

REVISED Technical Memorandum 6: Feasibility Study Scope of Work

**Wholesale Water Management and
Reliability Study**

PREPARED FOR
SAN JUAN WATER DISTRICT



PREPARED BY



October 2016

Table of Contents

1.0	Introduction and Background	1-1
2.0	Feasibility Study Tasks.....	2-1
	Task 1 – Develop Policies and Protocols to Support Wholesale Water Management and Reliability Program	2-1
	Task Objective	2-1
	Discussion	2-1
	Deliverables	2-3
	Task 2 – Develop Wholesale Water Management and Reliability Program and Implementation Plan.....	2-3
	Task Objective	2-3
	Discussion	2-3
	Subtask 2.1 – Develop Water Utilization Strategy and Conduct 2017 Pilot Water Sale/Transfer	2-5
	Subtask 2.2 – Explore Expansion of Service Area through New Wholesale Customer Agencies and/or Merger Partner(s)	2-6
	Subtask 2.3 – Conduct In-Lieu Banking Investigation.....	2-7
	Subtask 2.4 – Conduct ASR Investigation.....	2-8
	Subtask 2.5 – Explore Expansion of Interties with PCWA	2-10
	Subtask 2.6 – Develop Reliability Program Implementation Plan	2-11
	Task 3 – Regional Coordination, Engagement, Outreach, and Education	2-11
	Task Objective	2-11
	Subtask 3.1 – Assist with Evaluation of Regional Opportunities.....	2-11
	Subtask 3.2 – Develop and Implement Communication Plan	2-11
	Task 4 – Project Management Support.....	2-12
	Subtask 4.1 – Project Management.....	2-12
	Subtask 4.2 – Conduct Project Meetings	2-13
	Subtask 4.3 – Conduct Quality Assurance/Quality Control	2-13
3.0	Preliminary Budget.....	3-1
4.0	Preliminary Schedule.....	4-1

**San Juan Water District
Wholesale Water Management and Reliability Study**

List of Tables

Table 1. Preliminary Budget for Feasibility Study 3-2

List of Figures

Figure 1. SJWD Water Supply Reliability Program and Related Regional Efforts 2-2
Figure 2. Preliminary Schedule for Feasibility Study..... 4-2

Attachments

None

List of Abbreviations and Acronyms

AACE	American Association for Cost Estimating
ASR	aquifer storage and recovery
Board	Board of Directors
CEQA	California Environmental Quality Act
CVP	Central Valley Project
District or SJWD	San Juan Water District
Feasibility Study	Wholesale Water Management and Reliability Feasibility Study
MFP	Middle Fork Project
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
options	combined water management options
PCWA	Placer County Water Agency
POU	place of use
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
Reliability Program	Wholesale Water Management and Reliability Program
SGMA	Sustainable Groundwater Management Act
SWRCB	State Water Resources Control Board
WCA	Wholesale Customer Agency
WWMRS	Wholesale Water Management and Reliability Study
TM	technical memorandum

This page left blank intentionally.

1.0 Introduction and Background

This Technical Memorandum (TM) is the sixth in a series of memoranda prepared for the Wholesale Water Management and Reliability Study (WWMRS) to improve management of surface water and groundwater resources within the San Juan Water District's (District or SJWD) wholesale service area, and potentially outside the District's current service area. TMs prepared to date include:

- TM1 - Purpose, Goals and Objectives
- TM 2 - Review of Existing Information
- TM3 - Screening Criteria and Methodology
- TM4 - High-Level Evaluation and Screening of Options
- TM5 - Refined Evaluation of Retained Water Management Options

This TM (TM 6) contains the scope of work for the next step in developing and evaluating the 5 combined water management options (options) – the detailed Wholesale Water Management and Reliability Program (Reliability Program) Feasibility Study (Feasibility Study). TM6 includes proposed Feasibility Study task descriptions, a preliminary budget, and preliminary schedule.

Note that the Feasibility Study will not include environmental review for compliance with California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA).

**San Juan Water District
Wholesale Water Management and Reliability Study**

This page left blank intentionally.

2.0 Feasibility Study Tasks

This section includes task descriptions for conduct of the Feasibility Study, including:

- Task 1 – Develop Policies and Protocols to Support Wholesale Water Management and Reliability Program
- Task 2 – Develop Wholesale Water Management and Reliability Program and Implementation Plan
- Task 3 – Regional Coordination, Engagement, Outreach, and Education
- Task 4 – Project Management Support

Figure 1 shows the schedule for the feasibility tasks and the relation to ongoing regional planning efforts. It also illustrates the 5-step process for developing the Reliability Program.

