

SAN JUAN WATER DISTRICT

Board of Director's Meeting Minutes

October 26, 2016 – 6:00 p.m.

BOARD OF DIRECTORS

Pam Tobin	President
Ken Miller	Vice President
Ted Costa	Director (late)
Dan Rich	Director
Bob Walters	Director

SAN JUAN WATER DISTRICT MANAGEMENT AND STAFF

Shauna Lorance	General Manager
Keith Durkin	Assistant General Manager
Donna Silva	Director of Finance
Joshua Horowitz	Legal Counsel

OTHER ATTENDEES

Sandy Harris	Customer
Bob Churchill	Citrus Height Water District (CHWD)
Hilary Straus	CHWD
Dave Underwood	Fair Oaks Water District (FOWD)
Bob Reed	The Reed Group
Neil Schild	Sacramento Suburban Water District (SSWD)
Craig Locke	SSWD
Dan York	SSWD
Pete Bontadelli	Self
Mitch Dion	Self
Jeff Nelson	Self

AGENDA ITEMS

- I. Public Forum**
- II. Consent Calendar**
- III. Presentation**
- IV. New Business**
- V. Old Business**
- VI. Information Items**
- VII. Directors' Reports**
- VIII. Committee Meetings**
- IX. Upcoming Events**
- X. Closed Session**
- XI. Open Session**
- XII. Adjourn**

President Tobin called the meeting to order at 6:00 p.m.

I. PUBLIC FORUM

There were no public comments.

II. CONSENT CALENDAR

All items under the consent calendar are considered to be routine and are approved by one motion. There will be no separate discussion of these items unless a member of the Board, audience, or staff request a specific item removed after the motion to approve the Consent Calendar.

1. Minutes of the Board of Directors Workshop, October 10, 2016

Recommendation: Approve draft minutes

2. Minutes of the Board of Directors Meeting, October 12, 2016

Recommendation: Approve draft minutes

Director Walters moved to approve the Consent Calendar. Director Miller seconded the motion and it carried with 4 Aye votes (Director Costa absent).

Director Costa arrived.

III. PRESENTATION

1. Wholesale Financial Plan Presentation – Keith Durkin and Bob Reed, The Reed Group

Mr. Durkin informed the Board that a staff report was provided in the meeting packet. Mr. Durkin informed the Board that Mr. Bob Reed would be reviewing the District's current financial position, the financial plan considerations and development, the rate analyses and recommended rate structure changes, and the recommended 5-year rate plan. Mr. Durkin explained that staff is recommending that the Board accept the report as final or direct staff to make modifications to the underlying assumptions and bring back for acceptance at a future meeting. However, staff is not requesting that the Board adopt rate changes or a 5-year rate schedule at this time.

Mr. Bob Reed conducted a presentation on the *Wholesale Financial Plan and Water Rate Update Study*. A copy of the presentation will be attached to the meeting minutes. The Board discussed the plan, and Ms. Lorange explained that the Board received a professional recommendation analysis on what it would entail in order to complete the activities that are listed in the plan. Director Rich voiced concern about accepting a final report prior to the adoption of the final rate plan. Ms. Lorange explained that the Board could ultimately decide whether or not to change anything in the plan before rates are adopted early next year. Director Walters suggested that the report be renamed to include "Final Draft" in the title at this time.

IV. NEW BUSINESS

1. Resolution 16-17 for Retirement of Bob Churchill, Citrus Heights Water District

Ms. Lorance read Resolution 16-17 recognizing 40 years of service to the water community by Citrus Heights General Manager Bob Churchill. A copy of the final resolution will be attached to the meeting minutes.

President Tobin moved to adopt Resolution 16-17 in Recognition of 40 years of Service to the Water Community by Citrus Heights General Manager, Bob Churchill. Director Miller seconded the motion and it carried unanimously.

Mr. Churchill thanked the Board for the thoughtfulness in the District recognizing his service to the community and mentioned that water that CHWD received from the District has always been high quality.

V. OLD BUSINESS

1. Water Management and Reliability Study

Ms. Lorance informed the Board that the revised TM6 and draft final report were provided in the Board packet. She commented that comments were received from some of the Board members on the draft final report but not yet from the wholesale customer agencies (WCAs). Staff would like to schedule a joint board meeting with the WCAs to review the technical memos and the draft final report. Ms. Lorance explained that MWH has met with the WCA staff members and some board members, but has not presented the draft final report.

Director Walters mentioned that RWA needs to conduct a presentation since they are working on a similar project and it was suggested that Mr. John Woodling attend the joint board meeting. In addition, Director Costa requested that Sacramento Suburban Water District (SSWD) receive an invitation to the meeting as well.

The Board authorized staff to schedule a Joint Board meeting with the Wholesale Customer Agencies and extend invitations to Mr. John Woodling and SSWD.

VI. INFORMATION ITEMS

1. GENERAL MANAGER'S REPORT

1.1 WaterFix

Ms. Lorance referred the Board to her staff report which will be attached to the meeting minutes. She mentioned that the WaterFix testimony from City of Roseville, City of Folsom, PCWA, and San Juan Water District was initially estimated to last approximately 12 hours and the testimony today only lasted

2 hours. She informed that Board that the panel testimonies should last another month or so before moving into rebuttals.

Ms. Lorance reported that the phase 2, environmental phase, will not begin until they complete the EIR and other stages, which is estimated for late spring 2017.

For information, no action requested

1.2 Bay Delta Water Quality Control Plan

Ms. Lorance referred the Board to her staff report which will be attached to the meeting minutes. The draft report recommends a flow requirement of between 35% and 75% of the unimpaired flow on the American River. She explained that currently the flows are about 28% - 34%. She commented that the Flow Management Standard, which the Water Forum has been working on, was referenced in the report.

Director Walters commented that he doesn't believe that the rate payers or even the legislators know about the activities at the state level and how those activities might affect the District's water rights. Ms. Lorance responded that she will have Crocker & Crocker discuss ways to get this information out at the next Public Information Committee meeting. President Tobin recommended a dedicated WaterGram on the topic.

For information, no action requested

1.3 General Manager Transition

Ms. Lorance informed the Board that she is working on a list of projects that she has been working on which will help with the transfer of information to the new General Manager.

For information, no action requested

1.4 Wholesale Financial Plan

Ms. Lorance reported that comments were received on the Wholesale Financial Plan which Mr. Reed reviewed earlier in the meeting. She commented that a letter was received from Bob Churchill, CHWD General Manager. She explained that a draft response letter was created and will be sent to CHWD, provided there are no objections from the Board. There were no Board objections, so the letter will be finalized.

For information, no action requested

1.5 Shut Off Notices

Ms. Lorance informed the Board that, in the past, the District refrained from shutting off any water service in November or December as a courtesy around the holidays; however, with no shut offs in November or December, many of the customers do not pay their bill and end up with a double bill to pay in January or February. This generally results in many customers

entering into payment schedules which are monitored by hand, and often require individual phone calls to obtain each scheduled payment. To increase staff efficiency, the District will continue with the normal shut-off process in November and December. Please refer to the staff report, which will be attached to the meeting minutes, for more information.

For information, no action requested

1.6 Wholesale Rate Increase

Ms. Lorance informed the Board that she received a request from FOWD for information for their customers regarding the wholesale rate increase. She would like to supply the WCAs with website-ready information which explains the need for the wholesale rate increase. She will take the information to the Public Information Committee for review.

For information, no action requested.

1.7 Miscellaneous District Issues and Correspondence

Ms. Lorance reported that a letter was received from SSWD requesting information on how the treated water rates are established. She has referred the letter to Ms. Silva for a response. A copy of the response letter will be provided to the board.

Ms. Lorance reported that there are a lot of environmental organizations upset that the current emergency regulations allowed agencies to self-certify at a lower conservation rate. She commented that there is a movement to bring back the mandatory conservation requirement. The current emergency regulation expires at the end of February. The State Water Resources Control Board will provide updates at their November and December meetings on the current performance and cumulative reductions, and their plans for 2017.

For information, no action requested.

2. ASSISTANT GENERAL MANAGER'S REPORT

2.1 Miscellaneous District Issues and Correspondence

There were no other items discussed.

3. DIRECTOR OF FINANCE'S REPORT

3.1. Miscellaneous District Issues and Correspondence

Ms. Silva reported that she attended the annual CalPERS Education Forum. She reported that she was able to meet with the District's pension actuary and ask very detailed questions. In addition, she was able to meet with the OPEB representative and they reviewed the policy decisions made by the

Board for the trust account and investment strategies. Ms. Silva was pleased to report that the Board made very sound decisions regarding OPEB funding and that OPEB funding is on track.

4. LEGAL COUNSEL'S REPORT

4.1 Legal Matters

Mr. Horowitz informed the Board that there would be a Closed Session.

VII. DIRECTORS' REPORTS

1.1 SGA

No report.

1.2 RWA

No report.

1.3 ACWA

3.3.1 Local/Federal Government/Region 4 - Pam Tobin

No report.

3.3.2 JPIA - Bob Walters

No report.

3.3.3 Energy Committee - Ted Costa

No report.

1.4 CVP Water Users Association

No report.

1.5 Other Reports, Correspondence and Comments

Director Costa commented that the North Natomas area hired a water attorney to help them decide how they will provide water service to their community. He would like the Water Supply & Reliability Committee to discuss this topic.

President Tobin commented that she met with Paul Selsky, at his request, and discussed working together with Carmichael Water District (CWD) on a regional level. The Board would like to include CWD in the joint board meeting on the Wholesale Water Management and Reliability Study.

VIII. COMMITTEE MEETINGS

1. Water Supply & Reliability Committee (10/13/16)

The committee meeting minutes will be attached to the original board minutes.

IX. UPCOMING EVENTS

1. ACWA Fall Conference
November 29 - December 2
Anaheim, CA

President Tobin called for Closed Session at 9:25 pm.

X. CLOSED SESSION

1. Public employee appointment involving the position of General Manager; Government Code sections 54954.5(e) and 54957(b)(1).
2. Conference with legal counsel--anticipated litigation; Government Code sections 54954.5(c) and 54956.9(b); significant exposure to litigation involving state and federal administrative proceedings and programs affecting District water rights.
3. Conference with legal counsel -- anticipated litigation; Government Code sections 54956.9(a) and (d)(4); consideration of initiation of litigation involving one case.

President Tobin returned to Open Session at 10:03 pm.

XI. OPEN SESSION

There was no reported action during closed session.

XII. ADJOURN

The meeting was adjourned at 10:03 p.m.

PAMELA TOBIN, President
Board of Directors
San Juan Water District

ATTEST:

TERI GRANT, Board Secretary

STAFF REPORT

To: Board of Directors
From: Donna Silva, Director of Finance
Date: October 26, 2016
Subject: Presentation of Wholesale Financial Plan and Water Rate Update Study

RECOMMENDED ACTION

Accept report as final, or direct staff to make modifications to the underlying assumptions and bring back for acceptance at the next Board meeting.

BACKGROUND

In early 2016, the District retained The Reed Group, Inc. to update the District's ten-year wholesale and retail financial plans and to develop recommendations for updating water rates for a five-year period from 2017 through 2021. The purpose of the study was to ensure that the District's wholesale and retail water systems continue to meet financial obligations for ongoing operations and maintenance, debt service and capital improvements while maintaining prudent reserves. The report being presented in this meeting contains analysis and recommendations related to the District's **wholesale** operations. A separate report and presentation will come at a future meeting for the District's retail operations.

The Wholesale Financial Plan and Water Rate Update study was first presented to the Board of Directors on June 29, 2016. The recommended wholesale water rate increases were as follows:

- 2017: 16%
- 2018: 9%
- 2019: 9%
- 2020: 9%
- 2021: 6%
- 2022 – 2026: 5%

During the presentation on June 29, 2016 the Board of Directors provided direction to add specific analysis to the study as follows:

- Additional analysis related to the CalPERS unfunded pension liability, including a loan from wholesale to retail, to allow both wholesale and retail to fully fund the pension liability
- Shorter future debt repayment terms
- Presentation of a graph showing the proposed rate increases and changes in the rate structure

On October 11, 2016 the Wholesale Financial Plan and Water Rate Study was the topic of discussion with the Wholesale Financial Plan Ad Hoc Committee. As a result of that meeting, the Reed Group, Inc. has also analyzed and will be reporting back this evening on the following topics:

- Spreading the proposed five year rate increases over ten years and how that affects the District's ability to complete necessary capital improvements, including the replacement of Hinkle Reservoir
- Utilizing a lower assumed interest rate for a future debt issuance (State Revolving Fund loan rate)
- Consider NOT paying off the unfunded pension liability – what would that do to proposed rate changes?

The Reed Group, Inc. has analyzed the above issues, and will present the results this evening, but they have NOT been incorporated in the written Wholesale Financial Plan and Water Rate Study.

The recommended wholesale water rate changes are unchanged from those presented on June 29, 2016, with the exception of the recommended rate for 2021, which has been decreased from a 6% increase to a 5% increase.

In accordance with direction from the Board of Directors at the July 13, 2016 the General Manager provided the Wholesale Customers with the required 150-day Advance Written Notice of Proposed Changes in Water Rates and Charges on August 2, 2016. The comment period will end on December 30, 2016. Staff anticipates bringing the final recommended five-year rate schedule to the Board of Directors for adoption at the January 11, 2017 Board Meeting.

The Wholesale Financial Plan and Water Rate Study, as well as the consultant's power point presentation, are attached for review.

SAN JUAN WATER DISTRICT

Wholesale Financial Plan and Water Rate Update Study

Final Report

August 31, 2016



THE REED GROUP, INC.

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SECTION I. SUMMARY

INTRODUCTION AND BACKGROUND

In early 2016, the San Juan Water District retained The Reed Group, Inc. to update the District's ten-year wholesale and retail financial plans and develop recommendations for updating water rates for a five-year period from 2017 through 2021. The purpose of the study was to ensure that the District's wholesale and retail water systems continue to meet financial obligations for ongoing operation and maintenance, debt service, and capital improvements while maintaining prudent reserves. This report contains analyses and recommendations related to the District's wholesale operations. A separate report contains analyses and recommendations related to the District's retail operations.

One focus of this wholesale financial plan is to help ensure adequate funding of the District's wholesale capital improvement program. The wholesale capital improvement program includes about \$64.6 million (in future dollars) in capital improvements over the ten-year planning period extending through FY 25-26. The financial plan presented herein indicates that undertaking this capital program, as planned and scheduled, will require the issuance of an estimated \$28.75 million in new wholesale long-term debt in 2019 in order to fund two of the largest capital improvement projects. Based on financial plan analyses, all other planned capital improvement projects can be funded on a pay-as-you-go basis.

A second focus of this wholesale financial plan is to address the outstanding unfunded accrued liability (UAL) associated with the District's retirement programs. Based on the most recent actuarial analysis, the wholesale water system has an outstanding UAL of about \$2.3 million as of June 30, 2016. The District is paying interest on this accrued liability of 7.5 percent while its financial reserves are earning about 0.5 percent. The financial plan includes a strategy for paying off this outstanding liability using available financial reserves, which is a more economically efficient use of the District's financial resources.

In other respects, the wholesale financial plan provides a strategy and recommendations for annually adjusting water rates in order to meet financial and service obligations while maintaining prudent reserves. While the financial plan covers a ten-year planning period, water rate recommendations cover five years. It is recommended that the District update the financial plan analysis at least once every five years, as warranted.

Wholesale water rate calculations were updated based on the revenue needs developed through the financial planning process. The cost allocation methodology used in the rate calculations is generally the same as in past studies. One change, however, is a shift in the overall rate structure to place greater emphasis on quarterly fixed service charges with a corresponding reduction in the reliance on water usage charge revenue. The wholesale water rates will continue to include a uniform water usage charge applicable to all member agencies and fixed service charges that reflect differences in service requirements for each member agency. Charges related to debt service obligations also continue to be segregated as separate charges to each member agency based on previously determined allocations for existing debt.

Continuing with current practices, fixed service charges, debt service charges, as well as existing capital facilities charges, will be billed to each member agency on a quarterly basis in advance, and water usage charges will be billed in arrears following the end of each quarter based on the actual water used during the quarter.

During the course of this study, preliminary results and recommendations were presented to the District's Board of Directors in a workshop on June 29. Following that workshop changes were made with regards to the UAL issue, as well as other refinements including reflecting the District's final FY 16-17 budget adopted in August 2016.

This report summarizes the analyses and recommendations of the wholesale financial plan and water rate study. It includes a financial strategy that relies upon ongoing revenues as well as available reserves to meet all financial obligations, including the planned capital improvement program.

FINANCIAL PLAN AND REVENUE NEEDS

The financial plan model covers the ten-year planning period from FY 16-17 through FY 25-26. The plan reflects estimated operation and maintenance costs, debt service obligations, and capital improvement needs of the wholesale water system. The financial plan is a cash-flow model, and differs from standard accounting income statements and balance sheets. The financial plan also separately reflects ongoing operation and maintenance, debt service payment obligations, and the capital improvement program, with separate revenue sources reflected for each. Financial reserves are also reflected in the financial planning model.

During the past couple of years, the District's operations have been impacted by the sustained drought that has affected all of California. Reduced water sales to wholesale member agencies (as well as to the District's retail customers) resulted in reduced revenues without a corresponding reduction in costs. As a result, the District cut costs, where possible, deferred capital improvement projects, and relied more heavily on available financial reserves. In addition, property tax revenue normally dedicated to capital improvement projects have been needed to help cover operating, maintenance, and debt service costs. At the present time, the financial condition of the wholesale water system is more stressed than it has been in a number of years.

Details of the financial plan assumptions, findings, and recommendations are presented in Section II of this report. However, the analysis indicates that the District needs to increase wholesale water rates each year for the next five years. The District's Board of Directors approved a FY 16-17 wholesale budget without a rate increase, however that budget requires a dramatic use of reserves and leaves the District in greater financial stress. Primary findings and recommendations stemming from the wholesale financial plan analysis include:

- Annual water sales have declined in recent years likely due to the slowdown in the economy, the recent drought, and water conservation efforts by each member agency. The financial plan assumes there will be a modest rebound in water demand beginning in FY 16-17 that then continues and extends over several years.

- Based on the most recent actuarial estimates, the wholesale water system has an outstanding unfunded accrued liability under its Public Employee Retirement System (PERS) retirement programs of about \$2.3 million. It is recommended that the District utilize available financial reserves to pay off this liability in FY 16-17, thereby avoiding the 7.5 percent annual interest on the UAL.
- The District should anticipate issuing about \$28.75 million in new long-term debt for the wholesale water system in 2019 in order to finance the replacement of the Hinkle reservoir liner and cover, as well as make planned water treatment filter improvements¹. It is anticipated that all other capital improvement projects can be funded on a pay-as-you-go basis thereby avoiding additional interest expenses.
- The District's financial reserve policies have served and continue to serve the District well. However, changes in certain reserves and reserve policies are recommended in order to provide greater economic efficiency and cost savings. A summary of reserve policy recommendations include:
 - Maintain the 20 percent operating reserve for working capital and emergency purposes
 - Fully utilize the \$1 million rate stabilization reserve to help cover current costs (thereby reducing the proposed rate increase), and replenish the reserve by 2025
 - Eliminate the compensated absence reserve as it is unnecessary
 - Use funds from the PERS stabilization reserve and the Hinkle reservoir reserve to payoff the \$2.3 million PERS UAL balance
 - Maintain required and restricted debt service reserves
 - Continue to utilize the general CIP reserve to help fund planned capital improvement projects.
- It is recommended that the overall level of wholesale water rates be increased on an annual basis, as follows:

○ January 2017	16%
○ January 2018	9%
○ January 2019	9%
○ January 2020	9%
○ January 2021	5%
- Previously adopted capital facilities charges should be maintained with reconciliation of revenues and capital project costs occurring at the completion of each project covered by the charges. The capital facilities charge for Fair Oaks Water District (FOWD) related to the Fair Oaks 40 transmission pipeline relining project should be replaced with the cost sharing and payment terms reflected in the recent agreement between the District and FOWD.

¹ An estimated additional \$12.75 million may be needed to fund planned retail capital improvement projects.

As with past practice, the District should monitor financial conditions and needs on an ongoing (annual) basis and update the financial plan model and future estimates at least every three to five years, or when conditions or plans changes sufficiently to warrant an update. Actual future conditions, such as water supply conditions, water deliveries, water sales revenue, operating and maintenance expenses, CIP project costs/timing, project financing, etc., may differ from the financial plan assumptions reflected herein. Material differences affecting the overall financial condition of the wholesale water system may warrant closer review and/or an earlier update. The need and magnitude of annual wholesale water rate increases may also be affected by differences between assumed and actual conditions, including the potential refunding of existing debt and the issuance of new debt.

PROPOSED WHOLESALE WATER RATES

Exhibit I-1 presents proposed wholesale water rates to be implemented in January of each year from 2017 through 2021. Fixed service charges, debt service charges, and capital facilities charges are billed quarterly in advance. Water usage charges are billed in arrears at the end of each quarter, based on actual water deliveries.

The proposed wholesale water rates include a decrease in the amount of the water usage rate and increases in quarterly fixed service charges effective in January 2017. Thereafter, the water usage rate is maintained and required revenue increases are realized through increases in the quarterly service charges. Debt service charges are maintained consistent with previously approved allocation of debt service costs to member agencies, then expected to increase with the issuance of new debt. The water rate structure changes will result in a gradual shift of the water rate revenue mix such that more of the revenue is obtained through the fixed charges. At present, about 43 percent of wholesale water rate revenue is derived from water usage charge. By FY 20-21, portion of revenue from water usage charges will decline to about 31 percent of the total.

Water usage charges, service charges, and debt service charges presented in Exhibit I-1 together are intended to reflect and recover the costs associated with ongoing operation and maintenance, contributions to the ongoing pay-as-you-go capital program, debt service, and maintenance of financial reserves. Capital facilities charges are related to certain capital improvements that benefit some, but not all, member agencies and provide an equitable means of cost sharing. The District should update the financial plan and rate analyses within five years, or if there is material change to any of the information and/or assumptions reflected in this report.

**Exhibit I-1
San Juan Water District
Current and Proposed Wholesale Water Rates**

	Current	Jan. 2017	Jan. 2018	Jan. 2019	Jan. 2020	Jan. 2021
Overall Composite Water Rate Incr. -->		16%	9%	9%	9%	5%
San Juan Retail District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 126,315	\$ 301,180	\$ 365,158	\$ 437,089	\$ 388,978	\$ 437,786
Qtrly. Capital Facil. Charge (1)	\$ 123,290	\$ 106,665	\$ 8,631	\$ 8,631	\$ 8,631	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 106,297	\$ 106,363	\$ 106,463	\$ 106,463	\$ 106,325	\$ 106,225
2012 Refunding Rev. Bonds	\$ 47,156	\$ 47,075	\$ 46,988	\$ 46,988	\$ 47,113	\$ 47,188
2019 COPs (2)					\$ 136,950	\$ 136,950
Citrus Heights Water District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 132,586	\$ 309,357	\$ 375,072	\$ 448,956	\$ 399,539	\$ 449,672
Qtrly. Capital Facil. Charge (1)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 113,161	\$ 113,238	\$ 113,338	\$ 113,338	\$ 113,200	\$ 113,088
2012 Refunding Rev. Bonds	\$ 55,047	\$ 54,963	\$ 54,850	\$ 54,838	\$ 54,988	\$ 55,088
2019 COPs (2)					\$ 124,500	\$ 124,500
Fair Oaks Water District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 102,172	\$ 229,744	\$ 278,548	\$ 333,418	\$ 296,718	\$ 333,949
Qtrly. Capital Facil. Charge (3)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 70,427	\$ 70,475	\$ 70,538	\$ 70,538	\$ 70,450	\$ 70,375
2012 Refunding Rev. Bonds	\$ 40,451	\$ 40,388	\$ 40,313	\$ 40,300	\$ 40,400	\$ 40,475
2019 COPs (2)					\$ 95,450	\$ 95,450
Orangevale Water Company						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 44,801	\$ 106,941	\$ 129,658	\$ 155,199	\$ 138,116	\$ 155,446
Qtrly. Capital Facil. Charge (1)	\$ 54,862	\$ 54,862	\$ 2,294	\$ 2,294	\$ 2,294	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 35,567	\$ 35,588	\$ 35,613	\$ 35,613	\$ 35,575	\$ 35,550
2012 Refunding Rev. Bonds	\$ 12,413	\$ 12,400	\$ 12,375	\$ 12,375	\$ 12,400	\$ 12,425
2019 COPs (2)					\$ 45,650	\$ 45,650
City of Folsom						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Hinkle PS Surcharge (\$/AF) (4)	\$ 68.87	\$ 74.38	\$ 81.07	\$ 88.37	\$ 96.32	\$ 102.10
Qtrly. Serv. Charge (O, M, & R)	\$ 12,869	\$ 30,666	\$ 37,180	\$ 44,504	\$ 39,605	\$ 44,575
Qtrly. Capital Facil. Charge (1)	\$ 17,899	\$ 17,899	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 11,037	\$ 11,038	\$ 11,050	\$ 11,050	\$ 11,038	\$ 11,025
2012 Refunding Rev. Bonds	\$ 3,034	\$ 3,063	\$ 3,050	\$ 3,050	\$ 3,063	\$ 3,075
Direct Portion of 2012 Debt (4)	\$ 21,500	\$ 21,438	\$ 21,388	\$ 21,388	\$ 21,450	\$ 21,488
2019 COPs (2)					\$ 12,450	\$ 12,450

Notes:

- (1) Unchanged from 2014 rate study, except to remove charges related to Storage Building (old shop) Replacement, and to remove FOWD Fair Oaks 40" component (per new agreement).
- (2) Estimates based on estimated debt service obligations and cost allocations associated with anticipated new debt.
- (3) Actual cost sharing and payments from FOWD to be based on the recent agreement between the District and FOWD related to the Fair Oaks 40" transmission pipeline relining project.
- (4) Unique charges to City of Folsom and revenue to the retail water system.

SECTION II. WHOLESALE FINANCIAL PLAN

This section of the report describes the financial plan for the District's wholesale water system. The ten-year financial plan is used to determine annual wholesale water rate revenue requirements. The annual rate revenue requirement is the amount of revenue needed from water rates to cover planned operating, maintenance, debt service, and capital program costs with consideration of other revenues and financial reserves.

FUND STRUCTURE AND CASH FLOWS

The financial plan is an annual cash flow model. As a cash flow model, it differs from standard accounting income statements, and balance sheets. The financial plan models sources and uses of funds into, out of, and between the various funds and reserves of the wholesale water system.

The financial plan model is based on a fund, reserve, and account structure that separately addresses operating, debt service, and capital program needs, with three funds for these three purposes. This presentation helps provide transparency as to the sources and uses of funds for each type of obligation. The District recently replaced and upgraded its financial accounting system. This financial plan was developed based on the new account structure reflected in the District's financial accounting software.

An understanding of the fund/reserve structure is helpful in understanding the financial plan worksheets that model annual cash flows through the wholesale water system from one year to the next. The fund/reserve structure is comprised of:

- **Wholesale Operating Fund** - The wholesale operating fund is the primary fund within the wholesale water system. Most wholesale revenues, including water rate revenues, flow into the operating fund and all operating and maintenance costs are paid out of this fund. Funds are also transferred from the operating fund to the wholesale capital fund to help pay for capital projects intended to rehabilitate and upgrade facilities, and to a separate debt service fund used to make debt service payments and maintained required debt service reserves. Five separate reserves are currently reflected within the operating fund.
 - *Operating Reserve* - The District maintains an operating reserve within the operating fund equal to 20 percent of annual wholesale operating and maintenance costs. The purpose of the operating reserve is to provide working capital and funds for unplanned operating and maintenance expenditures. At the end of FY 15-16, the target balance of the wholesale operating reserve was about \$1,520,000 based on budgeted operating and maintenance costs for FY 16-17.
 - *Rate Stabilization Reserve* - The District also seeks to maintain a \$1 million rate stabilization reserve. The rate stabilization reserve provides a buffer against variable revenues that may result from abnormal (e.g., water shortage) fluctuations in water demand. The reserve could also be used as a tool to mitigate unexpected (and unacceptably high) water rate increases due to changing circumstances. Even though drought

conditions and reduced water sales revenue have placed financial stress on the wholesale water system, the District has chosen to maintain the rate stabilization reserve at its \$1 million target amount through the end FY 15-16. This was achieved, however, by transferring a portion of capital fund reserves to the operating fund in FY 15-16.

- *Compensated Absence Reserve* - The District has maintained a separate reserve to fund its liability for compensated absences. At the end of FY 15-16 this reserve had an estimated balance of about \$194,000. The need to maintain the reserve has been under review by District staff and Board. A policy recommendation to eliminate this reserve is supported by staff and incorporated in the financial plan analyses.
- *PERS Stabilization Reserve* - A separate Public Employee Retirement System (PERS) stabilization reserve is shown as a part of the operating fund, and reflects the balance of funds set aside to meet PERS UAL obligations. At the end of FY 15-16, the PERS stabilization reserve had an estimated balance of about \$416,000. At present, the wholesale water system is responsible for about \$2.3 million of the UAL obligation. Because this obligation is carried with a 7.5 percent interest rate, and the District only earns about 0.5 percent on its total investment pool, it would be advantageous to use this reserve to reduce the UAL obligation. This matter is discussed in greater detail later in this section.
- *Delta/Water Rights Reserve* - The District created and began funding this reserve to provide funds for the defense of the District's water rights. This reserve ended FY 15-16 with about \$103,000.
- *Uncommitted Fund Balance* - The balance in the operating fund in excess of the target amount for the operating reserve and other operating fund reserves, is shown in the financial plan as uncommitted fund balance. After all other obligations are met the uncommitted fund balance is available to offset rate increases, and the financial plan model generally seeks to reduce any uncommitted fund balance over time. Negative amounts for the uncommitted fund balance indicate the degree to which the desired operating reserve is not met. To prevent a negative uncommitted balance at the end of FY 15-16 the financial plan model includes a \$932,000 transfer from the capital fund to the operating fund.
- ***Wholesale Capital Fund*** - The wholesale capital fund is used to account for capital project expenditures and related funding sources. The District applies a portion of property tax revenues (the 1 percent increment taxes) to the capital program, and connection fee revenue also directly accrue to the capital fund. In addition, a portion of revenues from the wholesale water rates is transferred annually to the capital fund, in support of the long-term capital program. Capital projects funded from this fund are intended to rehabilitate, upgrade, and expand the wholesale water system to meet current and future needs of the District and member agencies. The financial plan model generally seeks to maintain a positive balance in the capital fund while also covering the costs of planned capital improvement projects. The capital fund is comprised of four separate reserves.

- *General CIP Reserve* – This reserve reflects the capital fund balance that is generally available for capital improvement purposes. At the end of FY 15-16, this reserve had a balance of about \$6.44 million. All money in the capital fund that has not been designated to the reserves listed below is included in the general CIP reserve.
- *Vehicle/Equipment Reserve* – This reserve provides funds for the replacement of vehicles and major equipment. At the end of FY 15-16 the reserve had an estimated balance of about \$77,000. District staff and the Board of Directors are currently reviewing the need to maintain this as a separate reserve, and it may be rolled into the general CIP reserve.
- *Hinkle Reservoir Reserve* – The District has maintained a sinking fund for the eventual replacement and upgrade of Hinkle reservoir. The sinking fund had an estimated balance of about \$2.67 million at the end of FY 15-16. The District currently adds \$50,000 annually to this reserve. The cover and liner for Hinkle reservoir is planned to be replaced in FY 20-21, along with other improvements to the reservoir, for an estimated cost of about \$23.8 million (in future dollars). The Hinkle reservoir reserve will only cover a small fraction of the total cost of this major project.
- *Project Fund* – The financial plan includes the issuance of new long-term debt in 2019 to finance two major capital projects (Hinkle reservoir and treatment plant filter improvements). The financial plan model includes a project fund as part of the capital fund as a means of accounting for the use of debt proceeds.
- ***Debt Service Fund*** – The financial plan model also includes a debt service fund as the mechanism for tracking debt service obligations as well as payments made by member agencies in support of debt service payments. Outstanding debt was issued in 2009 and in 2012. Restricted debt service reserves are required under the terms of the 2009 COPs, and it is anticipated that similar reserve may be required as part of the anticipated 2019 debt issue.
 - *2009 COP Debt Service Reserves* – The 2009 certificates of participation (COPs) requires the District to maintain certain debt service reserves. These reserves are shown as part of the overall debt service fund balance. Wholesale 2009 COP debt service reserves total about \$1.86 million as of the end of FY 15-16. Money in this reserve is restricted and can only be used for specific purposes related to the 2009 COPs.
 - *2019 Debt Service Reserves* – Estimated costs for the 2019 debt issue include providing money from the issuance to fund a debt service reserve. Such a reserve has been included in the financial plan model.

FINANCIAL PLAN ASSUMPTIONS

The financial plan was created to reflect the FY 15-16 estimated actual revenues, expenses, and year-end financial position, as well as the FY 16-17 budget, ten-year capital improvement program, and existing debt service schedules. The financial plan also reflects estimates of future operating and maintenance costs, revenues, potential future debt service obligations, and information provided by the District.

The process used to develop the financial plan involved estimating future revenues and expenditures based on inflation and interest rates, water supply and demand projections, anticipated capital improvement needs, and other information. The District does not have formal estimates of future operating and maintenance costs, and capital improvement needs are defined at a planning level. The financial plan is based on the best available information and assumptions are believed to be reasonable; however, no assurance can be provided as to the accuracy and completeness of the estimates.

Primary assumptions reflected in financial plan analyses are summarized below:

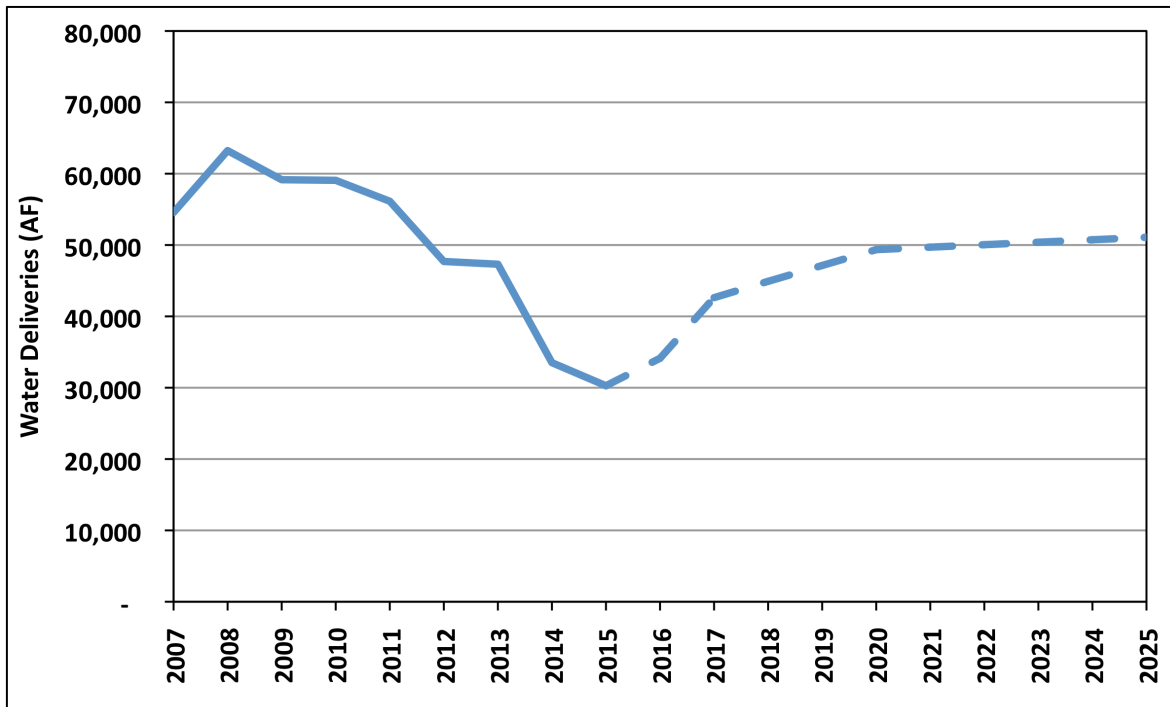
- *Interest Rates* - The District invests most of its available funds in the Local Agency Investment Fund (LAIF), which has been earning less than 0.5 percent for the past several years. A small portion of the District's available assets is invested in other securities that have recently yielded about 1.5 percent. In aggregate, in FY 14-15 the District's invested funds returned about 0.5 percent. The financial plan model incorporates an assumed 0.5 percent rate of return on all funds. This interest rate is assumed to gradually increase to 1.0 percent by the end of the ten-year planning period. Interest calculations are based on beginning-of-year balances and interest accrues to each of the funds. The District also pays interest on outstanding long-term debt obligations. The interest payments on outstanding debt are those contained in existing contracts and repayment schedules.
- *Inflation Rates* - Annual inflation rates for general operating and maintenance costs is 3.0 percent per year throughout the planning period. Inflation for chemical and energy costs is assumed 5.0 percent per year. Inflation on retiree medical costs and other post-employment benefit (OPEB) obligations is assumed at 6.0 percent per year. Finally, construction costs are assumed to increase 3.0 percent annually.
- *Retail Customer Base and Water Deliveries* - Modest growth in the customer base of each wholesale member agency is incorporated for financial planning purposes based on data received by the District from each member agency. Annual growth of the total retail customer base ranges between 0.6 and 0.8 percent during the planning period. Water deliveries are estimated to rebound toward historic levels over the next several years, based on the assumed return to normal water supplies in 2016 and demand rebound over several years reaching normal demand by 2020. Water demand in 2020 is based on estimates included in the 2015 Urban Water Management Plan. **Exhibit II-1** summarizes historic and estimated future annual water deliveries during the planning period. While the District wheels water to the Sacramento Suburban Water District (SSWD) in most years, the financial plan conservatively assumes no deliveries to SSWD during the planning period.

