AFY) would be met with existing private wells currently used for irrigation supply.

Monitoring associated with the groundwater accounting Program would utilize both existing infrastructure and new Program monitoring wells in and near the Program area. Modeling indicates that the Program could increase the volume of groundwater stored in the Basin by approximately 245,000 AF within 10 years and 320,000 AF within 25 years (2030 climate change scenarios, modeled following California Water Commission technical guidance). Once the groundwater levels recover and the basin is in sustainable balance, excess groundwater stored in the basin could be available in the future for potential groundwater accounting partners, such as farmers and local municipalities to use in dry years instead of surface water. Withdrawals would only occur during periods with limited surface water resources, which, for modeling purposes, are estimated to occur 3 driest years out of 10 water years. Withdrawals would be based on the amount of available stored water (expected to be approximately 30,000 AFY based on initial modeling) and limited to a maximum of 50,000 AFY in those driest years, leaving

approximately 70% or more of the stored water in storage to continue providing stream flow and riparian habitat benefits.

The grant funds available under this Funding Opportunity Announcement would help fund planning, design, and construction of the Program, including completion of additional environmental and permitting documents, which are currently ongoing.

Figure 1: Harvest Water Service Area

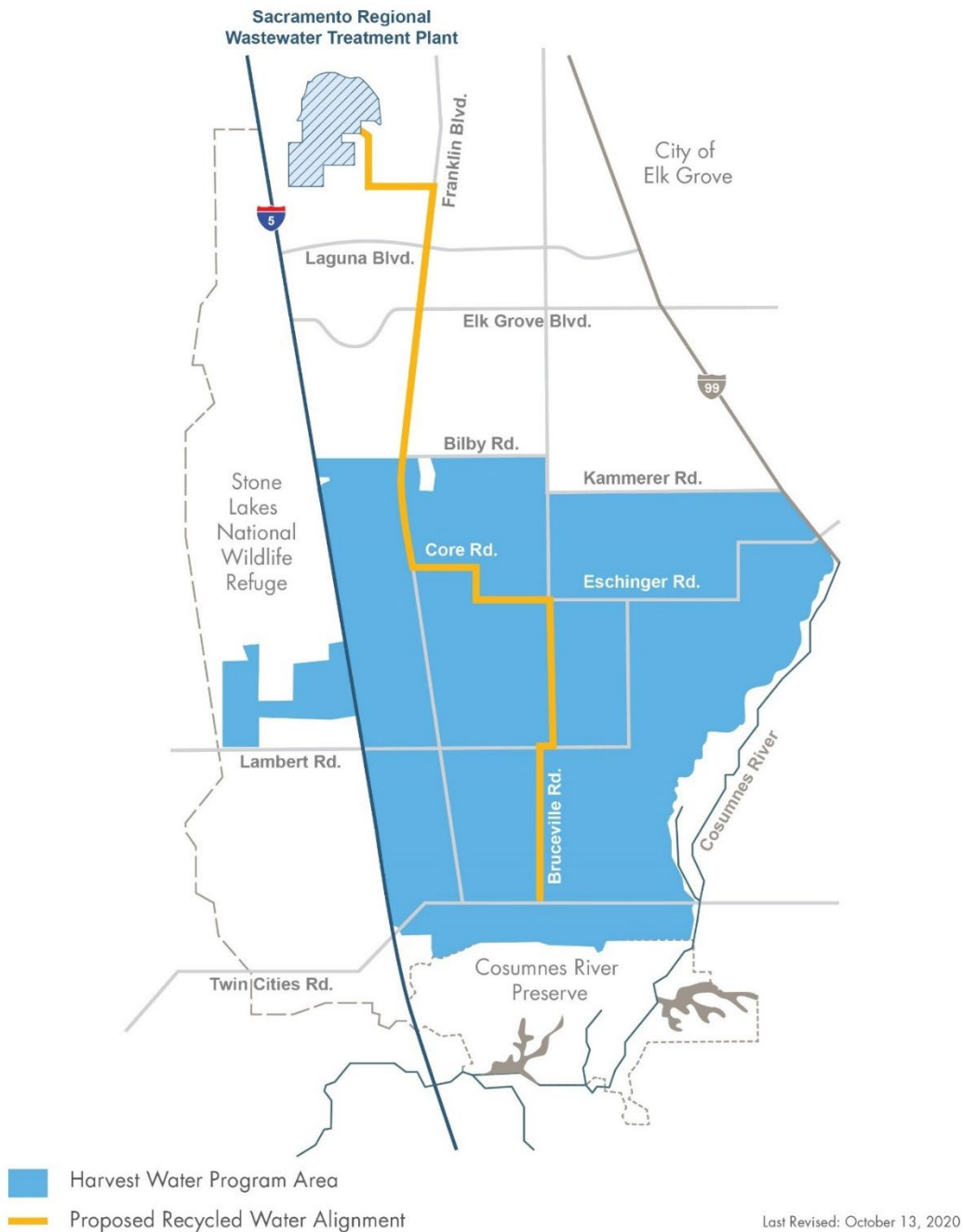
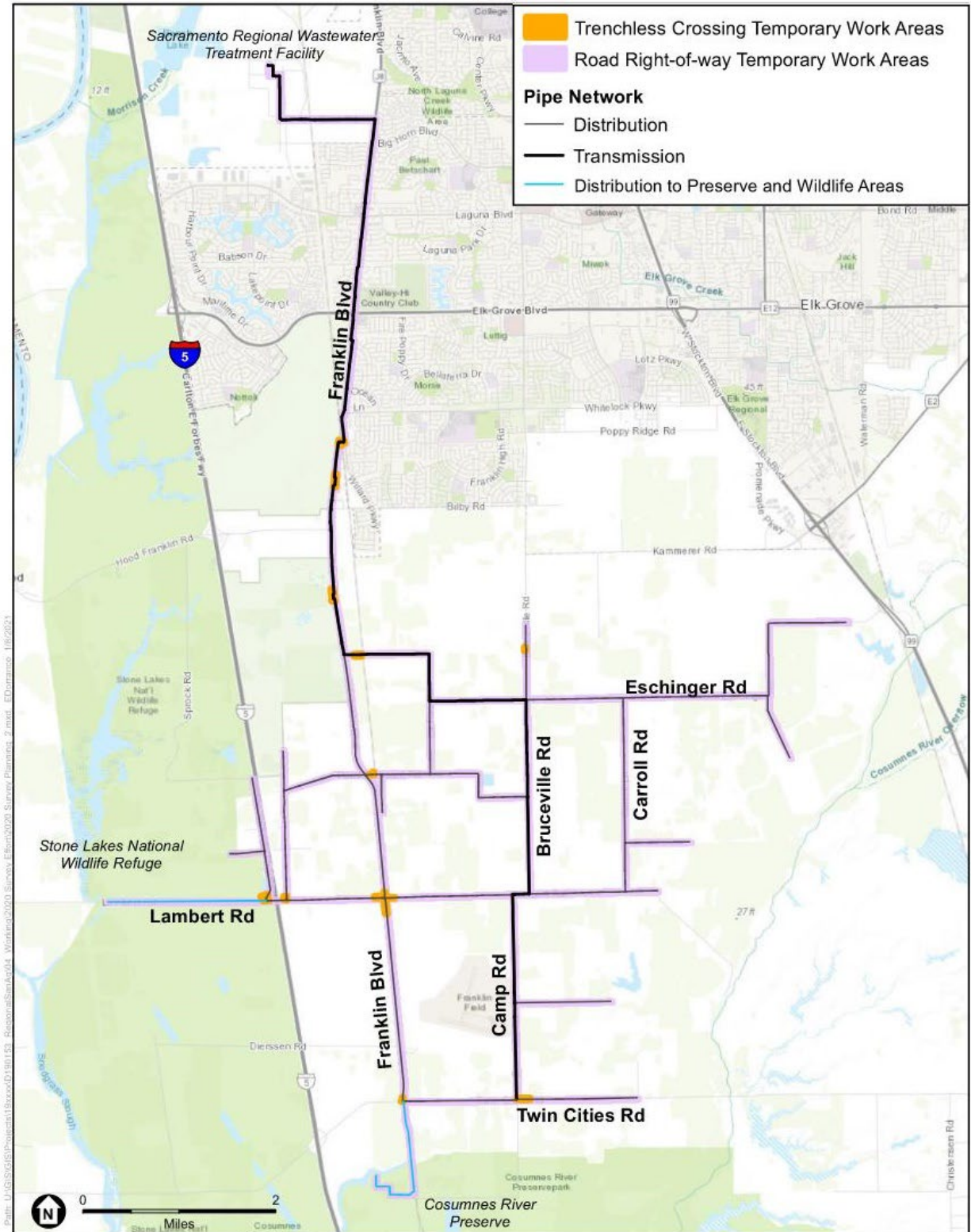


Figure 2: Harvest Water Facilities Map



SOURCE: ESA, 2020; Regional San, 2020.

Harvest Water

EVALUATION CRITERIA

EVALUATION CRITERION 1: WATER SUPPLY

SUBCRITERION NO. 1A - STRETCHING WATER SUPPLIES

- 1. How many acre-feet of water are expected to be made available each year upon completion of the Project? What percentage of the present and/or future annual demand in the project sponsor's service area will the Project's reclaimed water provide upon Project completion? The percentage should be based on the total service area demand, not just recycled water demand. Use the total capacity of the entire Project upon completion, not just the water that will be produced by the activities that will be completed over the next 2 years.***

The average annual amount of recycled water delivered to participating irrigation customers and wildlife preserves at Program implementation would be up to 50,000 AFY. The market assessment in the Feasibility Study identified up to 95,000 AFY of water use for irrigation and wetlands (RMC 2012). Therefore the proposed Program would provide approximately 53% of the estimated average annual water demand of 95,000 AFY. Private groundwater pumping for domestic water use is not included in this estimate, but is small compared to the irrigation demands.

- 2. Will the Project reduce, postpone, or eliminate the development of new or expanded non-recycled water supplies? Explain.***

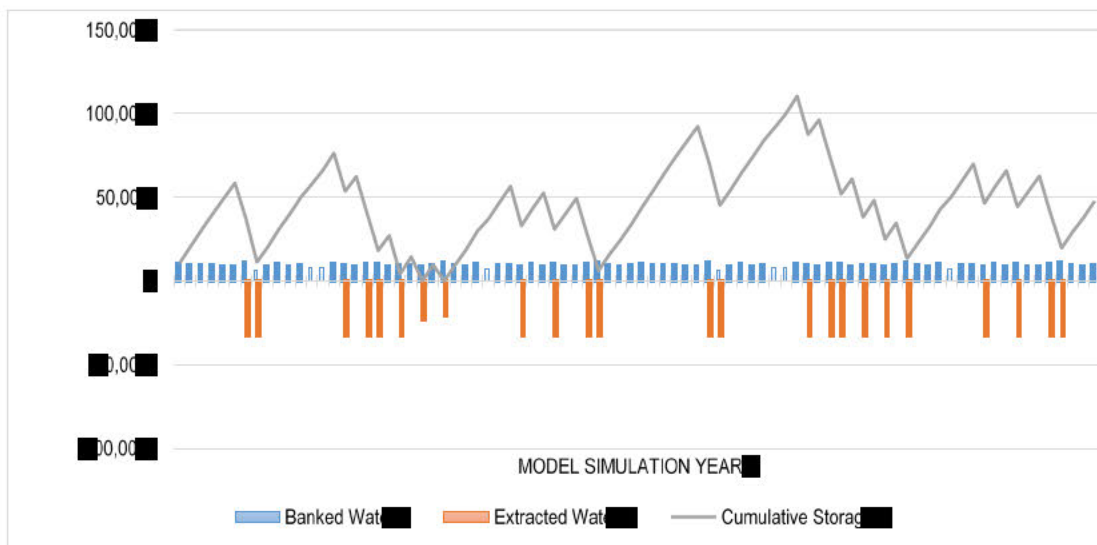
Yes, the Program will potentially postpone, or target and minimize the development of new or expanded non-recycled water supplies. Examples include streamflow augmentation projects such as conveyance of stream recharge and pre-wetting surface water flows through the Folsom South Canal and the Freeport Pipeline, which is an alternative project with goals of improving riparian forests and flow conditions on the Cosumnes River by moving water supplies to the upper reaches of the Cosumnes River. By implementing Harvest Water, stream flows in the Cosumnes River would increase. In addition, by offsetting groundwater supplies, the Program would postpone the need for drilling of deeper groundwater wells by agricultural users if groundwater levels continued to drop.

- 3. Will the Project alleviate pressure on existing water supplies and/or facilities? If so, please describe the existing water supplies, identify the supplies and/or facilities that will be impacted and explain how they will be impacted by the Project, including quantifications where applicable.***

Yes, the Program would alleviate pressure on existing water supplies and facilities by providing access to a more reliable water supply during dry years. Once the groundwater levels recover and the basin is in sustainable balance, excess groundwater stored in the basin could be available in the future for potential groundwater accounting partners, such as farmers and local municipalities to use in dry years instead of surface water. Those reductions in surface water diversions could potentially be sold to other entities for municipal or environmental uses, improving water supply reliability in the Program area, as well as in the Delta and the State.

Preliminary modeling suggests that the Program could increase groundwater storage in the basin by approximately 320,000 to 590,000 AF (with Program as compared to without Program, between approximately 25 years under 2030 climate change conditions to 80 years under 2070 climate change conditions, respectively). Approximately 70% of in-lieu recharged water is assumed to be unavailable for extraction, as it is intended to benefit ecosystems and contribute to overall basin sustainability. The remaining 30% of in-lieu recharged water is available for extraction during drought conditions. When stored water is available, it is assumed that approximately 32,500 AFY would be available for extraction during dry years. The extraction is ceased when the “available” stored water reaches zero to avoid extracting more than 30% of in-lieu recharged water. Modeling results for extraction availability and effects under 2030 and 2070 climate change conditions are shown in **Figure 3**.

Figure 3: Cumulative Water Storage Under 2030 Climate Change Conditions



4. *What performance measures will be used to quantify actual benefits upon completion of the Project?*

Upon completion of the Program, the following performance measures could be used to quantify actual benefits upon completion of the Program:

- Increased groundwater levels and storage (in feet and AF, respectively)
- Improved riparian and wetland conditions (acres and condition)
- Increased habitat to support sandhill cranes (acres)
- Protection and enhancement of vernal pool habitats (acres)
- Increased frequency of Cosumnes River instream flows
- Increased number of days that support fall-run Chinook salmon and number of adult Chinook salmon
- Reduced mass loading of salt to the lower Sacramento River and Delta
- Enhanced groundwater-surface water connectivity with nearby restoration projects
- Facilitation of urban and agricultural cooperation

SUBCRITERION NO.1B - CONTRIBUTIONS TO WATER SUPPLY
SUSTAINABILITY

1. ***Will the Project make water available to address a specific concern? Consider the number of acre-feet of water and/or the percentage of overall water supply to be made available by the Project. Explain the specific concern and its severity. Also explain the role of the Project in addressing that concern and the extent to which the Project will address it.***

The Program will help address three specific concerns – groundwater depletion, addressing the Sustainable Groundwater Management Act (SGMA), and water supply reliability. These are discussed in detail in the following sections.

Groundwater Depletion: Program’s Ability to Contribute to Groundwater Management

Harvest Water is located within the Sacramento Valley groundwater basin, South American subbasin. The South American subbasin is classified as a high-priority basin by the California Department of Water Resources (DWR), largely due to the declining groundwater levels in the basin. The annual storage loss in the decline areas is estimated to be 11,000 AF (SCGA 2016).

The Program directly benefits the groundwater of the South American subbasin and, to a lesser extent, the Cosumnes subbasin immediately south of the Cosumnes River. Modeling results under the 2030 climate change scenario show both an increase in groundwater storage and groundwater levels. In the first 15 years of simulation, assuming full implementation in year one, groundwater elevations increase by up to 35 feet near the center of the Program area, filling in an area of groundwater depression. The modeling also suggests that within 20 years, the Program could increase groundwater storage in the basin by approximately 290,000 AF. Ultimately, as equilibrium is reached where hydraulic interconnectedness between groundwater and surface water occurs, modeling shows that groundwater storage levels out and fluctuates based on hydraulic conditions, averaging an increase in volume of groundwater stored to approximately 450,000 AF.

Addressing Sustainable Groundwater Management Act (SGMA)

California’s Sustainable Groundwater Management Act (SGMA) requires Groundwater Sustainability Agencies (GSA) to be formed in medium- and high-priority basins to create and implement Groundwater Sustainability Plans for achieving sustainable groundwater management. Harvest Water is located within the Sacramento Valley groundwater basin, South American subbasin which is classified as a high priority basin by DWR. The Sacramento Central Groundwater Authority formed as a GSA in July 2016 and has a 16-member board that represents all groundwater users and stakeholders in the South American subbasin. Regional San has been a board member since the Sacramento Central Groundwater Authority’s inception in 2006. As a board member, Regional San is integral to establishing a Groundwater Accounting Program that will lay a foundation for groundwater accounting as it relates to the Program and establishing groundwater accounting and conjunctive use principles. Regional San has presented information on the Program to the Sacramento Central Groundwater Authority Board at multiple meetings and the Program is included in the Groundwater Sustainability Plan currently under development. Sacramento Central Groundwater Authority has submitted a letter of support for

the Program noting that the Program contributes to the resiliency of the groundwater basin and SGMA compliance.

Water Supply Reliability: Program Flexibility and Integration with Water Systems

As described above, the Program area currently faces concerns with groundwater levels depleting in the subbasin, which leads to a concern with water supply reliability. This concern is further exacerbated during drought years, when surface water availability is limited and the groundwater may be extracted at rates even higher than usual. Harvest Water benefits the overall long-term sustainability of local and regional water resources through improved groundwater and surface water conditions in and around the Program area as a result of in-lieu groundwater recharge operations. The Program would add greater flexibility to the management of the local groundwater and surface water resources conjunctively and contribute to the improved management of water resources at the regional and statewide level. The Program would also benefit the broader Central Valley water system, including the State Water Project, Central Valley Project, and the Sacramento-San Joaquin Delta through increased streamflow in the lower Cosumnes River and Mokelumne River, both of which are Delta tributaries. These increases in streamflow would be a result of increased groundwater elevations near the Program area.

