



Wholesale Water Management and Reliability Study

San Juan Water District and Wholesale Customer Agencies Joint Board Meeting

January 5, 2017



Outline

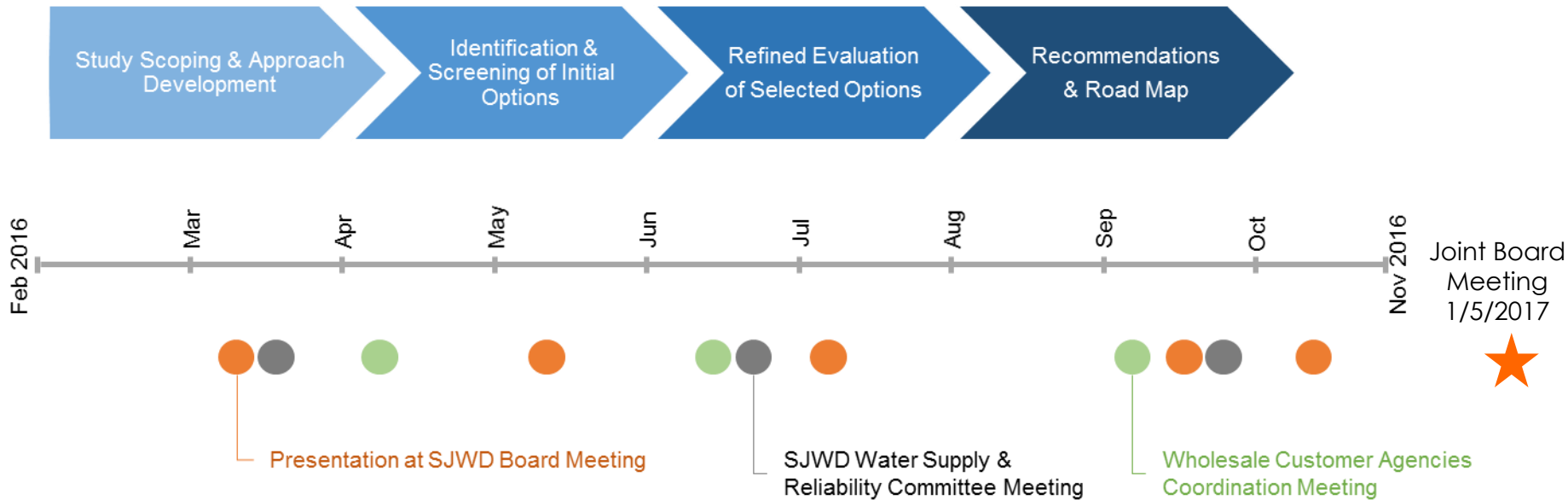
- 1 Study Background & Process**
- 2 Key Findings**
- 3 Recommendations**
- 4 Next Steps**