**Exhibit II-1
San Juan Water District
Summary of Past and Estimated Future Wholesale Water Deliveries**

	Annual Water Deliveries (AF) (1)						Total
	San Juan RSA	Citrus Heights WD	Fair Oaks WD	Orangevale WC	City of Folsom	SSWD (2)	
2007	15,133	18,769	11,178	3,642	1,695	4,144	54,561
2008	16,659	16,559	11,537	4,452	1,820	12,206	63,233
2009	17,064	17,036	10,534	4,703	1,608	8,210	59,155
2010	13,569	12,783	11,072	4,486	1,647	15,514	59,071
2011	12,651	12,165	10,606	4,657	1,331	14,728	56,138
2012	14,945	13,583	9,987	4,657	1,529	2,995	47,696
2013	14,945	14,416	10,939	5,139	1,462	409	47,310
2014	11,077	10,008	7,262	3,932	1,230	-	33,509
2015	9,666	9,133	7,257	3,257	963	-	30,276
2016	10,953	10,420	7,989	3,695	1,068		34,125
2017	13,680	13,015	9,978	4,615	1,334		42,622
2018	14,420	14,359	10,187	4,599	1,346		44,911
2019	15,137	15,665	10,389	4,584	1,358		47,132
2020	15,855	16,970	10,591	4,568	1,370		49,354
2021	16,039	17,053	10,647	4,592	1,370		49,700
2022	16,222	17,135	10,703	4,615	1,370		50,046
2023	16,406	17,218	10,760	4,639	1,370		50,392
2024	16,589	17,300	10,816	4,662	1,370		50,738
2025	16,773	17,383	10,872	4,686	1,370		51,084

Notes:

- (1) Historical data through 2015 from District's water delivery records (Excel file).
- (2) Wholesale financial plan analysis assumes no water deliveries to SSWD.
- (3) Deliveries for 2016 and 2017 adjusted to match SJWD FY 16-17 budget.
- (4) Values for 2020 and 2025 from District's DRAFT 2015 UWMP. Delivery estimates are a straight line interpolation from 2017 to 2020 and from 2020 to 2025.



- *Cost of Water Supplies* – The cost of water supplies depends on the mix of water from each of the District’s water supply sources, however the mix of supplies is expected to remain relatively static. The District first utilizes water under its existing water rights then uses a combination of water under PCWA and USBR contracts. Temporary supplies are sometimes available, but not included in the analyses contained herein. Unit water supply costs are assumed to increase at the general inflation rate.

The District currently owes Citrus Heights Water District (CHWD) and Fair Oaks Water District (FOWD) a combined \$1,981,500 for treated water purchase costs related to groundwater used during the recent drought. The financial plan model assumes that this obligation will be repaid as follows, based on information provided by the District:

○ FY 16-17	\$866,900
○ FY 17-18	\$371,520
○ FY 18-19	\$371,520
○ FY 19-20	\$371,520

- *Operation and Maintenance Costs* – The financial plan model is based on current operating and maintenance costs as reflected in the FY 16-17 operating budget. Future operating and maintenance costs are estimated based on assumed inflation rates. Supply and other variable costs are also assumed to increase in proportion to changes in the total amount of water deliveries.
- *Staff Additions* – The wholesale financial plan incorporates the following new staff positions, based on needs identified by District staff.
 - Water Treatment Plant Operator – This position is added mid-year in FY 16-17 at a total annual cost of \$130,000. It has been included in the District’s FY 16-17 budget.
 - Human Resources Specialist – This position is added mid-year in FY 16-17 at a total annual cost of \$125,000. The position has been split equally between the wholesale and retail water systems, and has been included in the District’s FY 16-17 budget.
 - Administrative Assistant - This position is added in FY 17-18 at a total annual cost of \$80,000. The position has been split equally between the wholesale and retail water systems.
- *Large Non-Capital Projects* – Large non-capital projects, such as studies, assessments, and large maintenance items had previously been included in the District’s capital improvement program. Beginning in FY 16-17 these items are being included in the operating budget, and treated as operating and maintenance expenses (rather than capitalized and expensed over time). The wholesale financial plan includes the budgeted FY 16-17 items totaling about \$24,000, and this cost is escalated at the pace of inflation in future years. One additional item has also been explicitly added to the wholesale financial plan.
 - Wholesale master plan at an estimated cost of \$299,000 in FY 20-21

It is believed that these estimates and allowances reasonably reflect future non-capital project needs.

- *Debt Obligations* – The District’s wholesale debt obligations are currently limited to repayment of 2009 COPs and 2012 refunding revenue bonds. The wholesale portion of annual debt service on the 2009 COPs total about \$1.35 million. The wholesale portion of annual debt service on the 2012 refunding revenue bonds total about \$630,000.

The financial plan model includes estimates related to the issuance of additional long-term debt in 2019 in order to fund major capital improvement projects. The 2019 new debt issue is estimated with a total par amount of \$41.5 million (\$28.75 million for wholesale projects and \$12.75 million for retail projects). Estimated terms include a 4.0 percent interest rate, 30-year repayment term, issuance costs of 2.0 percent of the par amount, funding of a debt service reserve, and approximately equal annual principal and interest payments throughout the repayment period. Actual terms would be determined at the time of debt issuance and will reflect market conditions at that time. The actual allocation of debt service obligations to each member agency will also be determined at the time of issuance. At this time, estimated debt repayment obligations of each member agency are based on average annual water deliveries to each member agency over the period from 2012 through 2015.

Exhibit II-2 provides details on current actual and estimated future debt service obligations, including the distribution of debt service costs to each member agency. The District is currently meeting debt service coverage obligations, and financial plan analyses consider this requirement in developing estimates for future annual water rate adjustments.

The District has considered refunding the 2009 COPs in order to take advantage of current low interest rates. However, because of pre-payment penalties, financial advisors have indicated that it will likely be more feasible to refund the COPs in a few years when pre-payment penalties no longer apply. Financial plan analyses do not reflect any potential cost savings associated with refunding of the 2009 COPs.

- *Capital Improvement Program* – The District’s wholesale 10-year capital improvement program includes about 50 projects totaling about \$64.6 million in future dollars, averaging about \$6.5 million annually. **Exhibit II-3** lists the planned projects, as well as estimated cost and timing. Costs in Exhibit II-3 have been escalated to the year of expenditure based on a 3.0 percent annual construction inflation factor.

The capital improvement program has a concentration of project expenditures in FY 16-17, as well as in the FY 19-20 and FY 20-21 period. The concentration in FY 16-17 is primarily associated with pre-treatment improvements, with construction contracts already in place. These improvements will be funded from available general CIP reserves. The concentration in FY 19-20 and FY 20-21 primarily includes treatment plant filter improvements and upgrades to Hinkle reservoir, which together total about \$28.4 million. Because of the size of these two projects, it would be virtually impossible to undertake these projects without issuing new long-term debt.

Exhibit II-2
San Juan Water District
Summary of Wholesale and Retail Debt Service Obligations

	Alloc. %	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26
2009 Certificates of Participation												
Principal		430,000	450,000	475,000	500,000	525,000	550,000	580,000	615,000	650,000	690,000	725,000
Interest		1,672,400	1,653,050	1,630,550	1,606,800	1,580,550	1,551,675	1,521,425	1,488,075	1,452,713	1,415,338	1,379,113
Total Payment		2,102,400	2,103,050	2,105,550	2,106,800	2,105,550	2,101,675	2,101,425	2,103,075	2,102,713	2,105,338	2,104,113
Outstanding Balance		28,825,000	28,375,000	27,900,000	27,400,000	26,875,000	26,325,000	25,745,000	25,130,000	24,480,000	23,790,000	23,065,000
Retail Share	36%	756,900	757,100	758,000	758,400	758,000	756,600	756,500	757,100	757,000	757,900	757,500
Wholesale Share	64%	1,345,500	1,346,000	1,347,600	1,348,400	1,347,600	1,345,100	1,344,900	1,346,000	1,345,700	1,347,400	1,346,600
SJWD-RSA	31.59%	425,000	425,200	425,700	426,000	425,700	424,900	424,900	425,200	425,100	425,600	425,400
Citrus Heights WD	33.63%	452,500	452,700	453,200	453,500	453,200	452,400	452,300	452,700	452,600	453,100	452,900
Fair Oaks WD	20.93%	281,600	281,700	282,100	282,200	282,100	281,500	281,500	281,700	281,700	282,000	281,800
Orange Vale WC	10.57%	142,200	142,300	142,400	142,500	142,400	142,200	142,200	142,300	142,200	142,400	142,300
City of Folsom	3.28%	44,100	44,100	44,200	44,200	44,200	44,100	44,100	44,100	44,100	44,200	44,200
Total	100.00%	1,345,400	1,346,000	1,347,600	1,348,400	1,347,600	1,345,100	1,345,000	1,346,000	1,345,700	1,347,300	1,346,600
2012 Refunding Revenue Bonds												
Principal		440,000	450,000	465,000	485,000	500,000	530,000	555,000	580,000	610,000	630,000	650,000
Interest		539,200	526,000	508,000	487,075	472,525	447,525	421,025	393,275	364,275	345,975	327,075
Total Payment		979,200	976,000	973,000	972,075	972,525	977,525	976,025	973,275	974,275	975,975	977,075
Outstanding Balance		11,285,000	10,835,000	10,370,000	9,885,000	9,385,000	8,855,000	8,300,000	7,720,000	7,110,000	6,480,000	5,830,000
Retail Share	26.39%	258,400	257,600	256,800	256,600	256,700	258,000	257,600	256,900	257,100	257,600	257,900
Folsom Share	8.80%	86,100	85,900	85,600	85,500	85,600	86,000	85,900	85,600	85,700	85,900	86,000
Wholesale Share	64.81%	634,600	632,500	630,600	630,000	630,300	633,500	632,600	630,800	631,400	632,500	633,200
SJWD-RSA	29.82%	189,200	188,600	188,000	187,900	188,000	188,900	188,600	188,100	188,300	188,600	188,800
Citrus Heights WD	34.81%	220,900	220,200	219,500	219,300	219,400	220,500	220,200	219,600	219,800	220,200	220,400
Fair Oaks WD	25.58%	162,300	161,800	161,300	161,200	161,200	162,000	161,800	161,400	161,500	161,800	162,000
Orange Vale WC	7.85%	49,800	49,700	49,500	49,500	49,500	49,700	49,700	49,500	49,600	49,700	49,700
City of Folsom	1.94%	12,300	12,300	12,200	12,200	12,200	12,300	12,300	12,200	12,200	12,300	12,300
Total	100.00%	634,500	632,600	630,500	630,100	630,300	633,400	632,600	630,800	631,400	632,600	633,200
2019 New Debt Issue - Wholesale												
Principal						510,000	530,000	550,000	575,000	595,000	620,000	645,000
Interest						1,150,000	1,130,000	1,108,000	1,086,000	1,063,000	1,040,000	1,015,000
Total Payment						1,660,000	1,660,000	1,658,000	1,661,000	1,658,000	1,660,000	1,660,000
Outstanding Balance					28,750,000	28,240,000	27,710,000	27,160,000	26,585,000	25,990,000	25,370,000	24,725,000
Retail Share						547,800	547,800	547,140	548,130	547,140	547,800	547,800
Wholesale Share						498,000	498,000	497,400	498,300	497,400	498,000	498,000
SJWD-RSA	33.0%					381,800	381,800	381,340	382,030	381,340	381,800	381,800
Citrus Heights WD	30.0%					182,600	182,600	182,380	182,710	182,380	182,600	182,600
Fair Oaks WD	23.0%					49,800	49,800	49,740	49,830	49,740	49,800	49,800
Orange Vale WC	11.0%					1,660,000	1,660,000	1,658,000	1,661,000	1,658,000	1,660,000	1,660,000
City of Folsom	3.0%					225,000	235,000	245,000	255,000	265,000	275,000	285,000
Total	100.00%					12,525,000	12,290,000	12,045,000	11,790,000	11,525,000	11,250,000	10,965,000
2019 New Debt Issue - Retail												
Principal						510,000	530,000	550,000	575,000	595,000	620,000	645,000
Interest						1,150,000	1,130,000	1,108,000	1,086,000	1,063,000	1,040,000	1,015,000
Total Payment						1,660,000	1,660,000	1,658,000	1,661,000	1,658,000	1,660,000	1,660,000
Outstanding Balance					12,750,000	12,525,000	12,290,000	12,045,000	11,790,000	11,525,000	11,250,000	10,965,000

Exhibit II-3
SAN JUAN WATER DISTRICT
TEN-YEAR WHOLESALE CAPITAL IMPROVEMENT PROGRAM - SUMMARY TABLE

Line	Project Name	Construction Inflation Factor -->	Cost Est. 1	Total Cost 2	1.03 FY15-16	1.06 FY16-17	1.09 FY17-18	1.13 FY18-19	1.16 FY19-20	1.19 FY20-21	1.23 FY21-22	1.27 FY22-23	1.30 FY23-24	1.34 FY24-25	1.38 FY25-26
Pre-Treatment															
1	Floc/Sed Basin & Settled Water Channel Improvements ¹⁰		\$ 7,500,000	\$ 7,470,000	\$ 1,098,000	\$ 6,372,000			\$ 26,000						
2	Washdown Piping Improvements		\$ 22,000	\$ 26,000					\$ 243,000						
3	Settling Tube Cleaning System		\$ 210,000	\$ 243,000					\$ 278,000						
4	Existing SWC Resurface, Joint Repair, and Caulk ³		\$ 240,000	\$ 278,000											
Filters															
5	Filter Floor Repairs and Media/Nozzle Replacement ¹¹		\$ 3,500,000	\$ 4,046,000				\$ 394,000	\$ 3,652,000						
6	Resurface Filter Basin Walls		\$ 325,000	\$ 376,000				\$ 37,000	\$ 339,000						
7	Backwash Hood Pumps		\$ 50,000	\$ 50,000	\$ 50,000										
8	Backwash Hood Rehabilitation		\$ 500,000	\$ 580,000					\$ 580,000						
9	Filter Valve Actuators Replacements		\$ 180,000	\$ 249,000											
10	EIM Electric Actuator Replacement		\$ 5,500	\$ 6,000	\$ 6,000										\$ 249,000
Chemical Feed Systems															
11	CL2 Piping Project - 10yr replacement		\$ 50,000	\$ 58,000					\$ 58,000						
12	Lime System Control & Feeder System Improvements		\$ 60,000	\$ 64,000	\$ 64,000										
13	Lime Grit Containment (Curbing & Cover)		\$ 25,000	\$ 27,000		\$ 27,000									
14	Lime Tower Assmnt/design & Replnt		\$ 350,000	\$ 406,000					\$ 406,000						
15	Alum Feed Pump Replacement & VFD's		\$ 94,000	\$ 103,000			\$ 103,000								
16	Polymer System Improvements (in Control Bldg) ¹⁰		\$ 24,000	\$ 25,000	\$ 25,000										
Solids Handling Facilities															
17	Clarifier Wall Lining & Leakage Repairs		\$ 450,000	\$ 506,000				\$ 506,000							
18	Solids Containment Area & Handling Imprvmt's		\$ 295,000	\$ 341,000				\$ 33,000	\$ 308,000						
Hinkle Reservoir															
19	Hinkle Res. Monitoring Wells Level Probes		\$ 56,000	\$ 59,000		\$ 59,000									
20	Hinkle Res. Outlet Actuator (Equip & Power)		\$ 65,000	\$ 73,000					\$ 73,000						
21	Hinkle Reservoir Overflow Apron Drains		\$ 15,000	\$ 15,000	\$ 15,000										
22	Hinkle Overflow Channel Lining (East of AFR)		\$ 100,000	\$ 109,000		\$ 109,000									
23	Replace cover & liner, bifurcate, add 2nd inlet/outlet ³		\$20,000,000	\$23,811,400					\$ 7,318,500	\$21,492,900					
Plant Piping															
24	Hinkle Res. 48" Bypass Pipe Cleaning/Repair		\$ 60,000	\$ 70,000					\$ 70,000						
25	Reline 60" Pipe from Filters to Inlet Structure		\$ 1,750,000	\$ 2,352,000										\$ 2,352,000	
Transmission Pipelines															
26	FO-40 Transmission Pipeline Re-Lining ³		\$ 2,000,000	\$ 2,185,000			\$ 2,185,000								
Water Supply Reliability Projects															
27	SSWD-SWMD Pump Back Project ^{10,11}		\$ 2,400,000	\$ 2,205,000	\$ 2,205,000										
28	Control Valve Stations ^{10,11}		\$ 700,000	\$ 700,000	\$ 700,000										
Vehicle Replacement & Reserves															
29	Vehicles (roll-up from detail below)		\$ 264,000	\$ 366,500	\$ 31,500	\$ 82,000	\$ -	\$ 34,000	\$ 29,000	\$ 42,000	\$ -	\$ -	\$ -	\$ 87,000	\$ 61,000
	Articulating Boom Lift, 40', Service Vehicle		\$ 30,000	\$ 32,000		\$ 32,000									
	Whsl Operations - Vehicle #7 (F150)		\$ 35,000	\$ 42,000					\$ 42,000						
	Whsl Operations - Vehicle #20 (Ram)		\$ 35,000	\$ 37,000		\$ 37,000									
	Whsl Operations - Vehicle #25 (Dump Truck)		\$ 65,000	\$ 87,000										\$ 87,000	
	Whsl Operations - Vehicle #29 (Dakota)		\$ 30,000	\$ 34,000				\$ 34,000							
	Whsl Operations - GEM		\$ 25,000	\$ 29,000				\$ 29,000							
	Whsl Operations - Share of Pool Vehicle #30		\$ 12,500	\$ 30,000											\$ 17,000
	Vehicle #10 - Whsl Share General Mgr. Assigned Car		\$ 31,500	\$ 75,500	\$ 31,500	\$ 13,000									\$ 44,000

Exhibit II-3 -- Continued
SAN JUAN WATER DISTRICT
TEN-YEAR WHOLESALE CAPITAL IMPROVEMENT PROGRAM - SUMMARY TABLE

Line	Project Name	Construction Inflation Factor -->	Cost Est. 1	Total Cost 2	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34	1.38
					FY15-16	FY16-17	FY17-18	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	FY23-24	FY24-25	FY25-26
Miscellaneous CIP Items															
30	Solar Site Access Culvert Replacement		\$ 200,000	\$ 225,000											
31	ARC Flash Assessment and Improvements ^{3,9}		\$ 200,000	\$ 200,000	\$ 50,000	\$ 150,000									
32	In-Plant Pump Station Improvements		\$ 65,000	\$ 69,000		\$ 69,000									
33	Electrical Equip. R&R		\$ 100,000	\$ 118,000		\$ 55,000					\$ 63,000				
34	SBW Pump Station Rehab (& BW EQ Basin)		\$ 175,000	\$ 228,000									\$ 228,000		
35	WTP Generator Replacement		\$ 350,000	\$ 484,000											\$ 484,000
36	Administration Building Imprmt/Reprmt		\$ 1,875,000	\$ 2,232,000						\$ 217,000					
37	Storage Building (Old Shop) Replacement		\$ 448,000	\$ -											
38	SCADA Improvements/Replacements		\$ 1,000,000	\$ 1,305,000									\$ 1,305,000		
39	WTP Streaming Current Detector Upgrade		\$ 30,000	\$ 39,000									\$ 39,000		
40	Security Improvements (WTP)		\$ 150,000	\$ 184,000	\$ 15,000										
41	Corp Site Perimeter Fencing Replacements		\$ 125,000	\$ 141,000											
42	Corp Site Paving, Slurry Seal & Re-stripe		\$ 200,000	\$ 225,000											
43	Perimeter Fencing for Barton Rd Parcel		\$ 15,000	\$ 17,000											
44	Unspecified Rehab/Upgrade Projects		\$ 2,500,000	\$ 16,465,800											
45	Solar Facility Improvements (NEMA)		\$ 106,700	\$ 106,700	\$ 106,700										
46	Truck Mounted Actuator		\$ 2,500	\$ 2,500											
Information Technology															
47	New Servers		\$ 12,500	\$ 30,000											
48	New Switches		\$ 8,000	\$ 9,000									\$ 16,000		
49	Baracuda Backup Appliance		\$ 7,250	\$ 8,000		\$ 8,000									
50	New Appliances		\$ 5,000	\$ 13,000											\$ 7,000
51	Whsl Share of Tyler Financial Software System		\$ 9,500	\$ 9,500	\$ 9,500										
52	VMWare Server		\$ 5,500	\$ 5,500	\$ 5,500										
53	Whsl Share of Engineering Copier		\$ 4,375	\$ 5,000	\$ 5,000										
54	Boardroom Projector		\$ 2,500	\$ 2,500	\$ 2,500										
Capital Improvement Program Totals 1			\$48,887,325	\$68,928,400	\$ 4,322,200	\$ 6,835,500	\$ 2,506,300	\$ 1,902,100	\$ 8,562,500	\$ 3,075,800	\$ 3,230,000	\$ 4,850,000	\$ 5,799,000	\$ 4,266,000	

Notes:

- All estimated costs are shown in Feb 2014 dollars, ENR Index 9681.
- Total costs include construction inflation factors applied in year of project implementation.
- Work on the existing settled water channel cannot be completed until the new settled water channel is constructed which allows the existing settled water channel to be taken off-line for this service repair project.
- The scope, cost and implementation year of the Hinkle replacement project is currently unknown and will be identified during the cover assessment project.
- The cost of this project will be reimbursed to SJWD-W in the percentages approximated in the May 2011 FO-40 Rehabilitation Project Report: FOWD 91%, OVWC 2.6%, and SJWD-R 6.4%.
- A portion of this project was completed in FY14-15: \$2,400,000 is 80% of total project cost (SSWD pays 20%). Cost to SJWD-W \$564,000. Cost recovery from other agencies are SJWD-R \$1.12M, OVWC \$520,000, City of Folsom \$175,000.
- This project not needed if Admin. Bldg. Improvements are completed. If old shop is replaced, 70% of the project cost should be reimbursed to Wholesale by SJWD-R.
- GIS project will be done concurrently for wholesale and retail. Needs assessment split 60/40, implementation split 25/75 W/R.
- Where appropriate, IT costs split between wholesale and retail.

A loan of \$790,000 from the wholesale water system to the retail water system has been included in the financial plan analyses. The loan would be repaid in four years, in a balloon payment that includes four years of interest at 1.5 percent. The loan payment of \$838,000 would be made during construction of the Hinkle reservoir improvements, thereby enabling the funds to be used for its original intended purpose. Also, the 1.5 percent interest rate is better than the wholesale water system would otherwise likely realize. As a result, the wholesale water system would be better off with this arrangement.

FINANCIAL PLAN RESULTS

Details of the wholesale financial plan analyses are presented in **Exhibits II-4, II-5, and II-6** reflecting the operating fund, capital fund, and debt service fund, respectively. The financial plan is also presented graphically in **Exhibit II-7**. The colored bands in Exhibit II-7 show wholesale operating and maintenance costs, debt service payments, and pay-as-you-go capital program expenditures. Debt-financed capital expenditures are not reflected, although the associated debt service is. The dashed line in the exhibit show minimum target reserves, and the solid black line shows estimated total year-end reserves. The financial plan analysis seeks to keep the solid line above the dashed line throughout the planning period.

Results of the financial plan analyses are summarized below.

- The recent multi-year drought has created financial stress for the wholesale water system resulting in a significant decline in total financial reserves over the past two years.
- Current wholesale water rate revenues are insufficient to fully cover ongoing operating and maintenance costs and debt service payment obligations. As a result, a portion of capital fund revenues and reserves are being used for operating purposes. The current net operating loss and existing capital program revenues do not adequately support the capital improvement program. Because of the costs and timing of planned projects, the District will need to issue new long-term debt. It is not practical to avoid new debt unless the Hinkle reservoir project is postponed for a significant period of time.
- The District should fully utilize the \$1 million rate stabilization reserve in FY 16-17, and then gradually replenish it during the planning period. Doing so would help enable the District to more gradually implement the required and recommended water rate increases, and avoid a 2017 spike in water rates. Using the reserve in this manner is consistent with its intended purpose.
- The pace and extent of rebound in water demands from wholesale agencies is uncertain and will have an impact on annual water rate revenues. The rebound trajectory (see Exhibit II-1) has been reviewed with staff and is believed reasonable. Nevertheless it is an area of potential financial risk, which should be monitored. This risk is at least partially offset by the assumption of no water sales to SSWD during the planning period.

Exhibit II-4
San Juan Water District
Wholesale Financial Plan -- Operating Fund

	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26
		16%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Calendar Year Overall Rate Increases -->											
WHOLESALE OPERATIONS											
Beginning Balance	3,271,500	3,232,500	1,681,600	1,827,580	2,447,560	2,435,440	2,754,840	2,885,140	2,920,740	3,229,740	3,401,240
Sources of Funds											
OM&R Fixed Charges	1,568,000	2,793,000	4,328,000	5,211,000	5,366,000	5,371,000	6,023,000	6,710,000	7,506,000	8,422,000	8,894,000
OM&R Usage Charges	2,723,000	3,426,000	3,557,000	3,742,000	3,923,000	4,043,000	4,071,000	4,099,000	4,127,000	4,155,000	4,172,000
Debt Service Charges	1,979,000	1,978,400	1,978,400	1,978,300	2,808,200	3,638,100	3,636,600	3,636,600	3,637,300	3,638,200	3,914,600
Wholesale Rate Revenue	6,270,000	8,197,400	9,863,400	10,931,300	12,097,200	13,052,100	13,730,600	14,445,600	15,270,300	16,215,200	16,980,600
Sacramento Suburban WD	400,600	900,000	-	-	-	-	-	-	-	-	-
Granite Bay Golf Course	23,600	31,300	23,500	23,500	23,500	23,500	23,500	24,700	26,200	27,800	29,500
Misc. Operating Revenue	110,900	112,500	116,000	119,000	123,000	127,000	131,000	135,000	139,000	143,000	147,000
Interest Earnings	14,700	9,900	18,000	27,000	30,000	45,000	47,000	48,000	64,000	68,000	69,000
Total Sources of Funds	6,819,800	9,251,100	10,020,900	11,100,800	12,273,700	13,247,600	13,932,100	14,653,300	15,499,500	16,454,000	17,226,100
Uses of Funds											
Source of Supply	574,500	1,078,900	1,210,300	1,350,700	1,496,400	1,613,000	1,678,800	1,746,900	1,817,800	1,891,400	1,959,700
Treated Water Purchase Costs	-	866,900	371,520	371,520	371,520	-	-	-	-	-	-
Water Treatment & Operations	1,620,300	1,827,600	1,947,000	2,005,000	2,065,000	2,127,000	2,191,000	2,257,000	2,325,000	2,395,000	2,467,000
Energy, Chemicals, Maint.	514,500	575,900	702,000	775,000	853,000	923,000	976,000	1,032,000	1,091,000	1,153,000	1,216,000
Executive & Board of Directors	783,700	875,200	901,000	928,000	956,000	985,000	1,015,000	1,045,000	1,076,000	1,108,000	1,141,000
Administration & Info. Tech.	581,500	789,000	903,000	905,000	932,000	960,000	962,000	991,000	1,021,000	1,052,000	1,084,000
Finance	487,800	389,800	401,000	413,000	425,000	438,000	451,000	465,000	479,000	493,000	508,000
Human Resources	105,400	99,800	224,000	231,000	238,000	245,000	252,000	260,000	268,000	276,000	284,000
Retiree Medical and OPEB	325,000	206,600	219,000	232,100	246,000	260,700	276,400	293,000	310,600	329,200	348,900
PERS UAL Req'd Payment	132,300	148,300	-	-	-	-	-	-	-	-	-
PERS UAL Reduction	317,000	2,300,000	-	-	-	-	-	-	-	-	-
Engineering	368,900	368,900	380,000	391,000	403,000	415,000	427,000	440,000	453,000	467,000	481,000
Wholesale Master Plan	-	-	-	-	-	299,000	-	-	-	-	-
Conservation & Outreach	368,900	376,500	388,000	400,000	412,000	424,000	437,000	450,000	464,000	478,000	492,000
Transfers to Debt Service	-	-	-	-	-	-	-	-	-	-	-
2009 COPs	1,345,400	1,346,000	1,347,600	1,348,400	1,347,600	1,345,100	1,345,000	1,346,000	1,345,700	1,347,300	1,346,600
2012 Refunding Rev. Bonds	634,500	632,600	630,500	630,100	630,300	633,400	632,600	630,800	631,400	632,600	633,200
2019 New Debt Issue	-	-	-	-	1,660,000	1,660,000	1,658,000	1,661,000	1,658,000	1,660,000	1,660,000
Transfer to Capital Fund	(932,000)	(1,080,000)	250,000	500,000	250,000	600,000	1,500,000	2,000,000	2,250,000	3,000,000	3,000,000
Total Uses of Funds	6,858,800	10,802,000	9,874,920	10,480,820	12,285,820	12,928,200	13,801,800	14,617,700	15,190,500	16,282,500	16,621,400
Ending Balance	3,232,500	1,681,600	1,827,580	2,447,560	2,435,440	2,754,840	2,885,140	2,920,740	3,229,740	3,401,240	4,005,940
Operating Reserve (20%)	1,520,000	1,529,000	1,600,000	1,680,000	1,738,000	1,733,000	1,796,000	1,861,000	1,929,000	1,996,000	2,066,000
Rate Stabilization Reserve	1,000,000	-	-	250,000	250,000	500,000	500,000	500,000	750,000	750,000	1,000,000
Comp. Absence Reserve	193,555	-	-	-	-	-	-	-	-	-	-
PERS Stabilization Reserve	415,833	-	-	-	-	-	-	-	-	-	-
Delta/Wtr. Rights Reserve	102,666	153,000	203,000	253,000	303,000	353,000	403,000	453,000	503,000	553,000	603,000
Uncommitted Fund Balance	446	(400)	24,580	264,560	144,440	168,840	186,140	106,740	47,740	102,240	336,940

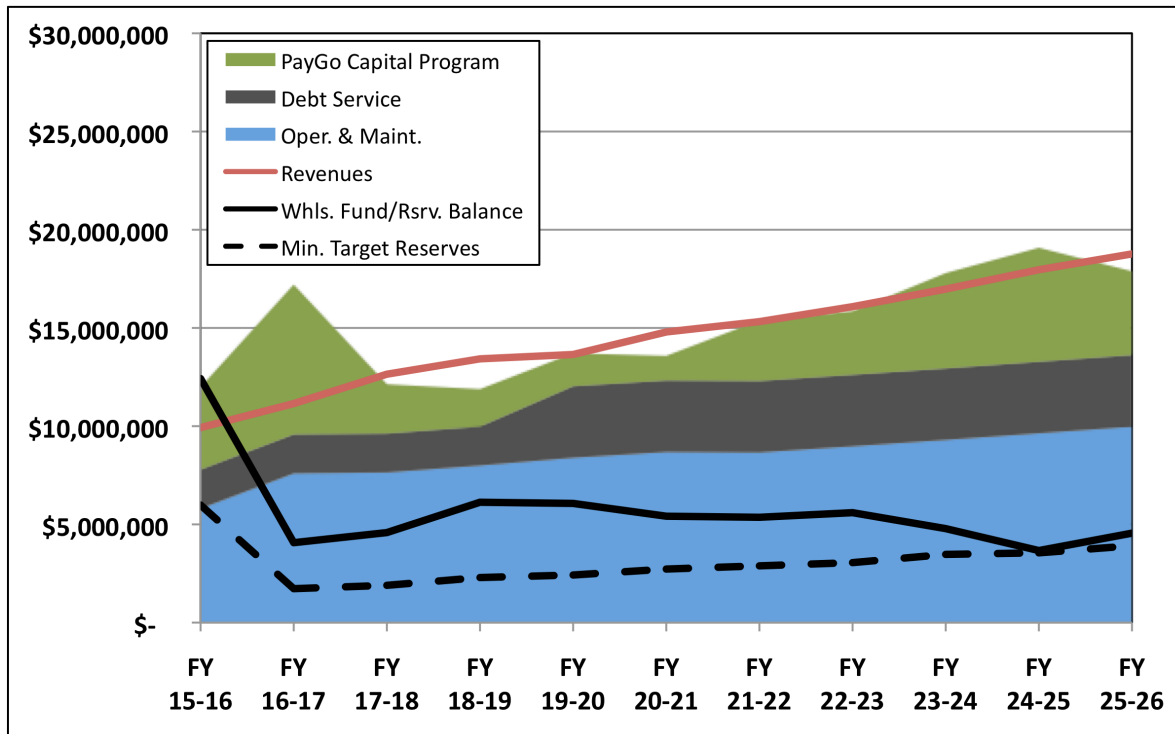
Exhibit II-5
San Juan Water District
Wholesale Financial Plan -- Capital Fund

	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26
WHOLESALE CAPITAL PROGRAM FUNDING											
<i>Beginning Balance</i>	11,203,300	9,188,300	2,386,600	2,755,200	3,679,900	23,254,600	2,661,100	2,476,100	2,675,700	1,554,500	266,000
<i>Sources of Funds</i>											
Transfer from Operations	(932,000)	(1,080,000)	250,000	500,000	250,000	600,000	1,500,000	2,000,000	2,250,000	3,000,000	3,000,000
Capital Facilities Charges	889,500	784,200	380,800	43,800	43,800	21,900	-	-	-	-	-
SJ RSA CFC Reimb. (Stor. Bldg.)		(133,000)									
FOWD FO40 Cost Share Pmts.	995,000	1,045,000	1,076,000	1,108,000	1,141,000	1,175,000	1,210,000	1,246,000	1,283,000	1,321,000	1,361,000
Property Taxes (50% of 1% Incr.)	52,000	75,000	162,000	167,000	172,000	177,000	160,000	165,000	169,000	174,000	180,000
Wholesale Connection Fees	355,000	72,000									
CSI Solar Rebate	761,600										
Grant Revenue (Ant. Pump Back)	53,400	55,600	11,900	13,800	18,400	174,400	20,000	18,600	26,800	15,500	2,700
Interest Earnings											
Debt Proceeds					26,512,000						
Total Sources of Funds	2,174,500	818,800	2,874,900	2,826,800	28,137,200	2,148,300	2,890,000	3,429,600	3,728,800	4,510,500	4,543,700
<i>Uses of Funds</i>											
Pre-Treatment Projects	1,098,000	6,372,000	-	-	547,000	-	-	-	-	-	-
Filter Projects	50,000	-	-	431,000	4,571,000	-	-	-	-	-	249,000
Chemical Feed System Projects	25,000	64,000	130,000	-	464,000	-	-	-	-	-	-
Solids Handling Facility Projects	-	-	-	539,000	308,000	-	-	-	-	-	-
Hinkle Reservoir	15,000	59,000	109,000	73,000	2,318,500	21,492,900	-	-	-	-	-
Plant Piping	-	-	-	-	70,000	-	-	-	-	2,352,000	-
Transmission Pipelines	-	-	2,185,000	-	-	-	-	-	-	-	-
Water Supply Reliability Projects	2,905,000	-	-	-	-	-	-	-	-	-	-
Vehicle/Equipment Replacements	31,500	82,000	-	34,000	29,000	42,000	-	-	-	87,000	61,000
Miscellaneous CIP Items	65,000	245,500	82,300	805,100	246,000	2,044,900	3,075,000	3,230,000	4,834,000	3,360,000	3,945,000
Information Technology	-	8,000	-	20,000	9,000	(838,000)	-	-	16,000	-	7,000
Loan to Retail (from HRR)	-	790,000	-	-	-	-	-	-	-	-	-
Total Uses of Funds	4,189,500	7,620,500	2,506,300	1,902,100	8,562,500	22,741,800	3,075,000	3,230,000	4,850,000	5,799,000	4,262,000
Ending Balance	9,188,300	2,386,600	2,755,200	3,679,900	23,254,600	2,661,100	2,476,100	2,675,700	1,554,500	266,000	547,700
General CIP Reserve	6,437,300	2,342,100	2,660,700	3,569,400	3,500,600	2,521,600	2,286,600	2,436,200	1,265,000	13,500	306,200
Vehicle/Equip. Reserve	76,506	44,500	94,500	110,500	131,500	139,500	189,500	239,500	289,500	252,500	241,500
Hinkle Reservoir Reserve	2,674,494	-	-	-	-	-	-	-	-	-	-
Project Fund (Debt Proceeds)	-	-	-	-	19,622,500	-	-	-	-	-	-

Exhibit II-6
San Juan Water District
Wholesale Financial Plan -- Debt Service Fund

	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26
DEBT SERVICE FUND											
Beginning Balance	1,863,200	1,862,900	1,863,000	3,525,900	3,526,000	3,526,000	3,525,900	3,526,000	3,526,000	3,526,000	3,526,000
Sources of Funds											
2009 Certificate of Participation											
San Juan WD - RSA	425,000	425,200	425,700	426,000	425,700	424,900	424,900	425,200	425,100	425,600	425,400
Citrus Heights WD	452,500	452,700	453,200	453,500	453,200	452,400	452,300	452,700	452,600	453,100	452,900
Fair Oaks WD	281,600	281,700	282,100	282,200	282,100	281,500	281,500	281,700	281,700	281,800	281,800
Orangevale WC	142,200	142,300	142,400	142,500	142,400	142,200	142,200	142,300	142,200	142,400	142,300
City of Folsom	44,100	44,100	44,200	44,200	44,200	44,100	44,100	44,100	44,100	44,200	44,200
2012 Refunding Revenue Bond											
San Juan WD - RSA	189,200	188,600	188,000	187,900	188,000	188,900	188,600	188,100	188,300	188,600	188,800
Citrus Heights WD	220,900	220,200	219,500	219,300	219,400	220,500	220,200	219,600	219,800	220,200	220,400
Fair Oaks WD	162,300	161,800	161,300	161,200	161,200	162,000	161,800	161,400	161,500	161,800	162,000
Orangevale WC	49,800	49,700	49,500	49,500	49,500	49,700	49,700	49,500	49,600	49,700	49,700
City of Folsom	12,300	12,300	12,200	12,200	12,200	12,300	12,300	12,200	12,200	12,300	12,300
2019 New Debt Issue											
San Juan WD - RSA					547,800	547,800	547,140	548,130	547,140	547,800	547,800
Citrus Heights WD					498,000	498,000	497,400	498,300	497,400	498,000	498,000
Fair Oaks WD					381,800	381,800	381,340	382,030	381,340	381,800	381,800
Orangevale WC					182,600	182,600	182,710	182,600	182,380	182,600	182,600
City of Folsom					49,800	49,800	49,740	49,830	49,740	49,800	49,800
Total Sources of Funds	1,979,900	1,978,600	1,978,100	1,978,500	3,637,900	3,638,500	3,635,600	3,637,800	3,635,100	3,639,900	3,639,800
Uses of Funds											
2009 Certificate of Participation											
Principal Payment	275,200	288,000	304,000	320,000	336,000	352,000	371,200	393,600	416,000	441,600	464,000
Interest Payment	1,070,300	1,058,000	1,043,600	1,028,400	1,011,600	993,100	973,700	952,400	929,700	905,800	882,600
2012 Refunding Revenue Bond											
Principal Payment	285,200	291,600	301,400	314,300	324,100	343,500	359,700	375,900	395,300	408,300	421,300
Interest Payment	349,500	340,900	329,200	315,700	306,200	290,000	272,900	254,900	236,100	224,200	212,000
2019 New Debt Issue											
Principal Payment				-	510,000	530,000	550,000	575,000	595,000	620,000	645,000
Interest Payment				-	1,150,000	1,130,000	1,108,000	1,086,000	1,063,000	1,040,000	1,015,000
Total Uses of Funds	1,980,200	1,978,500	1,978,200	1,978,400	3,637,900	3,638,600	3,635,500	3,637,800	3,635,100	3,639,900	3,639,900
Ending Balance	1,862,900	1,863,000	3,525,900	3,526,000	3,526,000	3,525,900	3,526,000	3,526,000	3,526,000	3,526,000	3,525,900
Wholesale 2009 DS Reserve	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200	1,863,200
Wholesale 2019 DS Reserve			1,663,000	1,663,000	1,663,000	1,663,000	1,663,000	1,663,000	1,663,000	1,663,000	1,663,000
Est. W+R DS Cvrng. (min.=1.15)	1.19	1.92	2.65	2.97	1.89	2.12	2.30	2.43	2.59	2.74	2.87

Exhibit II-7
San Juan Water District
Wholesale Financial Plan Summary



- The District is meeting debt service coverage obligations, and is expected to continue to meet this requirement throughout the planning period even with new debt issued in 2019.
- Earlier in 2016, the District’s financial advisors suggested that refunding of the 2009 COPs is possible at this time (with certain pre-payment penalty associated costs), but that it may be more advantageous to refund the COPs in 2018 when the pre-payment penalties no longer apply. Because future market conditions cannot be known, financial plan analyses do not reflect any cost savings associated with refunded COPs. However, the District should re-consider a refunding in 2018, and the annual cost savings that may result.
- The compensated absence reserve does not need to be maintained as a separate reserve, as it is unlikely that it would ever need to be paid out in lump sum. It would be advantageous to the District to eliminate this reserve. Money currently designated to this reserve could be used to help reduce the magnitude of the needed water rate increase for January 2017. District staff supports this change, and it has been incorporated in the financial plan analyses.
- Maintaining the PERS stabilization and Hinkle reservoir reserves while the \$2.3 million PERS UAL remains outstanding is economically inefficient and results in unnecessary interest costs to the District. The District should pay off this obligation.
- Wholesale water rate increases are required over the next several years in order to meet current and future financial and service obligations, as well as to

position the District for issuing new long-term debt in 2019. Estimated annual increases in the overall level of wholesale water rates for each January (beginning in 2017) of the ten-year planning period are 16 percent, 9 percent, 9 percent, 9 percent, 5 percent, 5 percent, 5 percent, 6 percent, 6 percent, and 6 percent, respectively.