Task 1 – Develop Policies and Protocols to Support Wholesale Water Management and Reliability Program

Task Objective

To review and amend, or develop as needed the relevant policies, contracts, and practices to support the development and implementation of the Reliability Program. In addition, to define the rules of engagement and expectations for the Feasibility Study and the overarching Reliability Program.

Discussion

Successful and timely conduct of the Feasibility Study and implementation of the Reliability Program (both in the near- and long-term) will require the following be initiated at the beginning of the Feasibility Study and accepted by the District Board of Directors (Board):

- Review of WWMRS goals, objectives, and constraints to inform revision/development of Feasibility Study and Reliability Program goals, objectives, constraints, and rules for engagement (protocols).
- Identify District policies for refinement/development, including, but not limited to:
 1. Instituting a formal groundwater replenishment demand in response to the Sustainable Groundwater Management Act (SGMA) and dry-year water supply protection needs. This formal replenishment demand should also be reflected in District shortage policies and other management practices such as the Urban Water Management Plan.

2.0 Feasibility Study Tasks

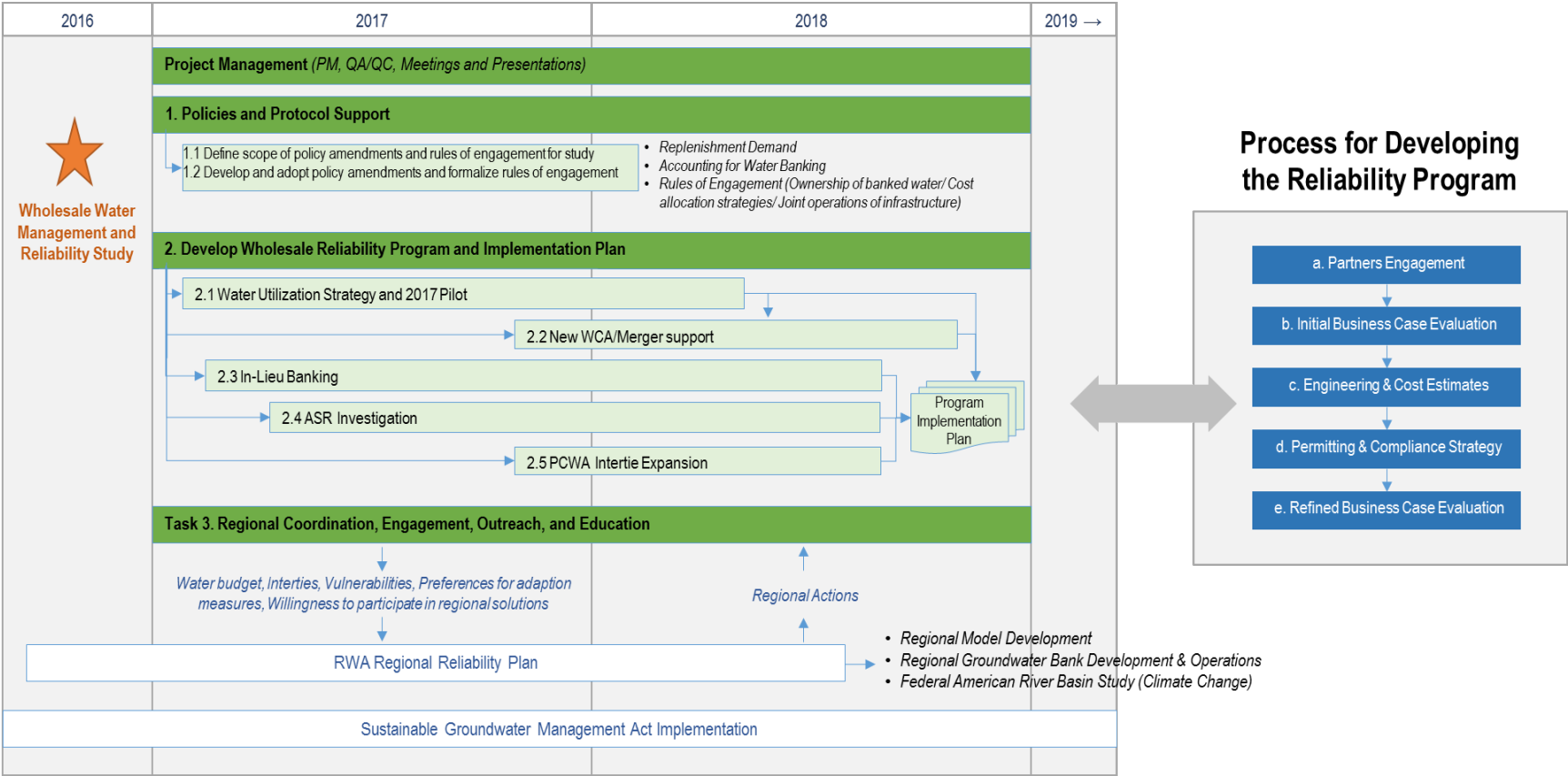


Figure 1. SJWD Water Supply Reliability Program and Related Regional Efforts

2. Developing groundwater recharge accounting and reporting procedures for the District consistent with the Sacramento Groundwater Authority's Water Accounting Framework, efforts of the Western Placer Groundwater Management Group, and SGMA.
3. Obtaining Placer County Water Agency's (PCWA) concurrence on its desired flexible use of Middle Fork Project (MFP) water as part of the strategy for water supply reliability, and amend the District's Warren Act Contract with the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) to allow for MFP water delivery to Sacramento County areas in MFP water right extended place of use (POU).
4. Consulting with Reclamation on expanding the Central Valley Project (CVP) contract service area to include MFP water right extended POU in Sacramento County, to the extent possible.
5. Establishing clear but adaptive rules of engagement for exploring potential water sales and groundwater banking options with other water agencies in the Sacramento-Placer region to promote long-term partnerships. This would include, but not be limited to (1) a cost allocation strategy for infrastructure use and improvements, (2) ownership of new infrastructure, (3) joint operations of new facilities, and (4) ownership of and accounting for banked groundwater.
6. Establishing guidance for short-term sales or transfers of District water rights.

Deliverables

- TMs, white papers, and/or discussion materials as directed by District staff

Task 2 – Develop Wholesale Water Management and Reliability Program and Implementation Plan

Task Objective

To institute a Reliability Program that coordinates the implementation of various components of the recommended actions from the WWMRS, and to maintain the District's participation in regional initiatives consistent with its corresponding roles and benefits.

Discussion