The Challenges & Need for the Study

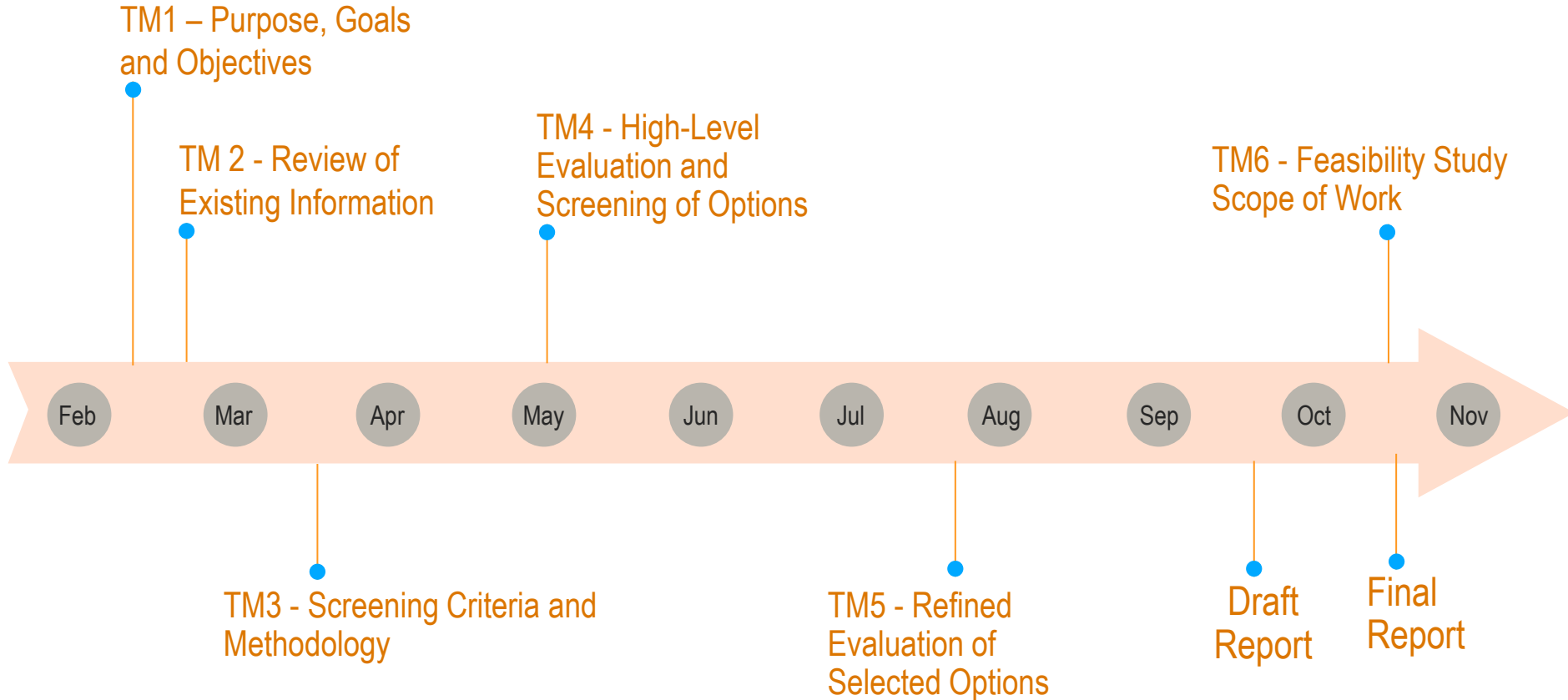


Folsom Reservoir reached a record low of 135,000 acre-feet on December 5, 2015, threatening water supplies to the District and many other water agencies in the Sacramento-Placer region.

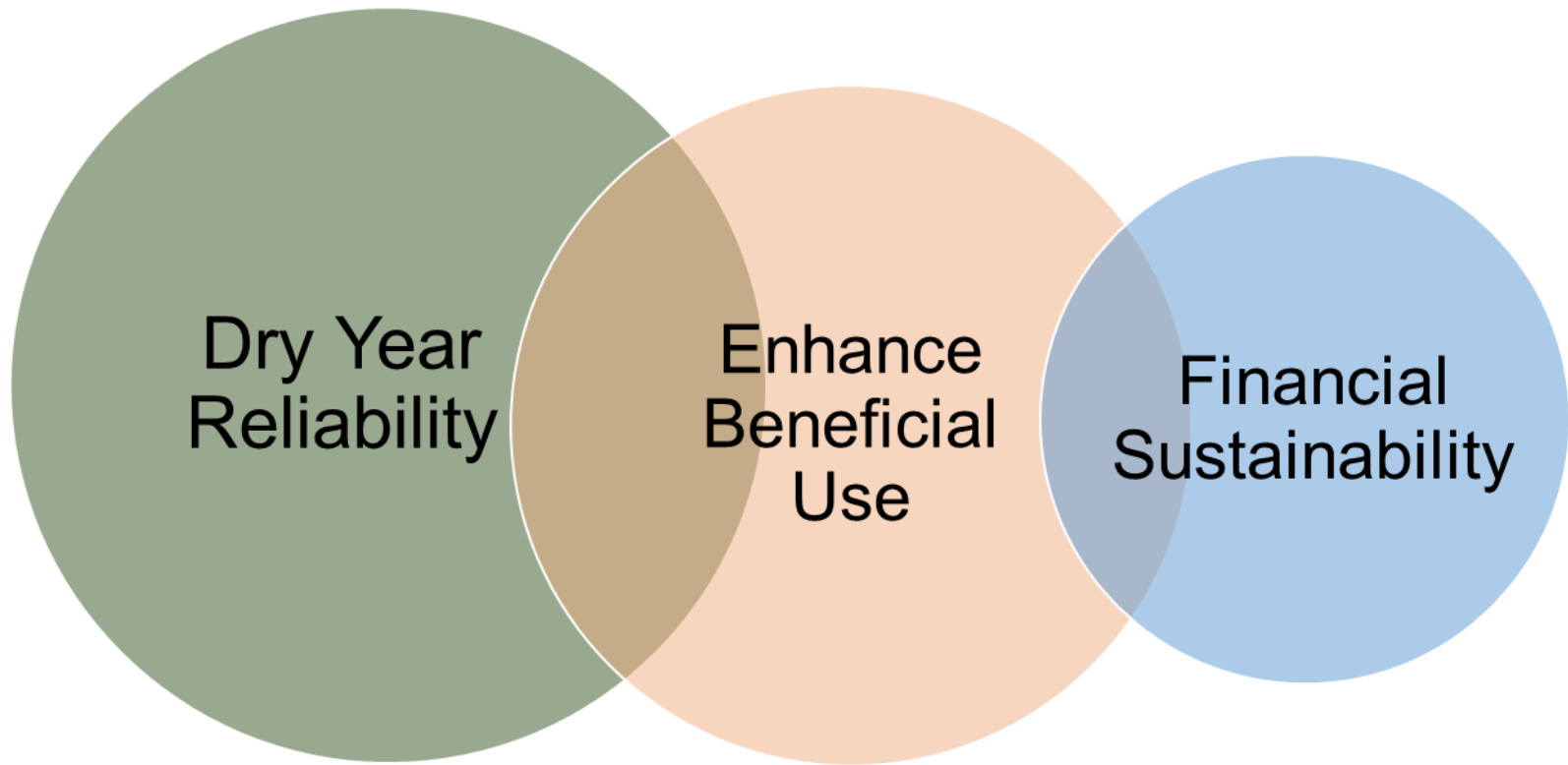
Study Process & Engagement



Structured Planning Approach



Study Objectives



Increase use of District's Water Rights & Contracts Entitlements

Groundwater Recharge

Expansion of District's Service Area

Water Transfer/ Exchange

Develop Alternative Access to Surface Water

Surface Water Storage

New Point of Diversion, or Intertie Connection

Diversify Water Supply Portfolio

Groundwater Extraction

Recycled Water Use

O14: Purchase Cal Am's Lincoln Oaks System ⁷

O24: Merger with Another Agency ⁸

O19: Allocate CVP Water to Another Agency

O20: Allocate Middle Fork Project Water to Another Agency Within its Place of Use in Sacramento County