- With the exception of the rate stabilization reserve, these annual water rate increases will enable the District to maintain overall reserve levels above minimum target levels throughout the planning period. The target \$1 million rate stabilization reserve would be gradually replenished during the planning period.

The next section of this report includes recommendations for modifying wholesale water rates including increasing the emphasis on fixed charge revenue and reducing the portion of revenue for water usage charges. This change would help reduce the financial risk associated with variable and uncertain water deliveries.

At this point in time, it is recommended that the District adopt a five-year wholesale water rate plan with new rates implemented each January. It is also recommended that the District re-evaluate its financial condition and update the financial plan prior to issuing new long-term debt.

As with past practice, the District should monitor financial conditions and needs on an ongoing (annual) basis and update the financial plan model if conditions or plans change sufficiently to warrant an update. Actual future conditions, such as water deliveries, water sales revenue, operating and maintenance expenses, CIP project costs/timing, project financing, etc., may differ from the financial plan assumptions reflected herein. Material differences affecting the overall financial condition of the wholesale water system may warrant closer review and/or an earlier update. The need for and magnitude of annual wholesale water rate increases may also be affected by differences between assumed and actual conditions.

Debt service charges paid by each member agency are generally unaffected by this rate recommendations. Debt service charges will be adjusted commensurate with annual debt repayment obligations, including the anticipated issuance of new debt in 2019.

The next section of this report provides details on wholesale water rate calculations for 2017, as well as specific water rate schedules for each year from 2017 through 2021.

SECTION III. WHOLESALE WATER RATES

Proposed wholesale water rates were calculated using the same general rate methodology originally developed by the District in 1998 and updated several times since then. The wholesale water rates include a uniform water usage rate applicable to each acre-foot (AF) of water deliveries, a fixed quarterly service charge, a fixed quarterly debt service charge, and quarterly capital facilities charges (for some agencies and related to specific limited-benefit capital improvement projects). The capital facilities charges provide an equitable and timely reimbursement for capital project costs that have unique cost allocations among member agencies, based on benefits received. The process for calculating water rates includes three basic steps.

1. Annual water rate revenue requirement determination. The revenue requirement is the amount of revenue to be generated from water rates to cover operating, debt service, and capital program needs with consideration of other revenues and reserve policies. The financial planning model presented in Section II of this report serves to determine the annual water rate revenue requirement.
2. Cost of service analysis and allocation of costs to each member agency. The annual revenue requirement is allocated to each member agency through cost of service analysis and a cost allocation process. Costs are allocated to each agency based on (1) the annual average of recent actual water deliveries to each member agency, (2) anticipated current annual water deliveries, and (3) the number of retail customers served. Debt service costs are allocated to each agency based on previously approved allocations associated with each debt issue. A small number of capital projects benefit some but not all member agencies. The allocation of costs for these projects has been incorporated into capital facilities charges that apply to benefiting member agencies. Distribution pumping costs within the San Juan RSA necessary to convey water to the City of Folsom are retail costs and removed from the wholesale water rate analysis herein. A special pumping surcharge is added to the water rates for the City of Folsom, and is a source of retail revenue for the District.
3. Water rate design. The rate design process involves determining the fixed service charges and a water usage rate that will generate the required revenues from each customer. The wholesale water rates include a separate service charge for debt service allocated to each member agency. In addition, for rate simplicity, a single uniform water usage rate is used for all member agencies, with any difference in the allocation of costs to agencies reflected in the service charge.

CURRENT WHOLESALE WATER RATES

Current wholesale water rates are presented in **Exhibit III-1** for reference purposes. The water rates were last adjusted in January 2016 when the District increased the water usage rate and quarterly fixed service charges by about 14.5 percent². Debt service charges

² Because debt service charges were largely unchanged in 2016, the total wholesale water rate revenue was estimated to increase by slightly less than 10 percent under the 2017 water rates (exclusive of the impact of any change in water deliveries).

changed very slightly, based on very slight changes in annual debt service. Capital facilities charges were adjusted based on the previously adopted charge schedule. Capital facilities charges are described separately later in this section, and are not part of the general water rate calculation process due to their limited scope and purpose.

**Exhibit III-1
San Juan Water District
2016 Wholesale Water Rates**

Jan. 2016	
Water Usage Rate (\$/AF)	
All Water Deliveries	\$ 102.02
Quarterly O, M, & R Service Charges	
San Juan Water District	\$ 126,315
Citrus Heights Water District	\$ 132,586
Fair Oaks Water District	\$ 102,172
Orangevale Water Company	\$ 44,801
City of Folsom	\$ 12,869
Quarterly Debt Service Charges	
San Juan Water District	\$ 153,453
Citrus Heights Water District	\$ 168,208
Fair Oaks Water District	\$ 110,878
Orangevale Water Company	\$ 47,980
City of Folsom	\$ 35,571

Notes:

(1) Folsom pumping surcharge and capital facilities charges are not shown.

2017 WHOLESALE WATER RATE REVENUE REQUIREMENT

The wholesale financial plan includes revenues and expenses for each fiscal year over the ten-year planning period. The District, however, adjusts water rates on a calendar year basis. As a result the financial and rate analyses necessarily involve certain translations back and forth between fiscal and calendar years. On this basis, the wholesale water rate revenue requirement for calendar year 2017 was determined to be \$9,233,000³. This amounts to an overall 16 percent increase in the overall amount of water rate revenue, after adjusting for the fact that the anticipated rebound in water demand will also result in increased revenues.

The 2017 wholesale water rate revenue requirement was determined based on the financial plan analyses presented in Section II of the report, and it reflects assumptions regarding operating and maintenance costs, debt service obligations, capital improvement program (including cost sharing), and the availability of financial reserves and non-rate revenues.

³ This amount excludes the revenue generated from capital facilities charges, which is related to a limited number of specific capital improvement projects and provides revenue directly to the capital fund.

COST OF SERVICE ANALYSES

The cost of service analysis for wholesale water rates was performed on each of the District's broad (departmental) cost classifications, including source of supply, water treatment and operations, executive and board of directors, administration and information technology, finance and purchasing, human resources, engineering, water conservation and outreach, debt service transfer, and capital program transfer. Non-rate revenues and changes in operating fund balance were also factors in determining the annual revenue requirement. **Exhibit III-2** presents the multi-part process of the cost of service analysis. The small table at the top of Exhibit III-2 presents cost allocation metrics for each member agency, including estimated water deliveries for 2017, recent historical average water deliveries, and number of retail customers. Average historical water use from 2012 through 2015 is used in the rate analysis, as this period encompasses the most recent historical record. The estimated water deliveries for 2017 reflect a partial return to normal water demand, and are based on the rescission of state-mandated water conservation efforts. The District obtained information from each member agency to assist in developing these estimates.

The lower portion of Exhibit III-2 shows how the revenue requirement is allocated to various cost categories to arrive at unit costs for supply (variable), treatment (fixed and variable), customer costs (fixed), and debt service (fixed).

Exhibit III-3 shows how unit costs are then applied to the units of service (metrics) for each agency to arrive a total allocation of costs to each member agency. The far right columns in Exhibit III-3 summarize the total allocation of the wholesale water rate revenue requirement to each member agency, and serves as a check to the rate calculations.

WATER RATE DESIGN

The wholesale water rates include fixed service charges and a uniform water usage rate for each member agency. The uniform water usage rate is the sum of the unit costs for the variable cost components for water supply and water treatment ($\$55.18 + \$23.25 = \$78.43/\text{AF}$). The annual service charge for operations, maintenance, and replacement (O, M, & R) for each agency is the sum of the fixed cost components for water treatment, and customers allocated to each agency. For example, the annual service charge for the San Juan RSA is ($\$1,081,336 + \$123,384 = \$1,204,720$). The annual debt service charge for each agency is based on previously approved allocations of debt service obligations associated with each debt issue. In the case of San Juan RSA the annual debt service charge is \$613,750.

Each member agency's share of annual debt service costs over the planning period was presented in Exhibit II-2, in Section II of this report. This exhibit also includes estimates related for anticipated new debt to be issued in 2019. The actual debt service charges related to that issue will depend on actual debt repayment obligations as well as decisions related to the allocation of that debt to each member agency.

**Exhibit III-2
San Juan Water District
Wholesale Water Rate Cost Allocation Steps**

Wholesale Cost Allocation -- Units of Service

Wholesale Customer	Annual Water Use		No. of Customers (Accts.)
	Estimated for 2017 (AF)	Avg. for 2012-2015 (AF)	
San Juan WD - RSA	13,680	12,658	10,582
Citrus Heights WD	13,015	11,785	19,785
Fair Oaks WD	9,978	8,861	13,894
Orangevale WC	4,615	4,246	5,577
City of Folsom	1,334	1,296	1,025
Totals	42,622	38,847	50,863

Wholesale Cost Allocation -- Unit Costs of Service (2017)

	Total Cost	Supply (Variable)	Water Treatment		Customer (Fixed)	Debt Serv. (Fixed)
			(Variable)	(Fixed)		
Units of Service		42,622 AF	42,622 AF	38,847 AF	50,863 Accts.	
Source of Supply						
Total	\$ 1,516,000	\$ 1,516,000				
Unit Cost						
Water Treatment & Operations						
Total	\$ 2,526,250		\$ 638,950	\$ 1,887,300		
Unit Cost						
Executive & Board of Directors						
Total	\$ 888,100	\$ 287,900	\$ 121,300	\$ 406,200	\$ 72,600	
Unit Cost						
Administration & Info. Tech.						
Total	\$ 846,000	\$ 274,300	\$ 115,600	\$ 387,000	\$ 69,200	
Unit Cost						
Finance & Purchasing						
Total	\$ 395,400	\$ 128,200	\$ 54,000	\$ 180,900	\$ 32,300	
Unit Cost						
Human Resources						
Total	\$ 448,850	\$ 145,500	\$ 61,300	\$ 205,300	\$ 36,700	
Unit Cost						
Engineering						
Total	\$ 374,450			\$ 374,450		
Unit Cost						
Conservation & Outreach						
Total	\$ 382,250				\$ 382,250	
Unit Cost						
Transfers for Debt Service						
Total	\$ 1,978,350					\$ 1,978,350
Unit Cost						
Transfer To/(From) Cap. Fund						
Total	\$ (415,000)			\$ (415,000)		
Unit Cost						
Offsetting Misc. Revenues						
Total	\$ (656,750)			\$ (656,750)		
Unit Cost						
To/(From) Reserves						
Total	\$ 949,100			\$ 949,100		
Unit Cost						
Total Revenue Reqmt.	\$9,233,000	\$ 2,351,900	\$ 991,150	\$ 3,318,500	\$ 593,050	\$ 1,978,350
Unit Costs of Service		\$ 55.18	\$ 23.25	\$ 85.43	\$ 11.66	
		Per AF	Per AF	Per AF	Per Acct.	

Exhibit III-3
San Juan Water District
Wholesale Water Rate Cost Allocation Steps -- Continued

Wholesale Cost Allocation -- Allocation to Wholesale Customers

Wholesale Customers	Supply (Variable)	Water Treatment		Customer (Fixed)	Debt Serv. (Fixed)	O,M&R and DS Costs (\$)	O,M&R and DS Costs (%)
		(Variable)	(Fixed)				
Unit Costs of Service -->	\$ 55.18 Per AF	\$ 23.25 Per AF	\$ 85.43 Per AF	\$ 11.66 Per Acct.			
San Juan WD - RSA Units of Service Allocation of Costs	13,680 \$ 754,882	13,680 \$ 318,126	12,658 \$ 1,081,336	10,582 \$ 123,384	613,750 \$	\$ 2,891,479	31%
Citrus Heights WD Units of Service Allocation of Costs	13,015 \$ 718,148	13,015 \$ 302,646	11,785 \$ 1,006,739	19,785 \$ 230,688	672,800 \$	\$ 2,931,020	32%
Fair Oaks WD Units of Service Allocation of Costs	9,978 \$ 550,603	9,978 \$ 232,038	8,861 \$ 756,976	13,894 \$ 162,001	443,450 \$	\$ 2,145,068	23%
Orangevale WC Units of Service Allocation of Costs	4,615 \$ 254,660	4,615 \$ 107,320	4,246 \$ 362,738	5,577 \$ 65,026	191,950 \$	\$ 981,694	11%
City of Folsom Units of Service Allocation of Costs	1,334 \$ 73,607	1,334 \$ 31,020	1,296 \$ 110,711	1,025 \$ 11,951	56,400 \$	\$ 283,689	3%
Totals	\$ 2,351,900	\$ 991,150	\$ 3,318,500	\$ 593,050	\$ 1,978,350	\$ 9,232,950	100%

The cost allocations encompassed in Exhibits III-2 and III-3 and the water rate design result in a shift to greater emphasis on the fixed service charge, resulting in a reduction in the water usage rate from the current rate. This allocation is in better alignment with the District's cost structure, and should somewhat lessen the revenue variability associated with fluctuating water demands. In addition, proposed rate schedule for 2018 through 2021 maintain the water usage rate at the 2017 amount; increased revenues are derived from adjustments to the fixed service charges and/or the debt service charges. At present, about 43 percent of wholesale water rate revenue is tied to water deliveries. By 2021, it is estimated that about 31 percent of wholesale water rate revenue will be tied to water deliveries.

Capital Facilities Charges

In 2015, the District adopted a system of capital facilities charges related to a small number of planned wholesale capital improvement projects that benefit some, but not all, of the wholesale member agencies. The charges help to ensure equitable and timely cost recovery for these projects, and recover the costs for projects with unique cost sharing attributes. The capital facilities charges recover costs through fixed quarterly charges over a 5-year period, beginning 18 months prior to the year of construction of affected projects.

As originally developed, wholesale capital improvement projects incorporated in the capital facilities charges included the following:

- ARC Flash Assessment and Improvements
- SSWD-SJWD Pump Back Project
- Storage Building (Old Shop) Replacement
- Fair Oaks 40" Transmission Pipeline Re-Lining

Two changes have occurred since the capital facilities charges were adopted and implemented. First, the storage building replacement project has been removed from the capital improvement program. Seventy percent of that project had been assigned to the San Juan RSA (with 30 percent incorporated in general wholesale water rates). As a result of this cancellation, the sum paid by the retail system to the wholesale system should be reimbursed. The financial plan analysis assumes that this reimbursement (of \$133,000) will occur in the early months of 2017 (i.e., in FY 16-17).

Second, the FOWD recently negotiated an alternative cost sharing and payment arrangement with the District with regards to the Fair Oaks 40" transmission pipeline re-lining project, Phase 2. As a result, the terms of that agreement should be implemented in-lieu of the capital facilities charge component related to the Fair Oaks 40 project. While the timing of the District's invoicing and FOWD's payments in relation to this project are based on milestones and costs in the design and construction of the project, the financial plan presented herein assumes that FOWD will pay the District a total of \$1,988,350 evenly distributed over FY 17-18 and FY 18-19. This is believed to be a conservative estimate, and actual cost reimbursement may be due sooner.

It is recommended that the District continue to collect capital facilities charges from member agencies as originally developed (with the above adjustments). As each included capital improvement project is completed and total actual costs are known, the District should adjust or otherwise reconcile the charges as they related to that project.

Exhibit III-4 presents an updated capital facilities charges schedule reflecting the above changes, including the recently negotiated agreement between the District and FOWD regarding an alternative cost sharing and payment arrangement for the Fair Oaks 40" transmission pipeline relining project.

PROPOSED WHOLESALE WATER RATES FOR 2017 THROUGH 2021

Exhibit III-5 summarizes the current and proposed wholesale water rate schedules for January 2017 through January 2021, including each of the rate components. The actual costs to each member agency will depend on actual water deliveries. Three aspects of the proposed five-year rate plan are significant.

1. Rate structure changes (i.e., the shift to reduce emphasis on the water usage charge and increase emphasis on fixed charges) primarily occur with the water rates proposed for January 2017. This is the beginning of a gradual transition in the revenue mix embodied in the rate structure.
2. Beginning in January 2018 increased revenue needs are achieved through increases in fixed service charges, rather than through an increase in the water usage rate. This continues a gradual shift to a higher proportion of fixed revenue.
3. The water rates for January 2020 includes a significant increase in the debt service charge, based on estimates of annual debt service associated with the 2019 new debt issue. A decrease in the fixed O, M, & R service charges also occurs at this time such that total annual water rate revenues reflect the necessary 9 percent increase. In other years the debt service charges are relatively stable reflecting relatively stable debt service requirements.

Exhibit III-6 summarizes the change in the annual cost of service to each member agency based on proposed water rates for January 2017, relative to current water rates. Because the annual cost to wholesale agencies is a function of both the water rates and water deliveries, the exhibit holds the water deliveries constant in this comparison. That is, annual water costs under both 2016 and 2017 water rates are calculated using estimated water deliveries for 2017. This facilitates the assessment of the impact of the rate structure without the influence of changes in overall water demands. It should be noted that the costs to the City of Folsom shown in Exhibit III-6 also incorporate the pumping surcharge and direct debt service (i.e., the Folsom-specific debt obligation). The inclusion of these two elements contribute to the smaller overall percentage change in water service costs for the City of Folsom. These two elements also result in the higher overall cost of service (per AF) borne by the City of Folsom.

**Exhibit III-4
San Juan Water District
Wholesale Capital Facilities Charges (1)**

Capital Project (Year of Construction)	San Juan RSA	Citrus Heights WD	Fair Oaks WD	Orange Vale WC	City of Folsom	Wholesale Funding Thru Rates/ Rsrvs (FY)	Total Project Cost Recovery
ARC Flash Assessment and Improvements (FY 14-15)							
Cost Assignment -->	50.0%					50.0%	
CY 2015	29,000					87,000	116,000
CY 2016	29,000						29,000
CY 2017	29,000						29,000
Antelope Pump Back Project (FY 14-15)							
Cost Assignment -->	56.3%			32.6%	11.1%	0.0%	
CY 2015	363,135			210,270	71,595	-	645,000
CY 2016	363,135			210,270	71,595		645,000
CY 2017	363,135			210,270	71,595		645,000
FO-40 Transmission Pipeline Re-Lining (FY 17-18)							
Cost Assignment -->	6.4%		91.0%	2.6%		0.0%	
CY 2016	34,523		(2)	9,177		-	43,700
CY 2017	34,523		497,088	9,177			540,788
CY 2018	34,523		994,175	9,177			1,037,875
CY 2019	34,523		497,088	9,177			540,788
CY 2020	34,523			9,177			43,700
CY 2021	-			-			-
Totals	1,349,020	-	1,988,350	676,695	214,785	87,000	4,315,850

Notes:

- (1) Based on the capital facilities charge schedule adopted in 2015. The storage building replacement project has been deferred, and charges collected for the project are assumed reimbursed in early 2017.
- (2) Estimates based on terms of agreement between the District and FOWD regarding cost sharing for Fair Oaks 40 transmission pipeline relining project.

It is recommended that the District adopt the proposed five-year wholesale water rate schedule with rate adjustments occurring each January from 2017 through 2021. The proposed water rates are reflect the cost of providing water service and are intended to meet the District current and estimated future service and financial obligations, enable the District to fund capital improvement projects as planned and schedule, help to minimize rate changes in any single year, and position the District for obtaining more favorable terms in issuing new long-term debt (as well as for the potential refunding of existing debt).

**Exhibit III-5
San Juan Water District
Current and Proposed Wholesale Water Rates**

	Current	Jan. 2017	Jan. 2018	Jan. 2019	Jan. 2020	Jan. 2021
Overall Composite Water Rate Incr. -->		16%	9%	9%	9%	5%
San Juan Retail District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 126,315	\$ 301,180	\$ 365,158	\$ 437,089	\$ 388,978	\$ 437,786
Qtrly. Capital Facil. Charge (1)	\$ 123,290	\$ 106,665	\$ 8,631	\$ 8,631	\$ 8,631	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 106,297	\$ 106,363	\$ 106,463	\$ 106,463	\$ 106,325	\$ 106,225
2012 Refunding Rev. Bonds	\$ 47,156	\$ 47,075	\$ 46,988	\$ 46,988	\$ 47,113	\$ 47,188
2019 COPs (2)					\$ 136,950	\$ 136,950
Citrus Heights Water District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 132,586	\$ 309,357	\$ 375,072	\$ 448,956	\$ 399,539	\$ 449,672
Qtrly. Capital Facil. Charge (1)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 113,161	\$ 113,238	\$ 113,338	\$ 113,338	\$ 113,200	\$ 113,088
2012 Refunding Rev. Bonds	\$ 55,047	\$ 54,963	\$ 54,850	\$ 54,838	\$ 54,988	\$ 55,088
2019 COPs (2)					\$ 124,500	\$ 124,500
Fair Oaks Water District						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 102,172	\$ 229,744	\$ 278,548	\$ 333,418	\$ 296,718	\$ 333,949
Qtrly. Capital Facil. Charge (3)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 70,427	\$ 70,475	\$ 70,538	\$ 70,538	\$ 70,450	\$ 70,375
2012 Refunding Rev. Bonds	\$ 40,451	\$ 40,388	\$ 40,313	\$ 40,300	\$ 40,400	\$ 40,475
2019 COPs (2)					\$ 95,450	\$ 95,450
Orangevale Water Company						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Qtrly. Serv. Charge (O, M, & R)	\$ 44,801	\$ 106,941	\$ 129,658	\$ 155,199	\$ 138,116	\$ 155,446
Qtrly. Capital Facil. Charge (1)	\$ 54,862	\$ 54,862	\$ 2,294	\$ 2,294	\$ 2,294	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 35,567	\$ 35,588	\$ 35,613	\$ 35,613	\$ 35,575	\$ 35,550
2012 Refunding Rev. Bonds	\$ 12,413	\$ 12,400	\$ 12,375	\$ 12,375	\$ 12,400	\$ 12,425
2019 COPs (2)					\$ 45,650	\$ 45,650
City of Folsom						
Water Usage Rate (\$/AF)	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Hinkle PS Surcharge (\$/AF) (4)	\$ 68.87	\$ 74.38	\$ 81.07	\$ 88.37	\$ 96.32	\$ 102.10
Qtrly. Serv. Charge (O, M, & R)	\$ 12,869	\$ 30,666	\$ 37,180	\$ 44,504	\$ 39,605	\$ 44,575
Qtrly. Capital Facil. Charge (1)	\$ 17,899	\$ 17,899	\$ -	\$ -	\$ -	\$ -
Quarterly Debt Service Charges						
2009 COPs	\$ 11,037	\$ 11,038	\$ 11,050	\$ 11,050	\$ 11,038	\$ 11,025
2012 Refunding Rev. Bonds	\$ 3,034	\$ 3,063	\$ 3,050	\$ 3,050	\$ 3,063	\$ 3,075
Direct Portion of 2012 Debt (4)	\$ 21,500	\$ 21,438	\$ 21,388	\$ 21,388	\$ 21,450	\$ 21,488
2019 COPs (2)					\$ 12,450	\$ 12,450

Notes:

- (1) Unchanged from 2014 rate study, except to remove charges related to Storage Building (old shop) Replacement, and to remove FOWD Fair Oaks 40" component (per new agreement).
- (2) Estimates based on estimated debt service obligations and cost allocations associated with anticipated new debt.
- (3) Actual cost sharing and payments from FOWD to be based on the recent agreement between the District and FOWD related to the Fair Oaks 40" transmission pipeline relining project.
- (4) Unique charges to City of Folsom and revenue to the retail water system.

**Exhibit III-6
San Juan Water District
2017 Costs of Water Service for Member Agencies (1)**

	SJWD	CHWD	FOWD	OVWC	Folsom
Est. 2017 Water Deliveries (AF)	13,680	13,015	9,978	4,615	1,334
Estimated Water Service Costs					
Wtr. Usage Chrg. @ \$77.85/AF (2)	\$ 1,072,986	\$ 1,020,827	\$ 782,621	\$ 361,976	\$ 203,855
OM&R Service Charge	\$ 1,204,720	\$ 1,237,427	\$ 918,977	\$ 427,764	\$ 122,663
Debt Service Charge (3)	\$ 613,750	\$ 672,800	\$ 443,450	\$ 191,950	\$ 142,150
Total Water Service Costs	\$ 2,891,455	\$ 2,931,053	\$ 2,145,047	\$ 981,690	\$ 468,667
% Chng. from 2016 Rates (4)	15.0%	15.8%	14.7%	16.6%	11.1%
Est. 2017 overall cost per AF	\$ 211.36	\$ 225.21	\$ 214.98	\$ 212.72	\$ 351.32

Notes:

- (1) Capital facilities charges are not included in this exhibit.
- (2) City of Folsom is also subject to a pumping surcharge of \$74.38 per AF, which is included herein.
- (3) City of Folsom is also subject to an additional debt service charge (direct debt), which is included herein.
- (4) Comparison between 2017 rates and 2016 rates with estimated 2017 water usage.

TREAT AND WHEEL WATER RATE FOR SSWD

In October 1994, the District amended an agreement with the Northridge Water District (now Sacramento Suburban Water District, or SSWD) concerning the diversion, treatment, and conveyance of water. Under this agreement, the District agreed to use available surplus capacity to treat and wheel surface water through the wholesale water system to SSWD, upon SSWD's request. The agreement contemplates the delivery of SSWD's own water (or water obtained by SSWD), herein referred to as "SSWD water", or surplus District water, as conditions and circumstances may dictate. At present, it is generally SSWD water that is moved through the District's wholesale water facilities for SSWD.

The relevant section of the 1994 agreement provides the following language for charging SSWD for water deliveries:

4. Payment for Use of Surplus Capacity or Surplus Water. San Juan's charge to Northridge for use of Surplus Capacity in San Juan's Facilities to deliver Surplus Water or Northridge Water shall be at the same average wholesale water rate it charges to San Juan's Member Districts, plus a charge to cover the pro rata cost of treating water to be delivered to Northridge to the extent treatment costs are not included in the wholesale water rate. The charge for using Surplus Capacity to divert, treat, and deliver Northridge Water shall not include the cost-of-water component of San Juan's wholesale water rate, but may include the cost to San Juan to obtain Surplus Water specifically for the purpose of making it available for delivery to Northridge.

At present, the District charges SSWD \$135.34 per AF for SSWD water treated and wheeled through District facilities and delivered to SSWD. District staff asked that a new water rate be calculated as part of this wholesale water rate update.

While the language from the 1994 agreement is somewhat vague, the following calculation is proposed for determining an appropriate 2017 treat and wheel water rate for SSWD. It is based on information reflected in the wholesale financial plan presented in this report, as well as cost data included in Exhibit III-2.

$$\begin{aligned} \text{SSWD Rate} &= \frac{[\text{SJWD Whls. Rev. Reqmt.} - \text{Source of Supply Costs}]}{\text{Est. Annual SJWD Water Deliveries}} \\ &= \frac{[\$9,233,000 - \$1,516,000]}{42,622 \text{ AF}} \\ &= \$181.06 \text{ per AF} \end{aligned}$$

Other interpretations of the agreement language are certainly possible. However, this calculation is consistent with the agreement's intent, reasonable, and relatively easily replicated in future years. While the proposed rate is about 34 percent more than the current rate charged to SSWD, it is also significantly lower than the effective per-acre-foot rates paid my wholesale member agencies (see bottom of Exhibit III-6).

Based on the proposed overall wholesale water rate increases for 2018 through 2021 from the financial plan model, future SSWD treat and wheel water rates would increase as follows:

2018	\$197.35 per AF
2019	\$215.11 per AF
2020	\$234.47 per AF
2021	\$246.20 per AF

If the District were to deliver District water to SSWD, rather than SSWD water, then the cost of that water should be added to the rates presented above.

San Juan Water District

Wholesale Financial Plan and Water Rate Update Study

October 26, 2016

The Reed Group, Inc.