Regional San is a member of both the Sacramento Regional Water Authority and the Sacramento Central Groundwater Authority. Each organization has a broad consortium of urban and rural water interests that include the City of Sacramento and Sacramento County Water Agency, in addition to Regional San. Both authorities help protect and enhance surface and groundwater supply reliability for the Sacramento Region. The Sacramento Regional Water Authority, in partnership with its member agencies, has developed an Integrated Regional Water Management Plan (IRWMP) to identify regional projects and partnerships that will help the region best meet its future water resources needs. Harvest Water has been identified as a high-priority project in the IRWMP to help improve the region's water supply reliability.

Once the groundwater levels recover and the basin is in sustainable balance, excess groundwater stored in the basin could be available in the future for potential groundwater accounting partners, such as farmers and local municipalities to use in dry years instead of surface water. The Harvest Water Program adds local resiliency for periods of drought, while still maintaining the key benefits of restored groundwater levels. This conjunctive use element of the Program will allow accounting partners to limit their surface water diversions during times of drought and shift to groundwater pumping of the stored groundwater. These reductions in surface water diversions could potentially be sold to other entities for municipal or environmental uses, improving water supply reliability in the region and state. Although no final agreements have been reached with these agencies, the proposed Program operations are consistent with the conjunctive use plans of these agencies.

- 2. Will the project address climate change? E.O. 14008: Tackling the Climate Crisis at Home and Abroad focuses on increasing resilience to climate change and supporting climate resilient development. E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity. Please describe how the project will address climate change***

Yes, the project will address climate change. The Program will stabilize groundwater levels, ultimately reversing the groundwater flow direction back to the Cosumnes River and Snodgrass Slough Complex, such that these rivers become gaining reaches (and reduce the number of days the river runs dry). Under the 2030 climate change scenario, the Program increases the frequency that the Cosumnes River base flows exceed 10 cubic feet per second (cfs) by up to 16%. These improved base flows will not only benefit the returning Chinook salmon, but will also provide a habitat for the native resident fish and aquatic organisms in the lower Cosumnes River. Over the planning horizon, the improved flows in the Cosumnes River can be converted into a mean total water volume increase of approximately 15,500 AFY under the 2030 climate change scenario. The Cosumnes River ecosystem is one of the last remaining examples of an intact riparian forest ecosystem in California. This riparian and wetland vegetation is dependent on shallow groundwater to support mature vegetation and for seedling establishment. One of the important benefits of the Program is the increase in the shallow groundwater level, along with the increased frequency that the shallow groundwater is close enough to the ground surface to support the riparian ecosystem (ideally, this is when groundwater levels are within 5 to 10 feet of the surface). Under the 2030 climate change scenario, the Program will facilitate shallow groundwater levels across an additional 3,133 acres of habitat that can support herbaceous and mature woody species. Under the modeled 2030 and 2070 climate change conditions, the groundwater improvements and surface water benefits from this Program provide resiliency from impacts of climate change, not only to the Program area, but also to nearby existing private and public investments which have been implemented in the watershed. This will occur in the following two ways: (1) reversing the groundwater-stream gradient from losing to gaining, stabilizing, and improving the ecological resilience under today's climate; and (2) most importantly, ensuring existing public conservation lands in the area are preserved as climate change persists. For instance, without the Program, baseline conditions in 2030 and 2070 show that the groundwater conditions would not support healthy ecosystems in any of the existing public conservation lands in the area.

3. Will the project help create additional flexibility to address drought? Will water made available by this Project continue to be available during periods of drought? To what extent is the water made available by this Project more drought resistant than alternative water supply options? Explain.

Yes, water made available by this Program will create additional flexibility to address drought and continue to be available during periods of drought in two different ways. First, the 50,000 AF recycled water delivered annually to irrigation users will be available to those users during periods of drought. Second, and as discussed previously, once the groundwater levels recover and the basin is in sustainable balance, excess groundwater stored in the basin could be available in the future for potential groundwater accounting partners, such as farmers and local municipalities to use in dry years instead of surface water. The Harvest Water Program adds local flexibility and sustainability for periods of drought, while still maintaining the key benefits of restored groundwater levels. Extraction of the stored water can provide critical dry year supplies to a variety of users, not just recycled water users, and allow surface water diversions to be reduced, benefiting the state water system, specifically in the Sacramento region and Delta. This operational flexibility means that a variety of groundwater management projects could function even under sustained droughts to still achieve the project benefits. The recycled water produced and delivered through the Program by Regional San is far more drought resistant than

South County's alternative supplies which include groundwater and surface water which are both heavily dependent on precipitation.

4. *Has the area served by the Project been identified by the United States Drought Monitor as experiencing severe, extreme, or exceptional drought at any time in the last four years?*

The general Sacramento county area served by the Program has been identified by the United States Drought Monitor as experiencing moderate drought in the 2018-2019 and severe to extreme drought in the 2020-2021 crop years.

5. *Has the area served by the Project been designated as a drought disaster area by the State in the last four years?*

The United States Department of Agriculture (USDA) assigned Secretarial Drought Disaster Designations to the county of Sacramento in the 2018-2021 crop years.

EVALUATION CRITERION 2: ENVIRONMENT AND WATER QUALITY

1. *Will the Project improve the quality of surface water or groundwater? If so, how?*

The Program would improve the quality of surface water in the lower Sacramento River. Four of eight Delta Waterways are listed as impaired for electro-conductivity as documented on the most recent Clean Water Act Section 305(b) and 303(d) Integrated Report for the Central Valley Region. In addition, the Bay-Delta Plan and the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins also regulate salinity levels in the receiving waters (Sacramento River and Delta). The proposed Program will reduce future wastewater effluent discharged to the lower Sacramento River near the town of Freeport from the SRWTP by putting the Title 22 tertiary treated recycled water to beneficial use for agricultural irrigation. As a result, the mass loading of Total Dissolved Solids, a measure of salinity, to the lower Sacramento River will be reduced by approximately 190,000 lbs/day (95 tons per day). This will also slightly improve electro-conductivity levels in the lower Sacramento River downstream of the discharge and into the Sacramento-San Joaquin Delta.

2. *Will the Project improve effluent quality beyond levels necessary to meet State or Federal discharge requirements?*

The Program would not improve effluent quality beyond levels necessary to meet discharge requirements as the SRWTP discharge is already required to meet tertiary water quality standards.

3. *Will the Project improve flow conditions in a natural stream channel? If so, how?*

Yes, the Program will improve flow conditions in the lower Cosumnes River as described in the following section.

Instream Flow Benefits

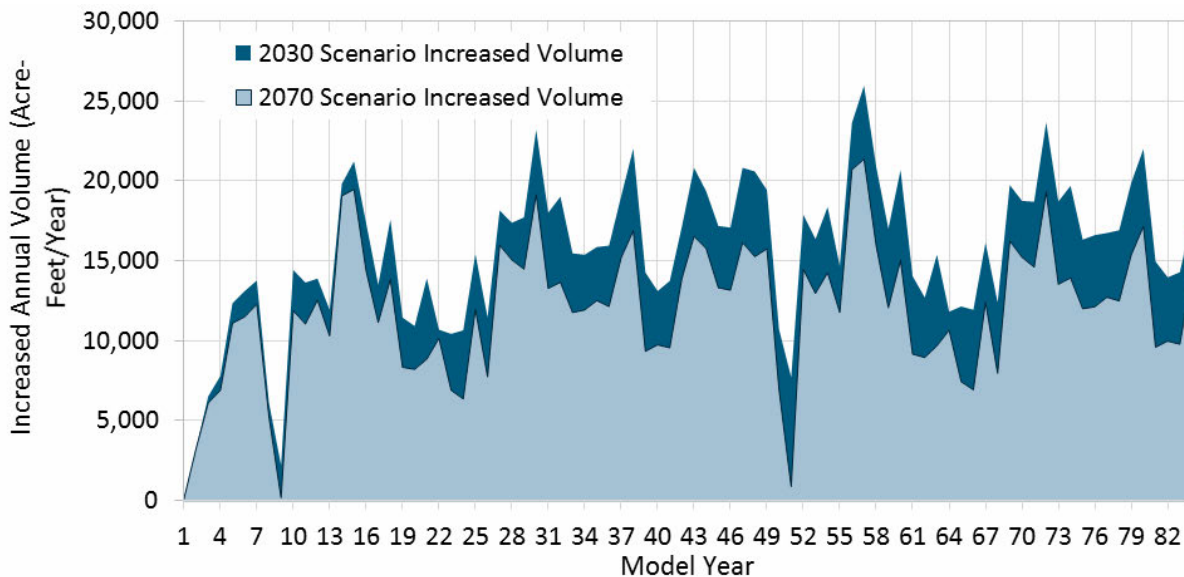
The lower Cosumnes River, a tributary to the Delta, currently runs dry for most of the summer and fall. These conditions have limited fish passage and have negatively impacted fall-run Chinook salmon. As the Program is implemented, it will stabilize groundwater levels, ultimately reversing the groundwater flow direction back to the Cosumnes River and Snodgrass Slough

Complex, such that these rivers become gaining reaches (and reduce the number of days the river runs dry). Under the 2030 climate change scenario, the Program increases the frequency that the Cosumnes River base flows exceed 10 cubic feet per second (cfs) by up to 16%. These improved base flows will not only benefit the returning Chinook salmon, but will also provide a habitat for the native resident fish and aquatic organisms in the lower Cosumnes River.

The Program will decrease stream losses to groundwater, in turn increasing instream flows in the Cosumnes River. Over the planning horizon, the improved flows in the Cosumnes River can be converted into a mean total water volume increase of approximately 15,500 AFY under the 2030 climate change scenario. The base flow improvements of the Program will also benefit fall-run Chinook in the Cosumnes River by supporting a longer time period during the migration window where flow exceeds the minimum needed for passage. Under the 2030 climate change scenario, the Program is expected to increase the number of days that support fall-run Chinook passage by 34% and increase the number of adult Chinook salmon by 143.

Figure 4 illustrates the total annual increase in water volume (in AFY) in the Cosumnes River with the Program in place under the 2030 and 2070 climate change scenarios for each modeling year.

Figure 4: Increased Water Volume in Cosumnes River with Program



4. Will the Project restore or enhance habitat for non-listed species? If so, how?

Yes, the Program will protect and enhance habitat for non-listed species through instream flow benefits as described in the following section.

Groundwater Dependent Ecosystem Benefits

The Cosumnes River ecosystem is one of the last remaining examples of an intact riparian forest ecosystem in California. This riparian and wetland vegetation is dependent on shallow groundwater to support mature vegetation and for seedling establishment. One of the important benefits of the Program is the increase in the shallow groundwater level, along with the increased

frequency that the shallow groundwater is close enough to the ground surface to support the riparian ecosystem (ideally, this is when groundwater levels are within 5 to 10 feet of the surface). Under the 2030 climate change scenario, the Program will facilitate shallow groundwater levels across an additional 3,133 acres of habitat that can support herbaceous and mature woody species.

Ecosystem Resiliency

Under the modeled 2030 and 2070 climate change conditions, the groundwater improvements and surface water benefits from this Program provide resiliency from impacts of climate change, not only to the Program area, but also to nearby existing private and public investments which have been implemented in the watershed. This will occur in the following two ways: (1) reversing the groundwater-stream gradient from losing to gaining, stabilizing, and improving the ecological resilience under today's climate; and (2) most importantly, ensuring existing public conservation lands in the area are preserved as climate change persists. For instance, without the Program, baseline conditions in 2030 and 2070 show that the groundwater conditions would not support healthy ecosystems in any of the existing public conservation lands in the area.

Changes in Land Management to Support Wildlife

The presence of agriculture in Harvest Water's program area does not preclude the potential to support wildlife, but in fact, presents additional opportunities. An important aspect of the Program will be the collaboration with agricultural producers to receive recycled water for irrigation and to engage them in changes in land management practices to support wildlife. This complementary aspect of the Program will include a combination of targeted applications of water during the winter to flood agricultural fields along with changes in residue management. These actions would increase the overall habitat available within the Program area and adjacent and nearby wetlands, for many endangered, sensitive, and threatened species, including:

- California tiger salamander
- Chinook salmotscha
- Giant garter snake
- Greater sandhill crane
- Riparian brush rabbit
- Sacramento splittail
- Swainson's hawk
- Tricolored blackbird
- Valley elderberry longhorn beetle
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp
- Western pond turtle
- White-tailed kite
- Willow flycatcher
- Yellow warbler

It is estimated the Program could increase the sandhill crane population by an additional 700 cranes in and around the Program area. An overview of the species location is shown in **Figure 5**.

Protection and Enhancement of Vernal Pool Habitats

An estimated one-third of the remaining vernal pool habitat in Sacramento County has been eliminated as a result of recent development. As such, protection and enhancement of these unique habitats is a priority in the region. Harvest Water has the unique ability to tie in wide expanses of summer raptor foraging habitat, winter crane habitat, and vernal complexes in a

single large, connected region. By integrating vernal pools and channels and their associated upland contributing watershed into the Program, the ecological values are maximized and overall management requirements are simplified as the land is managed for these values as a region, rather than being managed as a series of small parcels. As part of Harvest Water, 500 acres of vernal pool habitat will be targeted for enhancement and conservation to improve habitat conditions. In addition to improved vernal pool habitats, securing strategic conservation easements in the Program area will help protect these valuable habitats from future conversion to crops within minimal habitat value, such as grapes.

Protection and Enhancement of Wetlands

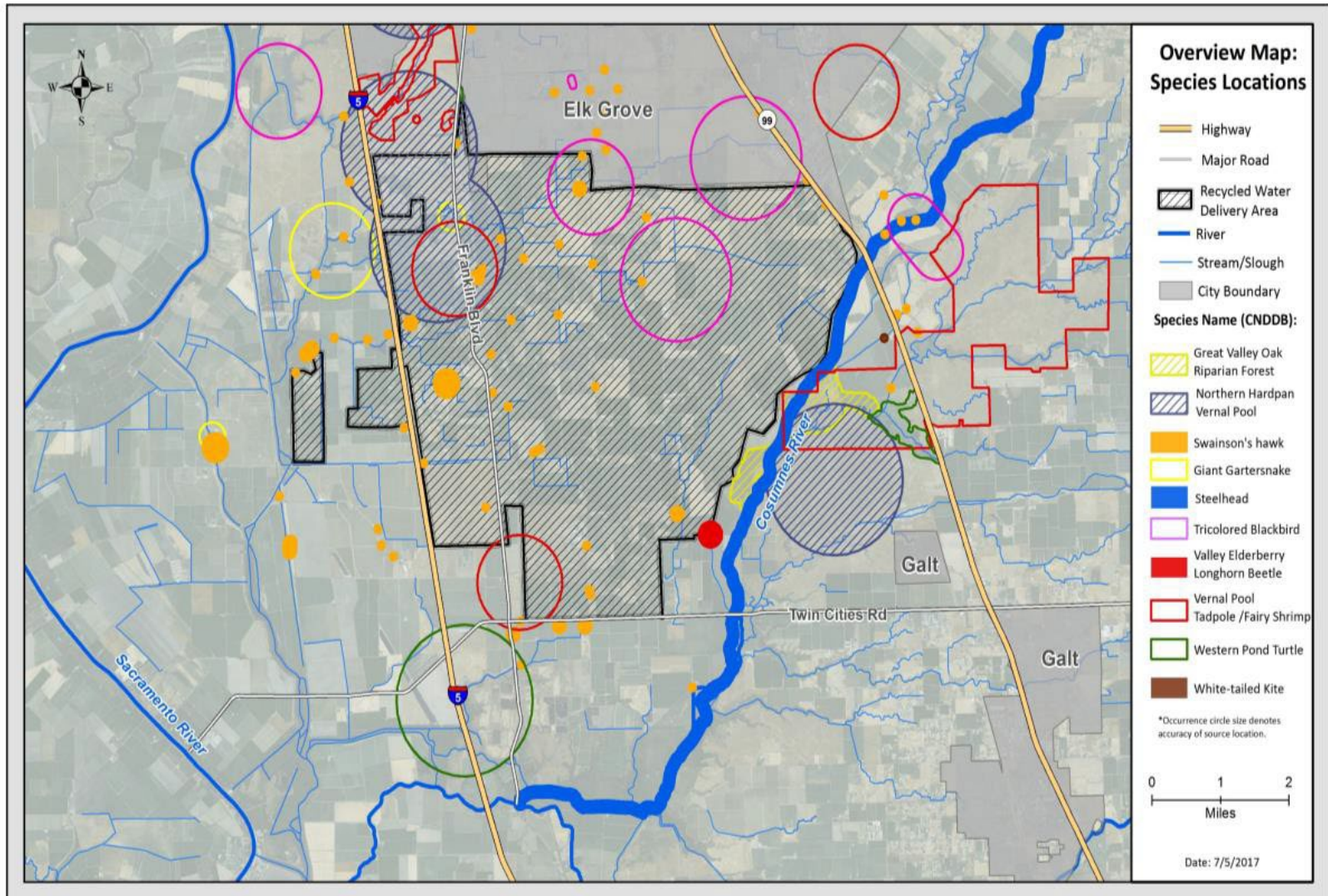
The final ecosystem benefit of the Program involves a combination of strategies designed to benefit wetlands: indirect groundwater benefits, and targeting site-specific winter water application of recycled water, and invasive weed management. These wetland areas are included in the benefit analysis associated with increased groundwater levels. Benefits are also realized from the delivery of recycled water for winter application to existing wetlands, which can then mitigate the risk of reduced function resulting from disconnection of wetland plants and soils from the groundwater table. There are approximately 1,500 acres and 1,000 acres of potential wetlands appropriate for water delivery on managed and unmanaged lands, respectively. Wetlands currently managed by The Nature Conservancy or other agencies, including those within the Cosumnes River Preserve and the Stone Lakes NWR, can be improved through recycled water delivery and weed management. Unmanaged wetland areas can benefit as well, and are likely to produce an even a larger potential for improvement.