O21: Allocate Water Rights to Another Agency and Offset Incremental Costs to Ratepayers

O22: Integrate Groundwater and Surface Water Uses in Placer County *(option not carried forward)* ²

O23: Coordinate Between SJWD and PCWA Water Treatment Plants to Optimize Operational Flexibility ³

O27: Participate in RiverArc ¹²

O11: Build New Groundwater Extraction Wells in SJWD Retail Area *(option not carried forward)*

O12: Build New Groundwater Injection/Extraction Wells in SJWD Wholesale Area ⁶

O13: Build New Groundwater Injection/Extraction Wells along Cooperative Transmission Pipeline ⁵

O18: Purchase Orange Vale Water Company's Water Supply Wells

O28: Purchase Water Supply Wells in SJWD Wholesale Area

O25: Establish Nonpotable Reuse in SJWD Service Area

O26: Establish Indirect Potable Reuse in SJWD Service Area

O15: Use Roseville's ASR wells for Active Groundwater Injection and Banking ¹

O16: Retrofit Existing Wells Within SJWD Wholesale Area for Injection/Extraction Use ¹¹

O17: Use of a Spreading Basin Within SJWD Retail or Wholesale Area for Groundwater Recharge

O10: In-Lieu Banking Program With An Agency Other than WCAs ⁴

O9: In-Lieu Banking Program Within SJWD Wholesale Area ¹⁰

O1: Large Surface Water Storage on North Fork American River

O2: Small Off-Stream Surface Water Storage from North Fork American River

O3: Purchase Reservoir Space on American River above Folsom Dam for Storage *(option not carried forward)*

O4: Upper Watershed Restoration *(option not carried forward)*

O5: Folsom Dam Raise

O6: Surface Water Closed Storage Tank in SJWD Retail or Wholesale Area

O7: Above Ground Surface Water Storage in SJWD Retail or Wholesale Area *(option not carried forward)*

O8: Above Ground Surface Water Storage in El Dorado Irrigation District Service Area

LEGEND

O## Option number

(grey box) Option not carried forward

[#] Original 13 options provided by the Water Supply & Reliability Committee

Range of Water Management Options

A total of 28 options were identified

– Including the 13 options identified by the SJWD Board WS&R Committee

Evaluation Criteria and Metrics

The four evaluation criteria reflect SJWD's priorities and objectives for the study

Cost-Effectiveness

- Cost per acre-foot

Contribution to Objectives

- Dry year reliability & extreme drought conditions
- Increase use of District's water supplies & treatment capacity
- Provide long-term financial benefits to District ratepayers