Presentation Outline

- Proposed 5-year rate plan
- Current financial situation
- Financial plan development
 - O&M costs, debt obligations, CIP needs
 - Funding for capital projects
 - Efficient use of financial resources
 - Other scenarios examined
- Water rate analyses
 - Rate structure refinement
 - Proposed rate schedules
- Summary of recommendations

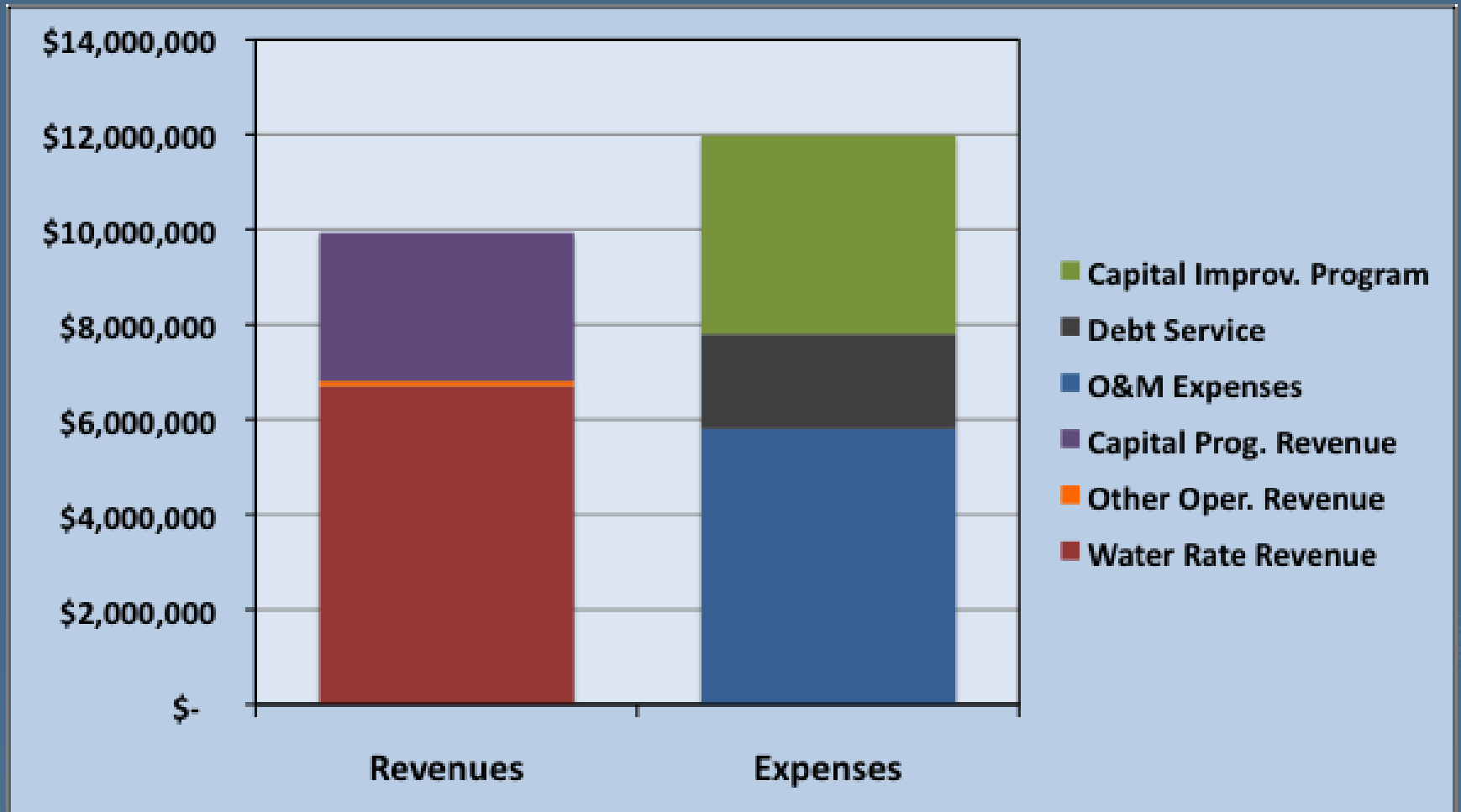


Annual Overall Wholesale Water Rate Adjustments

Year	Increase		Year	Increase
2017	16%		2022	5%
2018	9%		2023	5%
2019	9%		2024	6%
2020	9%		2025	6%
2021	5%		2026	6%



Est. FY 15-16 Revs. & Expenses



FY 15-16 Year-End Reserves*

- **Operating Fund (Total = \$3,233,000)**
 - Operating Reserve \$1,520,000
 - Rate Stabilization Reserve \$1,000,000
 - Comp. Absences \$194,000
 - PERS Stab. Reserve \$416,000
 - Delta/Water Rights Reserve \$103,000
 - Uncommitted Bal. \$0
- **Capital Fund (Total = \$9,188,000)**
 - General CIP Reserve \$6,437,000
 - Vehicle/Equipment Reserve \$77,000
 - Hinkle Res. Reserve \$2,674,000

* Excludes restricted debt service reserves

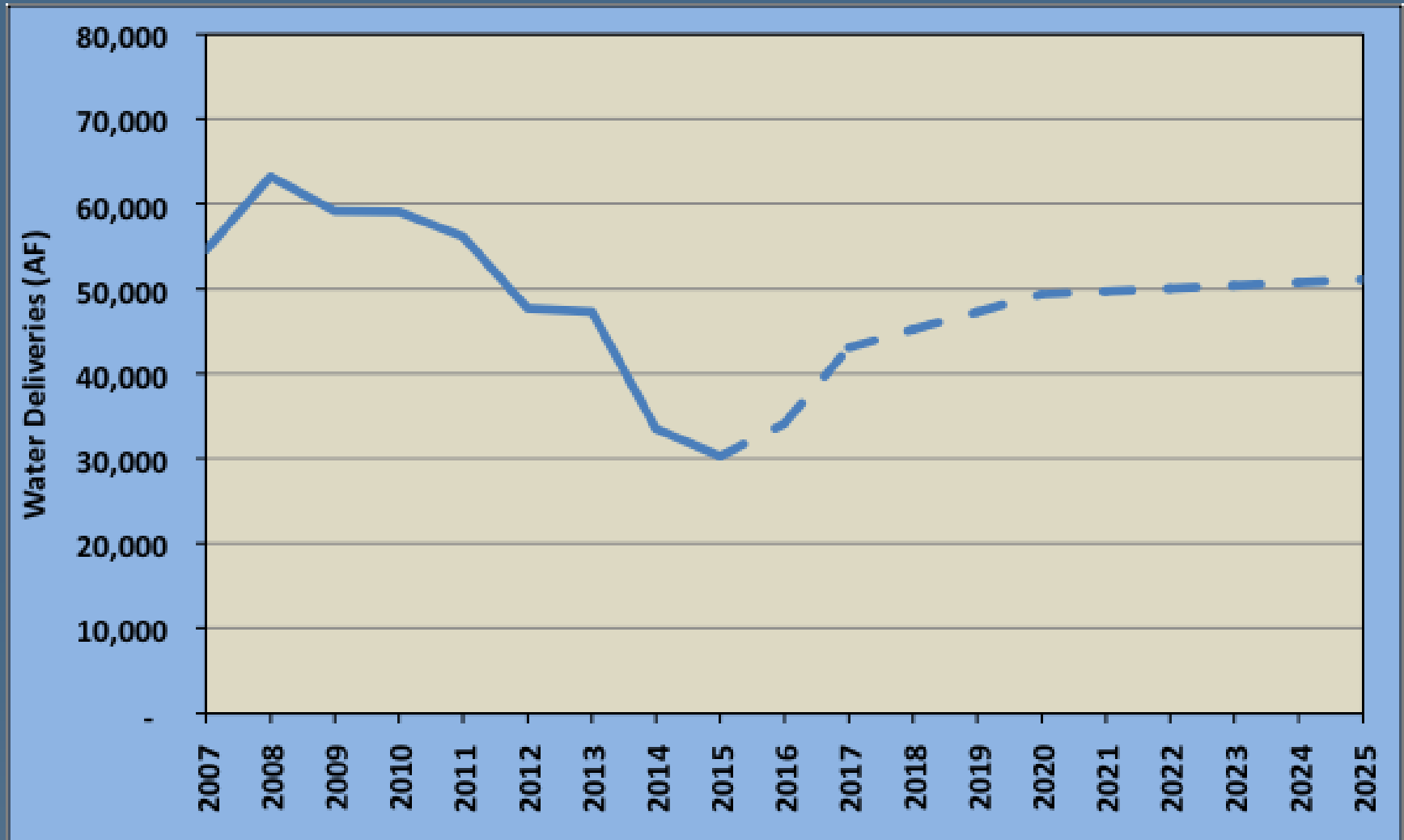


Impacts of Recession and Drought

- 2009 recession resulted in reduced water deliveries to wholesale customers (about 20% over 2 years) and efforts to minimize rate increases
- With recent drought water deliveries declined about 35% in 2015, relative to 2013
- Reduced water sales necessitated increased reliance on financial reserves
- Trajectory of demand rebound is uncertain



Wholesale Water Deliveries

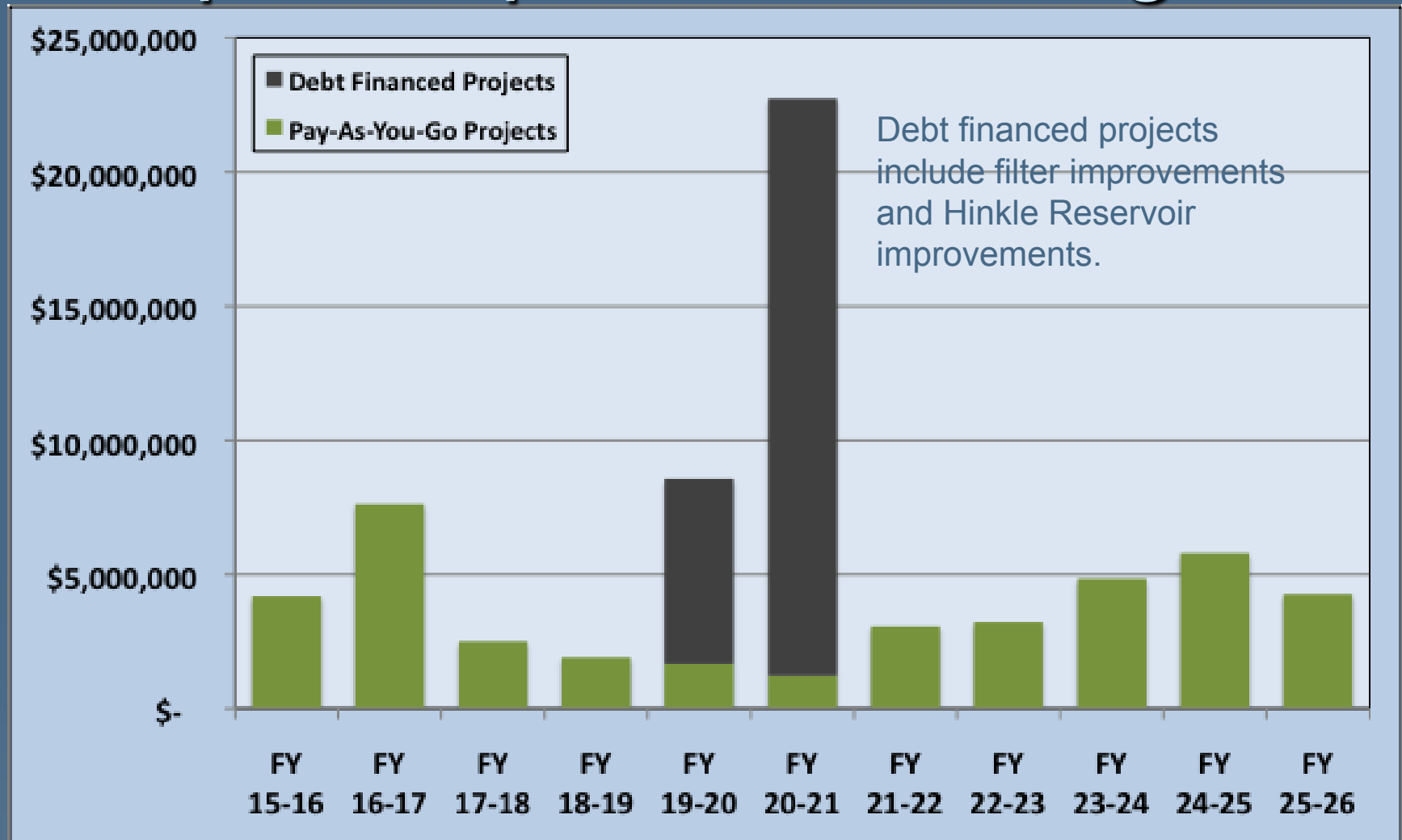


Future Costs and Obligations

- O&M costs increase from \$7.1 million to \$10 million per year over planning period
 - Average increase is about 4.0% per year
- Existing debt service stable at about \$2.0 million per year
 - New debt could add \$1.7 million per year
- Capital program totals \$64.6 million over 10 years
 - Pay-as-you-go program totals \$36.2 million
 - Debt financed program totals \$28.4 million



Capital Improvement Program



Wholesale CIP Financing

- Issue new debt in 2019
 - \$28.75 million par amount at estimated 4.0%
 - Annual debt service (and total interest)
 - 30-year term = \$1,663,000 (\$21.1 Mil. total interest)
 - 20-year term = \$2,115,000 (\$13.5 Mil. total interest)
 - 10-year term = \$3,545,000 (\$6.7 Mil. total interest)
- Pay-as-you-go funding
 - About \$36.2 million over 10 years



Economic Efficiency

- Current rate of return on District's investments ~ 0.5%
- Long-term bond interest rates ~ 2.5% to 4.0%
- Interest paid on PERS unfunded accrued liability (UAL) ~ 7.5%
 - Est. UAL as of 6/30/16 ~ \$5,477,000



Projected PERS Contributions and UAL Payments

	Required Contrib.	Projected Future Employer Contribution Rates					EE Share
	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	
Normal Contribution %							
Tier 1	12.657%	12.7%	12.7%	12.7%	12.7%	12.7%	8.0%
Tier 2	11.995%	12.0%	12.0%	12.0%	12.0%	12.0%	8.0%
PEPRA	6.555%	6.6%	6.6%	6.6%	6.6%	6.6%	6.2%
Est. Contribution \$s (Employer Share)							
Est. Total ER Contrib.	\$ 202,000	\$ 213,000	\$ 229,000	\$ 236,000	\$ 243,000	\$ 250,000	
Unfunded Accrued Liability (UAL) Payments							
Tier 1	\$ 336,368	\$ 402,713	\$ 472,735	\$ 546,597	\$ 579,707	\$ 620,061	
Tier 2	\$ -	\$ 304	\$ 889	\$ 1,509	\$ 2,165	\$ 2,859	
PEPRA	\$ 37	\$ 116	\$ 200	\$ 289	\$ 384	\$ 421	
Est. Total UAL Payments	\$ 336,405	\$ 403,133	\$ 473,824	\$ 548,395	\$ 582,256	\$ 623,341	



Current PERS Unfunded Accrued Liability (UAL)

- Est. UAL at June 30, 2016 = \$5,477,000
 - Wholesale portion = \$2,300,000
 - Retail portion = \$3,177,000
- Available reserves to eliminate the UAL
 - Wholesale
 - Wholesale PERS stab. reserve = \$416,000
 - Hinkle reservoir reserve = \$1,884,000
 - Retail
 - Retail PERS stab. reserve = \$411,000
 - Kokila reservoir reserve = \$393,000
 - Hinkle reservoir reserve = \$790,000 (loan from whls.)
 - General CIP reserve = \$1,584,000

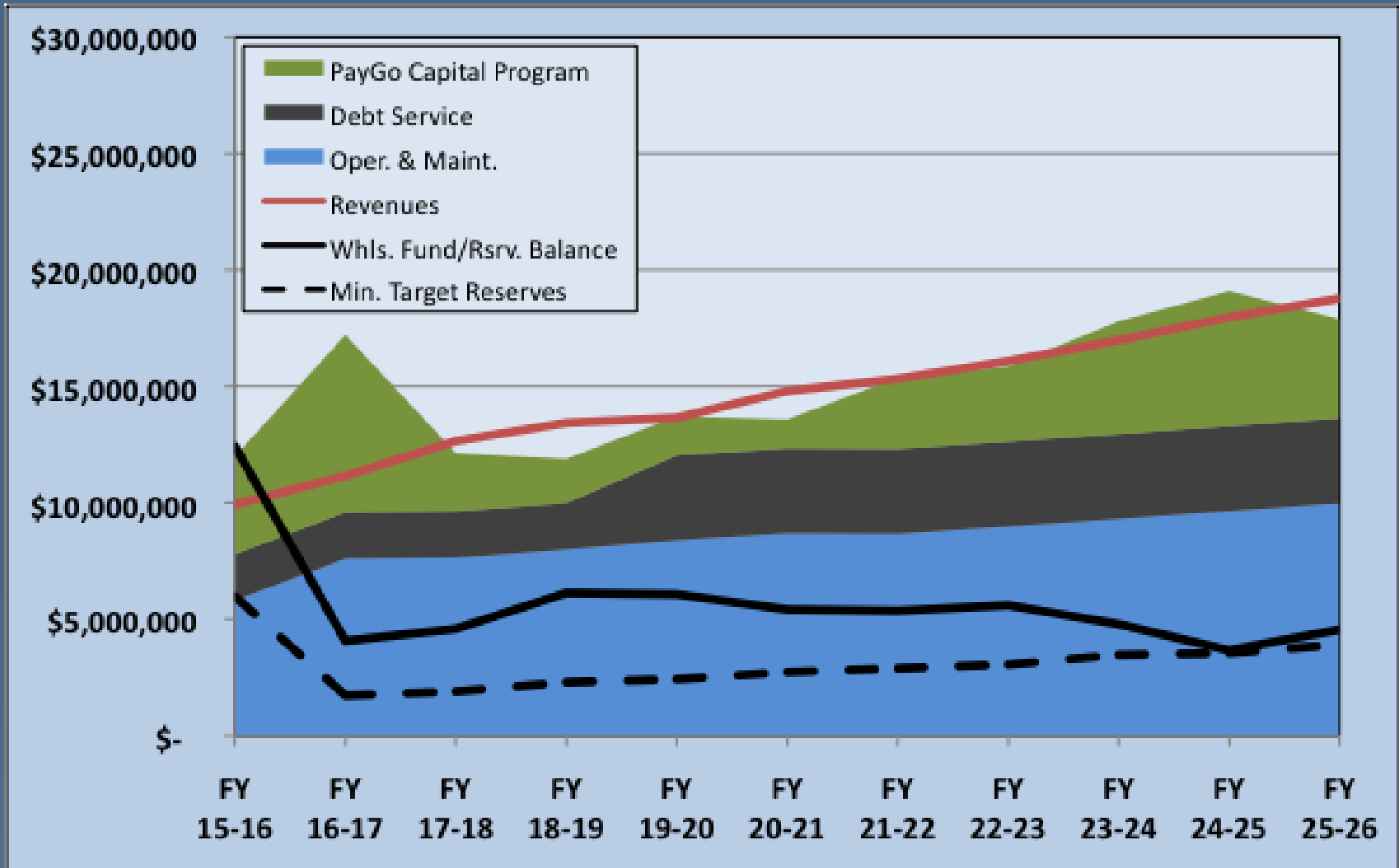


Financial Plan Strategy

- Issue new long-term debt in 2019 for major capital improvement projects
 - Maintain pay-as-you-go for majority of CIP
- Pay off PERS UAL to reduce interest costs and future uncertainty
- Bring revenues and expenses into balance
- Maintain prudent reserves
- Gradually increase wholesale water rates
 - 16%, 9%, 9%, 9%, and 5% over 5 years



Wholesale Financial Plan Summary



Debt proceeds and debt-funded projects not shown.



Other Scenarios Examined

- Shorter debt repayment term on new debt
 - 20-years: Additional 5% rate increase by 2019
 - 10-years: Additional 15% rate increase by 2019
- SRF loan (1.7%) rather than COPs (4.0%)
 - May reduce annual debt service about \$400,000
- Refund 2009 COPs
 - \$610,000 annual savings if refunded in 2018
- Extend 5-year rate plan over 10 years
 - Unable to issue new debt
 - Majority of CIP deferred past 10 years
- Maintain PERS UAL
 - Wholesale rates about 3% higher in 2017



Wholesale Rate Analysis

- Anticipate gradual rebound in water deliveries
- Gradually increase emphasis on fixed changes
 - Reduce, then hold, water usage rate
- “Overall” rate increases apply to sum total of usage charges, fixed O,M&R service charges, and debt service charges
- No change in capital facilities charges



Proposed Wholesale Water Rates

	Current	Jan. 2017	Jan. 2018	Jan. 2019	Jan. 2020	Jan. 2021
Water Usage Rate (\$/AF)						
All Water Deliveries	\$ 102.02	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43	\$ 78.43
Quarterly O, M, & R Service Charges						
San Juan Water District	\$ 126,315	\$ 301,180	\$ 365,158	\$ 437,089	\$ 388,978	\$ 437,786
Citrus Heights Water District	\$ 132,586	\$ 309,357	\$ 375,072	\$ 448,956	\$ 399,539	\$ 449,672
Fair Oaks Water District	\$ 102,172	\$ 229,744	\$ 278,548	\$ 333,418	\$ 296,718	\$ 333,949
Orangevale Water Company	\$ 44,801	\$ 106,941	\$ 129,658	\$ 155,199	\$ 138,116	\$ 155,446
City of Folsom	\$ 12,869	\$ 30,666	\$ 37,180	\$ 44,504	\$ 39,605	\$ 44,575
Quarterly Debt Service Charges						
San Juan Water District	\$ 153,453	\$ 153,438	\$ 153,450	\$ 153,450	\$ 290,388	\$ 290,363
Citrus Heights Water District	\$ 168,208	\$ 168,200	\$ 168,188	\$ 168,175	\$ 292,688	\$ 292,675
Fair Oaks Water District	\$ 110,878	\$ 110,863	\$ 110,850	\$ 110,838	\$ 206,300	\$ 206,300
Orangevale Water Company	\$ 47,980	\$ 47,988	\$ 47,988	\$ 47,988	\$ 93,625	\$ 93,625
City of Folsom	\$ 35,571	\$ 35,538	\$ 35,488	\$ 35,488	\$ 48,000	\$ 48,038

Notes:

(1) Capital facilities charges are not shown. City of Folsom is also subject to a pumping surcharge and an additional debt service charge.



Est. Cost of Water Service in 2017

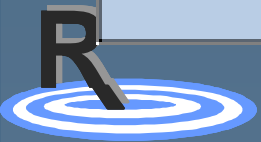
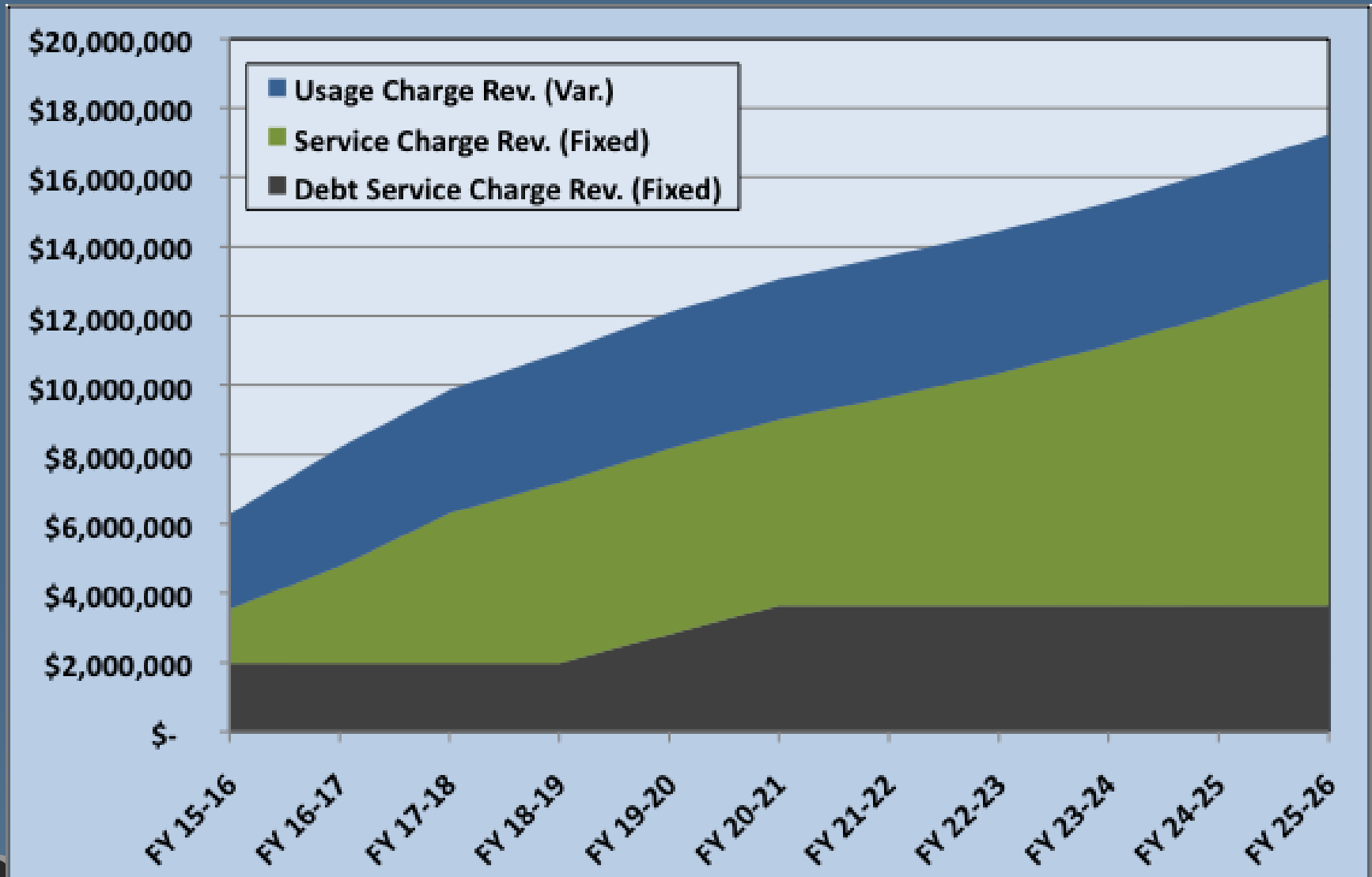
	SJWD	CHWD	FOWD	OVWC	Folsom
Est. 2017 Water Deliveries (AF)	13,680	13,015	9,978	4,615	1,334
Estimated Water Service Costs					
Wtr. Usage Chrg. @ \$78.43/AF (2)	\$ 1,072,986	\$ 1,020,827	\$ 782,621	\$ 361,976	\$ 203,855
OM&R Service Charge	\$ 1,204,720	\$ 1,237,427	\$ 918,977	\$ 427,764	\$ 122,663
Debt Service Charge (3)	\$ 613,750	\$ 672,800	\$ 443,450	\$ 191,950	\$ 142,150
Total Water Service Costs	\$ 2,891,455	\$ 2,931,053	\$ 2,145,047	\$ 981,690	\$ 468,667
% Chng. from 2016 Rates (4)	15.0%	15.8%	14.7%	16.6%	11.1%
Est. 2017 overall cost per AF	\$ 211.36	\$ 225.21	\$ 214.98	\$ 212.72	\$ 351.32

Notes:

- (1) Capital facilities charges are not included in this exhibit.
- (2) City of Folsom is also subject to a pumping surcharge of \$74.38 per AF, which is included herein.
- (3) City of Folsom is also subject to an additional debt service charge (direct debt), which is included herein.
- (4) Comparison between 2017 rates and 2016 rates with estimated 2017 water usage.



Wholesale Rate Revenue Mix



Financial Plan Results

- Operation, maintenance, and debt service obligations met through planning period
- Majority of CIP projects funded on pay-as-you-go basis using available reserves and revenues
 - New debt issued in 2019 for two major projects
- Reserve recommendations help to reduce costs and help limit annual rate adjustments
- 5-year rate schedules recommended for adoption
 - Proposed rate schedules meet cost of service requirements and help improve revenue stability



Annual Overall Wholesale Water Rate Adjustments

Year	Increase		Year	Increase
2017	16%		2022	5%
2018	9%		2023	5%
2019	9%		2024	6%
2020	9%		2025	6%
2021	5%		2026	6%



5-Year SJWD Rate Adjustments

Year	Wholesale	Retail
2017	16%	8%
2018	9%	9%
2019	9%	9%
2020	9%	9%
2021	5%	6%



Impact of Wholesale Rates on Wholesale Customers' Retail Rates

- San Juan Water District 4.1%
- Citrus Heights Water District 4.8%
- Fair Oaks Water District 3.2%
- Orange Vale Water Company 5.3%



RESOLUTION NO. 16-17

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE SAN JUAN WATER DISTRICT
IN RECOGNITION OF ROBERT A. CHURCHILL**

WHEREAS, Robert A. Churchill began his career as an Engineer with Citrus Heights Irrigation District on May 6, 1976; and

WHEREAS, Mr. Churchill was appointed as General Manager on September 1, 1986; and

WHEREAS, Mr. Churchill will be retiring from Citrus Heights Water District on November 17, 2016, concluding a 40+ year career as longest serving employee at CHWD; and

WHEREAS, the San Juan Water District recognizes Mr. Churchill for his many contributions to the water community, the wholesale customer agencies, the CHWD customers and the CHWD staff; and

WHEREAS, the San Juan Water District thanks Mr. Churchill for his vision and participation in the completion of the cooperative transmission pipeline, a large regional pipeline that will continue long into the future as a regional asset and as a water management tool; and

WHEREAS, Robert A. Churchill will now be able to more actively follow the Oregon State Beavers and San Francisco Giants.

NOW, THEREFORE, BE IT RESOLVED that the San Juan Water District's Board of Directors hereby expresses sincere gratitude and appreciation to Robert A. Churchill for his many years of excellent community service as the General Manager of Citrus Heights Water District.

PASSED AND ADOPTED by the Board of Directors of the San Juan Water District on the 26th day of October 2016.

PAMELA TOBIN
President, Board of Directors

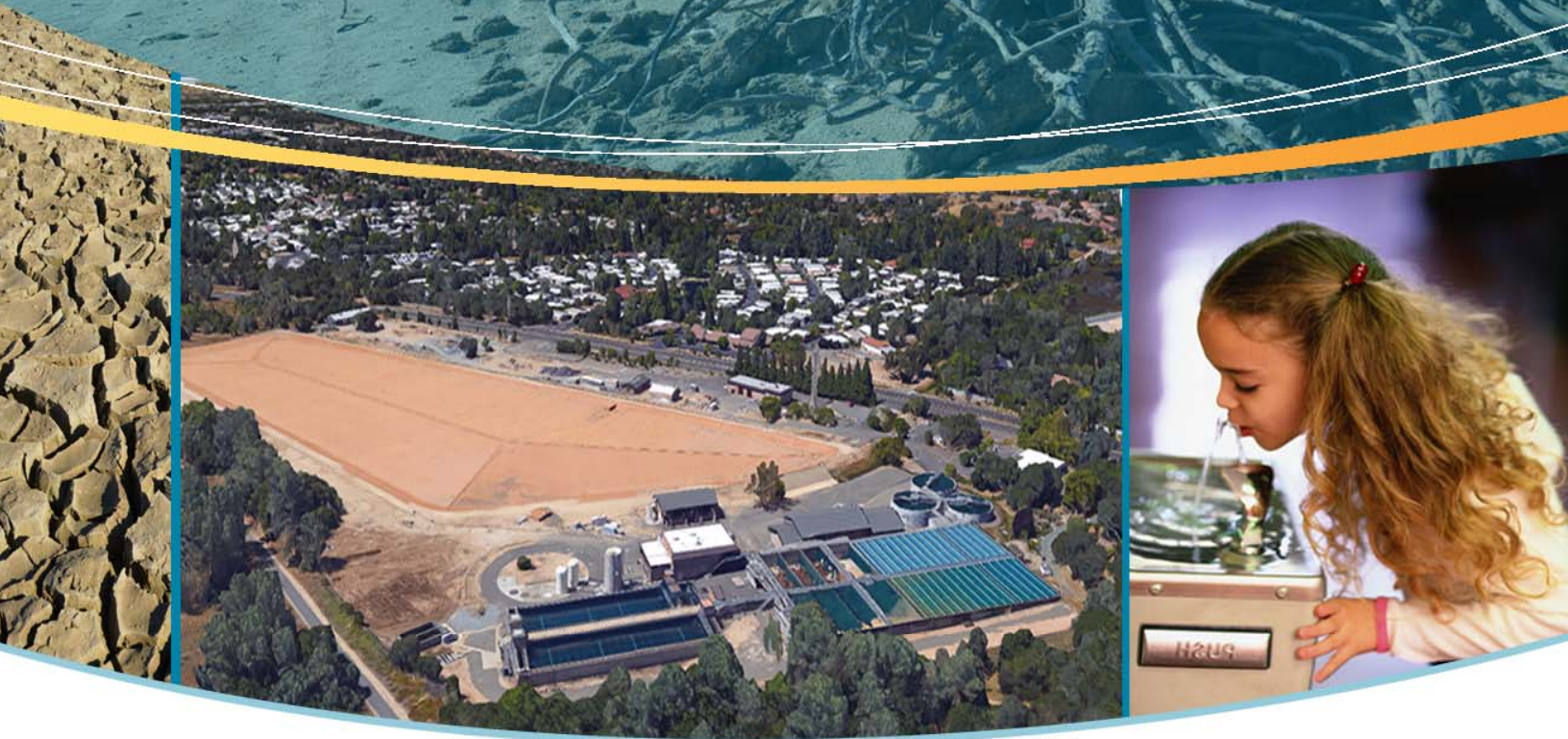
ATTEST

TERI GRANT
Secretary, Board of Directors



Wholesale Water Management and Reliability Study

FINAL STUDY REPORT | OCTOBER 2016



PREPARED BY



MWH® now part of



Stantec

with



List of Abbreviations and Acronyms

AF	acre-feet	PS	pump station
ARPS	American River Pump Station	RDCP	Regional Drought Contingency Plan
ASR	aquifer storage and recovery	Reclamation	U.S. Department of the Interior, Bureau of Reclamation
Cal-Am	California American Water Company	RLECWD	Rio Linda/Elverta Community Water District
CHWD	Citrus Heights Water District	RW	recycled water
CoR	City of Roseville	RWA	Regional Water Authority
CVP	Central Valley Project	RWRP	Regional Water Reliability Plan
CWD	Carmichael Water District	SGA	Sacramento Groundwater Authority
District	San Juan Water District	SGMA	Sustainable Groundwater Management
DPMWD	Del Paso Manor Water District	SCWA	Sacramento County Water Agency
FOWD	Fair Oaks Water District	SJWD	San Juan Water District
GSWC	Golden State Water Company	SSWD	Sacramento Suburban Water District Study
GW	groundwater	Subbasin	North American Groundwater Subbasin
ID	Identification	SW	surface water
MFP	Middle Fork Project	TAF	thousand acre-feet
mgd	million gallons per day	WCA	Wholesale Customer Agency
N/A	not applicable	WTP	water treatment plant
NF	North Folsom	WWTP	wastewater treatment plant
NS	transfer/exchange		
O#	Option #		
OVWC	Orange Vale Water Company		
PCWA	Placer County Water Agency		
POU	place of use		

Acknowledgement:

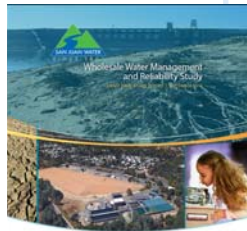
The study team would like to thank the active engagement and guidance of the San Juan Water District Board of Directors and Water Supply and Reliability Committee throughout the intensive study development. The valuable input received from the Wholesale Customer Agencies and other regional water agencies and partners were also appreciated.

INTRODUCTION

The Wholesale Water Management and Reliability Study (Study) is a reconnaissance-level study initiated by the San Juan Water District (District) to identify a pathway to long-term water supply reliability for both the District and its Wholesale Customer Agencies. The Study describes the challenges facing the District; and includes development and evaluation of a comprehensive array of water management options ranging from facility improvements to operational agreements and regional collaboration to governance and institutional arrangements. The District intends to leverage Study findings to guide its participation in regional collaborative efforts, and to develop a long-term implementation plan.

This Study is the first step in the District’s evaluation and development of a program to achieve long-term water supply reliability.

Wholesale Water Management and Reliability Study



Introduction	1
Approach	4
Initial Water Management Options and Evaluation	8
Refined Water Management Options and Evaluation	14
Key Findings	20
Recommendations	22

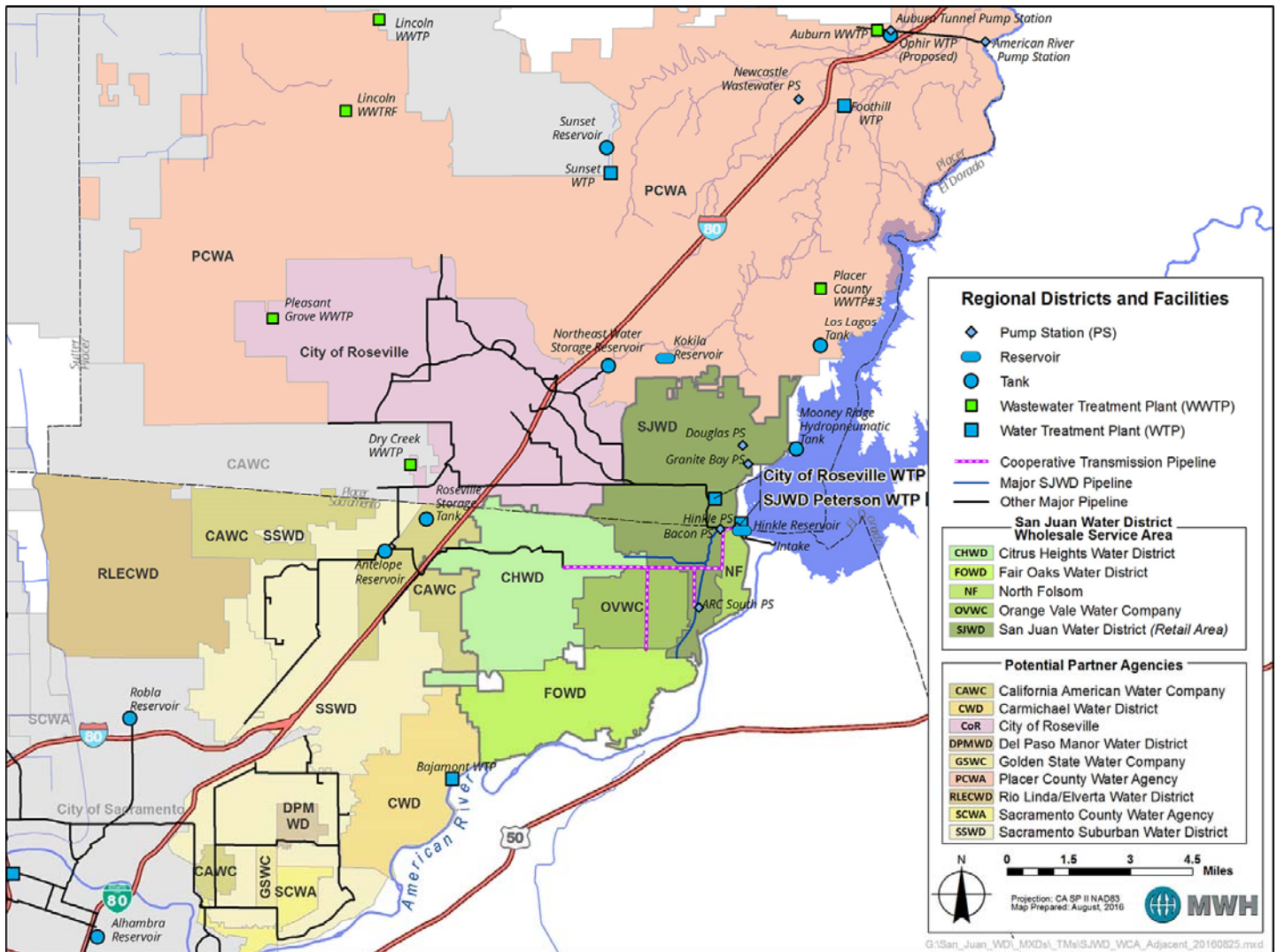
Located adjacent to Folsom Reservoir, the District diverts, treats, and delivers reliable, high-quality surface water service to about 160,000 retail and wholesale customers in eastern Sacramento and southern Placer counties. The District retails treated water in portions of Sacramento and Placer Counties, and wholesales treated water to Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and the City of Folsom (for the Ashland area north of the American River). These agencies are collectively referred as to the Wholesale Customer Agencies or WCAs. In addition, the District treats surface water for Sacramento Suburban Water District (SSWD) when both plant capacity and SSWD’s supply from Folsom Reservoir are available.

With its roots tracing back to the Gold Rush era, the District holds a healthy measure of water rights and contract entitlements from the American River relative to its demands. The District holds a pre-1914 appropriative water right of 26,400 acre-feet per year and an appropriative water right of 6,600 acre-feet per year, both from the American River. The senior water right status prompted the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) to enter into an agreement with the District upon construction of Folsom Reservoir, setting the District’s maximum diversion under its water rights to 33,000 acre-feet per year at a rate of 75 cubic feet per second. The District also has the following contractual water entitlements:

BACKGROUND

San Juan Water District (District or SJWD) is a community services district established by a vote of the citizens in 1954, formed under Section 61000 et seq., Title 6, Division 3 of the California Government Code Water Code, Section 3000.

District's Retail and Wholesale Service Area and Potential Regional Partners



To help alleviate the health and safety concerns during California's ongoing historic drought, the District implemented two projects in 2015 to provide access to emergency supplies:

- Antelope Booster Pump Station Pump Back Project that provides up to 14.4 million gallons per day (MGD) of groundwater from SSWD to SJWD.
- Barton Road Emergency Intertie and Pump to expand intertie capacity with PCWA's treated water system to 3 MGD.

(1) a Central Valley Project (CVP) water supply contract for 24,200 acre-feet per year; and (2) a water supply contract with Placer County Water Agency (PCWA) for 25,000 acre-feet per year. The District has an existing Warren Act Contract with Reclamation to wheel non-CVP water supply through federal facilities, such as Folsom Reservoir and the intake facilities that connect to the District's water treatment plant (WTP).