To implement this aspect of Harvest Water, landowners with acreage that can be reliably maintained in suitable condition would be targeted for long-term agreements, and adjacent properties with similar values would be secured using shorter-term agreements. The Program targets delivering recycled water for wintertime flooding on 1,000 acres of managed wetlands and 300 acres of unmanaged wetlands.

5. Will the Project provide water or habitat for federally listed threatened or endangered species? If so, how?

The Program will directly and indirectly provide water and habitat for federally listed threatened or endangered species. The program indirectly provides increased flows in the Cosumnes River and shallow water table influenced wetlands through in-lieu recharge. The Program also has the potential opportunity to provide water directly to the US Fish and Wildlife Service Stone Lakes National Wildlife Refuge via a pipeline. These wetland areas are included in the benefit analysis associated with increased groundwater levels. Benefits are also realized from the delivery of recycled water for winter flooding to existing wetlands, The *Environmental and Cultural Resources Compliance* section of this application provides more details on federally listed species in the Program area.

Figure 5: Overview of Species Locations



EVALUATION CRITERION 3: ECONOMIC BENEFITS

SUBCRITERION NO. 3A – COST EFFECTIVENESS

Additional supporting information can be found in **Appendix A**. The costs and benefits for the program were prepared previously for the California Water Commission’s Water Storage Investment Program (WSIP) grant application, submitted in summer of 2017. The Feasibility Study and the WSIP grant application were completed in 2015 dollars. The estimated costs and benefits in this application are all presented in 2023 dollars based on the midpoint of construction. Costs will be further refined during the preliminary design.

- 1. Reclamation will calculate the cost per acre-foot of water produced by the Project using information provided by Project sponsors. Please provide the following information for this calculation:**

(a) The total estimated construction costs, by year, for the Project (include all previous and planned work).

The total estimated construction costs for the Program are shown in **Table 1**, by year, in 2023 dollars. Construction is expected to begin in 2022, with most recycled water facilities constructed by 2026 and additional on-farm construction activities through 2030. Breakdown of the construction costs is provided in **Table 2**. Regional San encumbers funds on a fiscal year basis running from July 1 through June 30. As shown in the table below, estimated costs for FY21/22 are listed under calendar year 2021 and continues through each year provided.

Table 1: Estimated Construction Costs by Year

Calendar Year	Construction Cost (2023 \$)
2021 (FY 21/22)	\$310,000
2022 (FY 22/23)	\$41,880,000
2023 (FY23/24)	\$204,020,000
2024 (FY24/25)	\$50,000,000
2025 (FY25/26)	\$5,920,000
2026 (FY26/27)	\$5,250,000
2027 (FY27/28)	\$1,730,000
2028 (FY28/29)	\$1,230,000
2029 (FY29/30)	\$1,160,000
2030 (FY30/31)	\$540,000
Total	\$312,040,000

Table 2: Program Construction Costs

Program Element	Cost (2023 \$)
Facilities Cost	\$273,350,000
Groundwater Monitoring Wells	\$530,000
Ecological Program Establishment	\$38,160,000
Total Construction Costs	\$312,040,000

(b) The total estimated or actual costs to plan and design the Project. Note: This should not include the cost to complete a feasibility study that meets the requirements of Reclamation’s Directives and Standards WTR 11-01, Title XVI Water Reclamation and Reuse Program Feasibility Study Review Process.

The total estimated costs to plan and design the Program is \$132,160,000 in 2023 dollars. This consists of all planning and design costs needed in addition to construction costs. Breakdown of the Program’s planning and design costs are provided in **Table 3**.

Table 3: Program Planning and Design Costs

Program Element	Cost (2023 \$)
Ecological Monitoring Program	\$38,500,000
Administration Program (Environmental Permitting, Public Outreach, Groundwater Planning and Modeling, Program Management, etc.)	\$15,740,000
Capital Program (Engineering, Design, Easements, Construction Management, Program Management, etc.)	\$77,920,000
Total Planning and Design Costs	\$132,160,000

(c) The average annual operation and maintenance costs for the life of the Project. Please do not include periodic replacement costs in the operation and maintenance costs. Periodic replacement costs should be provided separately in response to (f) below. Note: this is an annual cost—not total cost.

Average annual operation and maintenance (O&M) costs are expected to be \$5.1 million per year. Breakdown of the O&M costs is provided in **Table 4**.

Table 4: Program O&M Costs

Program Element	Cost (2023 \$)
Recycled Water Utility Administration and Permitting	\$200,000
Ecological Monitoring Program	\$1,500,000
Environmental Compliance; Mitigation Monitoring	\$75,000
Groundwater Management (Accounting O&M)	\$200,000
Groundwater Monitoring Program	\$75,000
Pipeline & Pump Station Operations and Maintenance	\$2,600,000
Pipeline & Pump Station Renewal and Replacement Fund	\$500,000
Total Annual Costs	\$ 5,150,000

(d) The year the Project will begin to deliver reclaimed water.

The Program is anticipated to begin delivery of reclaimed water in early 2025, when the SRWTP will be improved to disinfected tertiary recycled water equivalent standards through Regional San’s EchoWater Project.

(e) The Projected life (in years) that the Project is expected to last. Note: this should be measured from the time the Project starts delivering water.

A 100-year lifetime is estimated for the Program, which is the expected lifetime for the Program’s pipelines. The Harvest Water Pump Station and on-farm connection assemblies (turnouts) are expected to require replacement after 50 years, as discussed further in the replacement costs question.

(f) All estimated replacement costs by year.

As described above, Program facilities (transmission pipeline, distribution pipelines, lateral pipelines, and on-farm connections) generally have sufficient life for the Program, when properly operated and maintained to operate successfully for the 100-year projected life. The exception to this standard for infrastructure lifetimes would be the electrical and mechanical components of the Harvest Water Pump Station, and the on-farm connection assemblies. Replacement costs by year is shown in Table 5.

Table 5: Replacement Costs by Year

Description of Replacement Requirement	Year	Cost (2023 \$)
1. Harvest Water Pump Station (not including concrete structure)	2073 (50 years after the start of water deliveries)	\$17,250,000
2. On-Farm Connection Assemblies	2073 (50 years after the start of water deliveries)	\$14,976,000

(g) The maximum volume of water (in acre-feet) that will be produced annually upon completion of the Project. This volume of water must correspond to the costs provided above. If costs are only provided for a portion or phase of the project, then only the water produced by that same portion or phase of the project will be considered under this criterion.

The average annual amount of recycled water delivered to participating irrigation customers and wildlife preserves at Program implementation would be up to 50,000 AFY. For a projected life of 100 years, the Program would produce a maximum of 5,000,000 AF of water upon completion of the Program life.

2. Reclamation will calculate the cost per acre-foot for the Title XVI Project using the information requested in question No. 1 and compare it to the non-reclaimed water alternative, and any other water supply options identified by the applicant to evaluate the cost effectiveness of the Project:

(a) A description of the conditions that exist in the area and projections of the future with, and without, the Project.

With the Program, agricultural properties will reduce or eliminate groundwater pumping, helping to restore groundwater levels which aids in restoring riparian habitat. Without the Program, agricultural properties would continue to pump groundwater for irrigation use. Without the Program, continued use of the groundwater basin could ultimately result in depletion in the water table, exceeding agreed upon values set forth by the Water Forum. A lowered water table would result in river flow in the Cosumnes River to be substantially reduced during summer and fall months and may continue running dry during summer and fall months as it currently does. Water supply reliability concerns and how the Program alleviates those concerns is discussed under *Evaluation Subcriterion 1b*.

Figure 6 shows the depth to groundwater conditions that exist in the Program area in 2030, with and without the Program. The Program decreases the area within the water delivery area with depth to groundwater levels of greater than 20 feet on average by approximately a third.

The Program's groundwater improvements also increase the percentage of time that groundwater elevations in the Program area are within 25 feet of the ground surface. The 20-25 feet threshold is significant because it is representative of groundwater-surface water connectivity for other nearby restoration projects and ensures water would be available to riparian plants and trees. This enhancement is covered in more detail under *Evaluation Criteria #2*. **Figure 7** shows the percentage of time this threshold is expected to be met with and without the Program. The benefit of the Program is especially clear in the area directly southwest of Highway 99, in the middle of the map, which shows that a significant portion of that area would have groundwater levels within 25 feet of the ground surface 70-80% of the time without the Program, but more than 90% of the time with the Program.

Figure 6: Depth to Groundwater Levels in Program Area

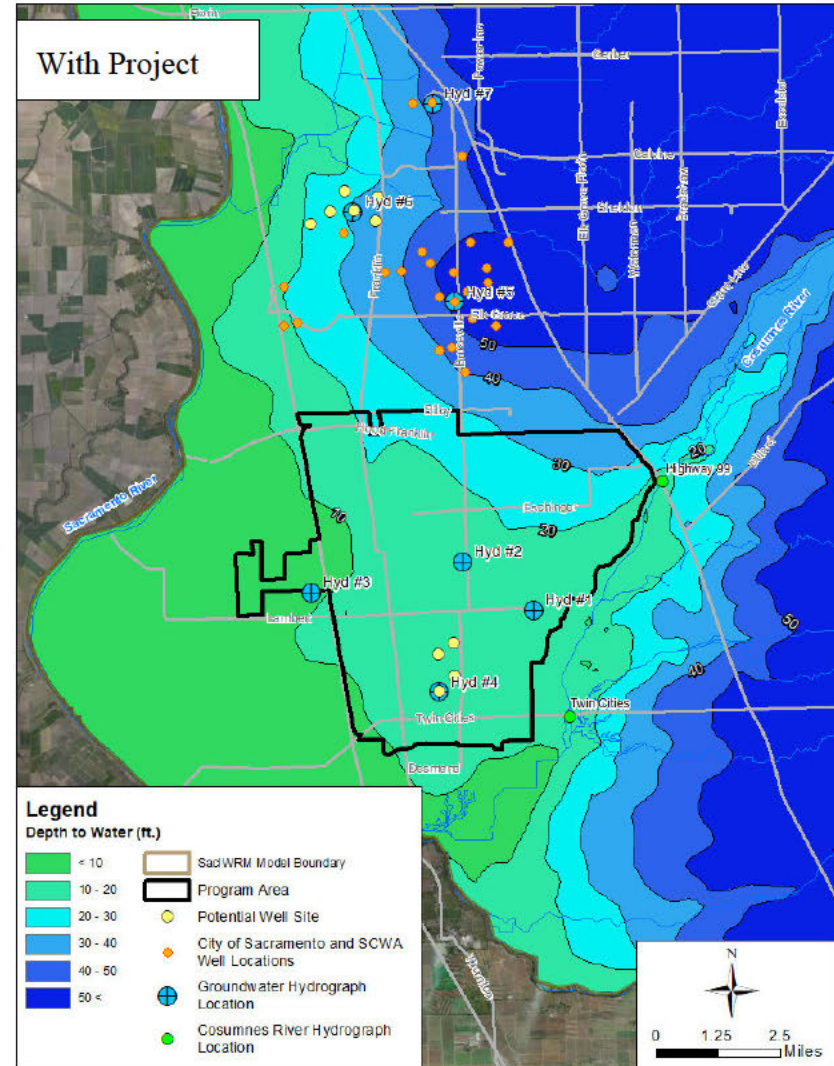
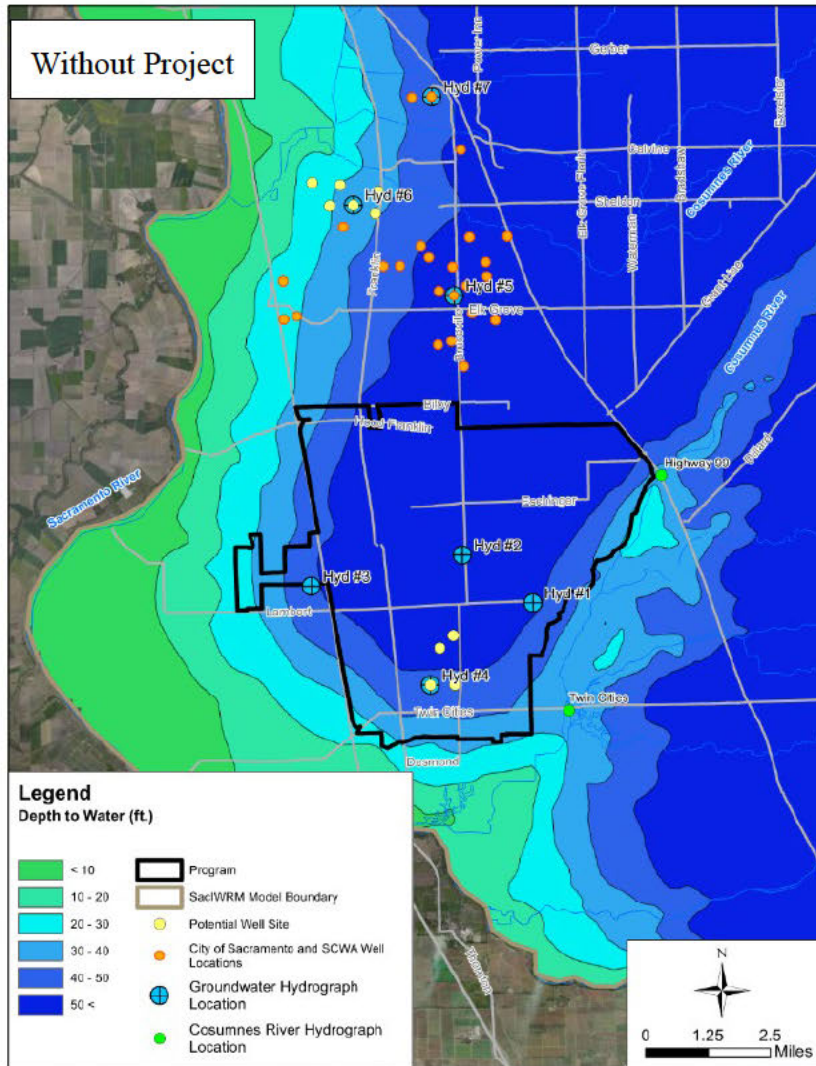
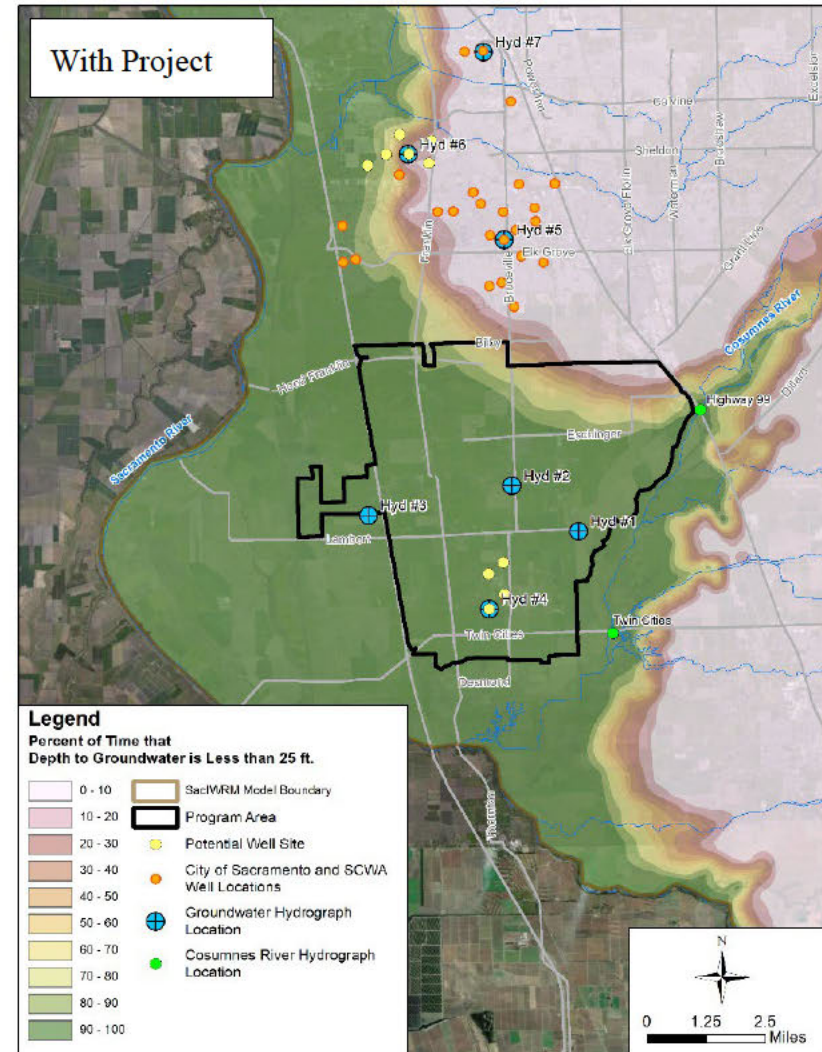
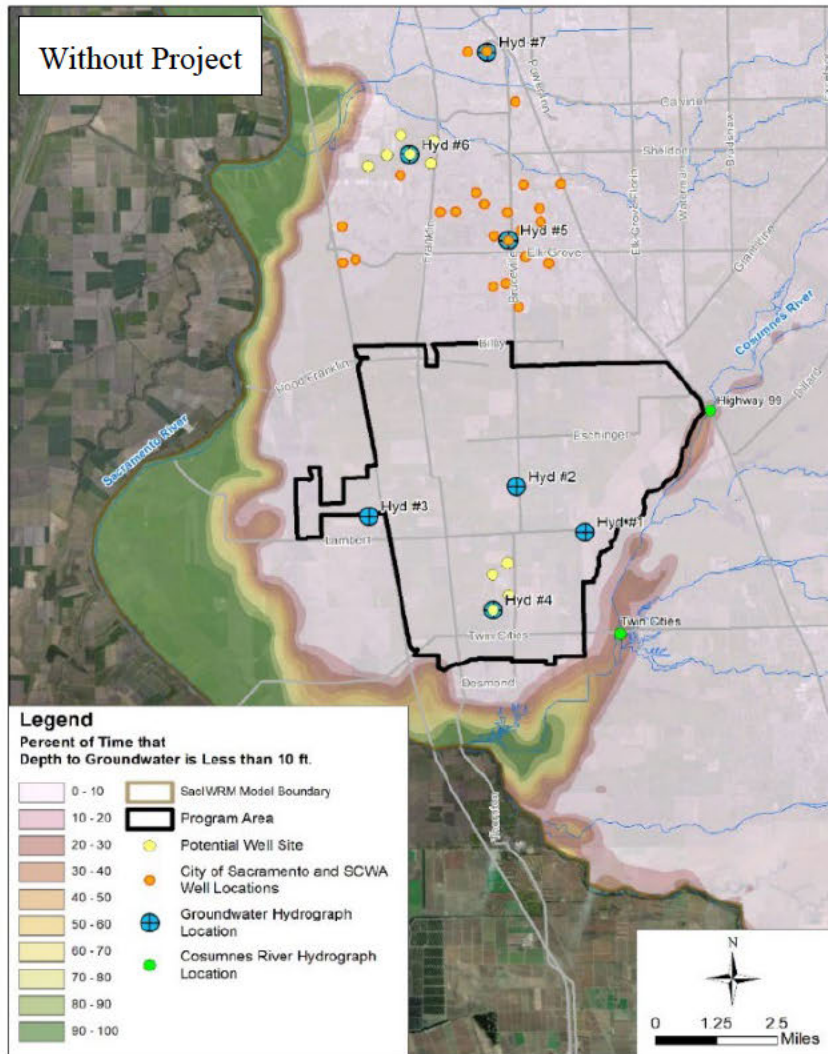


Figure 7: Percentage of Time with Groundwater Within 25 ft of Ground Surface



(b) Provide the cost per acre-foot of other water supply alternatives that could be implemented by the non-Federal Project sponsor in lieu of the Project. This must include, but it not limited to, one non-reclaimed water alternative that would satisfy the same demand as the Project. Other water supply alternatives beyond one non-reclaimed water alternative are not required, but may be provided where available to demonstrate the cost effectiveness of the Project.