To develop the Reliability Program, the Feasibility Study will include conduct of more detailed evaluations to investigate the financial viability of the recommended water management actions, including expanded water sales, groundwater banking, and aquifer storage and recovery (ASR). The Feasibility Study will involve the following activities:

**San Juan Water District
Wholesale Water Management and Reliability Study**

1. Develop Water Utilization Strategy and Conduct 2017 Pilot Water Sale/Transfer
2. Explore Expansion of Service Area through New Wholesale Customer Agencies and/or Merger Partner(s)
3. Conduct In-Lieu Banking Investigation
4. Conduct ASR Investigation
5. Explore Expansion of Interties with PCWA
6. Develop Reliability Program Implementation Plan

These activities will further develop the water management actions recommended as a multi-faceted approach to achieving a healthy water supply portfolio and providing necessary dry-year protection for the District. These activities will be a collection of tactics that support each other. Therefore, the conduct of these activities should be closely coordinated, as aspects of certain tactics will be important building blocks for other tactics. The conduct of these activities will focus on exploring institutional, technical, and infrastructure needs; regulatory compliance requirements; and business cases. It will involve the following 5-step process:

- a. **Partner Engagement** – Identify potential partners and the scope of their interest, key needs, and other considerations. To support partner engagement, a Communication Plan will be developed to outline the outreach and engagement during development and conduct of the Feasibility Study. The plan itself will facilitate the project team having a shared understanding of the goals and tasks involved. It will also be useful for communications and setting expectations with others on what interactions will occur with both internal and external stakeholders. Engagement tactics will be tailored for each set of partners and discussion topics (e.g., technical versus institutional/legal).
- b. **Initial Business Case Evaluation** – Assess initial financial feasibility to help structure a win-win outcome for the District and the engaged partner(s), and outline key conditions to realize this outcome.
- c. **Engineering and Cost Estimates** – Develop feasibility-level evaluations and cost estimates for required infrastructure improvements and associated operations and maintenance requirements (e.g., interties, booster pumps, regulating valves, well rehabilitation, etc.). This step will involve (1) data collection and review, (2) analysis and sizing of required facilities, (3) development of design criteria, (4) preparation of feasibility-level designs, (5) development of Class 5 level capital and operating cost estimates in accordance with American Association for Cost Estimating (AACE) standards, and (6) as needed, technical coordination workshop(s) with District and partner(s) staff.
- d. **Permitting and Environmental Compliance** – Identify required permits and key issues to be addressed in the environmental compliance process, and develop recommendations for most efficient strategy. This step will discuss strategies associated with development of CEQA and/or NEPA documentation; CEQA and NEPA requirements (if needed)