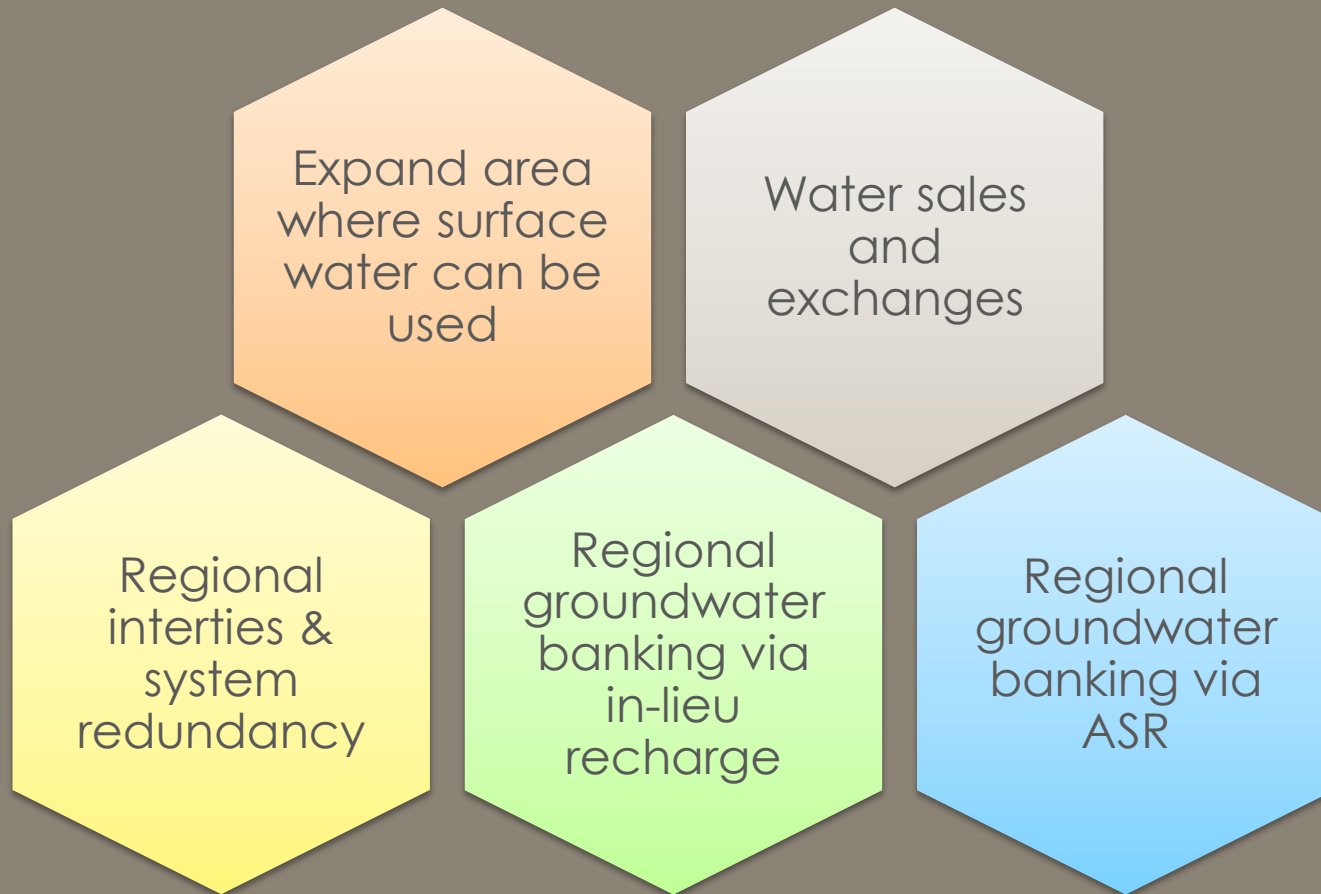
Implementation Complexity

- Environmental & permitting requirements and approvals
- Water rights and contracts requirements, Institutional
- Land acquisitions, public support, & schedule

Uncertainty

- Costs
- Yield and reliability

1 Key Findings – Range of Promising Options

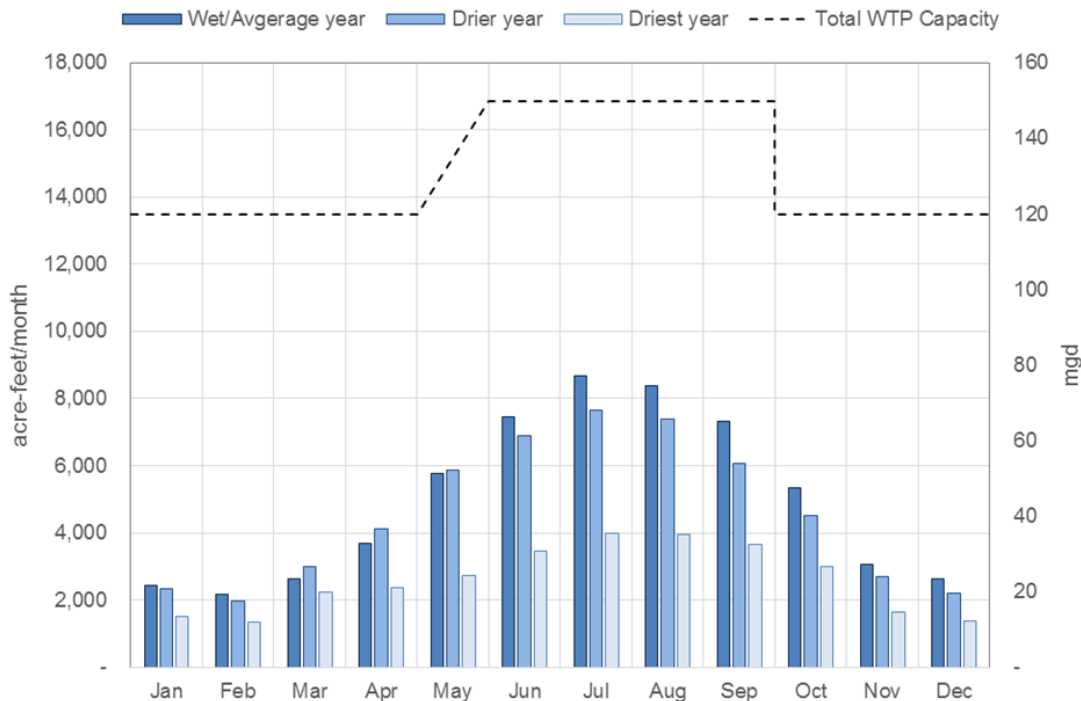
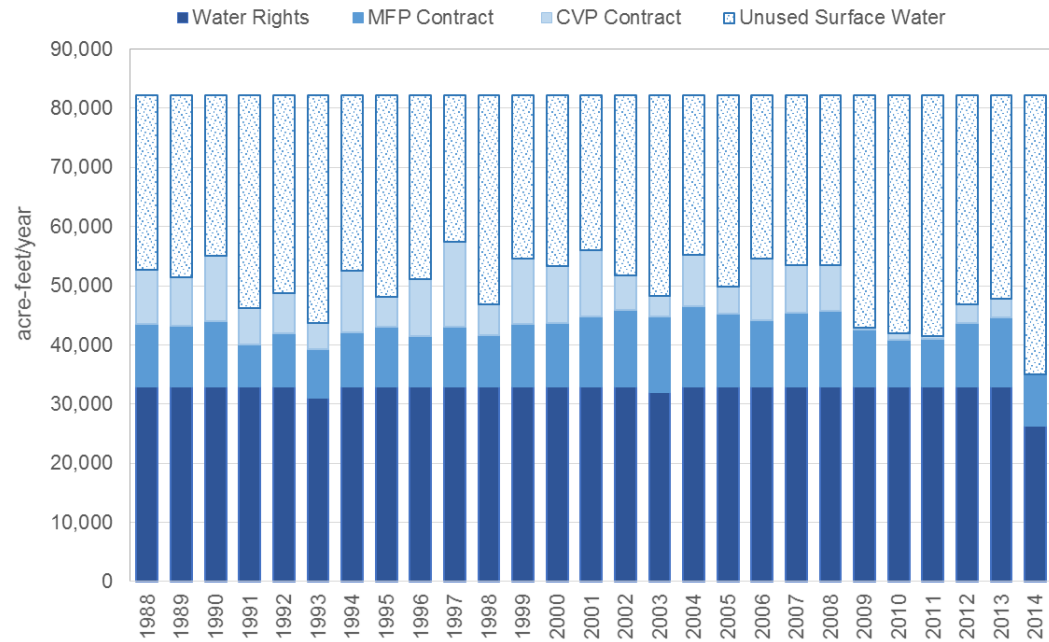