One alternative that could be implemented by Regional San to achieve similar benefits is to distribute surface water, instead of recycled water, to the Harvest Water program area in order to allow the groundwater supply to recover. Although the benefits of this alternative would be similar to the proposed Program, it would involve Regional San purchasing surface water instead of using its own recycled water that it produces and; this would be extremely costly. Because the Program facilities (transmission mains and pipelines) would be required for this nonreclaimed water alternative, on top of the cost per acre-foot for the infrastructure construction and operation of the proposed Program, this alternative is estimated to cost an additional \$350/AFY minimum for the purchase of a water supply source, dependent on water year type. This alternative would be far less cost effective than the proposed Program.

(c) If available, provide the cost per acre foot of one water supply project with similar characteristics to the Project.

The Cosumnes Agricultural project, a separate conceptual project under evaluation by Regional San, would serve approximately 23,700 AFY of recycled water to agricultural customers for irrigation along Grant Line Road and the Cosumnes River Basin upstream of the Harvest Water program area. The Program would also help to preserve working farmlands and is estimated to cost \$131 million (2018 dollars) to build, or approximately \$300 to \$400 per AF of water supply.

(d) Discussion of the degree to which the Project is cost-effective. Include, where applicable, a discussion of why the Project may be cost effective even if the overall Project cost appears to be high.

Regional San's Board of Directors has established a vision for water recycling that includes the following goals:

- Increase water recycling throughout the Sacramento.
- Increase utilization of recycled water to expand beyond continued discharge to the Sacramento River.
- Increase recycled water use to reduce demands on existing and future potable supplies.
- Use our water assets in an environmentally responsible manner.

To that end, Regional San has extensively evaluated various alternatives to maximize the use of recycled water in the region in the most cost-effective manner. In 2007, Regional San developed a Water Recycling Opportunities Study (WROS, Regional San 2007) to evaluate and recommend the most promising water recycling projects identified in the region, and updated through a series of staff workshops in 2018. The WROS identified Harvest Water as one of the most viable water recycling projects to implement due to its cost effectiveness. As a result, the next step was taken to conduct a feasibility study which received a determination of feasibility from USBR. Also,

Harvest Water has a completed Program EIR that has been finalized and certified. This EIR has evaluated a variety of alternatives, one of which includes a smaller delivery amount of recycled water. However, the proposed Program that has been selected was determined to have the most environmental benefits at the least cost.

Through the extensive studies by Regional San over the last decade, and by the Sacramento County Water Agency recently, there has not been a comparable cost-effective Program developed to compete with Harvest Water.

The California Water Commission announced that Regional San will receive \$287.5 million in Proposition 1 grant funding through the Water Storage Investment Program (WSIP) to help make Harvest Water a reality for the Sacramento region. The WSIP funding was awarded based on the public benefits expected as a result of Harvest Water. In September 2021, the California Water Commission and Regional San entered into an early funding agreement for a maximum amount of \$14,375,625. For the remaining awarded amount, it is expected that the California Water Commission and Regional San will enter into an agreement in late 2022.

SUBCRITERION NO. 3B – ECONOMIC ANALYSIS AND PROJECT BENEFITS

Additional supporting information can be found in **Appendix A**. The costs and benefits for the program were prepared previously for the WSIP grant application, submitted in summer of 2017, using 2015 dollars. Cost estimates have since been updated to reflect preliminary planning and are presented in 2023 dollars, the midpoint of construction. Any updates made since the development of the documents are noted in the respective areas within the section below.

- 1. Summarize the economic analysis performed for the Project including information on the Project’s estimated benefits and costs. Describe the methodologies used for the analysis that has been conducted. Points will be awarded based on a comparison of the benefits and costs of the Project. The information provided should include:**
 - (a) *Quantified and monetized Project costs, including capital costs and operations and maintenance costs.***

The Program costs include both spent and forecasted planning and design costs 2015-2030, construction costs forecasted for 2021-2030, and replacement costs at 50 years after the start of water deliveries (2074), assuming an operating project life of 100 years. A discount rate of 3% was used to calculate a 2023 net present value (NPV) from the constant 2023 dollars presented in *Evaluation Subcriterion No. 3a* in the previous section. A summary of the total quantified and monetized Program costs are shown in **Table 6** below.

Table 6: Total Program Costs

Program Element	Cost (2023\$)	NPV (2023\$)
Total Construction Costs	\$312,040,000	\$310,540,000
Total Planning and Design Costs	\$132,160,000	\$135,680,000
<i>Total Capital Cost</i>	<i>\$444,200,000</i>	<i>\$446,220,000</i>
Total O&M Cost for Life of Program (100 years)	\$515,000,000	\$162,730,000
Total Replacement Costs (100 years)	\$32,226,000	\$7,140,000
TOTAL PROGRAM COSTS	\$991,426,000	\$616,090,000

(b) Quantified and monetized Project benefits. This includes benefits that can be quantified and expressed as a monetized benefit per acre-foot. This may include, but is not limited to, benefits related to water supply quantity and water supply reliability, recreational benefits, ecosystem benefits, water quality, energy efficiency, and environmental compliance and permitting. Benefits may also include the avoided costs of no action (i.e., the costs that would be incurred if the Project were not implemented), and the willingness of users or customers to pay for a benefit or to avoid a negative outcome (e.g., the willingness of households to pay for a water supply system that would reduce groundwater overdraft). If quantified and/or monetized information for these benefits is not available, they may be addressed in response to question two below.

The monetized project benefits are estimated to be approximately \$2.08 billion (2023 dollars) for the 100-year life of the project, as shown under **Table 7**. A discount rate of 3% was used to calculate a net present value (NPV) of \$631 million for this benefit from the constant 2023 dollars. For a delivery of 50,000 AFY for 100 years, the monetized benefit is \$415.22 per acre-foot.

Water Supply Quantity and Quality

Water supply quantity and reliability were calculated as a sum of the alternative cost for agricultural groundwater supply and alternative cost for municipal water supply in 2015 dollars. The benefits for agricultural recycled water recipients is based on the quantification from the Program’s Feasibility Study, which, because of reduced groundwater use, accounts for avoided energy cost of pumping and avoided well replacement costs due to reduced wear and tear. The portion of the benefit attributed to alternative cost for municipal supply has been updated to reflect feedback from the California Water Commission, which recognized the increased water value due to implications of the Sustainable Groundwater Management Act. The Water Commission quantified the benefit based on the value of water during two historically dry periods (1927-34 and 1986-92) under the 2030 and 2070 climate change conditions.

Instream Flow Benefits

Described in detail under *Evaluation Criterion 2*, this includes the benefit of increased flows and migration window in Cosumnes River for fall- run Chinook.

Groundwater Dependent Ecosystem Benefits

Described in detail under *Evaluation Criterion 2*, this includes the benefit of groundwater-supported wetland and riparian forest protection and enhancement.

Changes in Land Management to Support Wildlife

Described in detail under *Evaluation Criterion 2*, this includes the benefit of habitat management for greater sandhill cranes.

Conservation and Enhancement of Vernal Pools

Described in detail under *Evaluation Criterion 2*, this includes the benefit of vernal pool protection, enhancement, and re-establishment.

Conservation and Enhancement of Wetlands

Described in detail under *Evaluation Criterion 2*, this includes the benefit of water delivery-supported wetland protection and enhancement.

Water Quality – Reduced Salinity Load

Described in detail under *Evaluation Criterion 2*, this includes the benefit of reduced salinity loads to surface waters, specifically to the lower Sacramento River and Delta.

Avoided Discharge Costs

Regional San currently discharges the vast majority of its treated wastewater to the Sacramento River. In order to discharge, Regional San must pump the effluent to the Sacramento River near Freeport. For every gallon recycled, a gallon of pumping to the Sacramento is avoided and that results in saved electrical power. Pumping costs for recycled water distribution are included in the annual operating costs of the project, so any avoided costs of pumping to the river provide a benefit to Regional San.

Avoided Fertilizer Costs

The recycled water will be shared with farmers as a part of the Program, which results in another benefit through avoided fertilizer costs. Although the recycled water provided by Regional San as a result of the construction of the EchoWater Project at the SRWTP will receive tertiary treatment, including nitrogen removal, there will be some beneficial nutrients (nitrogen, phosphorus, and potassium) in the recycled water. These nutrients will have some fertilizer value to the farmers, allowing them to reduce fertilizer use incrementally.

Table 7: Monetized Program Benefits

Program Benefit	Value (2023 \$)	NPV (2023 \$)
Water supply quantity and quality	\$842,529,000	\$222,995,000
Increased flows and migration window in Cosumnes River for fall- run Chinook	\$270,749,000	\$91,384,000
Habitat management for greater sandhill cranes	\$310,822,000	\$110,881,000
Vernal pool enhancement, protection, and re-establishment	\$107,052,000	\$33,827,000
Groundwater- supported wetland & riparian forest protection and enhancement	\$262,686,000	\$82,887,000
Water delivery- supported wetland protection and enhancement	\$48,122,000	\$15,206,000
Water quality – reduced salinity load to surface water	\$219,320,000	\$69,303,000
Avoided discharge costs	\$4,133,000	\$1,306,000
Avoided fertilizer costs	\$10,709,000	\$3,384,000
Total Program Benefits	\$2,076,123,000	\$631,173,000

(c) A comparison of the Project’s quantified and monetized benefits and costs.

The Program’s total costs and benefits, as discussed in the previous questions, is summarized in **Table 8** below. As such, the Program benefits are demonstrated to be greater than the Program costs, with a cost-benefit ratio of 1.02. Consistent with *Evaluation Subcriterion No. 2A*, the Program is considered to be cost effective.

Table 8: Program Benefits and Cost Summary

Item	NPV Value (2023\$) or Ratio
Total Program Benefits	\$631,173,000
Total Program Costs	\$616,090,000
Benefits to Cost Ratio	1.02

2. **Some Project benefits may be difficult to quantify and/or monetize. Describe any economic benefits of the Project that are difficult to quantify and/or monetize. Provide a qualitative discussion of the economic impact of these benefits. Points will be awarded based on the potential economic impact of the Project-related benefits. Some examples of benefits may include, but are not limited to, acres of land or stream miles that may be benefitted or not harmed, benefits to habitat or species, flood risk mitigation, local impacts on residents and/or businesses, job creation, and regional impacts. This may also include benefits listed in question one, if they have not been monetized (e.g., water reliability, water quality, recreation).**

The Project’s non-monetized benefits are described herein:

Recreation benefits

By providing high quality recycled water managed and unmanaged wetlands, the Program would support the overall health of the habitat lands and the public's ability to recreate there. The Stone Lakes NWR offers a variety of recreation activities including self-guided nature walks, wildlife observation guided walks, wildlife observation paddle tours, environmental education, and waterfowl hunting. The Cosumnes River Preserve, adjacent to the southern boundary of the Program area, has approximately 70,000 visitors annually. The Preserve supports similar recreational activities as the Refuge. This benefit was not monetized in order to avoid double counting with other Program benefits that were already quantified.

Ecosystem resiliency

As discussed under *Evaluation Subcriterion 3a*, the program is unique, in that the tertiary-treated water supply is being produced every day, so there is a consistent source of high quality water available throughout the year. That continuous supply creates resiliency because it does not require costly transfers or complex predictions of precipitation patterns and flood control requirements, nor is it subject to competing environmental demands. Under the modeled 2030 and 2070 climate change conditions, the groundwater improvements and surface water benefits from this Program provide the resiliency from drought impacts. The Program supports and protects the existing private and public investments which have been implemented in the watershed. This, in addition to the proposed Program benefits outlined in the Ecological Plan will occur in the following two ways: (1) reversing the groundwater-stream gradient from losing to gaining, stabilizing and improving the ecological resilience under today's climate; and (2) most starkly, absent the Program, baseline conditions in 2030 and 2070 show that the groundwater conditions would not support any of the existing public conservation lands in the area. The ecosystem resiliency is not monetized because the majority of the monetized public benefits are ecosystem benefits.

Habitat connectivity

Habitat connectivity was previously discussed under *Evaluation Subcriterion 3a.2(a)*. This benefit is not directly quantified or monetized, because it is spread out within the area amongst multiple adjacent or nearby preserves and restoration activities. The Program will increase habitat connectivity in the region that amplifies this ecosystem's ability to provide important ecosystem services, such as wildlife habitat, nutrient cycling, and recreation. The ecological improvements resulting from the Program are distributed across the landscape, increasing habitat connectivity longitudinally along the Cosumnes River, as well as between the Cosumnes River and Snodgrass Slough. As important as the values are ecologically however, there was limited data to be able to define that connectivity without identifying and fixing potential future acquisitions of easements, and even once those characteristics were defined, then being able to quantify and monetize those benefits was not clearly supported in the literature for this mosaic of habitat types.

Preserving working farmlands

The preservation of farmland with annual crops surrounding the Cosumnes River Preserve is an important element of the Preserve's long-term strategy. In addition to being important to the region's economic wellbeing, this is important to a number of key target species of the Cosumnes River Preserve, such as Swainson's hawk. Exploring voluntary arrangements with

farmers, along with complementary incentives to preserve prime agricultural lands within the Program area could help encourage wildlife-friendly farming practices. In this way the Program can also support regional planning efforts, such as the American River Basin Integrated Regional Water Management Plan and the Sacramento Area Council of Governments' 2008 Rural-Urban Connections Strategies. The cost of preserving working farmlands is unpredictable, as the changing patterns of agricultural landscapes are mostly driven by economic considerations of the farmer.

Improving groundwater dependent ecosystem science

UC Davis and The Nature Conservancy are conducting a combined extensive research and groundwater monitoring Program for understanding groundwater dependent ecosystems at the Cosumnes River Preserve. This Program provides an unparalleled opportunity to improve the science of determining what groundwater levels are most beneficial for a riparian forest. The information gained from the Program's monitoring efforts will contribute to the research efforts of UC Davis and The Nature Conservancy. Results can then help guide long-term adaptive management of the Program, particularly in potential future groundwater accounting scenarios. Studies will also inform development of broader Sustainable Groundwater Management Act (SGMA) related groundwater dependent ecosystem standards for beneficial uses, thresholds, and desirable results. This cost cannot be monetized because there have not been any studies to say how much this research is worth, specifically in relation to groundwater dependent ecosystems.

Sustainable Groundwater Management Act (SGMA) Compliance

SGMA requires Groundwater Sustainability Agencies (GSA) to be formed in medium and high priority basins to create and implement Groundwater Sustainability Plans (GSP) for achieving sustainable groundwater management. Harvest Water is located within the Sacramento Valley groundwater basin, South American subbasin which is classified as a high priority basin by DWR. The GSA for this area is the Sacramento Central Groundwater Authority (SCGA). In accordance with SGMA, six Groundwater Sustainability Agencies (GSAs) were formed, and under a collective Memorandum of Understanding (MOU) in Spring of 2020, the GSAs agreed to develop one Groundwater Sustainability Plan (GSP) for the South American Subbasin. The GSAs in the Subbasin are working together to meet SGMA requirements and will collaboratively prepare a single GSP by January 31, 2022. Regional San will work with SCGA and other relevant agency or agencies to operate the Program in a manner that will help facilitate GSP basin sustainability goals and implementation of SGMA.