CHALLENGES AHEAD

The historic drought that unfolded over the last several years severely tested the robustness and resiliency of California's water management systems. The District, which has long enjoyed a reliable surface water supply from Folsom Reservoir, is no exception. On December 5, 2015, storage in Folsom Reservoir reached a record low level of 135,000 acre-feet, surpassing the prior low of 140,600 acre-feet which occurred during the 1977 drought. As a precautionary measure, Reclamation recently completed construction of a series of temporary pumps that could draw water out of the reservoir even if levels fall below the municipal intake—the intake for the District and other water users in Sacramento-Placer region. Further drops in reservoir level could force the District and other water users to rely heavily on alternative water sources (e.g., groundwater), even with high levels of conservation. This scenario has come very close to reality several times recently.

The 2000 Water Forum Agreement and subsequent 2003 American River Basin Cooperating Agencies Regional Water Master Plan outlined a conjunctive use program to serve as a water supply reliability strategy for both the District and the region. This program was intended to make use of the District's 82,200 acre-feet



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.

per year of surface water supplies in most hydrologic years to build up groundwater storage, reserving groundwater to supplement surface water supplies in dry years to compensate for reduced surface water diversions on the Lower American River due to hydrologic conditions and environmental protection. However today, all WCAs rely primarily on surface water, and full potential of the conjunctive use program has not been realized due to infrastructure limitations and required partnership and operating agreements.

The District's long-term water supply reliability challenges are reflected in several different ways.

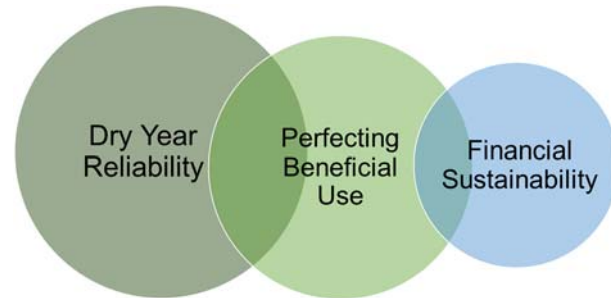
- When surface water is extremely limited, the District does not have sufficient facilities to provide a redundant water supply to its retail and wholesale customers from groundwater or alternate sources.
- The District does not currently possess storage rights in Folsom Reservoir, nor does it own large surface water storage facilities to hold water in normal and wet years.
- The District does not have, or have access to, groundwater banking capacity through collaboration with partners, either in or outside the wholesale service area, that could be used to store surplus surface water supplies in normal and wet years for use during dry years.
- The District's water rights and contract entitlements may be at risk if it cannot put them to use in their entirety, further reducing reliability in the face of increasing regulatory requirements and competition for uses throughout the system.

REGIONAL CONTEXT

This Study is being conducted concurrent with the Regional Water Authority's (RWA) Regional Drought Contingency Plan (RDCP) and Regional Water Reliability Plan (RWRP). The intent of the RDCP is to increase the resiliency of the region's water resources in the face of future climate and drought conditions. The RWRP aims to further advance regional collaboration towards full realization of the envisioned regional conjunctive use program, including the development of a federally-recognized groundwater bank, which would facilitate banking of the District's (and others') CVP water supplies. Study findings will allow the District to refine its strategic long-term plan and better position it to align and integrate with both the RDCP and RWRP.

APPROACH

The District's long-term focus is on providing increased water supply reliability to its retail and wholesale customers during dry years, and that can be best accomplished by integrating surface water and groundwater resources to fully leverage the District's water rights, contract entitlements, and available and planned facilities, all in a financially responsible and sustainable manner.



STUDY GOAL AND OBJECTIVES

The Study goal is to identify, analyze, and assess opportunities and potential projects to better utilize and integrate management of surface water and groundwater resources within the District's wholesale service area, and potentially outside the District's current service area, through collaboration, consolidations, or other actions improve its water supply reliability.

The three specific objectives of this Study are as follows:

1. Increase water supply reliability to the District's retail customers and WCAs during dry years by integrating surface water and groundwater storage.
2. Increase and enhance the use of the District's water rights, contractual entitlements, and facilities.
3. Provide long-term financial benefits to District ratepayers, and provide regional and, potentially, statewide benefits.

PLANNING PRINCIPLES

The following planning principles provided guidance on how the Study was developed and evaluations were conducted. Planning principles were necessary to aid in development and efficient screening of proposed water management options:

- Consider the full range of options within the District's maximum allowable authority.
- Maintain and improve current water supply reliability to WCAs.
- Maintain consistency with new and emerging regulations, such as the Sustainable Groundwater Management Act (SGMA).
- Maintain consistency with Water Forum Agreement, and consider regional setting and legal considerations.
- Maximize potential financial assistance for implementation.
- Conduct a structured, inclusive, and transparent planning process.

STUDY PROCESS

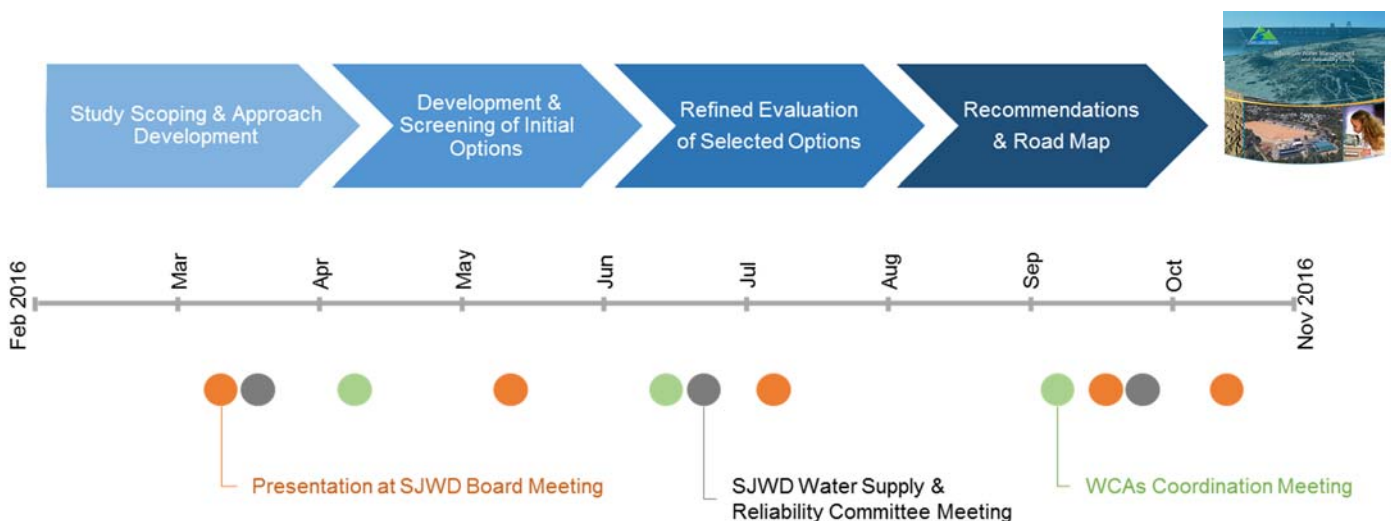
The Study process reflected a streamlined approach, where incremental findings from discrete tasks were documented in technical memoranda. It included the following activities:

- Study Scoping and approach development
 - Development of the Study goal, objectives, and planning principles.
 - Collection and review of existing information.
 - Development of screening criteria and metrics.
- Development and screening of initial water management options.
- Refined evaluation of selected water management options.
- Recommendations and Road Map
 - Development of a detailed scope for next phase of the Study.
 - Development of recommendations and a Study Final Report.

The Study process also included regular workshops and meetings with the District Water Supply and Reliability Committee, District Board of Directors, WCA representatives, and WCA Boards of Directors. All workshops and meetings were open to the public.

Study Process and Engagement

The four-step process provides a systematic approach to derive the final recommendations with efficient advisory communications within established venues, allowing additional transparency and public involvement opportunities in the short study timeframe.

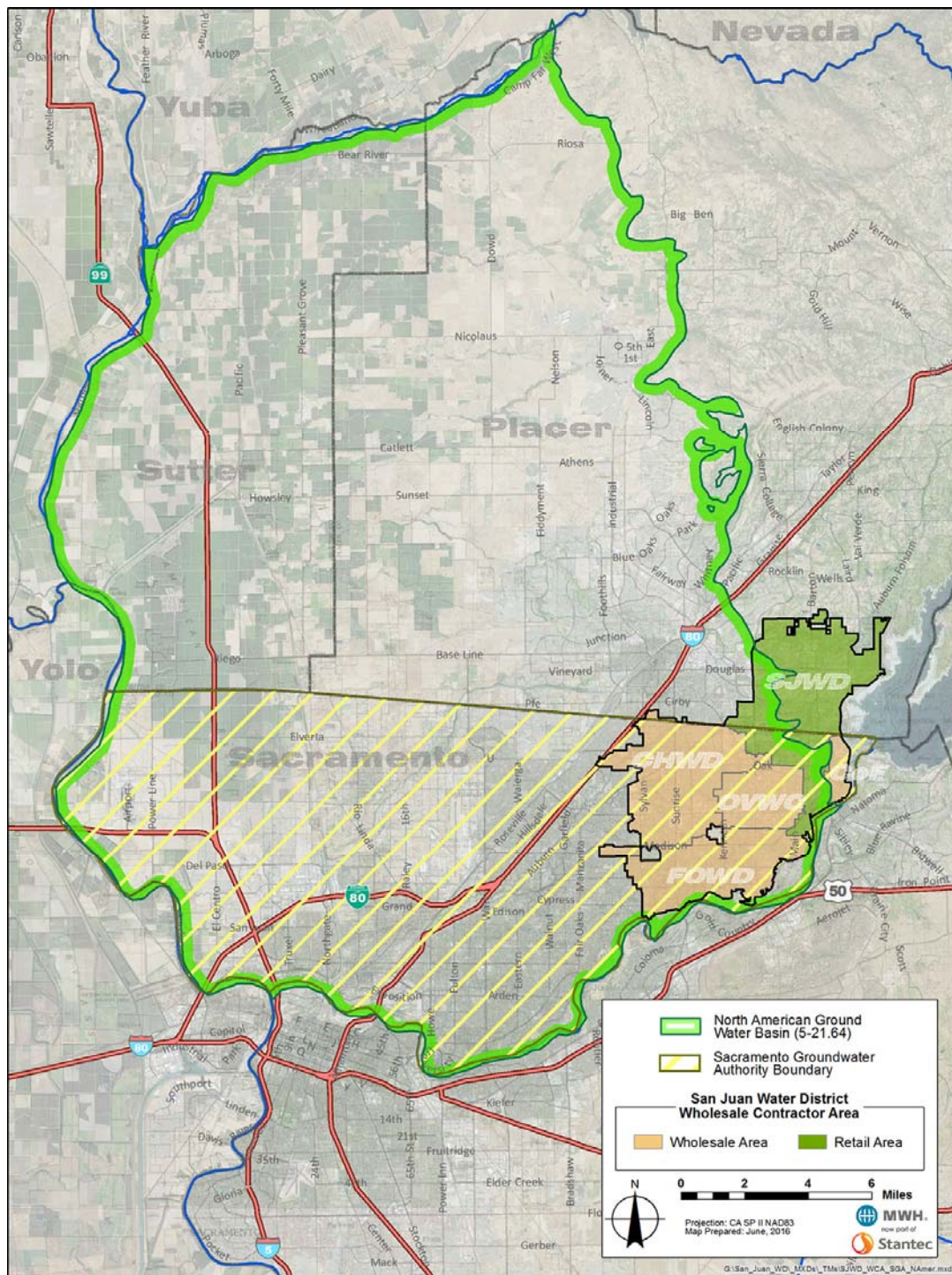


Study Report and Associated Technical Memoranda

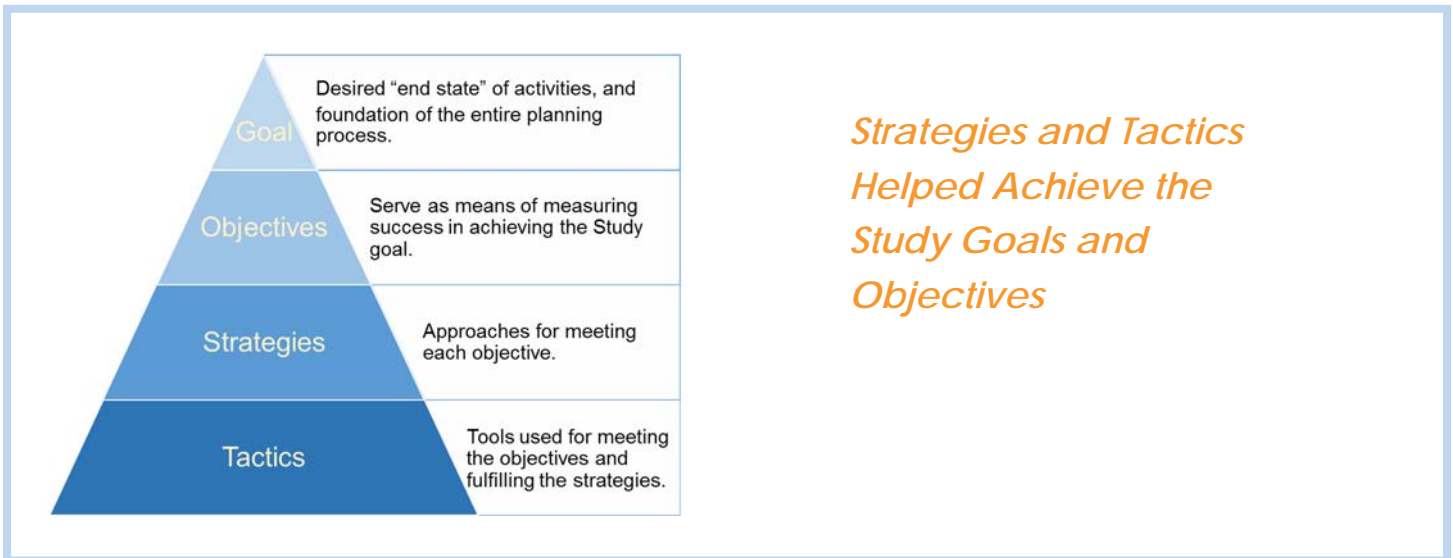
This Study Report summarizes the planning and technical efforts undertaken throughout conduct of the Study. A series of 6 TMs were prepared to document findings from discrete tasks, representing “snapshots in time” during the intensive Study process.

- **TM1: Purpose, Goals, and Objectives**—This TM sets the direction for the broader Study process by defining the purpose, goals, objectives, and planning constraints. It also describes the process and schedule, and roles and responsibilities for conducting the Study.
- **TM2: Review of Existing Information**—This TM summarizes the compilation and review of existing information required for completing the Study. It contains:
 - Descriptions of the categories of data and information needed to support the Study
 - Overview of the status and high-level assessment of the existing data and information
 - Recommendations and next steps
- **TM3: Screening Criteria and Methodology**—This TM presents the Study criteria, methods, and approach. It contains:
 - Description of the evaluation criteria and metrics developed to support evaluation, comparison, and prioritization of identified water management options (option)
 - Overview of the approach for screening the initial options using the developed evaluation criteria and metrics to identify which options should be retained for further evaluation
 - Overview of the approach for prioritizing the retained options using the results of a more detailed evaluation of each retained option and applying the same evaluation criteria and metrics to provide a consistent framework for evaluation, comparison, and prioritization of the options
- **TM4: High-Level Evaluation and Screening of Water Management Options**—This TM contains:
 - Identification and screening of the initial options
 - Results from the screening of the initial options using the developed evaluation criteria and metrics to identify which options should be retained for further evaluation
 - Overview of the approach for prioritizing the retained options
- **TM5: Evaluation of Retained Water Management Options**—This TM contains:
 - Review of the identification, screening, and evaluation of the initial options including the evaluation criteria and metrics used in the process
 - Grouping of the retained options by theme into a set of 5 combined options
 - Evaluation and comparison of the 5 combined options
 - Key findings on the combined options
 - Next steps in the Study
- **TM6: Feasibility Study Scope of Work**—This TM contains the scope of work for the next step in developing and evaluating the 5 combined options; the detailed Wholesale Water Management and Reliability Program Feasibility Study (Feasibility Study). It includes including task descriptions, a preliminary budget, and preliminary schedule.

These 6 TMs are available at the District office. Contact Keith Durkin at 916.791.0115 or kdurkin@sjwd.org.



Most of the District's service area is in the North American Groundwater Subbasin (Subbasin). This Subbasin is bounded on the south by the American River, on the north by the Bear River, on the west by the Sacramento River, and by bedrock foothills to the east. It covers an area of 351,000 acres and includes portions of Sacramento, Placer, and Sutter counties.



STUDY STRATEGIES AND TACTICS

In order to meet the Study objectives, several strategies were developed. These strategies and associated potential tactics for achieving the strategies are as follows:

1. **Increase use of District’s water rights and contract entitlements** – Would help meet Objectives 2 and 3 of increasing and enhancing beneficial use and providing long-term financial benefits, respectively. To implement this strategy, the following tactics could be taken:
 - a. **Groundwater recharge** – Would increase surface water supply use by recharging the groundwater basin during wet years, within or outside of the District service area, providing both increased utilization of water supplies and potential revenue from additional sales.
 - b. **Expansion of District’s service area** – Would increase demand for District’s surface water supplies and increase revenue from additional sales.
 - c. **Water transfers/exchanges** – Would increase use of District’s surface water supplies during wet years by transferring supplies to another agency, and increase District revenue.

2. **Develop alternative access to surface water** – Would help meet Objectives 1 and 2 of increasing water supply reliability, and increasing and enhancing beneficial use, respectively. To implement this strategy, the following tactics could be taken:
 - a. **Surface water storage** – Would increase use of surface water supplies in wet years by storing water when available. Consequently, would increase stored surface water for later use when surface water supplies are reduced or may not be available.
 - b. **New point of diversion or intertie connection** – Would decrease sole reliance on Folsom Reservoir. Unlikely to increase and enhance beneficial use unless paired with another option such that in wet years, the District would be able to increase its use of its surface water supplies.

3. **Diversify water supply portfolio** – Would help meet Objective 1 of increasing water supply reliability. To implement this strategy, the following tactics could be taken:

- a. **Groundwater extraction** – Would provide the District with another source of water aside from surface water supplies. During extreme drought conditions, when access to surface water supplies from Folsom Reservoir may be unavailable, the District would have access to groundwater.
- b. **Recycled water use** – Would provide the District with another source of water aside from surface water supplies. During extreme drought conditions, when access to surface water supplies from Folsom Reservoir may be unavailable, the District would have access to recycled water.

EVALUATION CRITERIA

A mix of qualitative and quantitative screening criteria were used to support evaluation, comparison, and ranking of water management options. The four evaluation criteria are as follows:

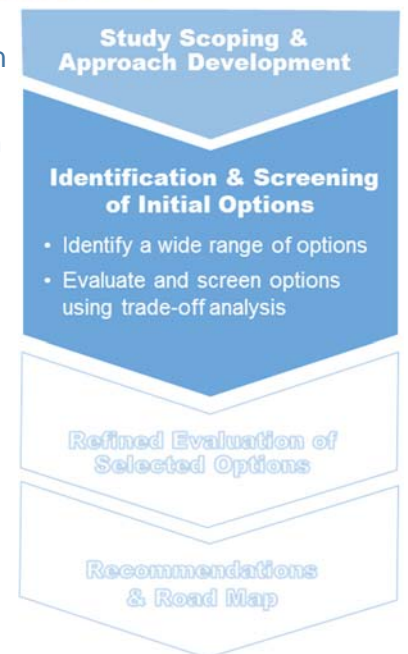
1. **Cost-effectiveness** – Quantitatively measured the cost-effectiveness of an option’s water supply benefits (yield) relative to its costs at a conceptual or pre-appraisal level.
2. **Contribution to objectives** – Quantitatively and qualitatively assessed an option’s contribution to each of the Study objectives listed below.
 - a. Increase water supply reliability to the District’s retail customers and WCAs by integrating surface water and groundwater storage for (1) improving reliability during dry years, and (2) mitigating extreme drought conditions (i.e., improving the District’s ability to receive water supplies during an extreme drought when the access to the District’s current water rights and contract entitlements is highly restricted).
 - b. Increase and enhance the use of the District’s water rights, contractual entitlements, and facilities.
 - c. Provide long-term financial benefits to District ratepayers, and provide regional and statewide water management benefits.
3. **Implementation complexity** – Qualitatively assessed the likelihood that an option would be implemented within a reasonable timeframe to achieve its potential benefits. Implementation complexity considered factors such as water rights and contract approvals, permitting, environmental compliance, land acquisition, public support, and institutional requirements.
4. **Uncertainty** – Qualitatively assessed level of confidence in the definition of the option, in both its benefits and costs.

The four evaluation criteria reflect the District’s priorities and objectives in this study and its management policy



INITIAL WATER MANAGEMENT OPTIONS AND EVALUATION

The comprehensive approach for the Study was to develop a holistic plan of actions to achieve long-term sustainability and stewardship in water resources management by conducting a reconnaissance-level evaluation of a broad spectrum of potential options. Evaluation criteria were then applied which resulted in selected options that were retained for further development and evaluation.



DEVELOPMENT OF INITIAL OPTIONS

Prior to Study initiation, 13 options for improving management of groundwater and surface water were identified by the District’s Water Supply and Reliability Committee. During the Study, an additional 15 options were identified through input provided during project workshops and meetings, and review of available technical documents.

Using the Study evaluation criteria and associated metrics, scores were assigned to each of the criteria and metrics for each initial option based on the results of assessment. These scores were then used to conduct a trade-off analysis to support screening of the initial options.

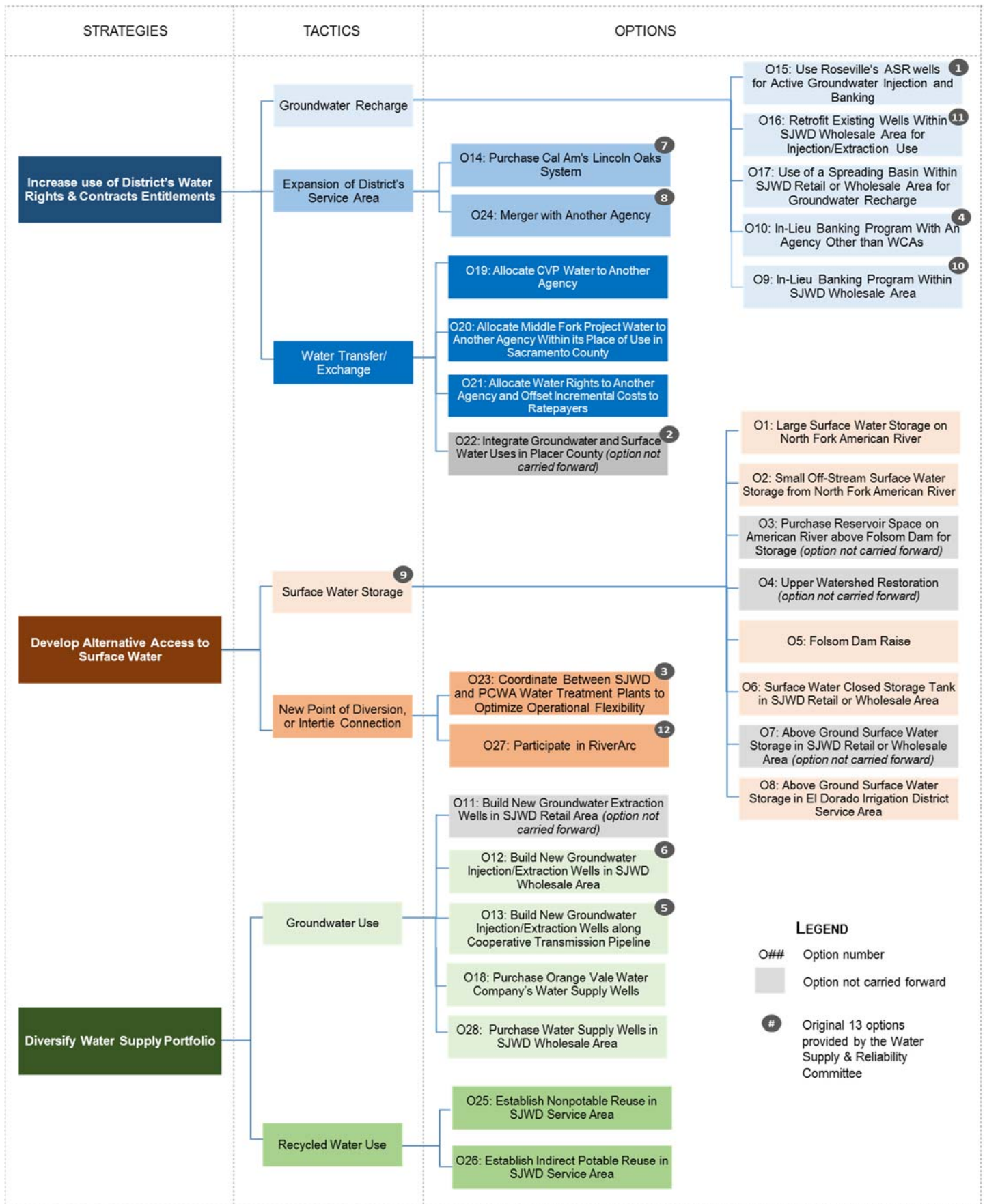
SCREENING OF INITIAL OPTIONS

The trade-off analysis investigated how the options ranked across two or more criteria. It allowed for identification of options that scored well across multiple criteria as well as those that scored well on some criteria, but not on others. The following three trade-offs were evaluated:

- **Cost-Effectiveness and Contribution to Objectives Trade-off** – Options were ranked according to cost-effectiveness and overall contribution to objectives scores. Higher ranking options had lower cost per acre-foot and higher overall contribution to objectives scores.
- **Cost-Effectiveness and Implementation Complexity Trade-off** – Options were ranked according to cost-effectiveness and implementation complexity scores. Higher ranking options had lower cost per acre-foot and higher overall implementation factors scores (i.e., easier to implement).
- **Contribution to Objectives and Implementation Complexity Trade-off** – Options were ranked according to contribution to objectives and implementation complexity scores. Higher ranking options had higher overall contribution to objectives and higher overall implementation factors scores (i.e., easier to implement).

The findings of this trade-off analysis were used to identify options that consistently ranked more highly for desirable outcomes and those that consistently ranked with less desirable outcomes. The more desirable occurred where the two trade-off criteria achieved their best values, while the less desirable occurred where both criteria were at their worst values.

Initial Water Management Options Grouped by Strategy and Tactic



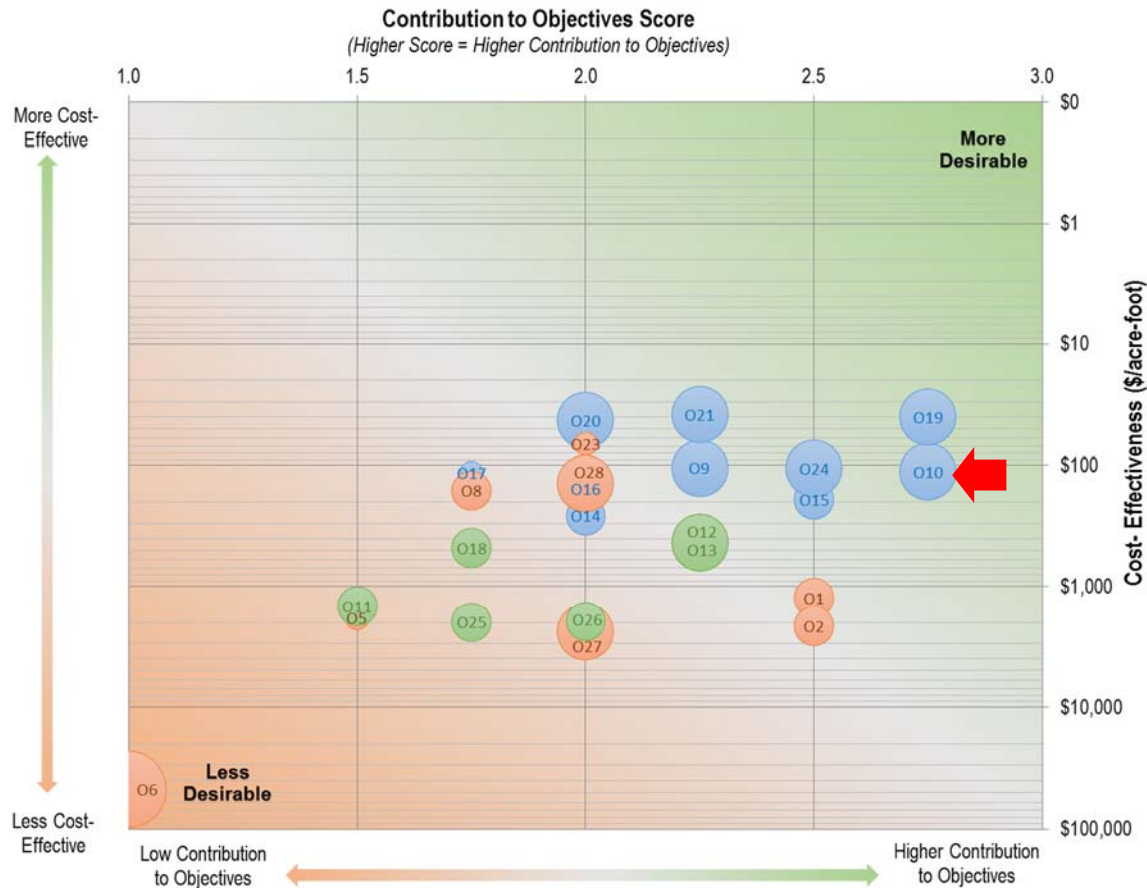
LEGEND

O## Option number

(grey box) Option not carried forward

Original 13 options provided by the Water Supply & Reliability Committee

Trade-off Analysis of the Initial Options using the Four Evaluation Criteria



LEGEND

○# Numbers correspond to Option ID

Option Type

- Increase use of District's Water Rights & Contracts Entitlements
- Develop Alternative Access to Surface Water
- Diversify Water Supply Portfolio

Bubble Size

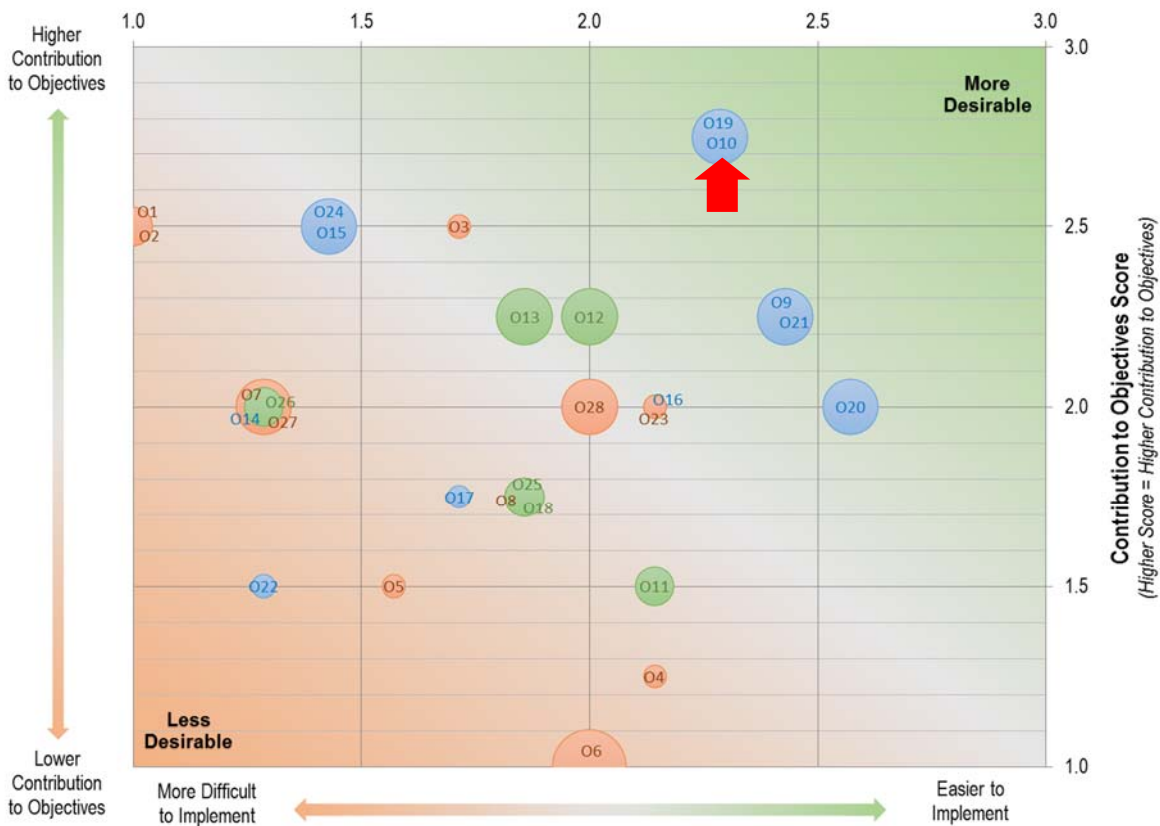
○ ○ ○ Bubble Size Represents Level of Uncertainty (Bigger Size = More Certainty; Smaller Size = more Uncertainty)



Example – Option O10 “In-Lieu Banking Program with an Agency Other than the WCAs”

Option's relative ranking is depicted in each of the three trade-offs:

- Moderately cost-effective with a high contribution to objectives (above)
- Easy to implement and moderately cost effective (upper right)
- Easy to implement with a high contribution to objectives (lower right)



Summary Evaluations of the 28 Initial Management Options and their scores under the four evaluation criteria and related metrics

Option Information				Cost-Effectiveness			Contribution to Objectives				Implementation Complexity						Uncertainty		Relative Scores						
ID	Name	Type	Water Source	Yield - Long-term Average (TAF/year)	Total Cost (\$million)	Overall Cost-Effectiveness (\$/AF)	Improve Dry Year Reliability	Perfect Beneficial Use	Provide Financial Benefit	Extreme Drought Conditions	Environmental Compliance	Permitting Requirements	Water Rights/Contracts	Institutional & Coordination	Land Acquisition	Public Acceptance & Support	Schedule	Costs	Yield & Reliability	Cost-Effectiveness Score	Objectives Score	Implementation Complexity Score	Uncertainty Score	Grouping	
																									O1
O2	Small Off-Stream Surface Water Storage from North Fork American River	SW	OTHR	17	\$ 1,012	\$ 2,139	●●●	●●●	●	●●●	●	●	●	●	●	●	●	●	●	●	0.96	2.50	1.00	1.50	C
O3	Purchase Reservoir Space on American River above Folsom Dam for Storage	SW	OTHR	0	\$ -	\$ -	●●●	●●●	●	●●●	●	●	●	●	●	●	●	●	●	●		2.50	1.71	1.00	x
O4	Upper Watershed Restoration	SW	OTHR	0	\$ -	\$ -	●	●	●	●	●	●	●	●	●	●	●	●	●	●		1.25	2.14	1.00	x
O5	Folsom Dam Raise	SW	OTHR	2	\$ 87.0	\$ 1,840	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.96	1.50	1.57	1.00	C
O6	Surface Water Closed Storage Tank in SJWD Retail or Wholesale Area	SW	OTHR	0	\$ 17.0	\$ 47,102	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.00	1.00	2.00	2.50	C
O7	Above Ground Surface Water Storage in SJWD Retail or Wholesale Area	SW	OTHR	0	\$ -	\$ -	●●●	●	●	●	●	●	●	●	●	●	●	●	●	●		2.00	1.29	1.00	x
O8	Above Ground Surface Water Storage Basin in El Dorado Irrigation District Service Area	SW	APPR	1	\$ 1.3	\$ 161	●	●	●	●	●	●	●	●	●	●	●	●	●	●	1.00	1.75	1.86	1.50	C
O9	In-Lieu Banking Program Within SJWD Wholesale Area	GW	OTHR	1	\$ 0.1	\$ 105	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2.32	2.25	2.43	2.00	A
O10	In-Lieu Banking Program With an Agency Other than the WCAs	GW	OTHR	21	\$ 5.2	\$ 113	●●●	●●●	●	●	●	●	●	●	●	●	●	●	●	●	2.27	2.75	2.29	2.00	A
O11	Build New Groundwater Extraction Wells in SJWD Retail Area	GW	OTHR	0	\$ 1.0	\$ 1,459	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.97	1.50	2.14	1.50	x
O12	Build New Groundwater Injection/Extraction Wells in SJWD Wholesale Area	GW	OTHR	5	\$ 27.0	\$ 432	●●●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.99	2.25	2.00	2.00	B
O13	Build New Groundwater Injection/Extraction Wells along Cooperative Transmission Pipeline	GW	OTHR	5	\$ 27.0	\$ 432	●●●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.99	2.25	1.86	2.00	B
O14	Purchase Cal Am's Lincoln Oaks System	GW	OTHR	17	\$ 50.0	\$ 260	●	●●●	●	●	●	●	●	●	●	●	●	●	●	●	1.00	2.00	1.29	1.50	C
O15	Use Roseville's ASR wells for Active Groundwater Injection and Banking	GW	OTHR	2	\$ 0.3	\$ 191	●	●●●	●	●	●	●	●	●	●	●	●	●	●	●	1.00	2.50	1.43	1.50	B
O16	Retrofit Existing Wells Within SJWD Wholesale Area for Injection/Extraction Use	GW	OTHR	13	\$ 1.0	\$ 154	●	●●●	●	●	●	●	●	●	●	●	●	●	●	●	1.00	2.00	2.14	1.00	B
O17	Use of a Spreading Basin Within SJWD Retail or Wholesale Area for Groundwater Recharge	GW	OTHR	1	\$ 0.3	\$ 115	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2.26	1.75	1.71	1.00	B
O18	Purchase Orange Vale Water Company's Water Supply Wells	GW	OTHR	0	\$ 1.0	\$ 478	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.99	1.75	1.86	1.50	B
O19	Allocate CVP Water to Another Agency	NS	CVP	10	\$ 1.0	\$ 40	●●●	●●●	●●●	●	●	●	●	●	●	●	●	●	●	●	2.74	2.75	2.29	2.00	A
O20	Allocate Middle Fork Project Water to Another Agency Within its Place of Use in Sacramento County	NS	MFP	7	\$ 1.0	\$ 43	●	●●●	●●●	●	●	●	●	●	●	●	●	●	●	●	2.72	2.00	2.57	2.00	A
O21	Allocate Water Rights to Another Agency and Offset Incremental Costs to Ratepayers	NS	APPR	17	\$ 1.0	\$ 38	●	●●●	●●●	●	●	●	●	●	●	●	●	●	●	●	2.75	2.25	2.43	2.00	A
O22	Integrate Groundwater and Surface Water Uses in Placer County	SW	MFP	0	\$ -	\$ -	●	●	●	●	●	●	●	●	●	●	●	●	●	●		1.50	1.29	1.00	x
O23	Coordinate Between SJWD and PCWA Water Treatment Plants to Optimize Operational Flexibility	SW	MFP	12	\$ 15.0	\$ 67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2.57	2.00	2.14	1.00	A
O24	Merger with Another Agency	NS	OTHR	17	\$ 2.0	\$ 106	●	●●●	●●●	●	●	●	●	●	●	●	●	●	●	●	2.31	2.50	1.43	2.00	A
O25	Establish Nonpotable Reuse in SJWD Service Area	RW	OTHR	3	\$ 51.0	\$ 1,989	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.96	1.75	1.86	1.50	C
O26	Establish Indirect Potable Reuse in SJWD Service Area	RW	OTHR	6	\$ 98.6	\$ 1,956	●●●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.96	2.00	1.29	1.50	C
O27	Participate in RiverArc	SW	OTHR	1	\$ 64.3	\$ 2,376	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.95	2.00	1.29	2.00	C
O28	Purchase Water Supply Wells in SJWD Wholesale Area	GW	OTHR	11	\$ 8.2	\$ 141	●	●●●	●	●	●	●	●	●	●	●	●	●	●	●	2.09	2.00	2.00	2.00	B

Key: AF = acre-feet, ASR = aquifer storage and recovery, Cal Am = California American Water Company, CVP = Central Valley Project, ID = Identification, O## = Option number, PCWA = Placer County Water Agency, SJWD = San Juan Water District, TAF = thousand acre-feet, WCA = Wholesale Customer
 Type: SW = Surface Water, GW = Groundwater, NS = Transfer/Exchanges, RW = Recycled Water

Water Source: APPR = Pre-1914 and senior appropriative water rights, CVP = CVP Entitlement, MFP = Middle Fork Project Entitlement from Placer County Water Agency, OTHR = Other or multiple water supplies

Assessment Value score: ● = 1 (less desirable), ●● = 2 (moderate), ●●● = 3 (more desirable)

Grouping Designations: A = high potential, B = moderate potential, C = low potential, x = not computed because of lack of quantitative information or option not carried forward

Note Grey shaded options were not carried forward.