associated with considered actions; CEQA/NEPA lead agency roles and responsibilities; and program- and project-level requirements and the potential for a combined document for the actions. It will also provide key CEQA/NEPA decisions to be made by the District, CEQA/NEPA project description requirements, key environmental issues, and the engineer's role in CEQA/NEPA compliance. An integrated timeline, including key District decisions, CEQA/NEPA milestones, and CEQA/NEPA durations will also be provided.

Required permits and approvals will represent critical milestones in completing the selected action on-schedule. The timeframe for obtaining permits will have a substantial effect on the design/construction schedule, and potential construction phasing, and therefore project cost; while permit terms and conditions, once obtained, can affect project cost, schedule, and the manner in which construction can occur. This step will include developing a permitting strategy that will identify a list of permits required and an overarching permitting schedule developed to establish critical timing and sequencing of the various permitting tasks. No permit will be applied for or obtained under this step.

- e. **Refined Business Case Evaluation** – Refine the initial financial feasibility analysis to incorporate engineering and cost estimate information and outline of potential agreements with partner(s). The refined business case will support decisions making by the District and its partner(s).

This 5-step process will help confirm the viability of a new Wholesale Customer Agency (WCA) or a merger opportunity from a water management and reliability perspective, but additional institutional, legal, administrative, and financial analyses will need to be explored. However, these analyses will be specific to the partner(s) and will be detailed as part of the recommendations. This scope focuses on identifying and confirming the potential opportunities.

Subtask 2.1 – Develop Water Utilization Strategy and Conduct 2017 Pilot Water Sale/Transfer

The purpose of this subtask is to maximize use of District's available water supplies within MFP Extended POU in Sacramento County. Key activities under this subtask will include:

- Support discussions with PCWA to gain concurrence on the flexible use of the MFP contract water, while limiting financial impacts to the District.
- Develop and conduct a pilot project for flexible use of MFP contract water with regional partner(s).
- In coordination with PCWA, work to demonstrate the ability to fully utilize water rights, CVP contract entitlement, and MFP contract entitlement.
- Explore opportunities for short-term sales or transfers of District water rights.

**San Juan Water District
Wholesale Water Management and Reliability Study**

Conduct of these key activities will follow the general 5-step process described above. Details of the Pilot Project activities will depend on the type of project and the partner(s).

Deliverables

- Draft and Final TM – 2017 Pilot Project
- Draft and Final TM – Partners Engagement Summary
- Draft and Final TM – Initial Business Case
- Draft and Final TM – Engineering and Cost Estimates
- Draft and Final TM – Permitting and Compliance Requirements
- Draft and Final TM – Refined Business Case and Recommendations
- Meeting materials as needed and brief meeting summaries

Subtask 2.2 – Explore Expansion of Service Area through New Wholesale Customer Agencies and/or Merger Partner(s)

The purpose of this subtask is to explore the expansion of areas where the District can apply its available water supplies to enhance both utilization and management flexibility. The District has expressed interest in exploring regional interest in new WCAs. The District is also interested in continuing to explore merger opportunities with other water agencies.

This subtask focuses on identifying and confirming the potential opportunities. It will help confirm the viability of a new WCA or a merger opportunity from a water management and reliability perspective, but additional institutional, legal, administrative, and financial analyses will need to be explored. However, these analyses will be specific to the partner(s) and will be detailed as part of the recommendations in this subtask.

This subtask will leverage Subtask 2.1 efforts.

Deliverables

- Draft and Final TM – Partners Engagement Summary
- Draft and Final TM – Initial Business Case
- Draft and Final TM – Recommendations and Next Steps
- Meeting materials as needed and brief meeting summaries

Subtask 2.3 – Conduct In-Lieu Banking Investigation

The purpose of this subtask is to investigate development of water banking operations outside the District's existing service area, focusing on in-lieu recharge. Key activities under this subtask will include:

- Identify initial transfer partner(s) for exploratory discussions and possible pilot project, and confirm initial transfer partner(s) interest and potential agreements for implementation.
- Develop conceptual groundwater banking business cases to assess financial outlook under different banking operations and financial criteria for success.
- Develop and conduct a pilot project for demonstration purposes. [Note that this pilot project is focused on in-lieu banking, while the pilot project under Subtask 1.2 is focused on water sale/transfer. Depending on scope and timing of the pilots, they could be combined. However for the purposes of this TM, they are assumed to be separate.]
- Develop specific banking projects for development, approval, and implementation, focusing on near-term success.
- Coordinate development of groundwater banking program consistent with SGMA and other regional frameworks, and seek to integrate with regional water banking operations and other related regional common practices and protocols.