Increasing Regional and State Water Supply Reliability

Once the groundwater levels recover and the basin is in sustainable balance, excess groundwater stored in the basin could be available in the future for potential groundwater accounting partners, such as farmers and local municipalities to use in dry years instead of surface water.. It is assumed that approximately 30,000 AFY would be available for extraction in the driest 30 percent of years. Extraction of stored groundwater would be monitored to avoid extracting more than 30 percent of in-lieu recharged water. This conjunctive use element would allow accounting partners to limit their surface water diversions during times of drought and shift to groundwater pumping of the stored water. Those reductions in surface water diversions could potentially be sold to other entities for municipal or environmental uses, improving water supply reliability in the Program area, as well as in the Delta and the State. The benefit of the stored groundwater

supply to the accounting partners is conservatively estimated in the cost allocation and economic feasibility portions of the application, based on analysis initially conducted as part of the Feasibility Study. The Program is in the early stages of developing a groundwater accounting and conjunctive use program, therefore the cost of providing this water beyond the accounting partners cannot be determined.

Emergency Response

The infrastructure that will be put in place to deliver recycled wastewater to agricultural fields and wetlands in the Program Area will have the ancillary benefit of making water available to the Cosumnes Fire Department. The fire department needs additional water to support its operations outside of the municipal areas, and for the municipal areas that are served by lower capacity wells and tanks. While this benefit is difficult to monetize because of the lack of analogous scenarios in other locations and the highly variable frequency of wildland fires, the availability of water to emergency responders is likely to be highly valuable in terms of human health and property in rural communities within and near the Program Area. Currently, water has to be pumped from ponds, ditches, or any available surface water source during fires and other emergencies. With minor modifications to the planned infrastructure, reliable, consistent water can be supplied by the project that will increase the volume available in emergencies, as well as reduce the response time to secure additional water. This could significantly preserve property that may otherwise be damaged and, most importantly, reduce potential injuries and fatalities. Feasibility and regulatory compliance would be further explored during the early design phases of the Program.

Monetization of the emergency response benefit is time and cost prohibitive due to a variety of factors. Firstly, the process for monetizing this benefit includes the need to find analogous scenarios, but the use of recycled water for firefighting is a recent and developing practice in California. Examples do exist in various parts of the State, but data availability is limited and highly variable. Secondly, the level of effort to quantify this benefit is substantial. Fire risk in the Program area would need to be calculated to determine a likelihood for an event to occur, and would likely require additional analysis on how historic conditions might be expected to differ under various drought scenarios. This risk would be analyzed against the potential severity of impacts of a fire to determine potential monetary impacts of a fire and the capabilities of the proposed Program to reduce those impacts. However, the complexity of that analysis, and the lack of similar recycled water fire support examples, made monetization too complex and potentially speculative for the purposes of this grant application.

EVALUATION CRITERION 4: RECLAMATION'S OBLIGATIONS AND
BENEFITS TO RURAL OR ECONOMICALLY DISADVANTAGED
COMMUNITIES

SUBCRITERION NO. 4A - LEGAL AND CONTRACTUAL WATER SUPPLY
OBLIGATIONS

The Program will not help fulfill any of Reclamation's legal or contractual obligations.

SUBCRITERION NO. 4B - BENEFITS TO RURAL OR ECONOMICALLY
DISADVANTAGED COMMUNITIES

- 1. Does the Project serve a rural community or are there any rural communities within Project sponsor's service area? If so, provide supporting information. A rural community is defined as a community with fewer than 50,000 people.***

The entire Program's service area itself is a community with fewer than 50,000 people, therefore, by Reclamation's definition, the Program serves a rural area. As defined by the California Department of Water Resources, DACs are Census geographies with an annual median household income (MHI) that is less than 80% of the Statewide annual MHI. As shown in **Figure 8**, there are no economically disadvantaged communities (DACs) within the Program's service area.

- 2. E.O. 14008 and E.O. 13985 affirm the advancement of environmental justice and equity for all through the development and funding of programs to invest in disadvantaged or underserved communities. Does the Project serve an economically disadvantaged community, or are there any economically disadvantaged communities within the Project sponsor's service area? If so, provide supporting information.***

Regional San's service area is the majority of Sacramento County. Although there are no DACs within the Program's recycled water service area, there are many within Regional San's service area, as shown in Figure 9.

Figure 8: DACs in the Program Area

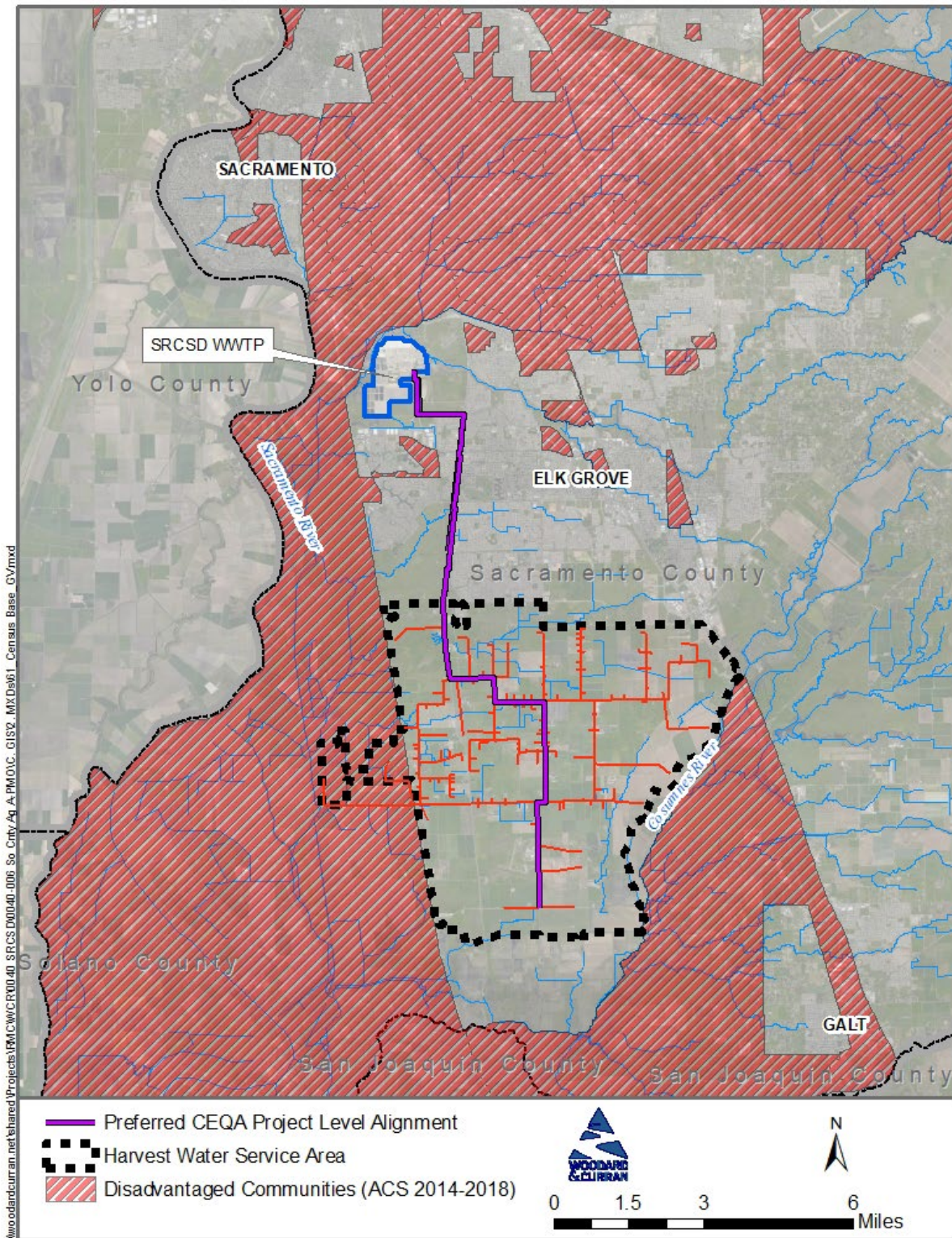
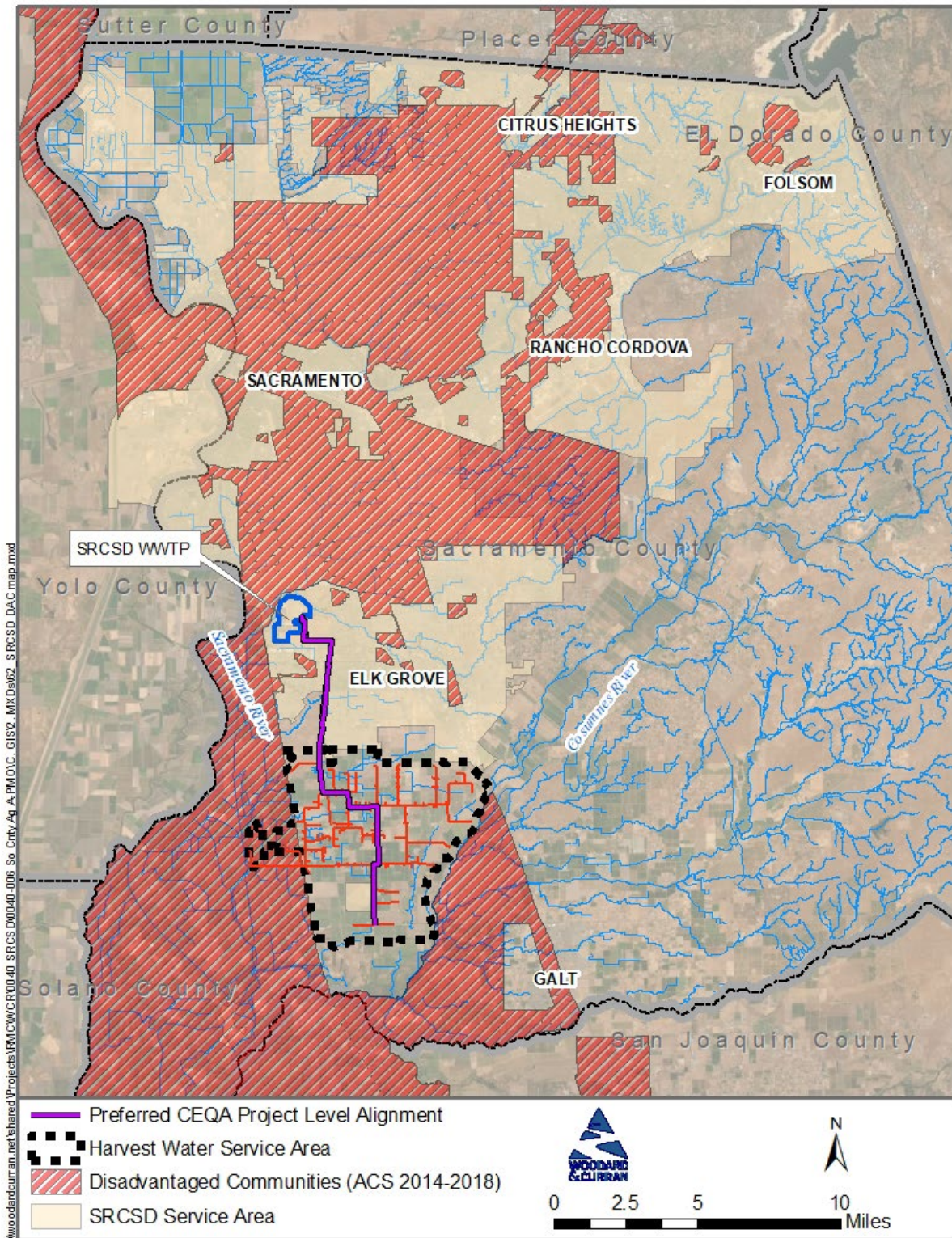


Figure 9: DACs in Regional San Service Area



EVALUATION CRITERION 5: WATERSHED PERSPECTIVE

1. Does the Project implement a regional or state water plan or an integrated resource management plan? Explain.

Yes, the Program will implement the Sacramento Valley IRWMP and the GSP for the South American subbasin, currently under development.

Regional San is a member of both the Sacramento Regional Water Authority and the Sacramento Central Groundwater Authority. Each organization has a broad consortium of urban and rural water interests that include the City of Sacramento and Sacramento County Water Agency, in addition to Regional San. Both authorities help protect and enhance surface and groundwater supply reliability for the Sacramento Region. The Sacramento Regional Water Authority, in partnership with its member agencies, has developed an IRWMP to identify regional projects and partnerships that will help the region best meet its future water resources needs. Harvest Water has been identified as a high-priority project in the IRWMP to help improve the region's water supply reliability.

As described in *Evaluation Subcriterion No. 1b*, the Program is located within the Sacramento Valley groundwater basin, South American subbasin which is classified as a high-priority basin by DWR.). In accordance with SGMA, six Groundwater Sustainability Agencies (GSAs) were formed, and under a collective Memorandum of Understanding (MOU) in Spring of 2020, the GSAs agreed to develop one Groundwater Sustainability Plan (GSP) for the South American Subbasin. The GSAs in the Subbasin are working together to meet SGMA requirements and will collaboratively prepare a single GSP by January 31, 2022. Regional San will work with SCGA and other relevant agency or agencies to operate the Program in a manner that will help facilitate GSP basin sustainability goals and implementation of SGMA.

2. Does the Project help meet the water supply needs of a large geographic area, region, or watershed? Explain.

Yes, the Program helps meet the water supply needs at the local, regional, and statewide level. The proposed Program will provide recycled water for irrigation of 16,000 acres of agricultural and habitat lands in the southern portion of South County and potentially to 400 acres of managed wetlands in the Stone Lakes National Wildlife Refuge (NWR) in the future. As discussed in *Evaluation Subcriterion No. 1b*, Harvest Water benefits the overall long-term sustainability of local and regional water resources through improved groundwater and surface water conditions in and around the Program area as a result of in-lieu groundwater recharge operations. The Program would add greater flexibility to the management of the local groundwater and surface water resources conjunctively and contribute to the improved management of water resources at the regional and statewide level. The Program would also benefit the broader Central Valley water system, including the State Water Project, Central Valley Project, and the Sacramento-San Joaquin Delta through increased streamflow in the lower Cosumnes River and Mokelumne River, both of which are Delta tributaries. These increases in streamflow would be a result of increased groundwater elevations near the Program area.

3. Does the Project promote collaborative partnerships to address water-related issues? Explain.

Yes, the Program promotes collaborative partnerships to address water-related issues as Regional San has worked with a variety of entities in developing this project, including the regional partnerships described *Evaluation Subcriterion No. 5.b.1*, and parties that will be receiving recycled water from the project: individual agricultural users and public agencies.

Working with water suppliers to develop an effective conjunctive use Program helps ensure water supply reliability for the region, without compromising the Program's environmental benefits. The conjunctive use element of the Program would allow accounting partners to limit their surface water diversions during times of drought and shift to groundwater pumping of the stored water. Ongoing discussions with the Sacramento Central Groundwater Authority and its members will be critical to further develop a groundwater accounting and conjunctive use framework. These agencies have also provided letters of support for the Program. The continued engagement with these groups, as well as with DWR, Department of Fish & Wildlife, State and Regional Water Boards and other stakeholders, will help guide the development, monitoring and adaptive management of the Program. Letters of Support can be found in **Appendix B**.

4. Does the project include public outreach and opportunities for the public to learn about the project? Explain.

The Program includes public outreach through direct mailers, public meetings, and collaboration with partnering agencies. Additionally, the Program team has worked directly with the Sacramento County Farm Bureau to establish a stakeholder advisory group (SAG) to represent landowner and agricultural growers' interests in association with the Program.

During Program EIR development, the following public meetings were held:

- Program EIR Scoping meeting in February 2015
- Draft EIR meeting in July 2016

Meetings were held at the Sacramento County Farm Bureau office or landowner's facility on:

- October 8, 2015
- January 25, 2016
- April 18, 2016
- February 4, 2019
- July 18, 2019
- January 28, 2020

Additional Program updates were presented at Regional San Board meetings on:

- August 14, 2019 – Approved the South County Ag Program, principles related to recycled water pricing, program incentives, and groundwater accounting
- March 24, 2021 – Regional San Board, Harvest Water Program Update

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

The probable environmental and cultural resources impacts associated with the Program were evaluated in the Sacramento Regional County Sanitation District's South Sacramento County Agriculture and Habitat Lands Recycled Water Program Environmental Impact Report (EIR) (now Harvest Water Program). The Program EIR itself was certified in March 2017.. The Program EIR evaluated impacts at both a project and program level of detail, depending on the level of detail available at the time for each program element. Project-level components evaluated in the Program EIR include the pump station and transmission pipeline alignment. Components that were evaluated at a program level in the EIR have since been further defined so that project-level evaluation of impacts could be completed. These components include recycled water conveyance improvements (distribution mains, service connection laterals, and on-farm connection assemblies), ecosystem improvements and recycled water wintertime application and management, groundwater tracking and monitoring system (including addition of Regional San wells for future use of stored water during droughts), and vehicle turnouts for maintenance of on-farm connections. The four supplemental CEQA documents are listed below:

- Lateral Pipelines and On Farm Connections Project Initial Study (October 2020)
- EcoPlan and Wintertime Application Project Addendum (January 2021)
- Groundwater Accounting Project Addendum (March 2021)
- Vehicle Turnouts Addendum (May2021)
- National Environment Policy Act (NEPA) Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) (January 2022)

Regional San worked with Reclamation to use the CEQA documents described above to prepare a NEPA - Environmental Assessment for Harvest Water. **The NEPA EA/FONSI process for Harvest Water has been completed in January 2022. The Section 106 process has been completed.**

Applicable mitigation measures are referred to in this Application; detailed descriptions can be found within the EIR which is available for review here <https://www.regionalsan.com/general-information/south-county-ag-program-documents>.