Cell shading corresponds to assessment values. Better performing metrics (e.g., lower cost-effectiveness or higher relative score) are shaded green, while lower performing metrics are shaded red. Moderate performing metrics are shaded yellow.

Organizing the 28 options into three groups—Group A (high potential), Group B (moderate potential), Group C (low potential)—provided a means for identifying those options with a greater chance of achieving Study goals and objectives in a cost-efficient manner, within a reasonable timeframe, and with a high degree of confidence.

7 options were included in Group A, 6 in Group B, and 10 in Group C. Note that 5 options were not carried forward for further evaluation as they were deemed unviable or unfavorable at this time either because (1) the opportunity to implement the potential action had already passed (e.g., purchase surface water storage space on the American River above Folsom Reservoir), or (2) the potential action would be significant in nature and therefore, the District would not initiate the action alone but would likely participate with other regional partners or authorities (e.g., O4: Upper Watershed Restoration). These 5 options were not included in Groups A, B, or C.

11 options were selected for further evaluation as retained options:

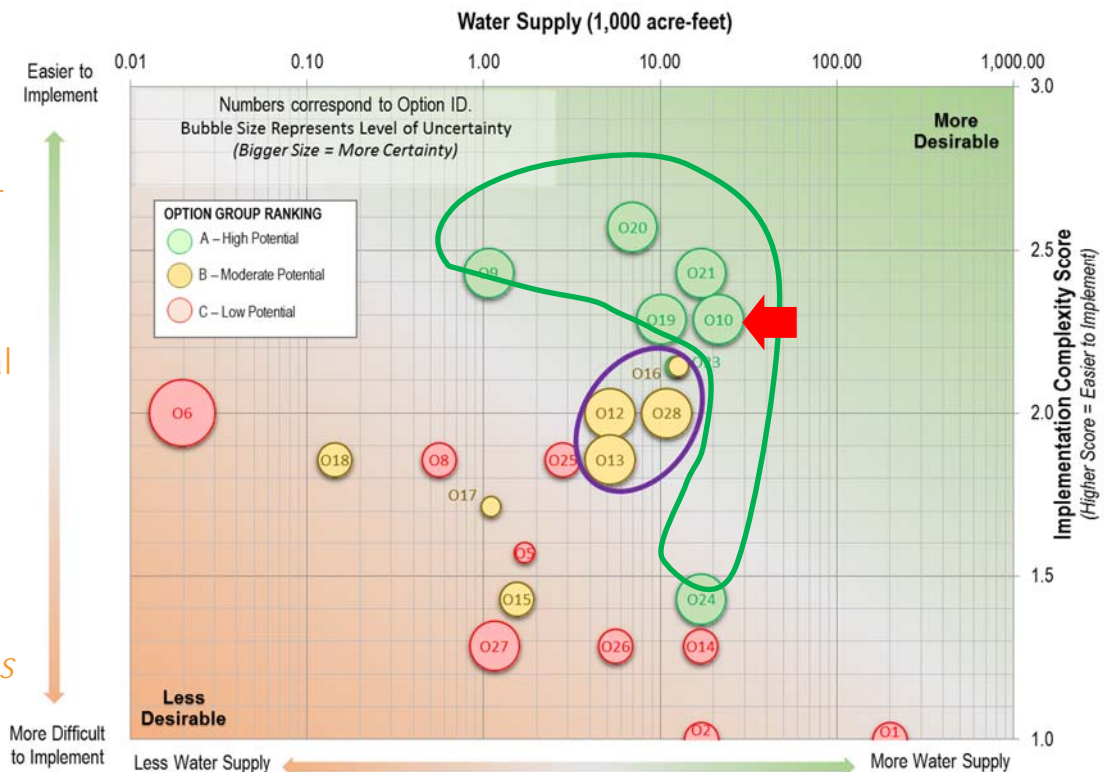
- 7 options in the high potential grouping (Group A)
- 4 options in the moderate potential grouping (Group B) that each had relatively high water supply benefits and only moderate implementation complexity

The District Board has the discretion, and ultimate responsibility, to select individual options or combine options to develop future reliability solutions. Ranking of options, due to changing conditions, may become more feasible in the future than at the time of this analysis.

Initial Options Grouped According to their Relative Ranking, and Options Retained for Further Analysis are Identified

11 Initial Options were retained for future consideration and/or additional feasibility studies:

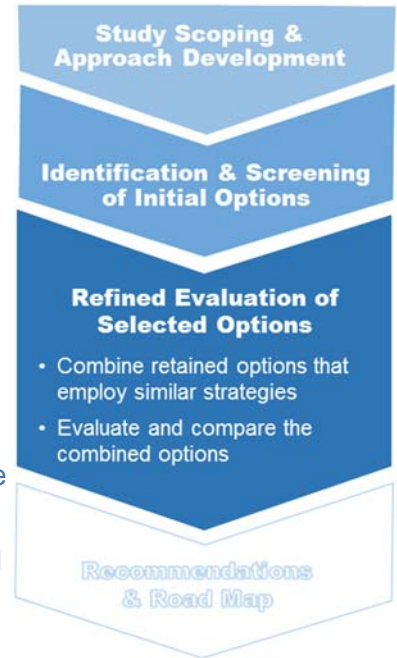
- 7 Group A Options
- 4 promising Group B Options



REFINED WATER MANAGEMENT OPTIONS AND EVALUATION

The 11 retained options were grouped into 5 combined options based on their similarities with respect to (1) how they might achieve the District’s objectives, and (2) potential implementation requirements. Additional refinements were also made to each combined option to better contrast the effects of the corresponding water management strategies included in that combined option. A key consideration in the development and evaluation of the combined options was the need to observe the terms and conditions of water right permits and water service contracts, including corresponding places of use (POUs) and contract service areas.

An option presented herein is not necessarily a discrete and complete alternative that would fully achieve all Study objectives, meaning that the District would likely not choose one option and implement it individually. Rather, the combined options highlight and contrast the advantages and limitations of the different water management strategies.



Option A	Full Utilization of Water Supplies	019 020 021
Option B	In-lieu Banking Program	010 09
Option C	Aquifer Storage & Recovery Program	012 013 016 028
Option D	SJWD and PCWA Coordination	023
Option E	Merger with Another Agency	024

OPTION A: FULL UTILIZATION OF WATER SUPPLIES PROGRAM

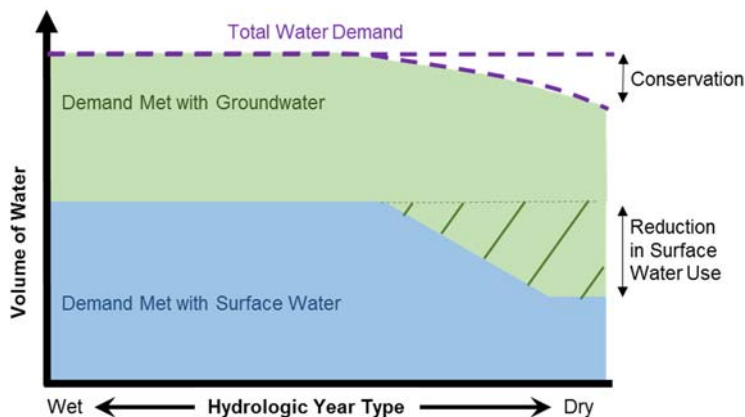
This option aims to more fully utilize the District's water rights and contract entitlements thereby improving dry-year water supply reliability. When fully developed, the District would be able to better integrate management of all of its available water supplies.

Under this option, the District would pursue institutional arrangements with one or more water agencies using a combination of (1) short- and long-term transfers with agencies outside the District's existing wholesale service area, and (2) new wholesale agreements. This would allow the District to serve additional demands outside its wholesale service area during Water Forum wet/average years to facilitate full utilization of available water supplies. The initial focus would be on water agencies inside the Sacramento Groundwater Authority (SGA) area (i.e., the area within the North American River Groundwater Subbasin and south of the Sacramento-Placer county line) because of proximity to the District. Depending on the water agency, additional infrastructure improvements may be required.

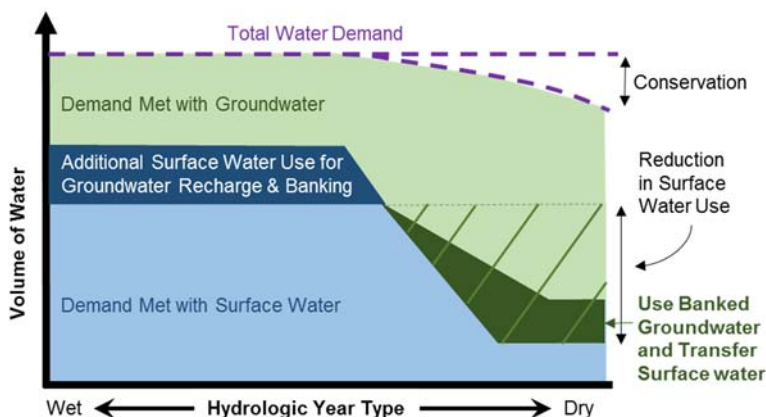
All water transfers or sales outside of the existing wholesale service area under this option were assumed to be transactional in nature. In other words, the District would not retain rights to the water after the transfer or sale. The District and existing WCAs would have priority on use of available water supplies prior to a transfer or sale. The resulting additional CVP contract water use would increase the District's dry-year supply compared to current conditions.

It is likely that with PCWA's consensus, Middle Fork Project (MFP) water would be used first in the initial implementation of this option. Should a wholesale agreement be established with another agency, it would provide justification for the District to request that Reclamation adjust its CVP contract service area to allow further flexibility of use. Note that the District may consider using water rights water for single-year sales. This tactic may be useful for near-term implementation of this option, prior to consideration of an agency potentially becoming a new WCA.

Conceptual Diagram for In-lieu Groundwater Recharge and Banking in the Context of Surface Water Diversions under the Water Forum Agreement, and the Related Opportunity for Groundwater Substitution Transfer



Typical Water Supplies in Conjunctive Use Operation



Groundwater Banking to Increase Reliability and Support Groundwater Substitution Transfers

OPTION B: IN-LIEU BANKING PROGRAM

Through in-lieu recharge, this option aims to develop water banking operations outside of the District's existing service area.

Under this option, the District would enter into a banking agreement with one or more agencies in the SGA area, but outside of the District's existing retail and wholesale service areas, to receive surface water in Water Forum wet/average years for use in-lieu of existing groundwater use. (In-lieu recharge opportunities in the wholesale service area are not included in this option because the quantity of water that could be banked would be small in comparison to the banking opportunities outside the wholesale service area.) The District would retain the right to the banked water for dry-year protection and for potential groundwater substitution transfers with other parties.

In a dry year when surface water supplies may be limited, the banked groundwater could be extracted and delivered to the District's retail or wholesale customers. In addition, a groundwater substitution transfer could be facilitated by a banking partner reverting back to groundwater use and extracting from the banked groundwater account. This would allow the District to redirect an equal amount of surface water and make it available for purchase by others. Depending on the banking partner(s), additional infrastructure improvements (e.g., interties, conveyances, and pumps) may be required.

The District and existing WCAs would have priority on use of available water supplies prior to delivery to a banking partner. The resulting additional CVP contract water use would increase the District's dry-year supply compared to current conditions.

It is likely that with PCWA's consensus, MFP water would be used first in the initial implementation of this option. Water rights supplies could be considered for



Conservation is an important element in District's long-term water management toolbox. However, more active management actions are required for securing long-term water supply reliability.

banking purposes because under this option, the District would retain the right to the banked water. Should the District's CVP contract service area change, the District could have additional flexibility for use of water supplies. However, it is not clear if a banking operation would be sufficient for Reclamation to take action to change the District's CVP contract service area; therefore, CVP water was considered in the

evaluation but the option's performance could be reduced if that water could not be used for banking purposes.

OPTION C: AQUIFER STORAGE AND RECOVERY PROGRAM

This option aims to employ aquifer storage and recovery (ASR) in the District's existing service area to increase water supply benefits and dry-year protection.

Under this option, during Water Forum wet/average years, treated surface water would be injected into the groundwater aquifer for short-term (less than a year) or long-term (more than a year) storage within the District's wholesale service area. In dry years, this stored water would then be recovered using the same or different groundwater wells in the District's wholesale service area to meet consumptive demands. The District could also make the stored water available for purchase by others through groundwater substitution. This option would involve developing additional operational agreements with WCAs, and installing new and/or retrofitting existing groundwater wells to allow for the injection and corresponding extraction needs.

All District surface water supplies could be considered in this option because the ASR program would be established in the existing wholesale service area.

OPTION D: SJWD AND PCWA COORDINATION

This option aims to provide emergency supplies and operational flexibility by working with PCWA to improve redundancy and dry-year protection by establishing alternative access to some District supplies.

If Reclamation's reservoir operations resulted in severely low storage and water elevation, the District's access to water supplies from Folsom Reservoir could be significantly restricted or become unavailable even though it still had the legal right to divert from the reservoir. Under this option, emergency supplies could be provided using available treatment capacities at the District's Peterson WTP, PCWA's Foothill WTP, and PCWA's future Ophir WTP.

Under this condition, PCWA would divert the District's MFP supply through PCWA's American River Pump Station upstream of Folsom Reservoir and treat it for delivery to the District's retail service area in Placer County (i.e., Granite Bay area). Treatment could occur at the PCWA's Foothill WTP or its future Ophir WTP, where more capacity would be available. Expansion of existing interties and other conveyance may be required to facilitate delivery of the treated water. While this operation would also be possible beyond emergency conditions, it would not be recommended because the District currently has ample capacity at its Peterson WTP.

The District could also provide PCWA with emergency supplies and operational flexibility from Folsom Reservoir, if the situation warranted.

The water supplies for this option would be limited to the MFP water for PCWA to divert at its American River Pump Station.

OPTION E: MERGER WITH ANOTHER AGENCY

This option aims to create a consolidated governing body of the District and one or more other water agencies in the region to enhance administrative and operational efficiencies, while increasing overall water supply reliability and operational flexibility.

Under this option, the District would pursue a merger agreement through a consensus-based process with an agency(ies) in the SGA area that currently uses groundwater as the primary source of supply. This arrangement would (1) facilitate the District's ability to deliver more of its available surface water in the combined service area thereby maximizing its beneficial use, and (2) provide the District with reciprocal access to groundwater for drought protection and operational flexibility, thereby increasing conjunctive use opportunities. Implementation of this option may involve construction of new and/or expansion of existing interties, conveyance, and pumping facilities, in addition to legal and institutional arrangements that would be unique to this option.

In a potential merger, all the District's water rights and CVP water supplies could be applied in a combined service area, assuming the approval of a boundary change in the District's CVP service area. MFP water would be used within its authorized POU or the combined service area, whichever was less.



Refined Evaluation and Comparison of the Five Combined Options (Recommended to Proceed)

ATTRIBUTE		Option A Full Utilization of Water Supplies	Option B In-lieu Banking Program	Option C ASR Program	Option D SJWD and PCWA Coordination	Option E Merger with Another Agency
Geographic Focus		Outside WSA ⁽¹⁾	Outside WSA ⁽¹⁾	WSA	Placer County	Outside WSA ⁽²⁾
Institutional Requirements		Short- & long-term Water sales	Wholesale Agreement	Water Banking Agreement	ASR Partnership Agreement	Emergency Operation Agreement
Water to be Used						
Retain Right to Water after Transaction		No	Yes	Yes	N/A	Yes
CONTRIBUTION TO OBJECTIVES						
1. Increase water supply reliability to the District's retail customers and WCAs during dry years.	Increase CVP Contract Use & its Dry-Year Allocations	✓	✓	✓		✓
	Expand Conjunctive Use & Groundwater Banking		✓	✓		✓
	Expand Emergency Interties				✓	
2. Perfect the beneficial use of the District's water rights, contractual entitlements, and facilities.	WSA					
	SGA Area					
	MFP Extended POU					
3. Provide long-term financial benefits to ratepayers, and provide regional and statewide benefits.	Support Groundwater Substitution Transfers	Enables for separate water sales with agencies outside the SGA Area	✓	✓		✓
	Upfront Costs		Varies ⁽²⁾ 			Varies ⁽³⁾

Key
ASR = Aquifer Storage and Recovery
MFP = Middle Fork Project
N/A = not applicable

PCWA = Placer County Water Agency
SJWD = San Joan Water District
SGA = Sacramento Groundwater Water Authority
WSA = Wholesale Service Area

CVP Contract
 MFP Contract
 Water Rights

Notes:

- ⁽¹⁾ Focused on agencies outside WSA, but within SGA area for cost and institutional considerations.
- ⁽²⁾ Costs will depend on partner agency and required facilities upgrade to facilities in-lieu operations.
- ⁽³⁾ Costs will depend on partner agency, and would include costs for operation, financial, administrative, and staff integration requirements.

EVALUATION OF COMBINED OPTIONS

The figure on the facing page shows the Study objectives to which each option would contribute. All options would increase water supply reliability during dry years. Options A, B, C, and E would also contribute to the other two objectives of helping increase and enhance the use of the District's water supply, and providing a long-term financial benefit to existing ratepayers. How each of these combined options would contribute to the specific objectives is also shown in the figure.

Increasing water supply availability during dry-years

Options A, B, C, and E would increase the use of CVP contract supplies (i.e., establish a historical record of beneficial use) which would provide the District with a higher CVP allocation during dry-years. Options B, C, and E would all focus on conjunctive use and could provide the District with access to groundwater supplies during dry years. Option D would provide an alternate access point to the District's MFP contract water should water be unavailable from Folsom Reservoir during extreme drought conditions.

Increasing and enhancing the use of the District's water supply

Currently, the District maximizes use of its water right and uses portions of both its MFP and CVP contract entitlements. Depending on the partner agency(ies) and location(s), the District could increase its beneficial use of certain surface water supplies. For example, the District would be able to use only water right or MFP water for groundwater banking if a partner agency was in

the MFP water right extended POU in Sacramento County. For existing WCAs, all of the District's available supplies could be used for groundwater banking. In comparison, a partner agency outside of the MFP water right extended POU would be limited to using the District's water rights, requiring the District to supply water right water to the partner agency and to backfill in its service area by serving CVP or MFP water. CVP water would only be available to a partner agency if it merged with the District due to the defined service area. Option D would not increase the beneficial use of supplies and is therefore left blank in the figure.

Long-term financial sustainability

All of the options (less Option D) would provide the District with the opportunity to engage in groundwater substitution transfers. However, there are important clarifications related to the nature of the required institutional arrangements under each option. Option A would be a transactional arrangement, so groundwater substitution transfers would need to be negotiated separately. Option B would essentially be a paid service for banking the District's available water supplies, where the District would retain the right to the banked water but with certain financial arrangements. Under Option C, there would also be additional financial costs for structuring a groundwater substitution transfer with the WCAs.

While most of these options would provide long-term financial benefits to ratepayers, there would be upfront costs associated with implementing any option that would likely offset some or all of the near-term financial benefits.

*Antelope Booster Pump
Station Pump Back
Project provides up to
14.4 MGD of
groundwater from SSWD*



KEY FINDINGS

In early March 2016, just 4 months after reaching its lowest recorded level, water was being released from Folsom Reservoir for flood control purposes. Climate change will exacerbate such significant hydrological swings and related management challenges. Consequently, this evaluation by the District of its options for developing a more robust water supply portfolio and implementation strategy to secure improved long-term water supply reliability and increased financial sustainability is critical to its mission.



Through comprehensive review of the water management and reliability options, key findings were identified that are important for District consideration and in formulating recommended next steps (feasibility studies and implementation).

1. The District's water reliability challenges include the exclusive reliance on surface water from Folsom Reservoir, and the undeveloped capacity to leverage its rich water rights and contract capacity to provide dry-year protection.

In severe drought conditions when surface water diversion is extremely limited from Folsom Reservoir, the District has limited options to provide redundant water supplies from alternative sources to maintain adequate service to its retail and wholesale customers. Although the District has approximately 21,300 acre-feet per year of currently unused surface water supplies available during wet years, this unexercised diversion does not contribute to dry-year protection, and the District is at risk of further reductions in its reliability under changing regulatory conditions and Reclamation's current shortage policy.

2. Achieving the District's long-term goals hinges upon providing, in a financially responsible and sustainable manner, increased water supply reliability during dry years to its retail and wholesale customers, which can be best accomplished by integrating surface water and groundwater resources to fully leverage the District's water rights, contract entitlements, and available and planned facilities.

Addressing the District's long-term water supply reliability challenges requires the integrated and balanced application of three key water management strategies: (1) increasing beneficial use of the District's available surface water supplies, (2) diversifying the District's water supply portfolio by integrating groundwater use, and (3) establishing alternative locations for the District to receive its surface water supplies (in addition to Folsom Reservoir).

3. The District’s investment priorities to increase water supply reliability must be guided by an implementation strategy that focuses on delivering efficient and practical outcomes while reacting to future regulatory mandates, adjusting to changing regional institutional relationships, and taking advantage of evolving statewide water policies. The District recognizes that evolving statewide policies make its resource assets even more valuable and likely put it at even greater risk than it is under today.

The range of options with a greater chance of achieving the District’s goals and objectives, in a cost-efficient manner, within a reasonable timeframe, and with higher degree of confidence, include: (1) increasing utilization of available water supplies through water sales and exchanges, (2) expanding groundwater banking through regional collaboration, (3) expanding emergency interties in the region, and (4) increasing utilization of available water supplies through a merger or new wholesale agreements.

Other important regional and statewide water management options for water supply reliability include water reuse and surface water storage development. Although these strategies can contribute to overall regional and statewide benefits and stewardship, they are ineffective in addressing the District’s water supply reliability challenges because of the high relative costs, high levels of implementation complexity, and/or questionable technical feasibility.

4. The key to the District’s long-term water supply reliability is the expansion of areas where the District can apply its available water supplies to enhance both utilization and management flexibility.

The increased flexibility in MFP water use and increased use of CVP water are important to the District’s overall strategy for long-term water supply reliability. This requires (1) collaboration with regional partners to integrate groundwater use into drought protection measures and groundwater

storage and banking opportunities, and (2) institutional arrangements and possible administrative considerations to remove unnecessary restrictions on water use. For example, the District’s current Warren Act Contract with Reclamation is for water use in Placer County only, which is more limited than what the District’s MFP contract allows.

Maximizing use of CVP contract water is critical to improving dry-year reliability. Reclamation’s current shortage policy specifies that the CVP allocation be based on contract usage in the preceding few years. Therefore, increasing the use of CVP contract directly translates into increased CVP allocations during dry years.

Maintaining high utilization of MFP contract water is also strategically important to preserve these supplies for use in the region. The District and PCWA should continue to coordinate on achieving maximum utilization of these supplies while increasing contract flexibility to allow for concurrent maximization of CVP contract utilization. Addressing financial implications of this increased flexibility is also important to long-term financial sustainability.

5. Many of the water management options considered in this study are not new; however, past implementation efforts have experienced differing levels of success.

The District and water agencies in the region face a challenging future in water management planning under changing regulations for water right administration and environmental protection, and implementation of SGMA. A higher level of conjunctive management in this region cannot occur without significant collaboration throughout the region.

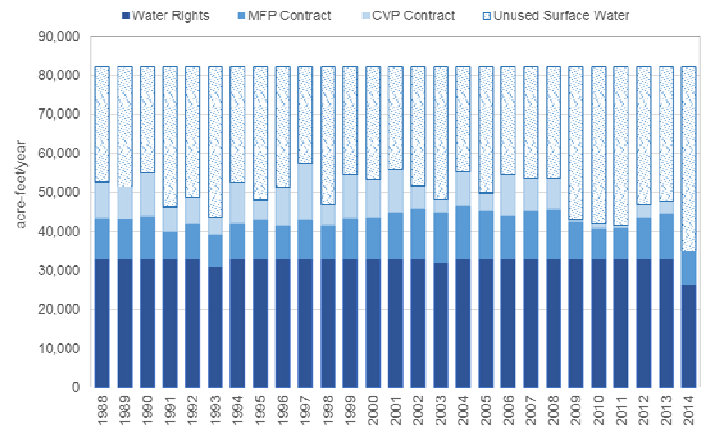
An agency merger can be an effective strategy to leverage regional assets and create administratively and financially efficient management entities. However, this type of action is often nuanced and time consuming. Alternatively, improving water supply reliability for agencies in the region can be further advanced through interagency agreements with conditions and protocols that facilitate long-term regional partnerships rather than short-term transactional gains.

Available Surface Water Supplies and Facility Capacities

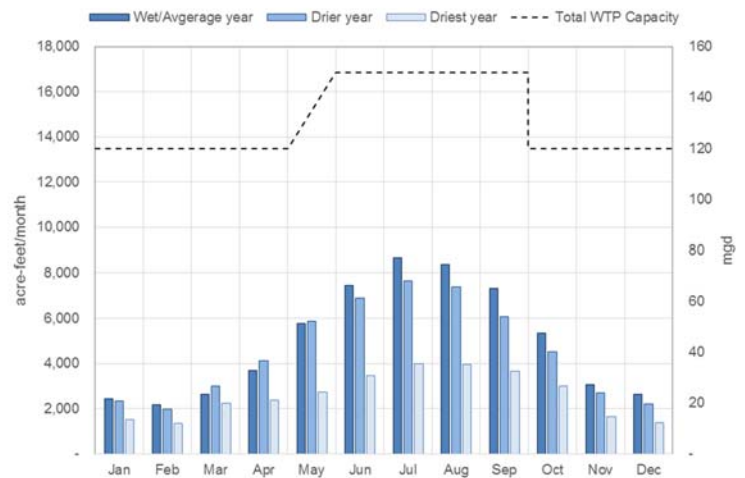
Of the District's 82,200 acre-feet per year of surface water supplies, approximately 21,300 acre-feet per year are available for other beneficial uses during Water Forum wet/average years.

The District's Peterson Water Treatment Plant (WTP) has unused capacity that can support expanded deliveries of surface water to other agencies in the region.

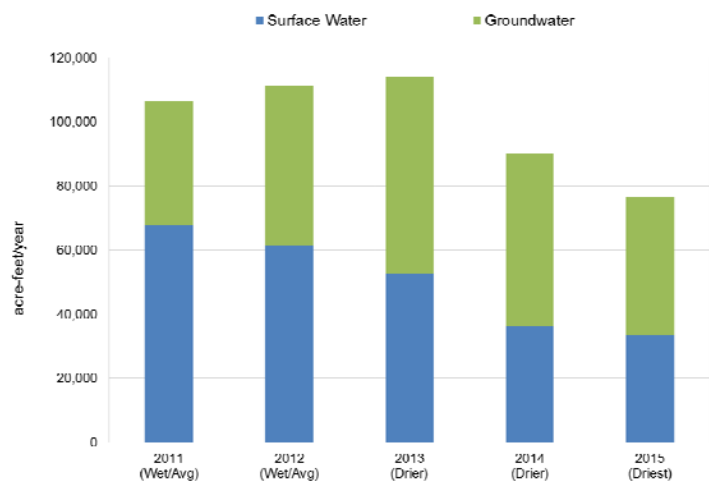
There are opportunities to expand surface water deliveries to existing groundwater users in the Sacramento Groundwater Authority (SGA) area that do not currently receive surface water in wet/average years.



District's Annual Surface Water Use by Source



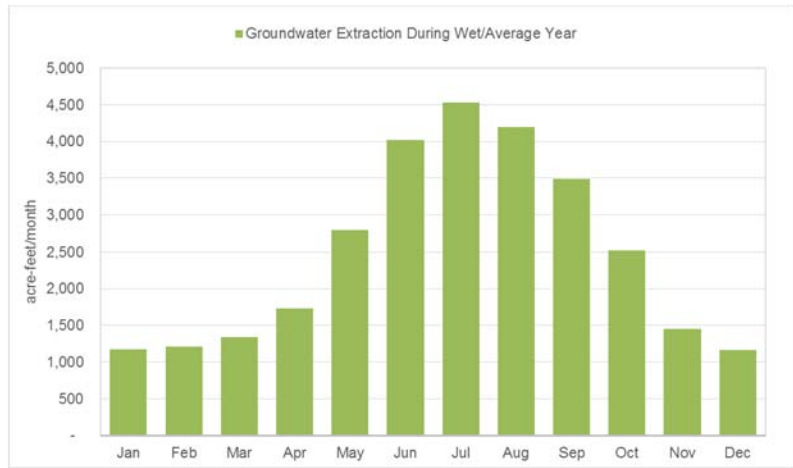
Peterson WTP Average Monthly Utilization Compared to Maximum Capacity



Surface Water and Groundwater Use in SGA Area

.... Can Facilitate Groundwater Banking via In-Lieu Recharge and/or Aquifer Storage and Recovery

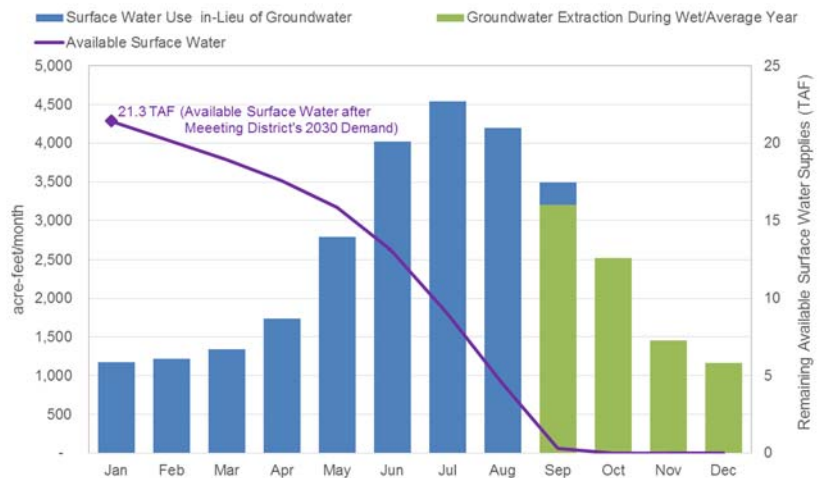
In the SGA area and MFP place of use, groundwater pumping during wet/average years is approximately 33,000 acre-feet per year.



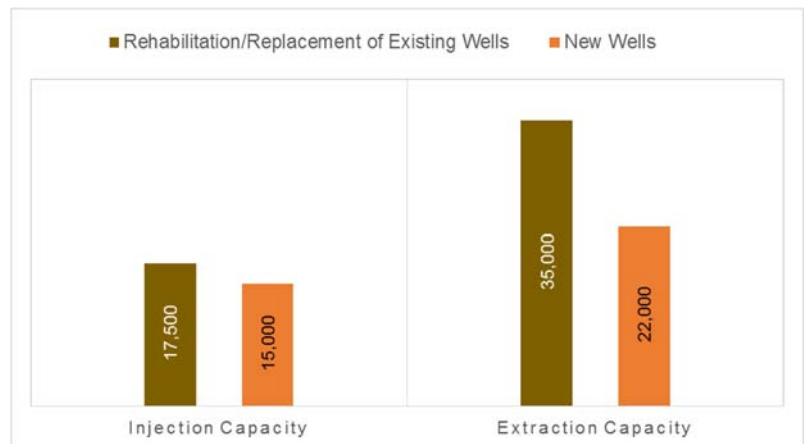
In-lieu Recharge using the District's Available Surface Water Supplies and Available Capacity at Peterson WTP



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 the District's available surface water supplies.



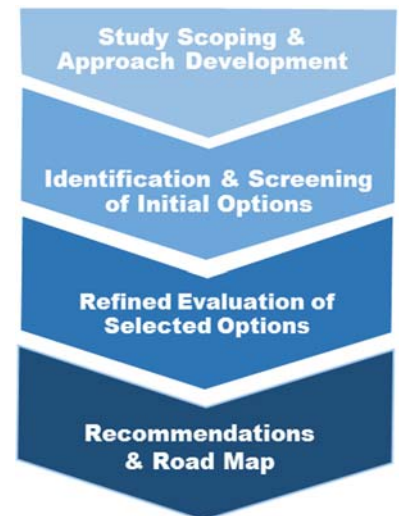
Expanded groundwater banking via Aquifer Storage and Recovery (ASR) in the District's wholesale service area also has the potential to put to beneficial use all of the District's available surface water supplies.



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

RECOMMENDATIONS AND ROAD MAP

The various water management options presented in this study are not distinct alternatives that are mutually exclusive. Rather, they present a collection of tactics that support each other along the District's path toward long-term sustainable water supply reliability. As a multi-faceted approach to achieving a healthy water supply portfolio and providing necessary dry year protection, a road map was prepared for the District to delineate the general focus and schedule of the next steps in the District's evaluation and development of a program to achieve long-term water supply reliability.



1. The District should institute a Wholesale Water Management and Reliability Program to coordinate the implementation of various components of the recommended actions, and maintain the District's participation in regional initiatives consistent with its corresponding roles and benefits.

- a. The District should initiate a feasibility study for the recommended water management options—expanded water sales, groundwater banking, and an ASR program—to further explore institutional, technical, and infrastructure needs; regulatory compliance requirements; and business case evaluations and financial viability.
- b. The District should work with PCWA on its water supply infrastructure development schedule and 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 WTP and expansion of conveyance and intertie capacities.

- c. The District should capitalize on regional opportunities when available. It should actively collaborate with the RWA 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.
- d. In the longer-term, the District should continue to explore merger opportunities with other water agencies as a merger could bring forth an expanded service area, increase use of available water supplies in a flexible manner, and strengthen the District's overall position in regional and statewide water management negotiations and stewardship.

2. The District should review and amend, as needed, the relevant policies, contracts, and practices to support the Wholesale Water Management and Reliability Program.

- a. The District may consider instituting a formal groundwater replenishment demand in response to SGMA and dry-year protection needs. The formalization of such a demand could facilitate a groundwater banking practice for dry-year protection purposes. This formal replenishment demand would also be reflected in shortage policies and other management practices such as its Urban Water Management Plan.
- b. The District should obtain PCWA's concurrence on its desired flexible use of MFP water as part of the strategy for water supply reliability, and amend its Warren Act Contract with Reclamation to allow for MFP water delivery to Sacramento County areas in MFP water right extended POU.
- c. The District should consult with Reclamation on expanding the CVP contract service area to include MFP water right extended POU in Sacramento County, to the extent possible. The District's petition could be more effective with the establishment of a new long-term wholesale relationship to serve planned growth or replace existing groundwater use. Since the MFP water right extended POU in Sacramento County is completely in Reclamation's CVP water right POU, the amendment would likely be a administrative change that could be easily executed.
- d. The District should consider 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 and their operations, and (3) ownership of and accounting for banked groundwater.