2 Key Findings – Increase Water Utilization

Key to long-term water supply reliability is expanding the areas where the District can apply its available surface water supplies.

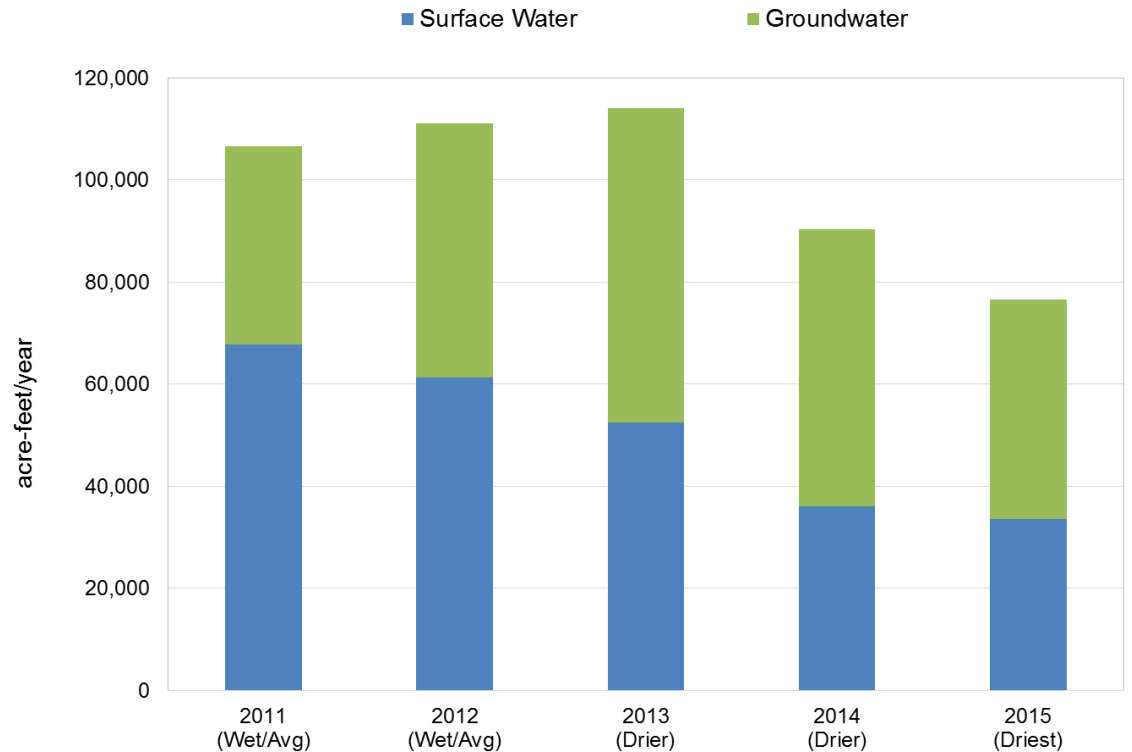
- Maximizing use of CVP water is key to improving dry-year reliability
- Increasing flexibility in MFP water use, while maintaining high utilization, is also strategically important.

Of SJWD's 82.2 TAF/year of surface water supplies, approximately 21.3 TAF/year are available for other beneficial uses during Water Forum wet/average years.



SJWD's Peterson WTP has unused capacity that can support expanded deliveries of surface water to other agencies in the region.

There are opportunities to expand surface water deliveries to existing groundwater users in the SGA area that do not currently receive surface water in wet/average years.