- *Will the proposed Project impact the surrounding environment (e.g., soil[dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the Project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

Most of the Program impacts to the surrounding environment would be temporary and would only occur during the construction period. Long-term impacts will be minimal and include the wells & vehicle turnouts along with the positive impacts the Program is designed to create.

Earthwork Impact on Air

Earthwork impact on air is detailed in the *Air Quality and Greenhouse Gas Emissions* section of the Program EIR with updates in the three supplemental CEQA documents.

Construction activities of the proposed Program such as excavation, trenching, grading, and clearing would generate fugitive dust (particulate matter (PM), PM₁₀ and PM_{2.5}). PM is also

contained in vehicle exhaust. The Sacramento Metropolitan Air Quality Management District (SMAQMD) requires all construction projects (regardless of size) implement the District's Basic Construction Emission Control Practices, as required by District Rule 403. The proposed Program would be required to implement dust and exhaust emission controls such as watering of exposed surfaces, covering haul trucks transporting soil, and minimizing equipment idling time.

Combustion emissions from construction equipment and vehicles (i.e., heavy equipment and delivery/haul trucks, worker commute vehicles) would also be generated during construction. Criteria pollutant emissions of ROG and NOx are associated mainly with paving activity, construction equipment, mobile sources, and on-road exhaust and these emission sources would add to the regional atmospheric loading of ozone precursors during construction. This impact would be temporary but would span the duration of construction (approximately two years). The modeled construction emissions for maximum daily construction emissions and overall annual construction emissions show that NOx emissions from construction would not exceed the SMAQMD threshold of 85 lb./day. Emissions of particulate matter were compared to the SMAQMD operational significance thresholds and would not exceed thresholds for either PM₁₀ or PM_{2.5}. Construction emissions for the proposed Program were also compared to the General Conformity *de minimis* thresholds. No thresholds were exceeded and therefore require no further evaluation under the General Conformity Rule.

Earthwork Impact on Water

Earthwork impact on water is detailed in the *Geology* and *Hydrology and Water* sections of the Program EIR with updates in the three supplemental CEQA documents.

Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, dewatering and grading activities could result in increased erosion and sedimentation discharging to surface waters during construction of the proposed Program. If precautions are not taken to contain contaminants, construction could produce contaminated stormwater runoff (nonpoint source pollution), a contributor to the degradation of water quality. In addition, hazardous materials associated with construction equipment could adversely affect surface and groundwater quality if spilled or stored improperly. In accordance with the Construction General Permit, a Storm Water Pollution Prevention Plan (SWPPP) would be developed for the proposed Program that would detail Best Management Practices for all Program construction activities including excavation, dewatering, and stockpiling.

During construction of the proposed Program, dewatering would be conducted to remove excess groundwater from excavations created for installation of the pipeline and the proposed pump station. Dewatering operations would be conducted in accordance with the General Order for Dewatering or other appropriate NPDES permit. The discharge from the dewatering operations would be evaluated and made part of the Program SWPPP. Once the pipeline is constructed, hydrostatic testing would need to be conducted, and water from the testing would also need to be discharged. Water from testing would be discharged in accordance with the General Order for Dewatering or other appropriate NPDES permit.

The Construction General Permit and the General Order for Dewatering are well established regulatory processes that effectively limit threats to water quality from construction activities

such as those that would be conducted as part of the proposed Program. With implementation of mitigation measures, potential impacts would be reduced to less than significant.

Earthwork Impact on Animal Habitats

General steps to minimize earthwork-related Program work on animal habitat and Program impact specifically on Federal threatened or endangered species are discussed further in the response to the next question. This information is detailed in the Biological Resources section of the Program EIR with updates in the three supplemental CEQA documents.

If an activity occurs in modeled habitat, all excavated steep-walled holes, and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each workday or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within modeled habitat will be inspected for wildlife by the approved biologist prior to being moved.

- ***Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the Project area? If so, would they be affected by any activities associated with the proposed Project?***

As detailed in the *Biological Resources* Technical Report in the appendix of the Lateral Pipeline and On-Farm Connections Project Initial Study, a query of the California Natural Diversity Database (CNDDB) and U.S. Fish & Wildlife Service's Information for Planning and Consultation (IPaC) database identified 18 species listed as a Federal threatened or endangered species that have been historically detected in the vicinity of the Program area (2 plants, 4 invertebrates, 6 fish, 2 amphibians, 1 reptile, 2 birds and 1 mammal). Suitable habitat for 13 of these 18 species (2 plants, 3 invertebrates, 6 fish, 1 amphibian, 1 reptile, 0 birds and 0 mammals) occurs in or near the defined Program area. The potential for occurrence of the 13 species for which suitable habitat does occur in or near the defined Program area is discussed in the Biological Resources Technical Report and briefly summarized in the following sections.

Terrestrial Species

All federally threatened and endangered terrestrial species were either found to be unlikely to occur in the Program/Action area or are covered under the South Sacramento Habitat Conservation Plan (SSHCP or HCP). Program construction has the potential to affect listed species, but mitigation measures are included to reduce impacts to less than significant. Mitigation measures aim to avoid impacts to the extent feasible and include but are not limited to installation of exclusion fencing, relocation of species, or provision of mitigation funding.

Sacramento County and its Plan Partners prepared an HCP to secure permission for incidental take of Covered Species. Covered Species are species that are listed on the California Endangered Species Act (CESA) and federal ESA Incidental Take Permits issued by the two Wildlife Agencies (USFWS and CDFW). The South Sacramento HCP includes and analyzes projects and activities and estimates the effects from each activity on Covered Species currently identified in the Plan. Programs and activities described in the SSHCP are referred to as "covered activities". HCP-covered activities are conditionally afforded coverage from prohibitions

(namely, “take” of Covered Species) if they are implemented in a manner that is consistent with the expectations of and commitments within the HCP.

The proposed Program is a covered activity within the SSHCP. Incidental take of state-listed species would be permitted under the CESA through the process completed in conjunction with the SSHCP. The SSHCP has been approved, and Regional San is working with the South Sacramento Conservation Agency to obtain coverage for the Program before construction of the proposed Program is scheduled to start.

Fish Species

The SSHCP only covers terrestrial species, so federally listed fish species that occur in the project area are not covered. Although none of the listed species occurs within the Program area, a reduction in Sacramento River flows may adversely affect species in that system. For this reason, potential impacts of the Proposed Program on listed fish species are discussed below.

Impacts during “Excess” Operational Conditions

“Excess” operational conditions typically occur in wetter water year types. During excess operational conditions, water project reservoirs are generally not making releases of stored water from reservoirs. Excess operational conditions generally occur 50 percent of the time during the period of time in which the Program-related discharge reductions would occur. The discharge reductions would result in reduced Sacramento River flows from Freeport to the Delta during excess operational conditions. The magnitude and pattern of Program-related reductions in Sacramento River flows using the CalSim II model showed that impacts to sensitive fish species using the reach of the Sacramento River below Freeport, and the Delta, are anticipated to be negligible under these conditions.

Impacts during “Balanced” Operational Conditions

During balanced operational conditions, water project reservoirs are generally making releases to meet demands lower in the system, and to meet Delta flow and salinity requirements and Delta exports. Balanced operational conditions generally occur 50 percent of the time during the period of time in which Program-related reductions would occur. Program-related proportional reductions during balanced operational conditions typically occur in drier water year types and in the summer months. During balanced operational conditions, a discharge reduction of flow at Freeport has the potential effect of depleting storage in project reservoirs (mainly Shasta Lake), if increased releases are required to meet regulatory requirements.

The magnitude and pattern of Program-related reductions in Sacramento River flows using the CalSim II model showed that during balanced conditions, water project operations would respond to nominal reductions in flows by making reservoir releases, resulting in no net change in Sacramento River flows below Freeport. Sequential drought years during the periods 1929-1934 and 1986-1992 created circumstances in the CalSim II model simulation where the proposed Program would have reduced Shasta storage by up to about 35,000 AF without wintertime irrigation and about 30,000 AF with wintertime irrigation over a worst-case 6-year drought period without changes to retain more cold water at Shasta Lake. This decrease in storage could create thermal impacts to fisheries habitat downstream of Shasta. Such thermal impacts could stress temperature-sensitive fish species that spawn in the Sacramento River

mainstem, like winter-run Chinook salmon and green sturgeon. The magnitude and importance of Program-related temperature changes associated with a worst-case 6-year drought period have not been modeled. Implementation of a mitigation measure would ensure that discharge reductions during balanced operational conditions are timed to reduce impacts associated with reduced Shasta storage to less than significant.

- ***Are there wetlands or other surface waters inside the Project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as “Waters of the United States”? If so, please describe and estimate any impacts the proposed Project may have.***

As detailed in the *Biological Resources* Section of the EIR, a wetland delineation report was prepared for the proposed Program to document aquatic features within and near the Program area (CH2M HILL 2015), and to support future permitting needs. The wetland delineation report established a wetland survey area within which all aquatic features were identified and quantified (enumerated and areas measured). The wetland survey area included the Program Area of Potential Effect (APE) (which ranges from 80 to 250 feet wide along the alignment) and a 250-foot buffer on each side of the APE. The wetland delineation was updated in 2020 to reflect the more detailed information that is now available about the locations of lateral pipelines and on-farm connections (ESA 2020).

Within the defined wetland survey area, the following aquatic feature types and areas were identified: seasonal wetlands (2.19 acres), freshwater marsh wetlands (2.24 acres), mixed riparian scrub wetlands (2.00 acres), perennial stream (0.2 acres/332 linear feet), intermittent stream (0.40 acre/2,332 linear feet), agricultural ditch (0.16 acre/1,944 linear feet) and culverted stream (0.10 acre/1,074 linear feet). At the time of writing this application, the wetland delineation report had not yet been reviewed and verified by the United States Army Corps of Engineers (USACE), and these total areas should therefore be considered provisional.

Construction of the Program would potentially impact federally-protected wetlands in the Program area. Surface water quality could also be impacted. The specific magnitudes and locations of impacts to federally protected wetlands have not been finalized, but it is expected that the project can be permitted under the Programmatic General Permit that has been issued to the SSHCP. Operational delivery of irrigation water to the service area would likely increase availability of water to aquatic features (including federally-protected wetlands) within the Program area, increasing the reliability, frequency, and volume of water supply currently available to federally protected wetlands and other aquatic features in the Program area. This would be a beneficial effect. The Program could deliver treated water to Stone Lakes NWR and the Cosumnes River Preserve in the future to supplement irrigation water for high-value natural communities and sensitive habitats (including federally-protected wetlands), and the species that use these communities and habitats. This is also a beneficial effect.

Impacts to wetlands are thus expected to be confined to temporary construction impacts, and implementation of mitigation measures would ensure protection and enhancement of any wetlands that were affected during construction and reduce impacts to federally protected wetlands to less than significant. Mitigation measures aim to avoid impacts to the extent feasible, and require securing of the appropriate regulatory permits and approvals if impacts cannot be avoided.

- ***When was the water delivery system constructed?***

This question is not applicable to the Program, because the water delivery system has not been constructed yet. Please refer to *Technical Proposal* section of this Application for more information on the Program construction schedule.

- ***Will the proposed Project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.***

The proposed Program will not result in any modification of or effects to individual features of an irrigation system. The recycled water customers for the Program are primarily farmers. The farmers will take recycled water from the distribution system in various ways, requiring a range of customer connection configurations to their existing irrigation systems. The connection locations are typically at existing wells within the farm parcels.

- ***Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.***

The *Cultural Resources Section* of the EIR, evaluated historic resources based on a technical report prepared by CH2M HILL in 2016. An updated cultural resources report was prepared by ESA in 2021, evaluating both the transmission and distribution system. As part of the recently completed NEPA Environmental Assessment report, Reclamation consulted with the State Historic Preservation officer (SHPO) via electronic mail. It is noted that there will be no adverse effects to historic properties due to this project. Based on the updated records search, environmental context, and survey results there are no known historic properties within the transmission main and distribution main pipeline alignments. Although the previous report identified historic sites in the vicinity, including residences, a portion of the Western Pacific Railroad, and bridges built in the 1930s, none of the sites were considered to be eligible for listing on the National Register of Historic Places. Although it would cross structures (railroads, bridges, and culverts) the pipeline will be installed using trenchless technology so that structures would not be disrupted. The structures are thus outside the vertical APE of the project. The Lambert Road levee, recorded as P-34-001495, is within the APE, but has been evaluated and recommended as not eligible for listing in the National Register and is thus not considered a historic property for purposes of the National Historic Preservation Act (ESA 2021).

- ***Are there any known archeological sites in the proposed Project area?***

Although there are known archeological sites in the vicinity of proposed Program area, there are none with the Program APE. The areas closest to previously recorded archaeological resources were closely inspected and no cultural materials or evidence of past human use or occupation was identified within the APE (ESA 2015). Due to the confidential nature of the Cultural Resources Inventory (CH2M Hill 2016) and Cultural Resources Survey Report (ESA 2021), the details of the archeological sites are not included in this Application.

- ***Will the proposed Project have a disproportionately high and adverse effect on low income or minority populations?***

Construction and operation of the pump station and transmission and distribution pipeline alignments would occur in areas where minorities comprise over 50 percent of the population, and in a relatively small area of low-income census tracts, as shown in **Figure 8**. Because the project's effect on areas identified as DACs would be very small in relation to the overall project area of effect, and all adverse impacts can be reduced to a less than significant level, the project would not disproportionately affect DACs. Although the project effects would be felt in areas with greater than 50 percent minority populations, outside of the small area considered to be a DAC, the minority populations are not considered disadvantaged when paired with economic characteristics and impacts to minority populations would be similar to other affected areas where minority populations do not exceed 50 percent of the population. Normal operation of the proposed facilities would not generate significant air quality, traffic, noise, or aesthetic impacts once in place because they would be either buried underground (pipelines) or located on previously disturbed, industrial sites (pump station at the SRWTP). Thus, the proposed Program would not disproportionately affect low income or minority populations.

- ***Will the proposed Project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?***

No, the proposed Program would not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands. No archaeological resources that might be considered tribal cultural resources are present within the Program's APE. As detailed in the Indian Trust Assets section of the EIR, there are no reservations or rancherias located within the boundaries of the proposed Program area. Reclamation updated the Determination of Indian Trust Assets (ITA) in February 2021, and the nearest ITA is located 9.6 miles away from the Program area. The recently completed NEPA Environmental Assessment report does not identify any Indian sacred sites.

- ***Will the proposed Project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?***

No, the Program will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species in the area. The Program pipeline will be aligned within public roadways, so spreading of noxious weeds is unlikely. As discussed under *Evaluation Criteria 2*, the proposed Program can help with invasive weed management.

Required permits and approvals for the Program are listed in the **Table 9**.

REQUIRED PERMITS OR APPROVALS

Table 9: Required Permits or Approvals

Agency	Type of Approval	Status
USACE and South Sacramento Conservation Agency	Clean Water Act, Section 404 Permit for any fill of wetlands or waters of the US	90% Complete
USFWS and South Sacramento Conservation Agency	Obtain coverage under SSHCP Incidental Take Permit(for effects on Federally and state- listed species)	90 % Complete
California Department of Fish and Wildlife (CDFW) South Sacramento Conservation Agency	Obtain coverage under SSHCP Incidental Take Permit from Conservation Agency (for effects on State-listed species)	90% Complete
California Office of Historic Preservation	Section 106 Consultation	100% Complete
GUSFWS	Agreement (for the future provision of water to Stone Lakes NWR)	To Be Completed
SWRCB	Wastewater Change Petition for a change in the point of discharge, place of use, or purpose of use of treated water	100% Complete
Central Valley Regional Water Quality Control Board (CVRWQCB)	401 Water Quality Certification (required for 404 Permit)	100% Complete
CVRWQCB	NOI for coverage under the General Water Reclamation Requirements for Recycled Water Use (Statewide Recycled Water Permit, Order WQ 2016-0068-DDW) (for the operation of the recycled water system)	To Be Completed
California Division of Drinking Water (DDW)	Title 22 Engineer's Report (production of recycled water)	100% Complete
DDW	Title 22 Engineer's Report (addendum for distribution and use of recycled water in South County)	To Be Completed
CVRWQCB	Notice of Intent (NOI) for coverage under the Statewide Construction Stormwater Permit (for construction greater than 1 acre in size)	To Be Completed
CVRWQCB	NOI for coverage under General Permit for discharges with Low- Threat to Water Quality (for pipeline discharges for testing and startup	To Be Completed
CVRWQCB	Potential NPDES permit modification to add Stone Lakes as a discharge point	To Be Completed – to be determined if needed
CDFW	Lake and Streambed Alteration Agreement (for pipeline crossings of creeks)	100% Complete
Local Agency Formation Commission (LAFCO)	Regional San annexation of Service Area for recycled water, with service limited to recycled water supply	100 % Complete

Harvest Water
WIIN Grant Application

Agency	Type of Approval	Status
Cal/OSHA – Tunnel and Mining Unit	Construction Permit / Underground Classification for tunnels	To Be Completed
California Department of Transportation (Caltrans)	Encroachment Permit (for crossing Interstate 5)	To Be Completed
Central Valley Flood Protection Board (CVFPB)	Encroachment Permit (for crossing(s) of levees)	Not Needed, Confirmed with USACE
City of Elk Grove	Encroachment Permits (for work within City rights-of-ways [ROW])	To Be Completed
Sacramento County	Encroachment Permits (for working within County ROWs)	To Be Completed
Sacramento County	Grading Permit	To Be Completed
Sacramento County Air Quality Management District	Authority to Construct (for building and operating equipment that will meet air quality standards)	To Be Completed
Union Pacific Railroad	Easement/encroachment to construct within right-of-way	To Be Completed
GSA (Sacramento Central Groundwater Authority or other relevant agency) and/or Sacramento County	Potential well permits for construction, modification, repair, inactivation, or destruction of wells in groundwater basin (for monitoring of groundwater if existing well network is not sufficient)	To Be Completed – to be determined if needed

OTHER FEDERAL FUNDING

No other federal funding has been awarded for this project.