3. The District should engage other water agencies in potential water sales and groundwater banking partnerships with a near-term focus on an “early win.”


Water sales and groundwater banking partnerships could expand the District's service area for using available water supplies, establish new wholesale agreements to support a CVP contract service area change, and realize groundwater banking operations for dry-year protection and/or transfers resulting in revenue to offset infrastructure investments. The District is equipped to immediately implement a short-term water sale with or without banking options using water rights—an opportunity for “proof-of-concept” implementation. Water sales based on the District's water rights are not recommended for long-term implementation; rather, long-term implementation should focus on the use of MFP and CVP water. In addition, when all the necessary contract service area changes are completed and consistent, the District would then be able to institute more flexible accounting procedures and water management.

4. The District should implement a long-term advocacy and public outreach campaign to support the Wholesale Water Management and Reliability Program.


In addition to the District's vision for long-term benefits sustainability practices, the importance of continued education, advocacy, and outreach in a consistent and well-thought manner cannot be over-emphasized. These activities would not be limited to the future feasibility studies related to infrastructure planning and implementation; rather they would enhance overall transparency and improve support throughout Program implementation. Customization for targeted audiences would be required for development and implementation of specific Program elements, including WCAs, water agencies in the Sacramento-Placer region, non-governmental organizations and regulatory agencies, and potential water transfer partners outside the region.

Road Map for Implementing the Study Recommendations

2016 – 2017	2017 – 2018
-------------	-------------

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

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

GROUNDWATER ACCOUNTING FRAMEWORK  




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

MAXIMIZE WATER USE IN MFP EXTENDED POU  



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

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

GROUNDWATER BANKING   



- Implement a pilot project for demonstration purposes
- Develop specific banking projects for development, approval, and implementation, focusing on near-term success
- Confirm initial transfer partner(s) for interest and potential agreements for implementation

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

EXPAND INTERTIES WITH PCWA  

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

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

Task 1 – Develop Policies & Protocols
 Task 2 – Develop Reliability Program & Implementation Plans
 Task 3 – Regional Coordination & Collaboration

2018 – 2019

2019 and Beyond

POLICIES AND PROTOCOLS

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

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 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)

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

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

GROUNDWATER BANKING

- 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

- 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

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

EXPAND INTERTIES WITH PCWA

- Implement intertie expansion and operation agreement

KEY:

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

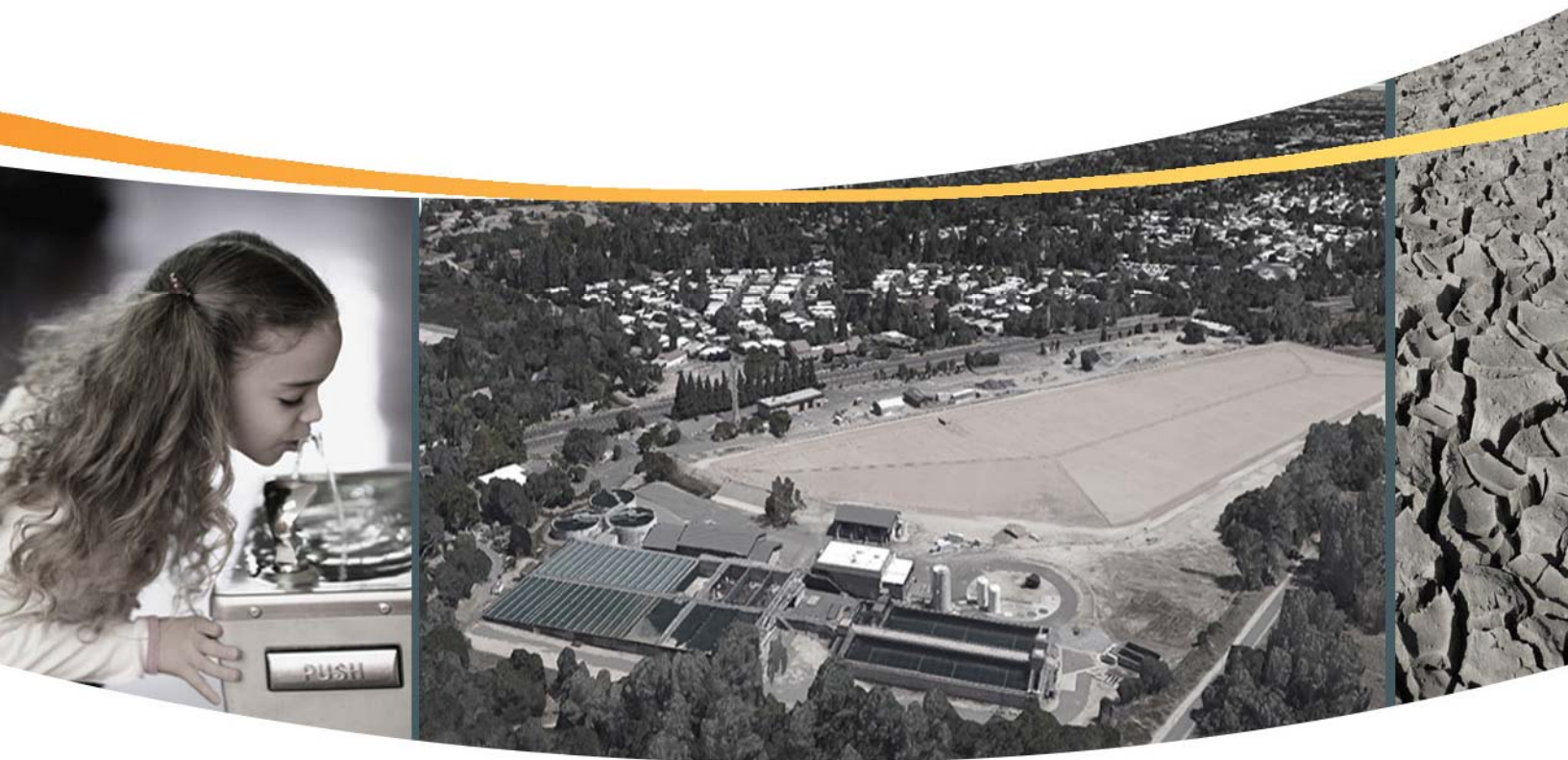
POU = Place of Use
PCWA = Placer County Water Agency
SGA = Sacramento Groundwater Authority

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



Wholesale Water Management and Reliability Study

FINAL STUDY REPORT | OCTOBER 2016



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

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

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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

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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**

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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

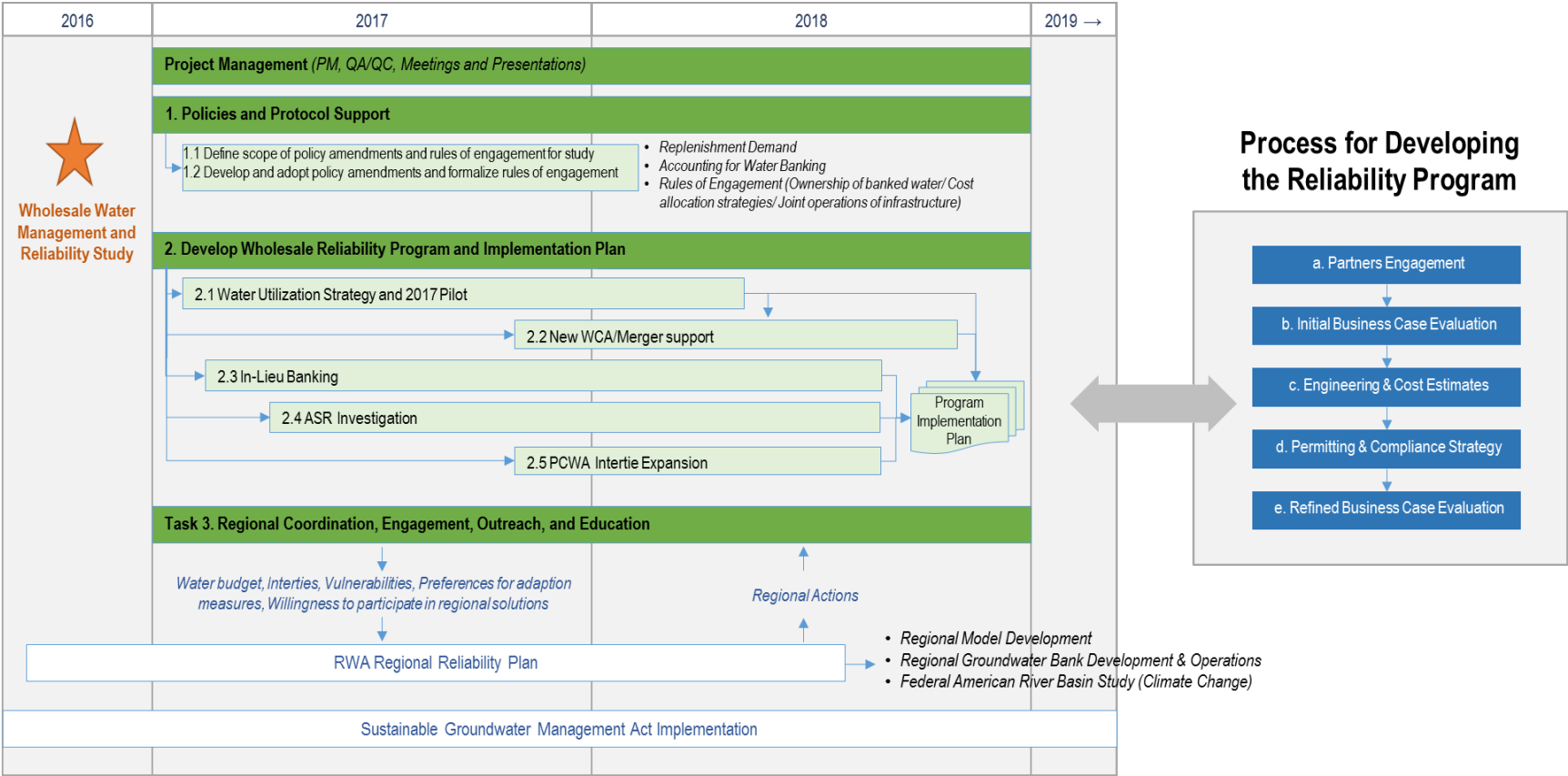


Figure 1. SJWD Water Supply Reliability Program and Related Regional Efforts

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

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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
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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)

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

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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.

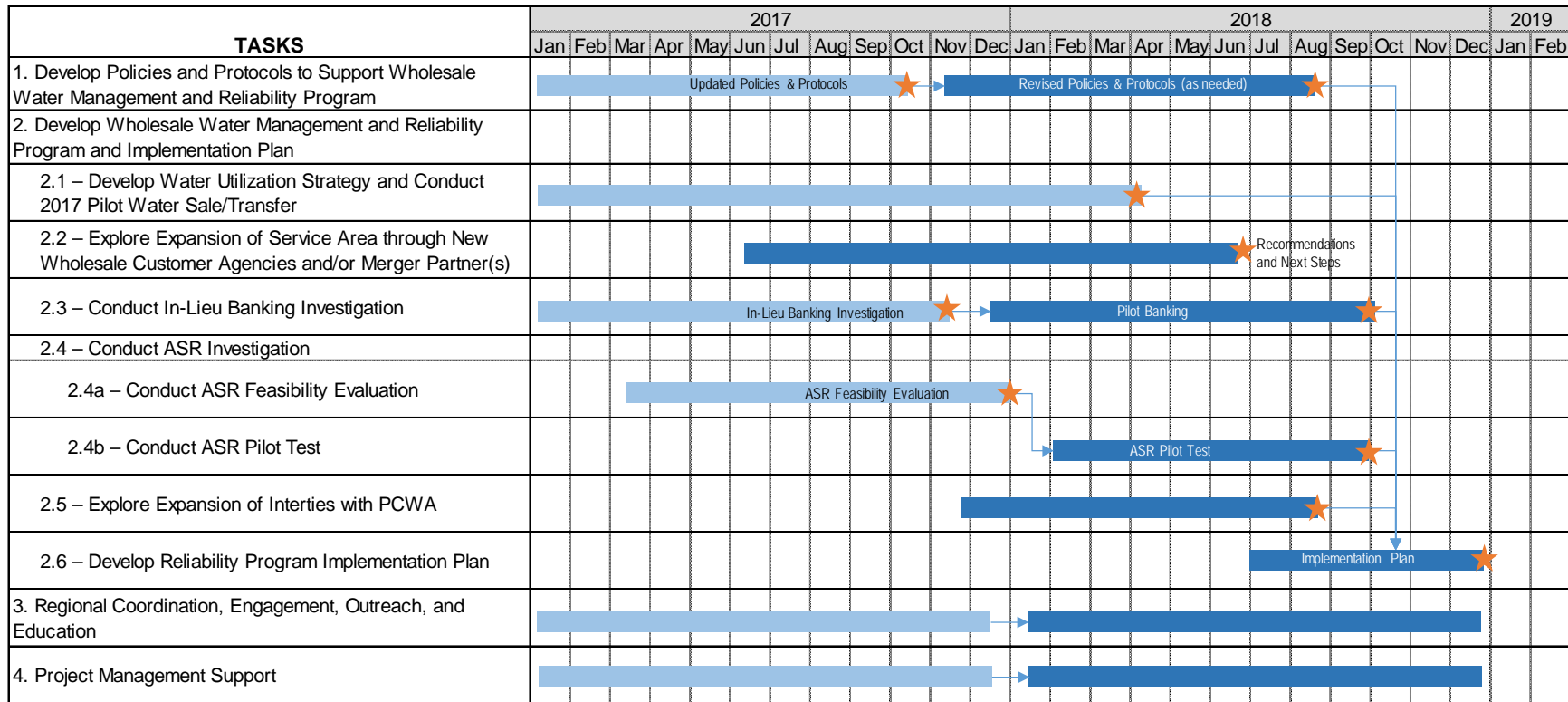
Table 1. Preliminary Budget for Feasibility Study

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.

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

Figure 2. Preliminary Schedule for Feasibility Study

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 19, 2016

Subject: WaterFix

RECOMMENDED ACTION

This item is a status update: there is no requested action from the Board of Directors.

BACKGROUND

The Governor of California worked with water agencies to develop a plan to improve water management in the state of California. This plan is the California Water Action Plan (CWAP). The CWAP is “a roadmap for the first five years of the State’s journey towards sustainable water management”. The CWAP includes the following elements:

1. Make Conservation a California Way of Life
2. Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government
3. Achieve the Co-Equal Goals for the Delta
4. Protect and Restore Important Ecosystems
5. Manage and Prepare for Dry Periods
6. Expand Water Storage Capacity and Improve Groundwater Management
7. Provide Safe Water for All Communities
8. Increase Flood Protection
9. Increase Operational and Regulatory Efficiency
10. Identify Sustainable and Integrated Financing Opportunities

The WaterFix is included in item 3, Achieve the Co-Equal Goals for the Delta. The WaterFix is the name provided for the tunnels through the Delta.

SJWD, along with multiple Sacramento area water agencies, submitted a protest related to the change in diversion point of the Central Valley Project and State Water Project to include the tunnel location. SJWD’s concern is that the tunnels will allow a more aggressive use of Folsom Reservoir, resulting in inadequate carryover into a dry year causing water levels to drop to a level where SJWD cannot access the District’s water rights.

CURRENT STATUS

The State Water Resources Control Board (SWRCB) hearing on the change in place of use is in process. USBR and DWR presented the project and responded to questions and cross examination. The next phase begins on October 20. It is anticipated that the witness panels will be in the same order as the cross examination. The proposed grouping and order of testimony for the Sacramento Valley Water Users is as follows:

Panel 1 – Overall Technical Expert Testimony

Walter Bourez

Dan Easton

Panel 2 – Water Rights of the Sacramento Valley Group

Panel 3 – Sacramento River Settlement Contractors

Panel 4 – Feather River Service Area Contractors

Panel 5 – American River Water Agencies – Folsom River Diverters

Direct Presenters

Shauna Lorance

Einar Maisch

Richard Plecker

Marcus Yasutake

Available for backup/information

Keith Durkin

Andrew Fecko

Kelye McKinney

Jim Mulligan

Panel 6 – American River Water Agencies-Water users below Folsom Reservoir

Panel 7 – American River Water Agencies Technical Expert Panel

The testimony provided for SJWD is attached as Exhibit SJWD-1.

In addition, the Biological Opinion is anticipated to be available in the February-April 2017 timeframe. Until the BO is out, and the project parameters are set, the determination of how the costs for the project will be allocated is unknown. USBR has requested a meeting with me in early November to provide a status update on their work to date regarding the California WaterFix Cost Recovery Strategy for the Central Valley Project.

EXHIBIT SJWD-1

TESTIMONY OF SHAUNA LORANCE, P.E.

1. My name is Shauna Lorance. I have been the General Manager of San Juan Water District since 2003, and I have worked for San Juan Water District in various other roles since 1996. I have a Bachelor's of Science degree in Mechanical Engineering from UC Davis. I am also a registered Civil Engineer, Certificate No. C47304.
2. **Exhibit Folsom-3** is a joint PowerPoint presentation that summarizes key points of this testimony. Exhibit Folsom-3 represents the "summary of testimony" requested by the SWRCB.
3. San Juan Water District ("SJWD") provides water to municipal and industrial ("M&I") connections located in northeast Sacramento County and southeast Placer County, approximately 20 miles northeast of downtown Sacramento. Substantially all of SJWD is unincorporated, with small portions in the City of Citrus Heights, the Ashland area of the City of Folsom, and the City of Roseville. SJWD's boundaries also include the communities of Granite Bay, Fair Oaks and Orangevale. SJWD comprises an area of approximately 28,476 acres (over thirty-seven square miles). Within that area, SJWD provides both wholesale and retail water service. SJWD provides wholesale water supplies to four agencies outside the SJWD retail service area which serve approximately 160,000 people, while the District's retail service supplies approximately 31,000 people within approximately 10,715 acres. **Exhibit SJWD-3 is a map that shows the boundaries of SJWD.**
4. The four wholesale customer agencies (WCAs) that receive water from SJWD are Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and the Ashland area of the City of Folsom. Two of these four WCAs have access to groundwater within their service area and were able to access those supplies during the recent drought to reduce their use of surface water, but two of the WCAs do not have the ability to serve customers with groundwater. At this time, as discussed in more detail below, SJWD's ability to serve its retail service area with groundwater is also very limited. **Exhibit SJWD-4** are pictures of the pipes at Folsom Dam through which San Juan normally receives its water.

SJWD's Water Demands

5. In 2013, the latest year before SJWD began implementing significant water conservation measures in response to the Governor's drought proclamations and the SWRCB's conservation regulations, SJWD delivered 48,268 acre-feet of water. San Juan's last 10 years of water deliveries are stated in **Exhibit SJWD-5**. SJWD projects that its combined retail, wholesale and conjunctive use water demand will be 82,200 acre-feet per year by 2030.
6. SJWD is currently conducting a study to determine the best options for conjunctive use. During the drought, when SJWD was concerned about the reliability of Folsom

Reservoir water supplies due to the very low water levels, SJWD entered into an agreement with Sacramento Suburban Water District (SSWD) to construct a pump station that can pump groundwater from SSWD into the portions of the SJWD wholesale service area that do not have access to groundwater. This agreement does not provide a firm source of groundwater supply; it is intended to address drought and other emergency conditions. Groundwater is only available when SSWD has excess supply available.

**SJWD's Historic Senior Water Rights on the American River
and Its 1954 Settlement with the United States**

7. As the successor-in-interest of the North Fork Ditch Company, SJWD holds the most senior water right on the North Fork of the American River, with a priority date of 1853. Under this right, SJWD is entitled to divert 26,400 acre feet per year from the American River at a rate of up to 60 cfs.
8. Initially, this water right was obtained by a mining company to provide water for gold mining. In 1853, the Natoma Water and Mining Company was operating a water diversion and canal system for the mining operations on the South Fork of the American River and began plans to construct a diversion dam and conveyance system for the mining operations on the North Fork. The South Fork and the North Fork of the American River join about three miles upstream of Folsom. The notice of appropriation of 3,000 miner's inches (about 60 cfs) of water for the pre-1914 water right for mining, agricultural, mechanical and other purposes was posted at the dam site that same year.
9. In 1854, the North Fork Water and Mining Company was formed, a rock diversion dam was constructed on the North Fork American River, and water diversions under the right commenced.
10. The North Fork diversion dam was located at Tamaroo Bar, about two and one-half miles southeast of Auburn, two miles above the confluence of the North Fork and Middle Fork American River, and about thirty-three miles upstream from what is now the City of Folsom. The system of ditches and flumes that was constructed to convey water from the diversion dam for the hydraulic mining operations had a capacity of about 60 cfs and became known as the "North Fork Ditch." North Fork's rock diversion dam was damaged by flood waters from time-to-time and was rebuilt several times before 1898, when a masonry dam was constructed immediately downstream from the location of the original dam.
11. In 1898, the Sacramento Electric, Gas and Railway Company (owner of the Folsom Dam that existed at that time) brought suit to claim a portion of the North Fork Ditch Company water right. On August 5, 1898, the Sacramento County Superior Court issued an adjudication decision that confirmed the scope and nature of North Fork's pre-1914 water right in the case of *Sacramento Electric, Gas and Railway Company v. CW Clarke, etc.*, Action No. 7815, Judgment No. 5353. **Exhibit SJWD-6** is a copy of the 1898 judgment confirming the 1853 water right.

12. Over time, the use of the water changed as mining operations ceased and the Sacramento region developed. By 1914, North Fork's main canal was twenty-five miles long, had eleven miles of branch canals, three reservoirs, and twenty-seven and one-half miles of main and lateral pipes, consisting of the main pipes supplying water to the communities of Orange Vale and Fair Oaks.
13. To distribute irrigation water from the North Fork Ditch, the Orange Vale Mutual Water Company was incorporated in 1896, the Fair Oaks Irrigation District was organized in 1917, and the Citrus Heights Irrigation District was organized in 1921.
14. In 1928, the North Fork Ditch Company sought to expand its supplies, and, to that end, it filed an application for an appropriative water right (Application No. 5830) to divert 35 cfs from the North Fork American River for irrigation and domestic use. This application was approved by the California Division of Water Rights and North Fork was issued Permit No. 4009 in 1932.
15. When the United States was planning the construction of Folsom Dam and Reservoir, it recognized that the new CVP facilities would interfere with the operation of the North Fork diversion dam and ditch through which North Fork had been exercising its American River water rights. The United States subsequently entered into a series of agreements with North Fork to resolve water rights and water system relocation issues.
16. As a result, on July 21, 1950, the North Fork Ditch Company entered into an agreement with the United States (through the Corps of Engineers, Contract No. DA 04 167 eng 182) for the partial relocation of the North Fork diversion dam and the ditch; a supplemental relocation agreement was entered into in November 1950 (Supplemental Agreement No. 1). **Exhibit SJWD-7** and **SJWD-8** are copies of this contract, Contract No. DA 04 167 ENG 182, and the Supplemental Agreement No. 1.
17. In 1951 – 52, the United States and North Fork continued to negotiate the terms of a proposed water rights settlement agreement. In a memorandum dated March 20, 1952, the United States discussed the results of a six-month investigation by the United States to confirm the water rights of the North Fork Ditch Company, which concluded that the Company had a right (under its pre-1914 water right and water right permit no. 4009) to divert about 33,000 acre-feet per year at a maximum diversion rate of about 75 cfs. **Exhibit SJWD-9** is a copy of this memorandum.
18. In the meantime, the United States proceeded with the construction of the new Folsom Dam. In 1954, as Folsom Reservoir began to fill behind the new Folsom Dam, water backed up to the base of the North Fork Ditch Company diversion dam and interfered with the operation of the United States' Folsom project. Consequently, the United States and North Fork negotiated another agreement, and on April 12, 1954, the North Fork Ditch Company and the United States entered into another facilities relocation and water right settlement agreement (the "1954 Settlement Agreement," Contract No. DA 04 167 eng 610). **Exhibit SJWD-10** is a copy of the 1954 Settlement Agreement.

19. The 1954 Settlement Agreement: (1) provided for the North Fork Ditch Company to abandon the remaining parts of the diversion dam and ditch facilities, and related property interests, that would interfere with the United States' operation of Folsom Dam and Reservoir; (2) acknowledged the priority and beneficial use for over 95 years of North Fork's American River water rights; and (3) provided for the United States to construct certain water conveyance facilities, to operate and maintain those facilities, and to deliver the water supply under North Fork's water rights in perpetuity and without reduction from Folsom Reservoir to the New Hinkle Reservoir (which was to be constructed by the United States). Article 4 of the 1954 Settlement Agreement states, in pertinent part:

“The Contractor [the North Fork Ditch Company] represents and the Government recognizes that the Contractor possesses the right to divert amounts of water to 75 cubic feet per second of the waters of the North Fork of said river, such right being based on a filing in the records of the County of Placer, State of California in 1853, an adjudication of said filing in 1898 in the Superior Court of the County of Sacramento, State of California, Action No. 7815, Judgment No. 5353, and on Permit No. 4009 issued on 26 October 1932 by the Division of Water Resources of the State of California, subsequent diversion and use in whole or in part continuously since that time, and application and devotion of the water so diverted to beneficial use. In preservation of such right and to insure the availability to the Contractor of the amount of water from the North Fork of the American River to which the Contractor is entitled by virtue of such right, the parties agree as follows: (a) The rate of delivery of water to the Contractor by the Government at any particular time shall not exceed a total of 75 cubic feet per second. (b) The rate of delivery of water by the Government to the pipe line . . . at any particular time shall not exceed 13 1/3 percent of the total of 75 cubic feet per second established in (a) above. (c) The total amount of water delivered to the Contractor by the Government in any one calendar year shall not exceed 33,000 acre feet. (d) The Government, with the limitations established in (a), (b) and (c) above and the further limitation that the water must be devoted to a beneficial use, shall deliver to the Contractor as much water as the contractor may request. . . . Subject to the provisions of this contract, no interest in the water rights possessed by the Contractor shall be considered to have been transferred to the Government hereunder, and no storage space in Folsom Reservoir shall be considered as being involved in this contract, except to the minimum extent in each instance necessary to enable the Government to comply with the terms thereof and to provide at the times and in the quantity specified herein the water to be received by the Contractor and to which it is recognized the Contractor is entitled. . . .”

20. The 1954 Settlement Agreement contains no shortage provision and does not reduce the water supply available to SJWD under its senior water rights in dry years.
21. Meanwhile, local agencies in the Sacramento Region had been watching the progress of the Folsom Dam and Reservoir project with great interest. In 1947, and then again in 1953, representatives of Orange Vale Mutual Water Company, Fair Oaks Irrigation District, and Citrus Heights Irrigation District formed a committee to

study the water supply needs of the area and concluded that they should acquire the North Fork Ditch Company's water system and water rights and promote the formation of a master water district to own and operate the North Fork water system. During the process of organizing the new district, the retail water customers of the North Fork Ditch Company and other water users in Placer County asked to be included within the new district. The question of whether to form a master water district that would purchase the water rights of the North Fork Ditch Company was then put to a vote of the people within the proposed new service area on February 10, 1954. Nearly two-thirds of the voters approved, and, as a result, SJWD was formed on February 15, 1954.

22. On May 25, 1954, consistent with its mandate from the voters, SJWD entered into an agreement with the North Fork Ditch Company under which SJWD acquired all of North Fork's water system and water rights, including the rights under the April 12, 1954 Settlement Agreement with the United States. SJWD therefore is the successor-in-interest to North Fork's American River water rights. **Exhibit SJWD-11** is SJWD's agreement to acquire North Fork Ditch Company.
23. On April 17, 1955, Reclamation made the first water delivery from Folsom Reservoir to SJWD.
24. In 1961, the State Water Rights Board issued SJWD, as the successor-in-interest to North Fork, water right License No. 6324 on Permit no. 4009; this license authorizes SJWD to divert 15 cfs from June 1 through November 1 of each year for irrigation and domestic uses within SJWD's boundaries. A change in the point of diversion (to Folsom Dam) and place of use (to include the area within SJWD) was approved by the Division of Water Rights in 1967.
25. SJWD's 1853 and 1928 historic senior water rights provide the primary source of water supply for both the District's retail and wholesale service areas.

SJWD's Central Valley Project Water Service Contract

26. As noted above, one of the four Wholesale Customer Agencies to which SJWD provides water is Fair Oaks Water District, which is the successor-in-interest to Fair Oaks Irrigation District (collectively, "Fair Oaks"). Prior to 1958, Fair Oaks, due to its proximity to the American River, had filed its own water rights application, Application 12300, for a permit to appropriate from the American River 50 cfs by direct diversion between April 1 and October 31 and 25,500 acre-feet per year (AFY) by storage between October 1 and June 1, for irrigation and domestic purposes. D 893, p. 5; see also p. 34 (listing the "applications by other entities to appropriate from the American River system for municipal, domestic and/or irrigation purposes within Sacramento County," including the application by Fair Oaks).
27. In Decision 893, the State Water Rights Board considered the water rights application filed by Fair Oaks as well as the water rights applications filed by USBR and others to divert water from the American River and store it at Folsom Reservoir. A copy of Decision 893 can be found in **Exhibit Roseville-5**. The State Water Rights Board discussed the "Watershed Protection Considerations" and the application of

the watershed of origin statutes to the United States. D 893, pp. 34 – 35, 48 – 54, 71 - 73. The State Board noted that Fair Oaks and other parties within the watershed of the American River upstream of Nimbus Dam had protested the United States' applications; the State Water Rights Board described these protests as follows: "some assert their own claimed rights and express apprehension that the diversions that the applicants propose, or some of them, will leave insufficient stream flow to satisfy those rights; others, filed by entities who are themselves applicants, set forth reasons why, in their opinion, their own applications should have precedence." D 893, p. 48. The State Water Rights Board found that these protests did not "necessitate denial of any of the applications" filed by the United States. D 893, p. 48. Rather, the State Board held that the protestants' objections "focus attention . . . upon the necessity of so conditioning permits in certain instances as to prevent injuries that the protestants apprehend." D 893, p. 48.

Consequently, the State Water Rights Board found that Applications 13370, 13371, 13372, and 14662, by the United States, "are eligible for approval . . . provided that rights acquired thereunder remain subject to reduction by appropriation of water for reasonable, beneficial use within the watershed above Folsom Reservoir, provided that releases past Nimbus Dam are sufficient at all times to satisfy demands under downstream rights and requirements for fish conservation and salinity control, provided that deliveries outside of Placer, Sacramento, and San Joaquin Counties are sufficiently restricted to ensure the satisfaction of such demands as developed within those counties, provided such development is undertaken within a reasonable period, and provided that licenses when issued shall be issued to the public agencies of the State within which the water is found to have been put to beneficial use." D 893, p. 51.

At the same time, the State Water Rights Board found that Fair Oaks, being within the area "naturally dependent" on the American River, would be better served by a contract with the United States and the insertion of terms in the United States' permits requiring fulfillment of local water supply needs prior to any exports of American River water:

The point or points of diversion under each of those applications is Folsom Dam and/or Nimbus Dam to which right of access has not been acquired by the applicants. Accordingly, issuance of permits to those applicants would be meaningless in view of the obvious necessity of contracting with the United States for a supply of water from the Federal facilities. The service areas which those applicants desire to supply may be supplied equally well and with less administrative confusion by contract with the United States. Permits are being issued to the United States to appropriate enough American River water to adequately supply the applicants naturally dependent on that source and availability of water to such applicants is reasonably assured by the terms to be contained in the permits to be issued to the United States restricting exportation of water under those permits insofar as exportation interferes with fulfillment of needs within Placer, Sacramento and San Joaquin Counties. Other applicants in more remote areas must if necessary seek water from other sources.

D 893, p. 54.

28. After considering these competing interests in the use of the waters of the American River, the State Water Rights Board ordered that Applications 13370, 13371, 13372, and 14662 of the United States be approved, but the permits were to include the following terms and conditions:

11. The amounts which may be diverted under rights acquired or to be acquired under these permits are and shall remain subject to reduction by future appropriation of water for reasonable, beneficial use within the watershed of Folsom Reservoir. D 893, p. 71.

[¶¶]

14. Deliveries of water under permits issued pursuant to Application 13370 and 13371 shall be limited to deliveries for beneficial use within Placer, Sacramento and San Joaquin Counties and shall not be made beyond the westerly or southerly boundaries thereof, except on a temporary basis, until the needs of those counties, present or prospective, are fully met, provided, however, that agreements in accordance with Federal Reclamation laws between permittee and parties desiring such service within said counties are executed by July 1, 1968. D 893, p. 72.

15. The right to divert and store water and apply said water to beneficial use as provided in the permits issued pursuant to Applications 13370 and 13371 is granted to the United States as Trustee for the benefit of the public agencies of the State together with the landowners and water users within such public agencies as shall be supplied with the water appropriated under the permits. D 893, p. 72.

16. Subject to compliance by the public agencies concerned with any and all present and future valid contractual obligations with the United States, such public agencies, on behalf of their landowners and water users, shall, consistent with other terms of the permits, have the permanent right to the use of all water appropriated and beneficially used under permits issued pursuant to Applications 13370 and 13371, which right, except where water is distributed to the general public by a private agency in charge of a public use, shall be appurtenant to the land to which said water shall be applied, subject to continued beneficial use and the right to change the point of diversion, place of use, and purpose of use, as provided in Chapter 10 of Part 2 of Division 2 of the Water Code of the State of California, and further subject to the right to dispose of a temporary surplus. D 893, pp. 72-73.

17. Upon completion of the appropriation and beneficial use of water under the permits, any license or licenses which may be issued in the matter of Applications 13370 and 13371 pursuant to Chapter 9 of Part 2 of Division 2 of the California Water Code shall be issued to the public agencies of the State within which the water shall have been found by inspection by the Board to have been applied to beneficial use. D 893, p. 73.

In other words, the State Water Rights Board determined that Fair Oaks, being within the area “naturally dependent” upon the American River, would be provided a set of assurances, adopted as a set of terms and conditions in Reclamation’s permits, that it would be provided a reliable water supply from Folsom Reservoir.

29. As indicated above, SJWD was formed in 1954 to serve as the “master water agency” to deliver water to Fair Oaks and the other WCAs. Consistent with the State Water Rights Board’s Decision 893, the United States negotiated a contract with SJWD to provide Fair Oaks, and the other areas within the watershed served by SJWD, with water from Folsom Reservoir. SJWD signed its first water service contract with Reclamation for CVP supplies in 1962.
30. Initially, SJWD’s water service contract provided for 40,000 af of water per year to provide for the District’s immediate and future needs. However, in the late 1960s, Reclamation staff worked out a mathematical formula for the District’s future needs and then, in 1967, reduced the contract amount from 40,000 AFY to 11,200 AFY. SJWD immediately requested that Reclamation reinstate the original 40,000 AFY amount, but SJWD was not successful in persuading Reclamation.
31. However, in 1990, Public Law 101-514 directed the Secretary of the Interior to enter into CVP water supply contract with SJWD for an additional 13,000 AFY of water supply, known as the “Fazio water” after Rep. Vic Fazio, who sponsored the legislation; the water service contract for this additional 13,000 AFY was entered into on December 7, 2000. In 2004, after passage of Public Law 108-137, the two contracts were combined into one CVP long-term water service contract that provides SJWD with 24,200 AFY of water supply.
32. SJWD signed its long-term water service contract in 2006. The contract has a term of 40 years. **Exhibit SJWD-12** is a copy of the District’s 2006 long-term CVP water service contract. In general, the M&I water supplies provided under this contract can be reduced during dry years to 75% of total contract amount. Should hydrology result in severely limited water supplies, M&I can be further reduced down to health and safety levels, but only after agricultural contracts have been reduced to 0 percent allocations.

SJWD’s Contract with Placer County Water Agency

33. In 1972, after Reclamation reduced the amount of water available to the District under its water service contract and the District was unable to persuade Reclamation to reverse that decision, the District sought other sources of supply to ensure that it would have sufficient water to meet future demands. SJWD then entered into a contract that entitles it to receive water from Placer County Water Agency; a revised contract was signed December 7, 2000. **Exhibit SJWD-13** is a copy of SJWD’s 2000 contract with PCWA. It is a take-or-pay contract, meaning that the District must pay for the water whether or not it takes delivery of it. This contract extends through 2021 and is renewable for 20-year periods. It provides for 25,000 AFY water to be supplied to the District.

34. The PCWA contract places a first priority on use in Placer County, but allows use of any water not needed in Placer County to be used in Sacramento County. However, the delivery of water to SJWD from PCWA requires a Warren Act contract with the United States, and SJWD's current Warren Act contract with the USBR limits the use of PCWA water to the Placer County portion of the District service area unless the place of use is modified by the contracting officer. **Exhibit SJWD-14** is a copy of Warren Act contract No. 6-07-20-W1315.