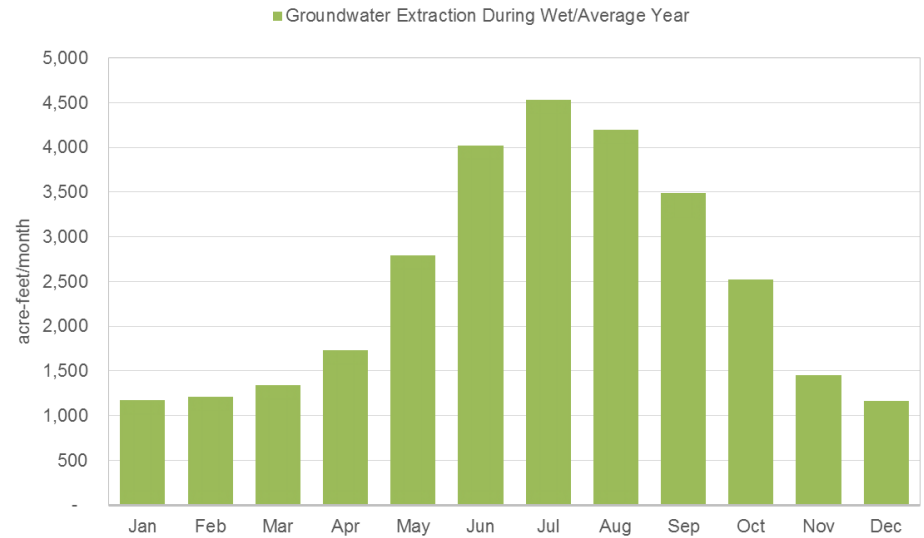
Surface Water and Groundwater Use in SGA Area

3 Key Findings – Groundwater Banking

Groundwater banking (via in-lieu and/or ASR) can provide the critical tools to achieve Study objectives by:

- Increasing the use of available water supplies by establishing additional groundwater replenishment demands.
- Preserving ownership (in full or partially) of the banked water and accumulating credits for dry year protection and for potential groundwater substitution transfers.
- Providing adequate groundwater extraction capability and interties for dry year protection for wholesale and retail customers.
- Contributing to SGMA compliance and basin-wide conjunctive use.

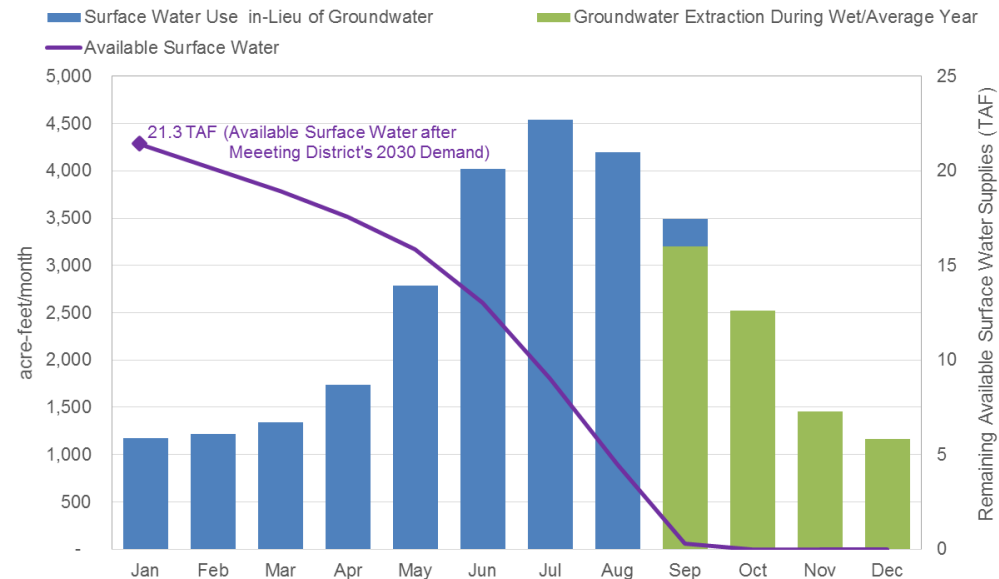
In the SGA area and MFP place of use, groundwater pumping during wet/average years is approximately 33,000 acre-feet per year.



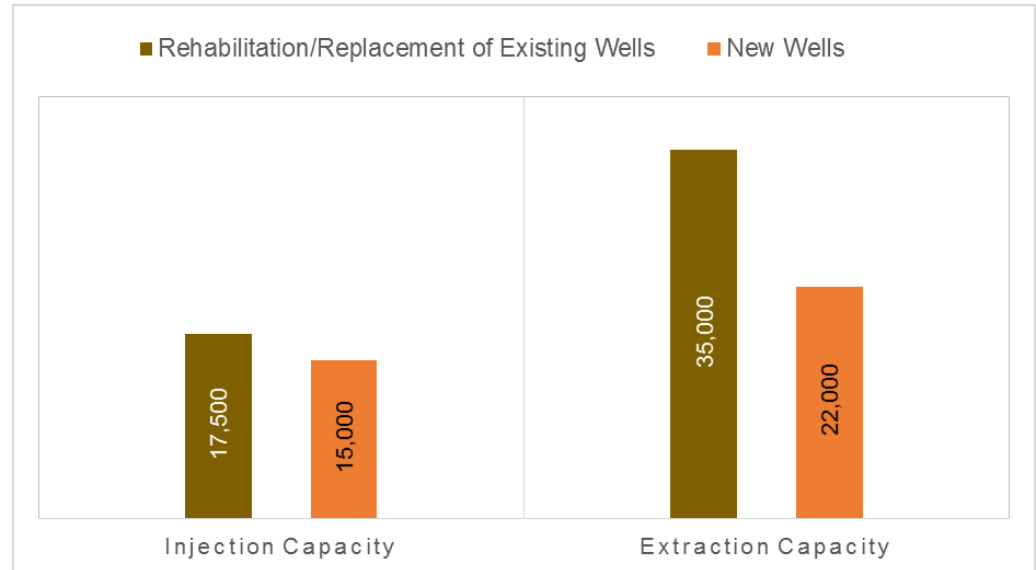
In-lieu Recharge using the District's Available Surface Water Supplies and Available Capacity at Peterson WTP



With participation of agencies in the SGA area, expanded groundwater banking via in-lieu recharge has the potential to put to beneficial use all of SJWD's available surface water supplies.