PROJECT BUDGET

FUNDING PLAN AND LETTERS OF COMMITMENT

FUNDING PLAN

Regional San is, by its legal basis and enabling acts as a public agency, willing and required to convey, treat, and dispose of wastewater in the public interest. The EchoWater Project upgrades at the Sacramento Regional Wastewater Treatment Plant are scheduled for completion and start-up in 2023, presenting Regional San with the opportunity to diversify its effluent management discharge options with recycled water delivery to southern Sacramento County through Harvest Water. Harvest Water is an essential part of Regional San's long-term effluent management and discharge plans, and therefore a fundamental service and value to all Regional San ratepayers and the water resources in the Sacramento region. Consequently, financing of capital debt service and operational costs of this Program will be supported by user rates and fees and grant funding. This approach for Harvest Water is similar to Regional San's financing of the collection system interceptors and the SRWTP and its Biosolids reuse and disposal program.

Capital funding is anticipated from four sources, including a Water Storage Investment Program (WSIP) grant, Water Infrastructure Improvements for the Nation (WIIN) grant, and Regional San's contribution (from both cash reserves and pay-go cash). The California Water Commission (CWC) has awarded the Harvest Water Program \$287,512,500 in Proposition 1 grant funding through the Water Storage Investment Program (WSIP), known as the Maximum Conditional Eligibility Determination (MCED). The Commission has discretion to award less than the MCED at the final funding hearing based on project changes. Regional San submits required Quarterly Reports providing a summary level update of the project status for the requirements and milestones. In September 2021, the California Water Commission and Regional San entered into an early funding agreement for a maximum amount of \$14,375,625. Regional San anticipates executing the final funding agreement with the CWC in late-2022. The U.S. Bureau of Reclamation (USBR) has awarded the Harvest Water Program \$1,700,000 in 2021, \$4,184,192 in 2019 and \$110,000 in 2012 in federal grant funding through the Water Infrastructure Improvements for the Nation (WIIN). An additional \$24,005,808 is being requested with this application from the WIIN Program. It is anticipated that the balance of capital costs, approximately \$126,687,500, will be financed through cash reserves and pay-go cash (pay-go cash is cash available from user rate revenues). Regional San will also finance any requested funds not awarded through WIIN from these revenue sources.

For the phase of work occurring during the eligible dates (7/12/2017-9/30/2025), Regional San's will finance the work and submit eligible costs for reimbursement through the identified grant funding as available. Confirmation letters for the aforementioned funding are included in **Appendix A**. Additional grants and loans may be required to finance the large capital expenditure.

The *Budget Proposal* section includes costs for eight existing contracts of approximately \$40,916,064 of which half is anticipated to be incurred before the WIIN grant award date and the remaining will be incurred prior to the September 30, 2025.. The details of the existing contracts are provided in the *Budget Narrative* section.

Table 10: Summary of Non-Federal Funding Sources

FUNDING SOURCES	TOTAL AMOUNT
Non-Federal Entities	
1. California Water Commission – early funding agreement executed, September 2021.	\$14,375,625
2. California Water Commission – grant agreement not yet executed, anticipated in late 2022	\$273,136,875
3. Regional San Monetary Contribution	\$126,687,500
Non-Federal Subtotal	
REQUESTED RECLAMATION FUNDING¹	\$24,005,808

Note:

1. USBR has awarded Harvest Water \$1,700,000 in 2021, \$4,184,192 in 2019, and \$110,000 in 2012 in federal grant funding.

LETTERS OF COMMITMENT

Regional San has provided a copy of the California Water Commission’s letter regarding the “Water Storage Investment Program Maximum Conditional Eligibility Determination Adjusted – Harvest Water Program” as well as the award letter from USBR for previous federal grant funding. See Appendix A.

BUDGET PROPOSAL

Table 11 below shows all the Program costs that are anticipated within the July 12, 2017 through September 30, 2025 time period. More detailed breakdown of the costs is available within the *Budget Proposal* section of the application.

Table 11: Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Qty Type	TOTAL COST
	\$/Unit	Qty		
Salaries and Wages				
<i>N/A - Salaries and wages of Regional San staff are not included in Budget Proposal; Contractor salaries and wages are incorporated into the costs described below in the Contractual/Construction section.</i>				
Fringe Benefits				
<i>N/A – Fringe benefits of Regional San staff are not included in Budget Proposal; Contractor benefits are incorporated into the costs described below in the Contractual/Construction section.</i>				
Travel				
<i>N/A – Travel costs incurred by Regional Staff is not included in Budget Proposal; Travel costs incurred by contractors are included in the contract cost estimates.</i>				

Harvest Water
WIIN Grant Application

BUDGET ITEM DESCRIPTION	COMPUTATION		Qty Type	TOTAL COST
	\$/Unit	Qty		
Equipment				
<i>N/A – Equipment costs are incorporated in the contract cost estimates.</i>				
Supplies and Materials				
<i>N/A – Supplies and Materials costs are incorporated in the contract cost estimates.</i>				
Contractual/Construction				
Woodard & Curran - Administrative Program Management (Expiration Date: 6/30/2023)	\$7,106,782	1	LS	\$7,106,782
The Freshwater Trust - Ecological Program Technical Support (Expiration Date: 6/30/2023)	\$6,097,716	1	LS	\$6,097,716
Ascent - Environmental and Permitting Services (Expiration Date: 6/30/2022)	\$1,369,816	1	LS	\$1,369,816
Carollo / Brown and Caldwell - Capital Program Management (Expiration Date: 12/31/2022)	\$10,901,909	1	LS	\$10,901,909
HDR, Inc. - Design for Harvest Water Pump Station Project (Expiration Date: 4/30/2025)	\$2,689,671	1	LS	\$ 2,689,671
Stantec - Design for Elk Grove Transmission Pipeline and Franklin/ Eschinger Distribution Pipeline Projects (Expiration Date: 2/28/2025)	\$ 5,609,878	1	LS	\$ 5,609,878
Jacobs - Design for Central/South Distribution Pipelines and West Distribution Pipeline Projects(Expiration Date: 9/30/2025)	\$5,653,219	1	LS	\$5,653,219
KSN, Inc. - Design for On Farm Connections & Assemblies Project(Expiration Date: 6/30/2023)	\$1,487,073	1	LS	\$1,487,073
TBD - Administrative Program Management after 6/30/2023 through 9/30/2025	\$1,655,100	1	LS	\$1,655,100

Harvest Water
WIIN Grant Application

BUDGET ITEM DESCRIPTION	COMPUTATION		Qty Type	TOTAL COST
	\$/Unit	Qty		
TBD - Ecological Program Technical Support after 6/30/2023 through 9/30/2025 (PM/Admin/Monitoring)	\$2,053,533	1	LS	\$2,053,533
TBD - Capital Program Management after 12/31/22 through 9/30/2025	\$ 5,000,000	1	LS	\$5,000,000
TBD - Design for On Farm Connections & Assemblies Project after 6/30/2023 through 9/30/2025	\$750,000	1	LS	\$750,000
TBD - Infrastructure Construction through 9/30/2025(Recycled Water and Ecological Program)	\$248,453,000			\$248,453,000
Subtotal Contractual/Construction				\$298,827,697
Third-party Contributions				
<i>N/A – No Third-party Contributions are included in the Budget Proposal.</i>				
Environmental and Regulatory Compliance Costs				
USBR CFA Agreement	\$148,612	1	LS	\$148,612
Other				
TBD - Ecological Program Land Acquisition and Incentives	\$15,450,000	1	LS	\$15,450,000
Indirect Costs				
<i>N/A – Indirect Costs of Regional San staff are not included in Budget Proposal; Contractor indirect costs are incorporated into the costs described below in the Contractual/Construction section.</i>				
TOTAL ESTIMATED PROGRAM COSTS				\$314,426,309

BUDGET NARRATIVE

This section provides additional information on the Program costs shown in **Table 11**.

SALARIES AND WAGES

Salaries and wages of Regional San staff for the Program are not included in the Budget Proposal for this application. Salaries and wages for contractors are included in the contract costs.

FRINGE BENEFITS

Fringe benefits for Regional San staff are not included in the Budget Proposal for the application. Contractor fringe benefits are included in the contract costs.

TRAVEL

Travel costs incurred by Regional San staff for the Program is not included in the Budget Proposal for this application. Travel costs incurred by contractors are included in the contract costs.

EQUIPMENT

Equipment will be purchased and installed under a construction contract.

MATERIALS AND SUPPLIES

Material and supplies costs will be incorporated under a construction contract.

CONTRACTUAL

Contractual work for the Program anticipated to be completed between July 12, 2017 and September 30, 2025 is listed in **Table 11**. The contractual costs include planning costs associated with environmental and permitting, establishing the Program's recycled water delivery and ecological benefits structure, design of facilities, and construction activities for the Program. There are a number of existing, ongoing contracts at this time; additional cost estimates through September 2025 were based on existing consultant contracts and engineer's estimates developed by Regional San. Additional information on the listed contracts are provided below:

- **Contract for Administrative Program Management:** There is an existing contract between Woodard & Curran and Regional San, with a total value of \$8,924,771. Of this amount, \$1,817,989 had been spent prior to July 2017 and these costs are not included in the Budget Proposal. The remaining \$7,106,782 is expected to cover services through June 2023. . The scope of work covers engineering and administrative services to support Program elements including but not limited to the items listed below. Based on engineer's and staff experience, an additional amount of \$1,655,100 will be required for engineering and administrative services to support the below Program elements after funds are expended within the existing contract from July 2023 through September 2025.
 - **Administrative Program Management Office Administration and Support:** Coordinate and collaborate with Regional San and numerous other consultants on program implementation.
 - **Recycled Water Utility Support:** Support for governance, structure, cost projections, revenue, and staffing.
 - **Landowner and Stakeholder Outreach and Education:** Professional services to implement outreach and education efforts for recycled water customers, EcoProgram partners, stakeholders, and the public. Development and implementation of recycled water user agreements and associated related documents (recycled water pricing approach, incentives, etc.), includes coordination for such activities.
 - **Environmental Documentation and Environmental Permitting Support:** review, coordination, and support for such activities.
 - **Groundwater Accounting Program:** Technical analyses including groundwater modeling, project-level environmental documentation, and development of an

institutional framework for the Program's Groundwater Accounting and Conjunctive Use Program.

- **Groundwater Monitoring:** Development of a groundwater monitoring plan for the Program's banking program and preparation of access agreements. Includes implementation of the plan through well surveys and construction of new monitoring wells. Periodic monitoring and reporting for two years.
 - **Ecological Program Technical Support and Oversight:** Coordination, data sharing, deliverable review, and other related support to the Ecological Program consultant.
 - **Capital Program Coordination:** As-needed technical support to the Capital Program Management Office.
 - **Regulatory Strategy and Advocacy Support:** Tracking, coordination, and review of regulatory requirements and updates, including Title 22 Engineering Report, Rules and Regulations, or other documents required for use of recycled water under the Program.
- **Contract for Ecological Program Technical Support:** There is an existing contract between The Freshwater Trust and Regional San, with a total value of \$6,161,821 . Of this amount, \$64,105 had been spent prior to July 2017 and these costs are not included in the Budget Proposal. The remaining \$6,097,716 is expected to cover services through June 2023 and is for technical support for establishing the ecological program to implement and track ecosystem improvements associated with the Program. Based on engineer's and staff experience, an additional \$2,053,533 is projected to be needed after funds are expended within the existing contract from July 2023 through September 2025.
 - **Contract for Environmental Documentation and Permitting Services:** There is an existing contract between Ascent and Regional San, executed in May 2019 with a total value of \$1,369,816. The contract provides environmental consulting services through June 2022 to prepare project-level CEQA and NEPA environmental documentation for Program facilities not included in the original 2017 EIR, including associated environmental surveys. The contract also provides environmental permitting services.
 - **Contract support for Capital Program Management:** There is an existing contract between Brown & Caldwell-Carollo Engineers, Inc., a Joint Venture, and Regional San, executed in April 2020 with a total value of \$10,901,909. The contract provides engineering services through December 2022 associated with program management, project management, and establishing the basis of design for the Program's pump station, 14 miles of transmission pipeline, 25 miles of distribution mains, and on-site connections. Based on engineer's and staff experience, an additional \$5,000,000 is projected to be needed after funds are expended within the existing contract from December 2022 through September 2025.
 - **Contractual support for Final Design:** Four contracts have been established for engineering services to develop the final design. The total value of these contracts is currently \$15,439,841. The contracts are:
 - **Contract for design of Harvest Water Pump Station:** There is an existing contract between HDR, Inc. and Regional San, executed in October 2021 with a total value of \$2,689, 671 The contract provides engineering services for design of the Harvest Water pump station through April 2025 and the scope of work

includes but not limited to planning, design, services during bid and award for construction contract , construction phase support and special services.

- **Contract for Design of Elk Grove Transmission Pipeline and Franklin Eschinger Distribution Pipeline Projects:** There is an existing contract between Stantec and Regional San, executed in October 2021 with a total value of \$5,609, 878. The contract provides engineering services for the Harvest Water Elk Grove transmission pipeline and Franklin/Eschinger distribution pipeline project through February 2025. The scope of work includes but not limited to planning, design, environmental permitting assistance, property acquisition and easement assistance, public outreach assistance, surveying and mapping, geotechnical investigations, services during bid and award for construction contract, construction phase support and special services.
- **Contract for Engineering Design Services for the Harvest Water Central/South Distribution pipelines and West Distribution Pipelines:** There is an existing contract between Jacobs and Regional San, executed in December 2021 with a total value of \$5,653,219. The contract provides engineering services for the Harvest Water Central/South distribution pipeline and West distribution pipeline project through September 2025. The scope of work includes but not limited to planning, design, environmental permitting assistance, property acquisition and easement assistance, public outreach assistance, surveying and mapping, geotechnical investigations, services during bid and award for construction contract, construction phase support and special services.
- **Contract for Engineering Design Services for the Harvest Water On-Farm Connections and Assemblies:** There is an existing contract between KSN,Inc and Regional San, executed in January 2022 with a total value of \$1,487,073. The contract provides engineering services for the Harvest Water On-Farm connections and Assemblies project through June 2023. Based on engineer’s and staff experience, an additional \$750,000 is projected to be needed after funds are expended within the existing contract from June 2023 through September 2025.
- **Contract for Infrastructure Construction:** Contracts will be needed for construction of the Program facilities through September 2025. Based on engineer’s and staff experience, a cost of 248,453,000 will be incurred for construction through September 2025.

THIRD-PARTY IN-KIND CONTRIBUTIONS

There are no Third-party Contributions are included in the Budget Proposal.

ENVIRONMENTAL AND REGULATORY COMPLIANCE COSTS

Costs incurred by Reclamation for environmental compliance are currently estimated at \$148,612. Cost associated with preparation of Environmental Assessment (EA) as well as the acquiring permits are included in the contract costs, specifically the Contract for Environmental Documentation and Permitting Services. Cost associated with implementing mitigation measures are included in the contract costs, specifically Contractual Support for Final Design and Contractual Support for Construction.

OTHER EXPENSES

Costs associated with land /property are included under this “Other” category, per the direction of Reclamation staff. Landowner payments will be made as a part of Harvest Water’s Ecological Program both for land acquisition, such as agricultural and conservation easements as well as cash incentives for participating landowners. Based on environmental economist’s, engineer’s and staff experience, a cost of \$15,450,000 is estimated through September 2025.

INDIRECT COSTS

Indirect costs for Regional San staff are not included in the Project Cost estimate for federal funds or for the non-federal cost share.

TOTAL COSTS

As tabulated in **Table 11**, the total amount of Program costs that is estimated to occur within the eligible funding window is \$314,426,309. Regional San is requesting an amount of \$24,005,808 from the WIIN funding, which is less than 25% of the Program cost under this application for Federal cost share.

LETTERS OF SUPPORT

To date, there has been broad support for the Program ranging from other water-related agencies, environmental interests, local agricultural community, and State and Federal representatives.

Below is a list of all of the groups who have provided signatures of support for the Program to receive WIIN funding. Support letters can be found in **Appendix B** of the application.

- ✓ Sacramento Water Recycling Coalition
 - ✓ The Nature Conservancy
 - ✓ Ducks Unlimited
 - ✓ Sacramento County Water Agency
 - ✓ City of Elk Grove
 - ✓ Friends of the Swainson's Hawk
 - ✓ Sacramento Area Sewer District
 - ✓ Sacramento Regional County Sanitation District
 - ✓ Sacramento Area Creeks Council
 - ✓ County of Sacramento
 - ✓ Sacramento County Department of Regional Parks
 - ✓ Southgate Recreation & Park District
 - ✓ Sacramento Central Groundwater Authority
 - ✓ Sacramento County Farm Bureau
 - ✓ Sierra Club, Sacramento County Group
 - ✓ League of Women Voters of Sacramento County
- ✓ Regional Water Authority (California)

OFFICIAL RESOLUTION

Regional San adopted an official resolution authorizing it to commit to the application to the financial and legal obligations associated with receipt of a financial assistance award under the Title XVI/WIIN Program on July 25, 2018. The resolution can be found in **Appendix C**.