This subtask will leverage Subtask 2.1 and Subtask 2.2 efforts.

Deliverables

- Draft and Final TM – Partners Engagement Summary
- Draft and Final TM – Initial Business Case
- Draft and Final TM – Engineering and Cost Estimates
- Draft and Final TM – Permitting and Compliance Requirements
- Draft and Final TM – Refined Business Case and Recommendations
- Draft and Final TM – Pilot Banking Project
- Meeting materials as needed and brief meeting summaries

Subtask 2.4 – Conduct ASR Investigation

Subtask 2.4a – Conduct ASR Feasibility Evaluation

The purpose of this subtask is to further develop the concept of ASR in the District’s wholesale service area, and explore potential implementation. This ASR investigation will be a “desktop study” and will include limited field investigations. Field investigations will include performing limited site visits for site condition assessment at selected wells to confirm feasibility and provide information for cost estimating, and to obtain samples for geochemical water quality modeling.

The scope is more focused on answering short term implementation questions and as such has more activities directed at the retrofitting of existing wells rather than siting and designing new wells. However, the scope does include development of standard details for construction of new wells and testing requirements for use of these new wells for ASR.

The work will address permitting requirements for both ASR (ASR General Order) and discharge (National Pollutant Discharge Elimination System or NPDES). To the extent possible, work will also attempt to fulfill the information requirements of the technical report required under the State Water Resources Control Board’s (SWRCB) ASR General Order. It is assumed that a single technical report will be completed for an ASR program that would involve pilot testing of one well from each of the WCAs with active wells. Information developed will fill data gaps in the technical report which can then serve as foundation for permitting the pilot tests.

Conduct of these key activities will following the general 5-step process described above. Details of the Pilot Project activities will depend on the type of project and the partner(s).

Key activities under task include:

- Technical coordination with Potential Partners to inform the formulation and development of the ASR investigation.
- Compile and review well and aquifer information needed to evaluate the technical feasibility of implementing ASR. Information collected will be organized in a user friendly data management system for easy retrieval and plotting in subsequent tasks.
- Assess regional groundwater conditions and non-ASR activities that could influence groundwater quality, including a detailed characterization of the well and aquifer conditions throughout the study area with and in the vicinity of WCA wells being considered for use in the ASR pilot test. Evaluation of well and aquifer information will be necessary to estimate injection flow rates, to estimate aquifer area impacted by injection of surface water, and to provide a framework to evaluate water quality
- Conduct condition assessment of existing wells and facilities to select existing wells for pilot ASR testing and verifying conformance with California Well Standards. The planning for ASR pilot testing will include an assessment of facilities improvements required for injection of surface water at the well(s) selected for pilot testing. This assessment will include a summary of well system modifications required for pilot testing

as well and permitting as an estimate of the cost to implement these required modifications.

- Conduct water quality compatibility analysis to evaluate changes in groundwater quality that result from the mixing of surface water with groundwater in the aquifer during ASR operations. Although not anticipated due to recent successful ASR testing and operation in Roseville, California, the potential for water quality degradation must be evaluated to obtain a permit from the SWRCB to implement ASR. Limited geochemical modeling will be performed to assess changes in aqueous chemistry that could result in either precipitation of mineral phases leading to well plugging or mobilization of metals in the aquifer. Potential for interference with known groundwater contamination locally and regionally will also be evaluated.
- Develop recommendations for short term and longer term ASR implementation. Short term ASR actions will address agreements between the District and the WCAs, ASR Pilot testing including groundwater flow and storage considerations, a monitoring plan, and the cost to perform pilot testing. Longer term actions will include phasing in of additional existing wells for ASR as well of the addition of new wells including design standards for both wells and above ground equipment.
- Prepare a Draft Technical Report required in the SWRCB ASR General Order for pilot testing within each of the WCAs. This draft report will use the data and information obtained during this task to complete the report to the extent possible. Data gaps may be present and will be identified. The Technical Report can be used to engage the SWRCB in preliminary discussion regarding the intent to develop an ASR well program.