Expanded groundwater banking via ASR in SJWD's wholesale service area also has the potential to put to beneficial use all of SJWD's available surface water supplies.



Potential Extraction/Injection Capacity of Existing Wells and New Wells in the Wholesale Service Area

4 Key Findings – Regional Collaboration

A higher level of conjunctive management cannot occur without significant collaboration throughout the region.

- Merger can be an effective strategy to leverage regional assets and create an administratively and financially efficient entity, but is complex to implement
- Wholesale agreements provide similar ability to leverage regional surface water assets
- Interagency agreements to facilitate long-term regional partnerships can help advance regional collaboration.

5 Key Findings – Portfolio Approach

Water management options considered in this Study are not mutually exclusive:

- Leverage synergies among combined options (e.g., water sales with in-lieu banking agreements)
- Pursue a combination of short- and long-term arrangements (e.g., short-term water sale that turns into long-term in-lieu banking partnership)
- Pursue partnerships with multiple agencies (e.g., coordination with PCWA, and ASR with WCA).

Study Recommendations

- 1. Institute a Water Reliability Program to coordinate implementation of most promising options.**
- 2. Review and amend, as needed, the relevant policies, contracts, and practices.**
- 3. Engage other agencies in potential water sales and banking partnerships, with a near-term focus on an “early win-win.”**
- 4. Implement a long-term advocacy and public outreach campaign.**

Water Reliability Program

- Initiate a feasibility study for the recommended water management options: expanded water sales, groundwater banking, ASR program.
- Continue to explore expanding the District's service area via merger or new wholesale customer agreements.
- Work with PCWA to expand conveyance and interties capacities in coordination with expansion of Ophir WTP.
- Actively collaborate with the RWA and water agencies in the 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.

Implementation Road Map

2016 – 2017

2017 – 2018

2018 – 2019

2019 and Beyond

POLICIES AND PROTOCOLS

- Define scope of policy amendments and rules of engagement for study implementation

POLICIES AND PROTOCOLS

- Develop and adopt policy amendments and formalize rules of engagement

POLICIES AND PROTOCOLS

- Integrate amended policies and protocols for consistent application in District operations
- Amend policies and protocols as needed to adapt changed conditions, if necessary

GROUNDWATER ACCOUNTING FRAMEWORK

- Develop initial concept of District's accounting framework based on SGA's existing framework

GROUNDWATER ACCOUNTING FRAMEWORK

- Formalize District's accounting framework
- Participate in regional efforts for implementation of groundwater accounting framework consistent with SGMA and relevant regional agreements related to implementation

MAXIMIZE WATER USE IN MFP EXTENDED POU

- Seek PCWA's concurrence on flexible use of the MFP contract water
- Explore regional interest in becoming a WCA

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- Develop a pilot application for flexible use of MFP contract water with regional partner(s)
- Develop new WCA agreement(s)

MAXIMIZE WATER USE IN MFP EXTENDED POU AND SGA AREA

- Demonstrate ability to fully utilize water rights, CVP contract entitlement, and MFP contract entitlement, even if not on an annual basis
- Modify the CVP service area through administrative actions by Reclamation based on new WCA(s)

Water Reliability Program

GROUNDWATER BANKING

- Develop conceptual groundwater banking business cases to assess financial outlook in different banking operations and financial criteria for success
- Identify initial transfer partner(s) for exploratory discussions and possible pilot project

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- Implement a pilot project for demonstration purposes
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GROUNDWATER BANKING

- Expand banking project development, approval, and implementation, focusing on long-term sustainable practice and governance
- Enhance regional coordination on banking operations, consistent with SGMA and other regional frameworks

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- Expand banking project development, approval, and implementation, focusing on expanding portfolio of transfer partners, if necessary
- Participate in regional water banking operations and other related regional common practices and protocols

ASR PLAN WITHIN DISTRICT SERVICE AREAS

- Complete scoping in conjunction with policy considerations
- Develop implementation principles and guidance

ASR PLAN WITHIN DISTRICT SERVICE AREAS

- Coordinate with WCAs on assessing the feasibility of ASR for integrated surface water and groundwater management in District's wholesale service areas

ASR PLAN WITHIN DISTRICT SERVICE AREAS

- If ASR is feasible and mutual interest exists, coordinate with partner(s) to develop a detailed plan for approval and implementation agreement(s)

ASR PLAN WITHIN DISTRICT SERVICE AREAS

- Construct/retrofit facilities
- Incorporate ASR into long-term operations, and adapt as needed

EXPAND INTERTIES WITH PCWA

- Coordinate with PCWA on concept development for expanded interties and use of American River Pump Station and Ophir WTP capacity