REFERENCES

- Bureau of Reclamation. 2022. Environmental Assessment for Sacramento Regional County Sanitation District's Harvest Water Program. January.
- Ascent Environmental. 2020. Initial Study Checklist for the Sacramento Regional County Sanitation District Harvest Water Program Lateral Pipelines and On-Farm Connections Project. August.
- Ascent Environmental. 2020. South Sacramento County Agriculture and Habitat Lands Recycled Water Program Environmental Impact Report Addendum – Harvest Water Program EcoPlan and Wintertime Application Project. December 7.
- Ascent Environmental. 2021. South Sacramento County Agriculture and Habitat Lands Recycled Water Program Environmental Impact Report Addendum – Harvest Water Program Groundwater Accounting Project. March 1.
- CH2M. 2017. *Development of WSIP Climate Scenarios for use in HEC5Q*. August.
- CH2M HILL. 2016. Draft Cultural Resources Inventory Report for the South Sacramento County Agriculture and Habitat Lands Recycled Water Project, Sacramento County, California.
- CH2M HILL. 2015. Wetland delineation for the Sacramento Regional County Sanitation District Recycled Water Project. Prepared for RMC Water and Environment. September.
- ESA. 2020. Harvest Water Aquatic Resources Delineation Report. Prepared for Sacramento County Regional Sanitation District. November.
- RMC Water and Environment. 2017. South Sacramento County Agriculture & Habitat Lands Recycled Water Program Facilities Plan. August.
- RMC Water and Environment. 2017. Sacramento Regional County Sanitation District's South Sacramento County Agriculture and Habitat Lands Recycled Water Program Final Environmental Impact Report. January.
- RMC Water and Environment. 2014. Sacramento Regional County Sanitation District South County Recycled Water Feasibility study. May.
- Sacramento Central Groundwater Authority (SCGA). 2016. 2014 Sustainable Groundwater Management Act, South American Subbasin Alternative Submittal. December.
- Sacramento Regional County Sanitation District. 2017. Water Recycling Opportunities Study.

APPENDIX A LETTERS OF COMMITMENT

CALIFORNIA WATER COMMISSION901 P STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001**Teresa Alvarado**
Chair

February 3, 2021

Matthew Swanson
Vice-ChairTerrie Mitchell, Manager, Legislative & Regulatory Affairs, Sacramento Regional
County Sanitation District**Samantha Arthur**
Member**Amy Cordalis**
MemberRe: Water Storage Investment Program Maximum Conditional Eligibility Determination
Adjusted – Harvest Water Program**Daniel Curtin**
Member**Kimberly Gallagher**
Member

Dear Ms. Mitchell:

Alexandre Makler
Member

At its January 20, 2021 meeting the California Water Commission (Commission) adjusted the Maximum Conditional Eligibility Determination (MCED) for all seven projects currently in the Water Storage Investment Program (WSIP). The Commission made a 2.5% inflation adjustment to the MCEDs of all seven projects within WSIP. The adjusted MCED for Harvest Water Program is \$287,512,500. The MCED is the maximum amount of Proposition 1 WSIP funds the Commission can invest in a project. The Commission has discretion to award less than the MCED at the final funding hearing based on project changes.

Fern Steiner
Member

The MCED amount above supersedes the 2018 MCED decision.

If you have any questions or concerns regarding this matter, please contact Amy Young at [REDACTED]

Sincerely,

A handwritten signature in blue ink, appearing to read "Joseph R. Yun".

Joseph R. Yun
Executive Officer
California Water Commission

Cc: Karla Nemeth, Director, Department of Water Resources

Eileen Sobeck, Executive Director, State Water Resources Control Board

Chuck Bonham, Director, California Department of Fish and Wildlife

Chad Dibble, Deputy Director, Ecosystem and Conservation Division, California
Department of Fish and Wildlife



United States Department of the Interior

BUREAU OF RECLAMATION
P.O. Box 25007
Denver, CO 80225-0007



IN REPLY REFER TO:

84- 27133

August 2, 2021

1.3.11

VIA ELECTRONIC MAIL

Sacramento Regional County Sanitation District

Attn: Jose Ramirez

10060 Goethe Road

Sacramento, CA 95827-3553

Subject: Notice of Funding Opportunity No. R21AS00429 – WaterSMART:
Title XVI WIIN Water Reclamation and Reuse Program Funding for Fiscal Year 2021
Your Application Titled, “Harvest Water Program” (003)

Dear Mr. Ramirez:

Thank you for submitting an application under the Title XVI Water Reclamation and Reuse Program. Reclamation conducted a review of applications for funding based on the evaluation criteria included in the Funding Opportunity announced on March 24, 2021 and posted at www.grants.gov. The Bureau of Reclamation is pleased to inform you that your application was included in the list of projects recommended for funding. Congress was informed of the recommendation on July 23, 2021. Note that Section 4009(c) of the Water Infrastructure Improvements for the Nation (WIIN) Act stipulates that funding can only be provided after appropriations legislation is enacted designating funding to the projects identified by Reclamation by name. Once this requirement is met, Reclamation anticipates awarding Federal funds in the amount of \$1,700,000 for your project. Therefore, financial assistance agreements will not be executed until such appropriations legislation has been enacted.

Please note that a portion of the anticipated award will be set aside for Reclamation to ensure the project's Federal regulatory and statutory compliance, and to otherwise oversee the implementation of the project. Reclamation may also adjust the award amount in order to ensure that the project remains in compliance with statutory requirements as further information about your project is developed.

Funding for construction activities will not be released until Reclamation makes a determination of financial capability for the project. In addition, National Environmental Policy Act and other associated environmental and cultural compliance analyses must be completed before construction or any other ground disturbing activities can begin. If project activities that require environmental and cultural compliance approval begin prior to receipt of a written notice from Reclamation that all such clearances have been obtained, the costs of such activities will not be eligible for reimbursement or application as non-Federal cost share.

In addition, please note that in order for costs, including pre-award costs, to be eligible for inclusion in the agreement, the cost must meet the applicable administrative and cost principles criteria established in 2 Code of Federal Regulations (CFR) Part 200. In particular, the procurement of goods and/or services

must be compliant with the Procurement Standards (2 CFR §200.318 through §200.327) and contract costs must be compliant with 2 CFR §200.323 – Contract Cost and Price. A copy of the Procurement Standards, which include the contract cost and price regulations, and Appendix II from 2 CFR Part 200, which identifies mandatory contract content, are attached for your reference. The Federal financial assistance regulations can be found online at www.ecfr.gov.

Thank you for your interest and participation in the Title XVI Water Reclamation and Reuse Program. The Reclamation regional or area office that will be responsible for awarding and administering your agreement will contact you in the coming months to finalize your award. If you have questions concerning the next steps in awarding this agreement, please contact Ms. Amanda Erath at [REDACTED] [REDACTED]. To receive information and announcements regarding upcoming activities under this program, please send an email with your name and email address to watersmart@usbr.gov.

Sincerely,

Darren Olson
Grants Officer



United States Department of the Interior

BUREAU OF RECLAMATION

P.O. Box 25007

Denver, CO 80225-0007

IN REPLY REFER TO:

84-27814

1.3.11

FEB 14 2019

VIA ELECTRONIC MAIL

Sacramento Regional County Sanitation District

Attn: Mr. Jose Ramirez

10060 Goethe Road

Sacramento, CA 95827-3553

Subject: Funding Opportunity Announcement (FOA) No. BOR-DO-18-F011 – WaterSMART: Title XVI Water Reclamation and Reuse Program Funding for Fiscal Year 2018 – Your Application Titled, “South Sacramento County Agriculture and Habitat Lands Recycled Water Program (South County Ag) (TXVI-012)”

Dear Mr. Ramirez:

Thank you for submitting an application under the Title XVI Water Reclamation and Reuse Program. Reclamation conducted a review of applications for funding based on the evaluation criteria included in the FOA announced on May 30, 2018 and posted at www.grants.gov. The Bureau of Reclamation is pleased to inform you that your application was among those receiving the highest ratings and was included in the list of projects recommended for funding. Congress was informed of the recommendation on February 13, 2019. Note that Section 4009(c) of the Water Infrastructure Improvements for the Nation (WIIN) Act stipulates that funding can only be provided after appropriations legislation is enacted designating funding to the projects identified by Reclamation by name. Once this requirement is met, Reclamation anticipates awarding Federal funds in the amount of \$4,184,192 for your project. Therefore, financial assistance agreements will not be executed until such appropriations legislation has been enacted.

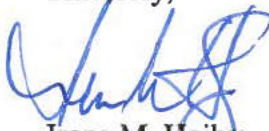
Please note that a portion of the anticipated award will be set aside for Reclamation to ensure the project's Federal regulatory and statutory compliance, and to otherwise oversee the implementation of the project. Reclamation may also adjust the award amount in order to ensure that the project remains in compliance with statutory requirements as further information about your project is developed.

Funding will not be released until Reclamation makes a determination of financial capability for the project. In addition, National Environmental Policy Act and other associated environmental and cultural compliance analyses must be completed before construction or any other ground disturbing activities can begin. If project activities that require environmental and cultural compliance approval begin prior to receipt of a written notice from Reclamation that all such clearances have been obtained, the costs of such activities will not be eligible for reimbursement or application as non-Federal cost share.

In addition, please note that in order for costs, including pre-award costs, to be eligible for inclusion in the agreement, the cost must meet the applicable administrative and cost principles criteria established in 2 Code of Federal Regulations (CFR) Part 200. In particular, the procurement of goods and/or services must be compliant with the Procurement Standards (2 CFR §200.317 through §200.326) and contract costs must be compliant with 2 CFR §200.323 – Contract Cost and Price. A copy of the Procurement Standards, which include the contract cost and price regulations, and Appendix II from 2 CFR Part 200, which identifies mandatory contract content, are attached for your reference. The Federal financial assistance regulations can be found online at www.ecfr.gov.

Thank you for your interest and participation in the Title XVI Water Reclamation and Reuse Program. The Reclamation regional or area office that will be responsible for awarding and administering your agreement will contact you in the coming months to finalize your award. If you have questions concerning the next steps in awarding this agreement, please contact Ms. Amanda Erath at 303-445-2766 or aerath@usbr.gov. To receive information and announcements regarding upcoming activities under this program, please send an email with your name and email address to watersmart@usbr.gov.

Sincerely,



Irene M. Hoiby
Grants Officer

APPENDIX B LETTERS OF SUPPORT

April 15, 2021



Sean Bigley, Chair
Dan York, Vice Chair

Mr. Jose R. Ramirez
Senior Civil Engineer
Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

Members

California American Water
Carmichael Water District
Citrus Heights Water District
Del Paso Manor Water District
El Dorado Irrigation District
Elk Grove Water District
Fair Oaks Water District
Folsom, City of
Golden State Water Company
Lincoln, City of
Orange Vale Water Company
Placer County Water Agency
Rancho Murieta Community Services District
Roseville, City of
Sacramento, City of
Sacramento County Water Agency
Sacramento Suburban Water District
San Juan Water District
West Sacramento, City of
Yuba City, City of

Associates

County of Placer
El Dorado County Water Agency
Sacramento Area Flood Control Agency
Sacramento Municipal Utility District
Sacramento Regional County Sanitation District

Dear Mr. Ramirez,

The Regional Water Authority (RWA) is pleased to submit this letter of support for the Sacramento Regional County Sanitation District's (Regional San) Harvest Water Program. This project is an integral component of the American River Basin Integrated Regional Water Management Plan. The project will help sustain our regional water supply reliability while helping to meet local, state, and federal goals for increased use of recycled water as a water supply. The project will also provide multiple environmental benefits.

Regional San is seeking funding through the U.S. Bureau of Reclamation's (Reclamation) WaterSMART Title XVI WIIN Water Reclamation and Reuse Projects for the Harvest Water Program. This program has the potential to deliver up to 50,000 acre-feet per year of recycled water to irrigate approximately 16,000 acres of permanent agriculture and habitat conservation lands located south of the City of Elk Grove.

RWA fully supports Regional San's application for grants under the WaterSMART Title XVI WIIN Water Reclamation and Reuse Projects.

RWA wishes Regional San the best in obtaining grant funding to implement this valuable project for the region. Feel free to contact me at ██████████ if we can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'James Peifer', is written over a light blue circular stamp.

James Peifer
Executive Director
Regional Water Authority

SACRAMENTO WATER RECYCLING COALITION

July 19, 2017

Subject: Support for Sacramento Regional Water Recycling Program

Dear Interested Parties:

The Sacramento Regional County Sanitation District (Regional San) safely treats and disinfects an average of 150 million gallons a day of municipal wastewater - water that could be put to beneficial use as a recycled water supply for the Sacramento region. Unfortunately, most of this valuable and reliable water supply is not being recycled due to a lack of funding to construct the required infrastructure. Currently, Regional San's Water Reclamation Facility produces up to 5 million gallons per day (mgd) of tertiary recycled water for landscape irrigation use in south Sacramento County.

We the undersigned Sacramento regional organizations have unified to form the Sacramento Water Recycling Coalition to gain support and funding to promote the expansion of the water recycling program for the Sacramento region. We believe that expanding the recycled water program will provide environmental and economic benefits. We support the concept of a Sacramento Water Recycling Program that will:

- Provide a sustainable water supply for the Sacramento region;
- Contribute to the water recycling goals of the State;
- Provide water conservation and an opportunity for water quality benefits.

We recognize recycled water as a valuable commodity that can be an important resource in the region's overall water portfolio. In 2007, Regional San completed a Water Recycling Opportunities Study that identified several local and regional projects that could benefit from the use of recycled water. The South Sacramento County Agriculture and Habitat Lands Water Recycling Project is one of the projects identified by this study. This project would provide a safe and reliable supply of tertiary treated water for agricultural uses, reduce groundwater pumping, support habitat restoration efforts, and provide near-term benefits to the Sacramento-San Joaquin Delta and the region.

We respectfully request your support in securing a commitment of significant state and federal funding assistance for a Sacramento Regional Water Recycling Program. Financial support will mean that a project with multiple benefits, including benefits to the Delta, would be supported by all levels of government ensuring an equitable distribution of costs.

We sincerely appreciate your support and your assistance. If you have any questions or comments regarding our program or our projects, please feel free to contact Terrie Mitchell, Manager Regional San Legislative and Regulatory Affairs at [REDACTED]

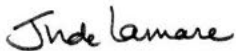




Lucas Frerichs , Associate Director
Of State Policy
The Nature Conservancy



Michael L. Peterson, Director
Department of Water Resources
Sacramento County Water Agency



Jude Lamare, President
Friends of the Swainson's Hawk



Christoph Dobson, Director
Policy & Planning Department
Sacramento Regional County Sanitation District



Leighann Moffitt, Planning Director
County of Sacramento, California



Ward Winchell, General Manager
Southgate Recreation & Park District



Jill Damskey, Program & Governmental
Affairs Coordinator
Sacramento County Farm Bureau



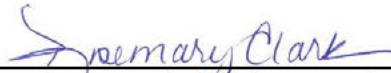
Rick Bettis, Natural Resources Director,
League of Women Voters of Sacramento
County



Mark Biddlecomb, Director
Western Regional Office
Ducks Unlimited



Laura S. Gill, City Manager
City of Elk Grove



Rosemary Clark, Director of Operations
Sacramento Area Sewer District



Alta Tura, President
Sacramento Area Creeks Council



Jeffery R. Leatherman, Director
Sacramento County Department of Regional Parks



Darrell Eck, Executive Director
Sacramento Central Groundwater Authority



Rick Bettis, Conservation Co-Chair
Sierra Club, Sacramento County Group

APPENDIX C OFFICIAL RESOLUTION

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT

RESOLUTION NO. SR-2924

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT AUTHORIZING THE DISTRICT ENGINEER TO FILE AN APPLICATION AND EXECUTE A GRANT AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION FOR A WATERSMART: TITLE XVI WATER RECLAMATION AND REUSE PROJECTS GRANT FUNDING

WHEREAS, the Sacramento Regional County Sanitation District (Regional San), a county sanitation district duly organized and existing under and by virtue of the laws of the State of California (the "District"), intends to apply to the United States Bureau of Reclamation (Reclamation) for a federal grant under the WaterSMART: Title XVI Water Reclamation and Reuse Projects; and

WHEREAS, the grants being applied for require, as part of the application process, an official resolution adopted by the applicant's Board of Directors, verifying:

- The identity of the official with legal authority to enter into Agreement;
- The Board of Directors, governing body, or appropriate official has reviewed and supports the application being submitted;
- The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan;
- That the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE BOARD OF DIRECTORS OF THE SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT, AS FOLLOWS:

The District Engineer is authorized to:

- Apply for funding available through Reclamation's WaterSMART: Title XVI Water Reclamation and Reuse Projects;
- Execute any certifications relating to Regional San's compliance with applicable state and federal laws or its fiscal condition;
- Certify that Regional San is capable of providing the amount of funding and/or in-kind contributions that may be required;

- Negotiate and execute cooperative agreements/agreements, and to work with Reclamation to meet established deadlines for the agreements;
- Address and sign other documents as necessary to carry out the purpose and intent of this Resolution.

ON A MOTION by Director **Peters**, and seconded by Director **Morin**, the foregoing resolution was passed and adopted by the Board of Directors of the Sacramento Regional County Sanitation District this 25th day of July, 2018, by the following vote, to wit:

AYES: Directors Bruins, Frost, Guerra, Harris, Ly, Morin, Peters, Orozco, Serna, Villegas, Kennedy

NOES: None

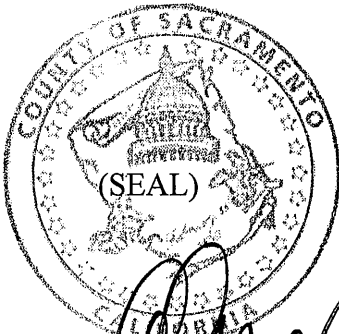
ABSENT: Directors Carr, Hume, McGarvey, Nottoli, Warren, One Vacancy

ABSTAIN: None

RECUSAL: None
(PER POLITICAL REFORM ACT (§ 18702.5))

Pat O'R

Chair of the Board of Directors of the Sacramento Regional County Sanitation District, a sanitation district organized under the laws of the State of California



[Signature]

Clerk of the Board of Supervisors of Sacramento County, California, ex-officio Secretary of the Board of Directors of the Sacramento Regional County Sanitation District

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on 7-25-18

By *[Signature]*
Deputy Clerk, Board of Directors

FILED
BOARD OF DIRECTORS

JUL 25 2018
By *[Signature]*
Clerk of the Board