This subtask will leverage Subtask 2.1, Subtask 2.2, and Subtask 2.3 efforts.

Deliverables

- Draft and Final TM – Partners Engagement Summary
- Draft and Final TM – ASR Program Specific Data Compilation
- Draft and Final TM – Groundwater Aquifer Conditions Summary
- Draft and Final TM – Condition Assessment of Existing Wells and Facilities
- Draft and Final TM – Groundwater Quality Compatibility
- Draft and Final TM – Permitting and Compliance Requirements
- Draft and Final TM – Business Case and Recommendations
- Draft and Revised Draft – ASR Technical Report(s)
- Meeting materials as needed and brief meeting summaries

**San Juan Water District
Wholesale Water Management and Reliability Study**

Subtask 2.4b – Conduct ASR Pilot Test

An ASR pilot test will be conducted at a well location to be determined during the completion of subtask 2.4a. The pilot test program will consist of a preliminary one-day pre-test, followed by three repeated steps (or “cycles”) of Recharge/Aquifer storage/Recovery; with each step of greater duration and/or capacity. By repeating the same steps under varying conditions, a robust dataset of aquifer responses and water quality information will be collected while minimizing the risk of adverse effects to the public or the environment. The amount of water recharged during these cycles will be determined in the ASR Investigation (subtask 2.4a). Aquifer storage periods range from less than one day (for the pretest) to 30 days before the water is recovered by pumping the well. Water quality and water levels will be monitored throughout the pilot program, with some parameters being monitored continuously and others with periodic measurements or grab samples. The pilot ASR testing program is anticipated to require approximately five to six months to complete. Following completion of the ASR pilot testing, a technical appendix will be prepared documenting the methods and results of testing. The technical appendix will be provided to the Central Valley Regional Water Quality Control Board for its review and consideration with the objective of obtaining a permit for ASR operation.

Deliverables

- Draft and Final TM – ASR Pilot Test

Subtask 2.5 – Explore Expansion of Interties with PCWA

The purpose of this subtask is to coordinate with PCWA on its water supply infrastructure development schedule and develop a strategy to establish additional emergency interties to diversify the District’s options for dry year protection and emergency operations. Viable options are likely associated with the future expansion of Ophir Water Treatment Plant and expansion of conveyance and interties capacities. [Note that the initial business case was established in the WWMRS.]

Deliverables

- Draft and Final TM – Partners Engagement Summary
- Draft and Final TM – Engineering and Cost Estimates
- Draft and Final TM – Permitting and Compliance Requirements
- Draft and Final TM – Business Case and Recommendations
- Meeting materials as needed and brief meeting summaries

Subtask 2.6 – Develop Reliability Program Implementation Plan

The purpose of this subtask is to produce the Administrative Draft, Draft, and Final Feasibility Study Reports. The Feasibility Report will describe the Reliability Program Implementation Plan. It will also provide a record of the work completed during conduct of the Feasibility Study. Comments received on the Administrative Draft document will be assessed and addressed in the Draft document (as appropriate). Comments received on the Draft version will be assessed and addressed in the Final document (as appropriate).

Deliverables

- Study Report outline
- Feasibility Study Report outline
- Administrative Draft Feasibility Study Report
- Draft Feasibility Study Report
- Final Feasibility Study Report

Task 3 – Regional Coordination, Engagement, Outreach, and Education

Task Objective

To capitalize on regional opportunities, when available, by actively collaborating with the Regional Water Authority and water agencies in the Sacramento-Placer region on potential water management actions that may be beneficial to the region, but not appropriate for the District to take the lead in development. Also to continue outreach and education efforts in support of the Reliability Program.

Subtask 3.1 – Assist with Evaluation of Regional Opportunities

There are many ongoing regional collaboration efforts that may affect the District's long-term water supply reliability but are not led by the District. As directed by District staff, this subtask will assist with evaluation of District participation in potential regional opportunities with the goal of advancing long-term water supply reliability.

Deliverables

- TMs, white papers, and/or discussion materials as directed by District staff

Subtask 3.2 – Develop and Implement Communication Plan

The Communication Plan will outline the outreach and engagement during development and conduct of the Feasibility Study. The plan itself will facilitate the project team having a shared understanding of the goals and tasks involved. It will also be useful for communications and setting expectations with others on what interactions will occur with internal and external stakeholders.