EXPAND INTERTIES WITH PCWA

- Develop intertie expansion plan for feasibility and approval; develop operation agreement with PCWA

EXPAND INTERTIES WITH PCWA

- Implement intertie expansion and operation agreement

REGIONAL COORDINATION AND COLLABORATION

- Coordinate on activities and collective interests
- Collaborate on water management initiatives complementary to District's actions and interests

TYPE OF ACTION:

-  Administrative
-  Agreements
-  In-lieu Recharge
-  ASR
-  Conveyance & Interties

KEY:

- ASR = Aquifer Storage and Recovery
- CVP = Central Valley Project
- MFP = Middle Fork Project

- POU = Place of Use
- PCWA = Placer County Water Agency
- SGA = Sacramento Groundwater Authority

- SGMA = Sustainable Groundwater Management Act
- WCA = Wholesale Customer Agency
- WTP = Water Treatment Plant

Task 1 – Develop Policies & Protocols

Task 2 – Develop Reliability Program & Implementation Plans

Task 3 – Regional Coordination & Collaboration

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Policies & Protocols

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Pilot Program

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MERGER

- Engage in merger discussions with willing partner(s); when completed, modify the CVP contract service area accordingly and reassess need for continued implementation of roadmap components

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Public Outreach & Advocacy

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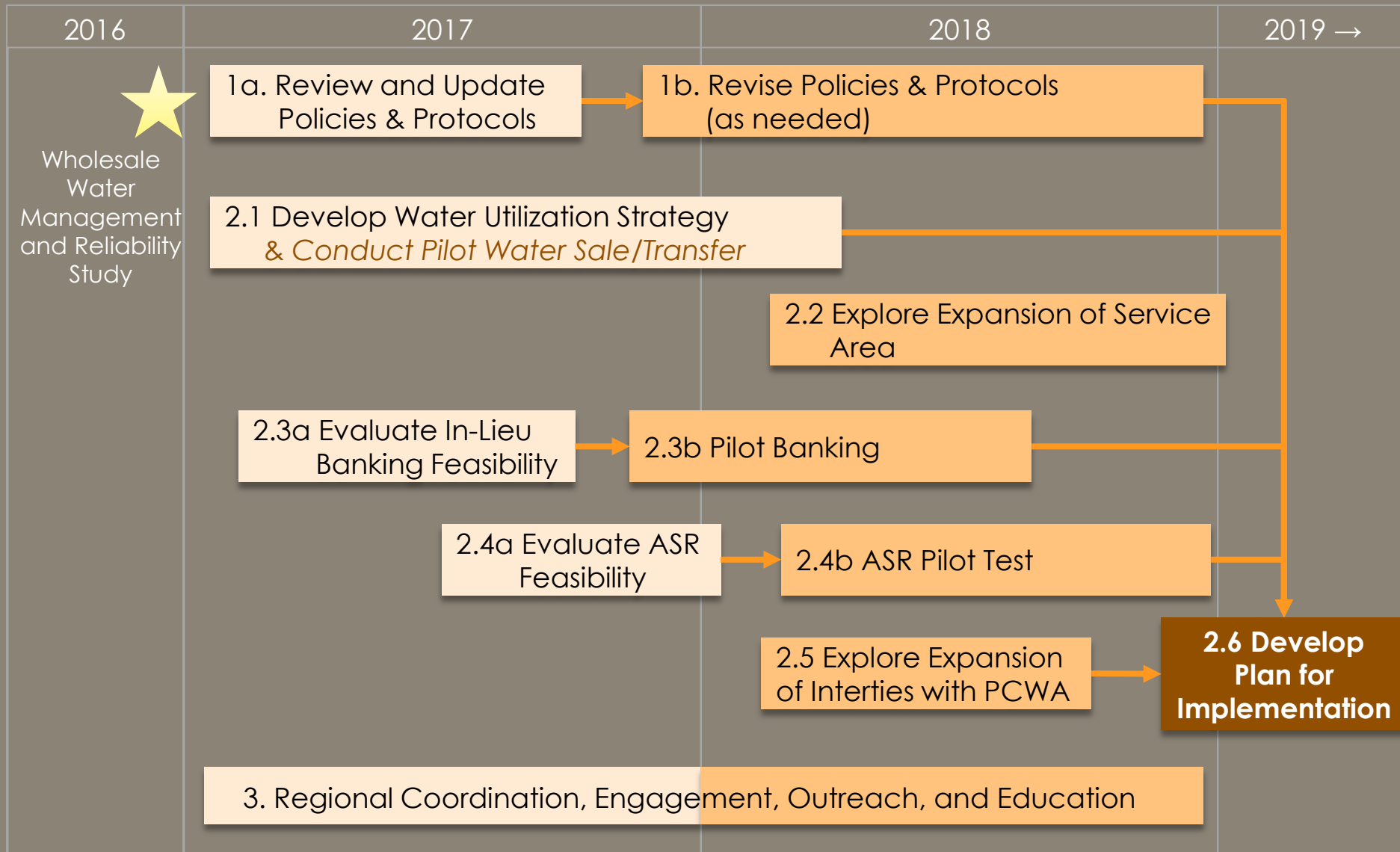
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Next Steps – Feasibility Study



Early Start Tasks

Later Start Tasks

Thank You!