**San Juan Water District
Wholesale Water Management and Reliability Study**

The Plan will include the following:

- Goals
- Key Audiences (Macro Level)
- Change Needs and Impacts
- Target Audiences
- Risk Management Evaluation
- Media List
- Tactical Approaches
- Attachments (lists, templates, and/or other relevant reference materials)

Based on the Communication Plan, outreach and engagement activities will be conducted throughout the Feasibility Study. For the purposes of TM6, it is assumed that 2 outreach and engagement activities will occur each month.

Deliverables

- Draft and Revised Communication Plan
- Meeting agendas, materials, and summaries (as needed)

Task 4 – Project Management Support

Subtask 4.1 – Project Management

The purpose of this subtask is to deliver the Study as specified in this scope of work.

The Feasibility Study will include a work plan submittal, monthly progress reporting, scheduling, office administration, meetings, general correspondence, and invoicing. Regular contact with District staff will be maintained to incorporate decisions and suggestions regarding the direction of the project.

Deliverables

- Monthly invoices and progress reports
- Work plan
- Work schedule
- Materials for coordination meetings/calls (as needed)

Subtask 4.2 – Conduct Project Meetings

The purpose of this subtask is to share information on Feasibility Study progress and to provide opportunities for Study participation and input from District Project Manager, District staff, District Board, District committees, WCAs, and other interested parties in various types of meeting that are appropriate for the intended audience and engagement purposes.

Note that subteam meetings are included in the corresponding Task 2 subtasks. Subtask 4.2 meetings are intended to coordinate on and advance the overall Reliability Program.

Deliverables

- Meeting materials as needed and brief meeting summaries.

Subtask 4.3 – Conduct Quality Assurance/Quality Control

The purpose of this subtask is to verify that deliverables meet the project requirements prior to submittal to the District.

Throughout the Feasibility Study, the following reviews will be conducted prior to submittal of project deliverables to the District:

- Technical review by senior-level staff with applicable experience
- Editorial review

Deliverables

- None (quality assurance records for internal use only without deliverables)

This page left blank intentionally.

3.0 Preliminary Budget

It is recognized that there are varying degrees of uncertainty in all the water management actions being explored in the Feasibility Study in terms of partners, technical and operational considerations, institutional needs, permitting and environmental compliance, etc. For that reason, the task and subtask budgets are expressed in ranges, highlighting the preliminary nature of the current estimates (see Table 1 on the following page).

Feasibility Study work items may be sequenced to allow early efforts to inform the conduct of later ones. For example, the strategic components of Task 1, the portions of Subtask 2.1 related to the 2017 pilot water sale/transfer, and other parts of Task 2 subtasks could be initiated at the beginning of the Feasibility Study with the findings and results helping to refine the scopes and corresponding budget ranges for the remaining work. The budget presented in Table 1 highlights the early and later activities.

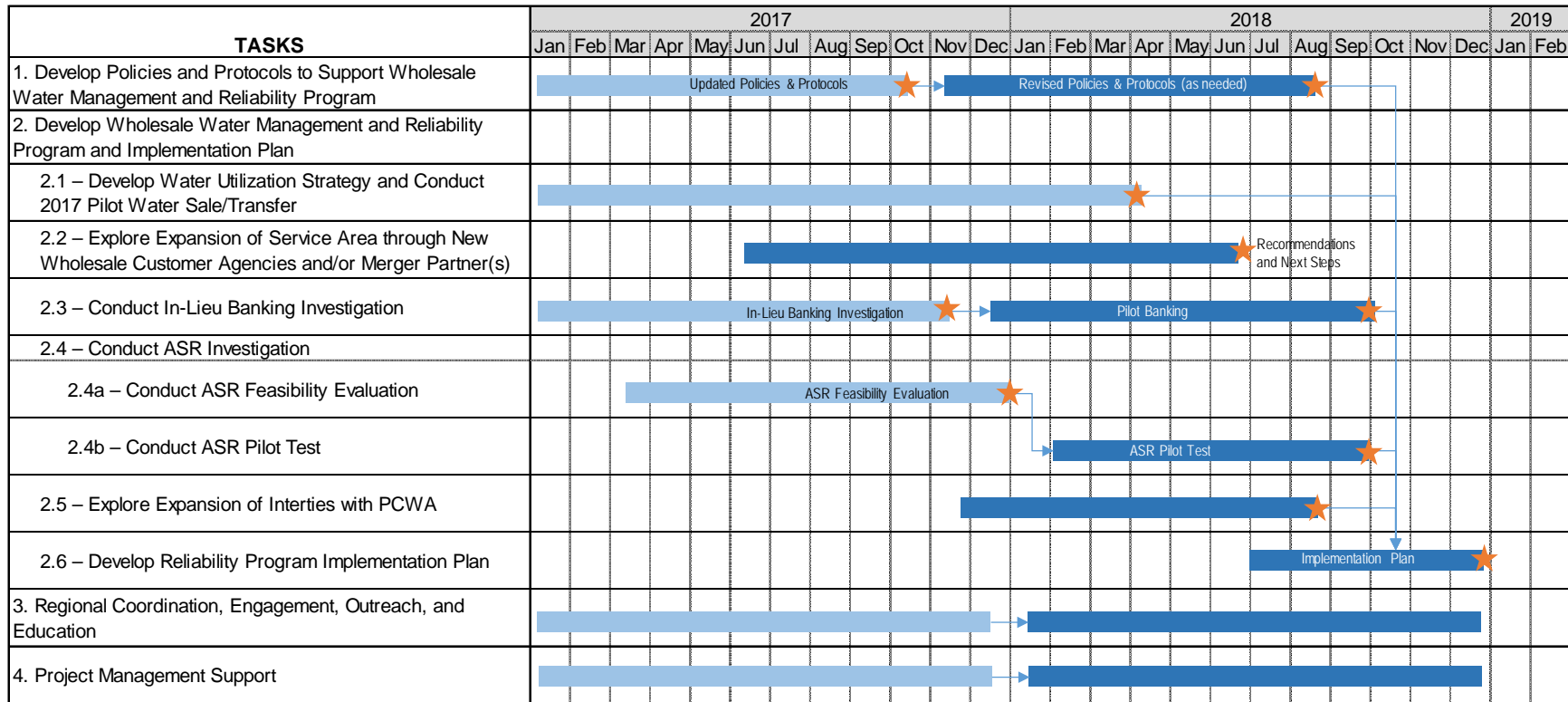
Table 1. Preliminary Budget for Feasibility Study

TASK DESCRIPTION	BUDGET RANGE					
	Early Start (Jan 2017)		Later Start (Jan 2018)		TOTAL	
	Low	High	Low	High	Low	High
1 – Develop Policies and Protocols to Support Wholesale Water Management and Reliability Program	\$75,000	\$125,000			\$75,000	\$125,000
2 – Develop Wholesale Water Management and Reliability Program and Implementation Plan						
2.1 – Develop Water Utilization Strategy and Conduct 2017 Pilot Water Sale/Transfer	\$75,000	\$135,000			\$75,000	\$135,000
2.2 – Explore Expansion of Service Area through New Wholesale Customer Agencies and/or Merger Partner(s)			\$60,000	\$100,000	\$60,000	\$100,000
2.3 – Conduct In-Lieu Banking Investigation	\$130,000	\$200,000			\$130,000	\$200,000
2.4 – Conduct ASR Investigation						
2.4a – Conduct ASR Feasibility Evaluation	\$170,000	\$220,000			\$170,000	\$220,000
2.4b – Conduct ASR Pilot Test			\$330,000	\$440,000	\$330,000	\$440,000
2.5 – Explore Expansion of Interties with PCWA			\$30,000	\$70,000	\$30,000	\$70,000
2.6 – Develop Reliability Program Implementation Plan			\$50,000	\$80,000	\$50,000	\$80,000
3 – Regional Coordination, Engagement, Outreach, and Education	\$50,000	\$80,000			\$50,000	\$80,000
4 – Project Management Support	\$15,000	\$25,000			\$15,000	\$25,000
	\$515,000	\$785,000	\$470,000	\$690,000	\$985,000	\$1,475,000

4.0 Preliminary Schedule

A 24-month schedule is anticipated for the conduct of the Feasibility Study (see Figure 2 on the following page). This timeframe will allow sufficient time for the District to refine its portfolio of actions through thorough technical evaluations, meaningful and informed discussions with potential partners, and completion of practical investigations (e.g., 2017 pilot water sale/transfer and in-lieu banking pilot), as well as develop the Board policies and protocols necessary to advance the Reliability Program. During this period, there will likely be critical decisions to be made at both the regional and statewide levels as well as regulatory changes, and the ongoing findings from the Feasibility Study will inform the District's participation in those activities.

**San Juan Water District
Wholesale Water Management and Reliability Study**



Early Start Tasks (Jan 2017)
 Later Start Tasks (Jan 2018)

Figure 2. Preliminary Schedule for Feasibility Study