Risks of Injury to SJWD's Water Supply by Proposed Cal Water Fix Project

35. As discussed above, SJWD has water rights to receive surface water supplies from the American River and contracts that provide for those supplies to be delivered from Folsom Reservoir through the Folsom Lake M&I intake. Normally, raw water is delivered to SJWD, Roseville, Folsom, and Folsom Prison via Folsom Dam's Pumping Plant. Refer to **Exhibit Folsom-18**, a cross section of the dam at Folsom Reservoir showing the M&I water supply intake and other water intakes.
36. The M&I intake is the only existing physical means by which SJWD can access its full quantity of surface water supplies. There is an emergency pump located in the penstocks that can supply a minimum level of surface water to the cities of Roseville and Folsom and SJWD, as discussed further below, but that emergency measure is not adequate to convey even the full amount of SJWD's historic water rights.
37. Folsom Reservoir's maximum storage volume is approximately 977,000 acre-feet of water. As shown on Exhibit Folsom-18, the center line of the M&I water intake is at elevation 317 feet above mean sea level (msl), at which point the reservoir holds approximately 65,000 acre-feet. If the lake were to drop to this level, the M&I water intake would be exposed (partially out of the water).
38. However, even before the M&I intake pipe is exposed, SJWD and the other agencies that depend on the M&I intake pipe would have water supply problems because the intake pipe becomes unsafe to use when there is not enough water in the reservoir above it. When the lake level is at 330 feet above msl, or about 89,000 acre-feet of water in storage, the existing pumping plant could incur damaging vortices because too little water would be present above the dam's M&I raw water intake. When there is not enough water above the intake to take the place of the water that is being pumped out, pumping through the intake causes a vortex of air to form, which has a cyclone-like shape and depth. Because of the vortex, air could be carried into the pipe and ultimately reach the pumps themselves. Air in the pumps causes cavitation, which in turn causes destructive shock waves to the pump impellers. Because of these risks, the M&I raw water intake pipe at Folsom Lake becomes unusable when the reservoir level drops too low, even if the intake is still submerged. **Exhibit Folsom-19**, "Increasing Water Supply Pumping Capacity at Folsom Dam, January 1996, ESA Consultants, Inc." discusses this phenomenon.
39. Operational levels at Folsom Reservoir during the 2014-2015 drought have proven that these risks to SJWD's surface water supplies are real. After the calendar year of 2013 was historically dry and January 2014 also was dry, Folsom Reservoir dropped to 162,617 acre-feet by early February, according to information available

from the California Data Exchange Center (CDEC). During November and December 2013, according to SJWD's review of information from CDEC, Reclamation was releasing between approximately 1,100 and 1,500 cubic feet per second (cfs) from the reservoir to the lower American River. Based on my conversations with Reclamation staff and others at that time, I understand that those releases were intended to protect fall-run Chinook salmon redds that resulted from fall 2013 spawning. At that release rate, without additional precipitation, we estimated that the water level in Folsom Reservoir would have dropped below the top of the M&I intake by the end of March 2014. **Exhibit Folsom-20** are photographs of Folsom Reservoir from late January 2014 several weeks before the reservoir reached its low point that winter. **Exhibit Folsom-21** is a widely circulated photograph comparing the condition of Folsom Reservoir at full storage in 2011 and early in 2014. I observed the reservoir in the conditions of full storage in 2011 and during early 2014. Folsom-20 and Folsom-21 accurately depict the condition of the reservoir at those times.

40. Fortunately, Reclamation and the State Water Resources Control Board recognized the need to ensure adequate carryover storage for SJWD's and other municipal water suppliers to be able to meet minimum health and safety requirements, and the rate of release from Folsom Reservoir was reduced in 2014. Reclamation informed us that its goal was to try to manage the remaining supplies to attain an end-of-September storage at Folsom Reservoir of 293,000 – 297,000 acre-feet, under the 90% exceedance forecasts, as contemplated by the Drought Operations Plan Reclamation and DWR submitted to the SWRCB in April 2014.
41. The risk to SJWD's water supplies was just as serious in 2015, though the water year progressed differently. With very little snowpack, Folsom Reservoir's storage peaked at 574,885 AF on March 15, 2015. Storage then declined steadily throughout nearly the entire remainder of 2015 to a historic low level of 135,561 on December 4, 2015. This water level information is based on SJWD's review of information from the California Data Exchange Center. **Exhibit Folsom-24** consists of pictures of Folsom Reservoir from September and November 2015. I observed the reservoir in September and November 2015. Exhibit Folsom-24 accurately depicts the condition of the reservoir at that time.
42. Throughout 2014 and 2015, SJWD's representatives engaged in frequent communications with Reclamation representatives concerning planned operations of the Central Valley Project and Folsom Reservoir. Based on those conversations, I understand that Reclamation made relatively high releases from Folsom Reservoir in the spring and summer of 2015 to contribute to the implementation of Delta water quality requirements while attempting to maintain cold-water storage in Lake Shasta to support winter-run Chinook salmon spawning in the Sacramento River. These releases depleted available storage in Folsom Reservoir.
43. Throughout 2015, there was serious concern that continued dry conditions eventually would result in Folsom Reservoir's water level dropping below the level where the dam's M&I intake would be rendered unsafe to use. A repeat of the extremely dry conditions in late 2013 and early 2014 could have created that

situation. Reclamation's planning to avoid this condition was a major topic of discussion between SJWD and Reclamation throughout 2015.

44. To avoid the safety problems posed by the creation of a vortex and to assure delivery of needed public health and safety water supplies, when the lake level was approaching 340 feet above msl, SJWD and the other water agencies that take water from Folsom Reservoir worked closely with Reclamation's Central California Area Office Manager Drew Lessard and his staff to develop emergency measures. For Roseville's and SJWD's supplies, the emergency measures consisted of an emergency pump (E-Pump) located at a lower elevation than the M&I intake that would pump raw water from one of the dam's hydropower penstocks. The E-Pump would allow continued delivery of water supplies to SJWD and Roseville if the lake dropped to 330 feet above msl. If the level of the reservoir continued to drop and was reduced below the level where the E-Pump could be safely operated, the plan was to float a temporary pumping system in the reservoir to supply SJWD and Roseville. As noted above, the M&I intake pipe from Folsom Reservoir is the only existing physical means SJWD has to access its surface water supplies. If reduced reservoir levels render it unsafe to use the M&I intake, SJWD would not be able to access its historic senior surface water supplies unless the emergency measures were implemented successfully.
45. In 2015, Reclamation staff, including Central California Area Office Manager Drew Lessard, indicated that, if Folsom Reservoir's level were projected to drop below elevation 340 feet above msl, or 111,945 acre-feet of storage, at any time, Reclamation would plan to serve limited supplies to SJWD and Roseville through the dam's E-Pump. **Exhibit Folsom-22** shows a figure of the initially-proposed emergency pump facilities. Activating these emergency facilities would allow Reclamation to avoid the creation of the vortex rendering the M&I intake unsafe to use at low lake levels.
46. According to Reclamation, the E-pump cannot be utilized to deliver water from the hydropower penstock when Folsom Reservoir's level is below elevation 309 feet above msl, or 53,858 acre-feet. Reclamation staff indicated that, if the reservoir's water level were to be projected to decline below 309 feet above msl, then Reclamation would procure and install a floating pump station on Folsom Dam's right-wing dam; this would be a 30-40 CFS floating pumping system similar to the system Reclamation installed on the left wing dam in October 2015 to potentially serve the City of Folsom and Folsom Prison. Reclamation further indicated that submersible pumps for the proposed arrangement on the right-wing dam could be specified to draw water from as low as elevation 280 feet above msl, or 22,932 acre-feet, to deliver water to SJWD and Roseville.
47. Reclamation staff provided to SJWD the information below in Table 1 for storage, elevations and pumping capacities associated with use of the existing E-Pump for SJWD and Roseville and the use of a floating pumping system for the City of Folsom. The information in the table concerning the "North Fork Line" is for capacity for deliveries to SJWD and Roseville on the north side of Folsom Dam. The information in the table concerning the "Natoma Line" concerns capacity for

deliveries to the City of Folsom and Folsom Prison on the south side of Folsom Dam. Refer to **Exhibit Roseville-16**, the “Folsom Drought Emergency Action Plan.”

Storage (TAF)	Elevation (FT)	Temporary/Rental System Natoma Line (CFS)	E-Pump in series with Main Pumping Plant - North Fork Line (CFS)	Total Pumping (CFS)
112	340	N/A	N/A	
89	330	N/A	N/A	
70	320	30	70	100
62	315	30	70	100
55	310	30	70	100
	<309	30	0	30

48. The hydrologic modeling on which the Bay Delta Conservation Plan draft environmental impact report/environmental impact statement (EIR/EIS) and the California WaterFix recirculated draft EIR/supplemental draft EIS (RDEIR/SDEIS) are based indicates that, with operation of the proposed California WaterFix project under the one modeled climate change scenario and with demand growth, Folsom Reservoir would be drained to approximately 100,000 acre-feet during 10% of all years in the future. These results are shown in, among other places, Figure 8 of the RDEIR/SDEIS’s hydrologic modeling Appendix B. A copy of that figure is **Exhibit Folsom-25**. It is not clear whether Folsom Reservoir actually would be drawn lower than 100,000 acre-feet with the California Water Fix project because 100,000 acre-feet is the lowest level for the reservoir depicted in the modeling for the RDEIR/SDEIS.
49. In addition, the modeling for the RDEIR/SDEIS does not appear to reflect realistic Central Valley Project/State Water Project operations. For example, I understand that the H4 scenario (which is part of the EIR/EIS’s Alternative 4 and the RDEIR/SDEIS’s Alternative 4A) involves higher Delta outflows than the H3 scenario that is part of those Alternatives. Figure 8 in the RDEIR/SDEIS’s hydrologic modeling Appendix B, however, shows that end-of-September Folsom Reservoir storage would be significantly higher in the driest of years under the H4 scenario than under the H3 scenario. As noted above, a copy of that figure is Exhibit Folsom-25.
50. In spring 2016, in preparation for this hearing, Reclamation and DWR released new modeling of the project; this modeling had not previously been included in the RDEIR/SDEIS. DWR-514 summarizes the results of the Spring 2016 modeling. Figure 14 of DWR-514 shows Simulated End of September Folsom Storage under the Spring 2016 modeling. According to Figure 14, with the proposed project, in 5% of the years, Folsom Reservoir storage will be drawn down to 90,000 acre-feet or less

at the end of September. Again, it is not clear whether the actual lake level would be less than 90,000 acre-feet because 90,000 acre-feet is the lowest value that can be obtained under the Spring 2016 version of the model.

51. At 90,000 acre-feet of storage, as projected by DWR-514, the lake level elevation of Folsom Reservoir is about 330 feet above msl – just at the level where the vortex could be encountered and the M&I intake becomes unsafe to use. Through the Cal Water Fix project, Reclamation proposes to make voluntary, discretionary changes to the CVP, which will, in one out of every 20 years, draw Folsom Reservoir down to a level where Reclamation has deemed it would be unsafe to divert water through the M&I intake. Obviously, this poses a serious risk of injury to SJWD and the other agencies that rely on that intake for their water supplies.
52. Even if the more generous lake level projection of the RDEIR/SDEIS were accepted, the end-of-September storage for Folsom Reservoir with the project would be 100,000 acre-feet (or less) in 10% of the years. At this level, Folsom Reservoir would be only 10,000 acre-feet away from potentially encountering the vortex – and this level is more than 11,000 acre-feet below the margin of safety established in 2015 when Reclamation announced it would implement emergency measures if the lake dropped below 111,945 acre-feet (or 340 feet above msl).
53. Moreover, neither the modeling results depicted in Figure 8 of the RDEIR/SDEIS nor the modeling results depicted in Exhibit 14 of DWR-514 are consistent with SJWD’s experience during the drought conditions in 2014 and 2015, when I understand from our extensive communications with Reclamation staff that Reclamation was releasing water from Folsom Reservoir in the spring and summer specifically to maintain Delta outflows in light of the Coordinated Operations Agreement and because Reclamation believed it needed to try to hold water in Lake Shasta to maintain a cold-water pool to support later winter-run Chinook salmon spawning. Under the dry conditions experienced in 2014 and 2015, end of September Folsom Reservoir storage levels were significantly lower than would be expected under normal operations.
54. With CalWaterFix, as proposed, there is a great deal of uncertainty as to how the project will be operated. The DEIR/EIS, the RDEIR/SDEIS, the draft and final Biological Assessments, and the evidence submitted at this hearing do not contain any operations plan that explains how the CVP and SWP would operate with the proposed Delta tunnels in place. It is possible that, with the tunnels in operation, Folsom Reservoir could be drawn down at least as far as stated in Figure 14 of DWR-514, that is, to 90,000 acre-feet of storage, or less, at the end-of-September. While Reclamation and DWR’s operators, Ron Milligan and John Leahigh, testified that the projects would not actually be operated as depicted in the modeling, without an operations plan or other enforceable criteria in place, SJWD and the other agencies dependent on Folsom Reservoir water supplies do not have any assurance that the operations shown in the modeling will not be carried out.
55. If Folsom Reservoir were drawn down as far and as often as projected in either the RDEIR/SDEIS modeling or the Spring 2016 modeling, these drawdowns would create recurring serious risks to SJWD’s water supplies, even though SJWD holds

the highest priority appropriative water right in the North Fork of the American River and a settlement contract with the United States that contains no provisions for dry-year reductions.

56. During those projected conditions, SJWD's ability to divert water through Folsom Reservoir's M&I intake and the other facilities used for normal operations would be compromised in 5% of all years (according to the Spring 2016 modeling as depicted in DWR-514) to 10% of all years (according to the RDEIR/SDEIS modeling).
57. Even if the (untested) emergency E-Pump were used once the M&I intake was shut off, as Reclamation proposed to do in 2015, the limited physical capacity of these facilities would interfere with SJWD's ability to access its water supplies. According to Reclamation's "Folsom Drought Emergency Action Plan," see **Exhibit Roseville-16**, the E-Pump can divert only 70 cfs of water to serve both Roseville and SJWD. It is not clear how this 70 cfs would be split between SJWD and Roseville. However, it is clear that the 70 cfs capacity of the E-Pump is 5 cfs lower than the 75 cfs of SJWD's historic senior water rights, which the United States recognized in the 1954 Settlement Agreement. If Reclamation split the 70 cfs evenly between SJWD and Roseville, SJWD would be receiving less than half of what it is entitled to divert under its historic senior water rights.
58. Of course, the extent to which Cal Water Fix would interfere with SJWD's water rights depends on the number and duration of times that the M&I intake would be rendered unusable as a result of the Cal Water Fix project. Since Reclamation and DWR have not produced an operations plan, it is not possible to quantify these impacts precisely at this time. However, if Cal Water Fix drew Folsom Reservoir down to the point where the M&I intake were deemed unsafe and diversions had to be taken through the E-Pump at a rate of 70 cfs, the maximum volume of water that could be delivered in one year for both SJWD and Roseville would be 50,711 acre-feet. (This assumes inflow sufficient to keep Folsom Reservoir's level at or above 309 feet above msl, or 53,858 acre-feet of storage; as noted above, the E-Pump itself cannot be used if the Reservoir drops below that level, and additional emergency measures would have to be implemented to ensure continued deliveries to Roseville and SJWD.)

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 19, 2016

Subject: Bay Delta Water Quality Plan

RECOMMENDED ACTION

This item is for information; no action is requested at this time.

BACKGROUND

From the State Water Resources Control Board's website:

The SWRCB is responsible for developing and modifying the Bay-Delta Water Quality Control Plan which establishes water quality control measures needed to provide reasonable protection of beneficial uses of water in the Bay-Delta Watershed. The SWRCB also implements the Bay-Delta Plan through water rights and other measures and otherwise administers water rights in the Bay-Delta Watershed.

The State Water Board is in the process of developing and implementing updates to the Bay-Delta Plan and flow objectives for priority tributaries to the Delta to protect beneficial uses in the Bay-Delta watershed. Phase 1 of this work involves updating San Joaquin River flow and southern Delta water quality requirements included in the Bay-Delta Plan. Phase 2 involves other comprehensive changes to the Bay-Delta Plan to protect beneficial uses not addressed in Phase 1 (Delta outflows, Sacramento River inflows, Suisun Marsh salinity, Delta Cross Channel Gate closure, export limits, reverse flows). Phase 3 involves changes to water rights and other measures to implement changes to the Bay-Delta Plan from Phases 1 and 2. Phase 4 involves developing and implementing flow objectives for priority Delta tributaries outside of the Bay-Delta Plan updates.

CURRENT STATUS

The SWRCB issued the environmental documentation for the development of a San Joaquin River flow requirement of between 30-50% of the river's unimpaired natural flow, with a starting point at 40% of unimpaired flow.

The SWRCB just released on Wednesday October 19, 2016 the draft scientific basis report for the flow requirements for the Sacramento River and tributaries. The American River is a tributary to the Sacramento River. The draft report recommends a flow requirement of between 35% and 75% of the unimpaired flow on the rivers. This is a large range and more information will be necessary to determine the effect of such a requirement. Comments on the draft scientific basis report are due December 16, 2018. A public hearing will be held on December 7, 2016. This will be coordinated with the Sacramento River Users Group.

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 19, 2016

Subject: General Manager Transition

RECOMMENDED ACTION

This item is for information; no action is requested at this time.

CURRENT STATUS

There is a significant list of issues that the District is currently involved in that will not be wrapped up by December. In fact, many will likely continue for multiple years. To avoid concern by the Board of Directors regarding the transition of activities to the new General Manager, I am in the process of listing all of the issues that I have been involved in, what level of involvement I have had, and what remains to be accomplished. In addition, if it would be preferable to have a higher level of involvement that resources have allowed, I have described what the preferred level would be.

The intent is to provide a summary document that can be used as a resource for the new General Manager. As I have commented previously, I will also be available for questions should additional information be necessary.

In addition, Greg Zlotnick, Water Resource Specialist, has an excellent knowledge of water policy and California water and will be attending many of the committee meetings I attend to provide additional overlap. Keith and I will be in close communication and coordination during the next couple months.

As the date moves closer to December, please do not hesitate to contact me if you would like more information in regards to the transition.

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 19, 2016

Subject: Joint WCA Financial Plan Comments

RECOMMENDED ACTION

Staff recommends the Board of Directors consider the comments provided by the WCAs during a joint meeting on the Wholesale Financial Plan.

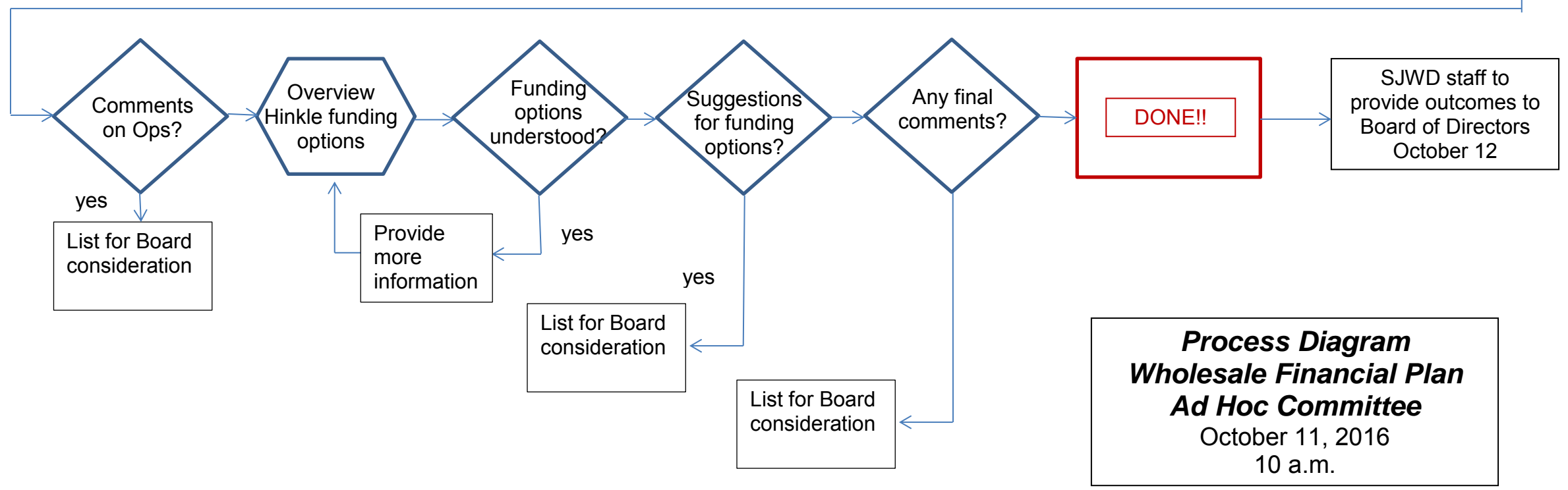
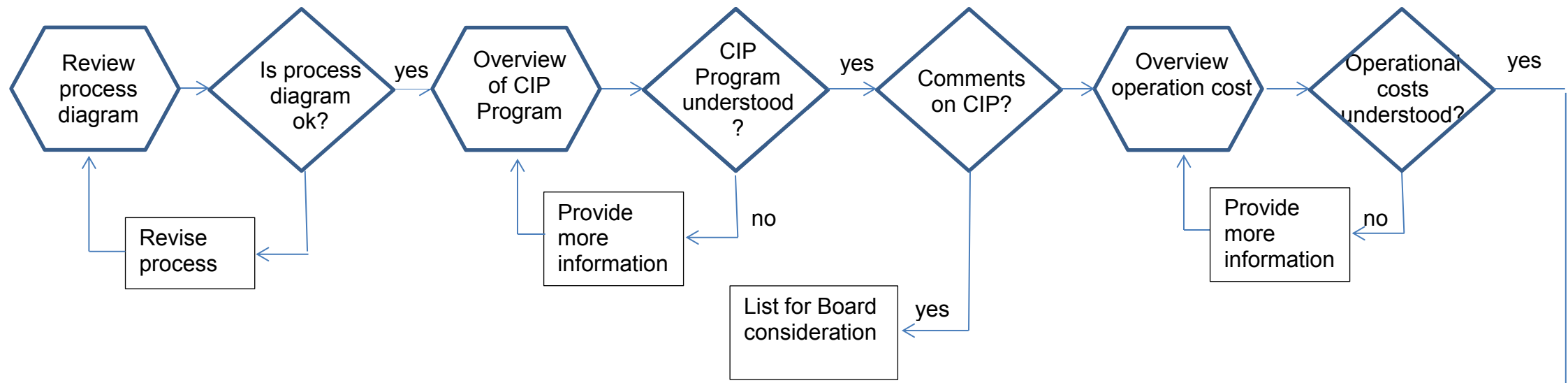
BACKGROUND

At the joint Board Meeting September 19 at FOWD, the board members requested a joint meeting of the WCA general managers and a representative board member(s) from each agency to obtain more information on the Wholesale Financial Plan.

CURRENT STATUS

CHWD, FOWD, SJWD, SSWD, and the City of Folsom participated. Bob Reed provided an overview of the financial plan. The attached flow chart details the process that was followed during the meeting. The list of comments from the meeting is:

1. FOWD suggested considering not prepaying the CALPERS unfunded liability.
2. SSWD would like SJWD to do what is necessary to implement a strong financial plan with adequate reserves prior to initiation of debt financing.
3. FOWD requested the Board of Directors consider spreading the rate increases out over 10 years rather than five years.
4. FOWD has incorporated the initial 2017 rate increase into their budget for next year, so would like the Board of Directors to consider spreading the remaining 4 years out over the remaining 9 years.
5. The City of Folsom supports the rate structure change of working towards fixed costs being covered by the fixed portion of the wholesale water rates and variable costs being included in the volumetric portion of the rates.
6. FOWD suggested a consideration of implementing a take or pay contract.
7. CHWD would like SJWD to consider setting enough aside for full funding of infrastructure replacement and repair during development of the next Wholesale Financial Plan. This should include reserves to pay cash for large construction projects, such as the next replacement of Hinkle reservoir cover.



**Process Diagram
Wholesale Financial Plan
Ad Hoc Committee**
October 11, 2016
10 a.m.

AGENDA ITEM VI-4

October 19, 2016

Mr. Robert Churchill
Citrus Heights Water District
P.O. Box 286
Citrus Heights, CA 95611

Subject: Response to October 14, 2016 Comments on Wholesale
Financial Plan

Dear Bob:

Thank you for taking the time to review in detail the Wholesale Five-Year Financial Plan and Water Rate Update Study. Your comments are appreciated. Per your request, I am providing you this written response to your comments. The first responses are to the general comments included in your letter. Following those responses, I have provided responses to substantive comments included within the report.

Responses to comments in cover letter:

1. Member Agencies – Refer to the “member agencies” as “wholesale customer agencies” throughout to be consistent with water supply agreement language.
Good catch. The reference will be revised in the final version of the report.
2. Generalizing - Provide specificity in statements by avoiding or limiting the use of conditional words such as “most”, “generally” and “relatively”.
Where these references are not necessary they will be removed.
3. Financial Plan and Revenue Needs (Page 2, first bullet) – “The financial plan assumes that there will be a modest rebound in water demands beginning in FY 16-17 that then continues and extends over several years.” Based upon surface water purchases and groundwater production through September 2016, CHWD projects an increase in water demands of 12.3% above CY 2015 demands, equating to a CY 2016 total of 11,200 AF. When subtracting CHWD’s annual readiness-to-serve groundwater production of 900 AF (CHWD 2015 UWMP Page 19), surface water purchases from SJWD in CY 2016 are anticipated to be 10,300 AF. This quantity compares favorably with the CY 2016 quantity of 10,420 AF estimated in Exhibit II-1 on Page 10.

October 19, 2016

Page 1 of 6

Thank you for the clarification. Estimating the water usage for these upcoming and future years is anything but accurate, especially after multiple drought years and expected mandatory long term conservation requirements. As all of the demands are estimates at this time, and we do not know if agencies will use less or more than the estimate, the 900 af is likely within assumed error of the numbers. After the first year if the water use results in a significantly different value than estimated, we will review all of the WCA water use and adjust as appropriate.

4. Financial Plan and Revenue Needs (page 4, first paragraph) – In light of the significant impending debt for the Hinkle Reservoir liner and cover, the financial plan model should be updated every year until it is clear that significant progress is being made in preparation to finance this expense. Similarly, the financial model should be used annually in determining recommendations for adjustment to both the fixed and variable components of the wholesale water rates.

We appreciate your understanding of the variability of the estimates in the computer model and the need to fund the upcoming projects. After the first year, we will review the actual revenue and costs to the assumptions in the report. Should there be a significant variance for the previous year, or significant revisions to the assumption in the upcoming years, staff will recommend an update to the plan.

5. Wholesale Capital Fund (Page 7) – It is CHWD understanding that by policy, SJWD applies 50% of its property tax revenues to its wholesale capital program and 50% to its retail capital program. It would be more transparent to identify/reference the policy and state the percentage rather than to generally refer to the wholesale allocation as “a portion”.

Your understanding is correct and this will be clarified.

6. Hinkle Reservoir Reserve (Page 8) – It is unfortunate that the Hinkle Reservoir Reserve is currently funded at approximately 11% of the estimated liner and cover replacement cost. It is acknowledged that water rates would have been higher if this reserve had been funded more robustly for this project. In planning for the next replacement cycle approximately 40 years from 2021, use of a majority if not all of property tax revenues available to SJWD should be considered as a source for this Reserve.

Comment noted for consideration during the development of the next wholesale financial plan.

7. Retail Customer Base and Water Deliveries (Page 9) – CHWD is concerned about the assumed rebound of water deliveries over the next several years. This is perhaps the biggest unknown and the Report needs to err on the side of being conservative, even to the point of discounting UWMP predictions until we have a better vision of what the “new normal” in water demands will be. CHWD’s UWMP predicts population growth of 5% from 2015 (65,093) to 2025 (68,348), or 0.5% per year (CHWD 2015 UWMP Page 6).

We are in complete agreement with you in regards to the unknown rebound of water deliveries over the next few years. As we do not have any projections that we are confident are any more accurate than the UWMP, we have used that information for this Plan. We will review this information to see if there is significant variation at the end of the first year to determine if a reevaluation is appropriate.

8. Exhibit II-1: Summary of Past and Estimated Future Wholesale Water Deliveries (Page 10) – The Exhibit omitted surface water deliveries to CHWD for CY 2011. Deliveries prior to that date are off by one year. CHWD’s records for CY 2008 of 17,153 AF differ slightly from the Exhibit’s quantity of 17,036 AF. Noteworthy is the significant change in water demands after CY 2008, when the District became fully metered and began billing on metered rates. Water demand quantities prior to 2008 very little if any bearing on future demands.

The Exhibit’s values for future wholesale water deliveries to CHWD of 16,970 AF for CY 2020 and 17,383 AF for CY 2025 match CHWD’s 2015 UWMP values for total water demands (CHWD 2015 UWMP Page 23); however, when subtracting CHWD’s annual readiness-to-serve groundwater production of 900 AF, the correct quantities for surface water purchases from SJWD in those years are 16,070 AF and 16,483 AF, respectively.

We’ve included straight-line projection numbers between CY 2016 and 2020 and between CY 2020 and 2025 based upon the corrected number from above.

With the possibility for additional State-imposed water efficiency requirements and mandates, CHWD is not confident at this time that the estimated future wholesale water deliveries will correspond to its 2015 UWMP and the quantities shown in the Exhibit. Similar to CY 2016, CHWD has very conservatively budgeted purchasing 12,000 AF of surface water from SJWD in CY 2017.

See responses to number 3 and 7.

9. Staff Additions (Page 11) – CHWD does not understand the rationale of equally splitting the new positions of Human Resources Specialist and Administrative Assistant between the wholesale and retail budgets of SJWD. With approximately 18 full time equivalent (FTE) positions in SJWD wholesale and approximately 28 FTE positions in SJWD retail, an allocation of 39% to wholesale and 61% to retail for the Human Resources Specialist position is appropriate as this position directly applies to personnel functions. A similar allocation method would apply to the Administrative Assistant position based upon anticipated apportionment between wholesale and retail responsibilities.

SJWD agrees that the allocation of costs for new positions should be determined based on the actual job description and workload that will be assigned to each of the positions. When this information is available, the allocation of the costs associated with each position will be determined. Until that time, the position has been budgeted on a 50/50 basis as a placeholder.

10. New Administration Building (Page 16) – Similarly to the comment above, what is the rationale for equally splitting the cost for a new administrative building between the wholesale and retail budgets of SJWD?

While the major capital needs relating to the water treatment plant have been discussed, the need for a new building has not been explained to the same level of detail. Please provide a brief rationale for the need and recommended timing for this project.

The same rationale as number 9 was used; the District does not yet know how a new building will be allocated and this is currently a placeholder. Whether it is a new administrative building, a new board room, or an addition to the existing administrative building has not been determined. SJWD needs additional space and is still in the process of determining the best approach.

11. PERS UAL Obligations (Page 16) – CHWD requests that SJWD take another look at the need, value and timing of paying off the PERS UAL in lump sum in 2017.

.....
In spreading SJWD's PERS UAL payments over time would result in SJWD having cash reserves to facilitate its desired rating on debt service sooner thereby expediting replacement of Hinkle liner and cover.

SJWD reviewed the option of not paying off the PERS UAL. The result of not paying off the PERS UAL would result in an additional 3% increase being added to the first year rate increase. Staff does not recommend paying off all of the UAL, as it would be prudent to leave some room for the situation when PERS returns are above their assumed return, as PERLA does not allow an agency to reduce payments should they become overfunded.

In response to your comment that this would reserve funds to be used on capital projects, unfortunately it is not enough to avoid debt financing for the project.

12. Financial Plan Results (Page 17, fourth bullet) – The uncertainty of the rebound in water demands and corresponding annual water rate revenues is mentioned. As stated above, this is perhaps the biggest unknown and the Report needs to err on the side of being conservative, even to the point of discounting UWMP predictions until we have a better vision of what the “new normal” in water demands will be. Monitoring of this financial risk will be important, and we recommend that this financial plan be updated initially every year; more frequently than three to five years.

See responses to comments 3 and 7.

13. Wholesale Financial Plan Exhibit II-5 (Page 19) – The Property Taxes line in the Wholesale Capital Program Funding exhibit lists funds on the order of magnitude of \$1 million annually. With this being 50% of the total SJWD Property Taxes, please confirm that total property tax revenues are approximately \$2 million with

Our property tax revenue is approximately \$2 million per year, equally divided between wholesale and retail.

14. Water Rate Design (Page 28, first paragraph) – When considering the actual variable and fixed components of the wholesale water rates, the intent to keep the variable portion the same until 2021 while raising the fixed portion annually is intuitively not consistent with cost of service principles. Is the proposed 31% / 69% difference between variable and fixed costs proposed for FY 2020-21 more indicative of actual cost of service or is this just an interim step to an even more heavy reliance on the fixed component in the future?

The wholesale water rates are based on allocating costs equitably between all WCAs. Currently, some of the fixed costs are included in the volumetric portion of the water rates. To improve our resilience during varying water use conditions, staff is recommending the Board of Directors consider transitioning to a water rate that includes all fixed costs in the fixed portion of the water rate. The recommendation is to transition to this rate structure over an extended period of time. The water rates proposed in the first five years still have some of the fixed costs in the volumetric portion of the water rates.

15. Proposed Wholesale Water Rates for 2017 Through 2021 (Page 29) – Item 3 and corresponding Exhibit III-5 on Page 31 note a decrease in the fixed O. M. & R. charges. What has influenced this change for CY 2020 and why does it then increase/maximize in CY 2021?

CY 2020 is the first year of additional debt service payments. The debt service charge goes up dramatically, so the remaining fixed portion of the water rate is

reduced to keep from spiking the rates that year. The fixed costs will then begin to increase the following year to continue the transition to all fixed costs being included in the fixed portion of the water rate.

Responses to comments from the report:

68.9 on p 15

One focus of this wholesale financial plan is to help ensure adequate funding of the District's wholesale capital improvement program. The wholesale capital improvement program includes about \$64.6 million (in future dollars) in capital improvements over the ten-year planning period extending through FY 25-26. The financial plan presented herein indicates that undertaking this capital program, as planned and scheduled, will result in

This will be revised to reflect the most recent number.

28.4
below
(69.3%)

The financial plan model includes estimates related to the issuance of additional long-term debt in 2019 in order to fund major capital improvement projects. The 2019 new debt issue is estimated with a total par amount of \$41.5 million (\$28.75 million for wholesale projects and \$12.75 million for retail projects). Estimated terms include a 4.0 percent interest rate, 30-year repayment term, issuance costs of 2.0 percent of the par amount, funding of a debt service reserve, and approximately equal annual principal and interest payments throughout the repayment period. Actual terms would be determined at the

The \$28.4 million is the total of the two capital projects. The \$28.75 million is the total of the debt issuance costs assigned to wholesale. These numbers are not intended to be the same.

The footnotes numbered 9 and 10 are missing in Exhibit II-3. This will be fixed.

Again, I want to thank you for your detailed review of the Plan. It is very much appreciated.

Sincerely,

Shauna Lorance
General Manager

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 20, 2016

Subject: Status update on shut off process

RECOMMENDED ACTION

This report is related to operations, but is being provided for your information. No action is being requested.

CURRENT STATUS

Customer Service evaluated the current shut off process for efficiency and safety and has made a couple changes.

Currently, for a water bill that is not paid, staff sends out the initial bill, then a reminder bill, then a “48 hour notice” is delivered on a Thursday to notify a customer that their service will be shut off on the following Tuesday. In total, the customer has 45 days to pay their bill. Prior to shut-off, customers may call to make a payment or payment arrangement or come into the office up until about 10 am on the Tuesday to pay the bill and avoid their water service being shut off for non-payment. If payment is not received, staff goes to each property and locks off the service. In the past, certain customers would wait to pay their bill directly to the field staff who went to shut off their service putting the field staff in a position to accept cash or checks from the customer. From a financial auditing perspective, and for personal safety, field staff should not be accepting payments in the field.

Staff is revising the process so that on the day of shut-off customers would need to pay their outstanding balance by phone with a credit card or checking account or come into the office prior to shut-off. If service had been shut off and they call for reconnection after hours, the customer would need to show the on-call staff a receipt from an online bill payment to have their water service turned back on. We will no longer accept payment in the field. The on-call employee will let the customer know when they call that an online receipt must be presented for the full amount to have their water service turned back on.

In the past, the District also refrained from shutting off any water service in November or December as a courtesy around the holidays. Although this was initiated for our customers’ benefit, it has resulted in unintended consequences. There are usually about 15 or 20 customers who have their service shut off each month. Unfortunately, with no shut offs in November or December, many of these

do not pay their bill and end up with a double bill to pay in January or February. Some are then unable to pay their bill, and request a payment schedule. Each of these payment schedules are monitored by hand, and often require individual phone calls to obtain each scheduled payment. This year we will be shutting services off for non-payment in November and December. The regular bill message and the delinquent bill message will reflect that shut offs will occur.

The schedule for this year is as follows:

Thanksgiving Holiday Nov 24-25

48 Hour notices will be delivered: Nov 17/18

Shut off date: Nov 29

Christmas Holiday Dec 26

48 Hour notices will be delivered: Dec 15/16

Shut off date: Dec 19

STAFF REPORT

To: Board of Directors

From: Shauna Lorance, General Manager

Date: October 19, 2016

Subject: Wholesale Water Rate Information

RECOMMENDED ACTION

Staff recommends requesting Crocker and Crocker to develop text/graphic to provide to our wholesale customer agencies to use to describe the need for the wholesale water rate increases.

CURRENT STATUS


The Fair Oaks Water District would like to provide information to their customers on the proposed wholesale water rate increases via their website. As a result of the 2x2 committee meetings, and the desire to improve the relations between the two agencies, FOWD has requested SJWD to develop the wording.

SJWD recently completed a wholesale mailer that discussed various projects and the need to develop a funding mechanism. Staff suggests asking Crocker and Crocker to develop text and/or graphic to provide to all the wholesale customer agencies for their use.

This is an example of one article from the wholesale newsletter:

CRITICAL PROJECTS FOR YOUR WATER NEEDS

Over the next 10 years, we will complete much needed capital improvement projects in a fiscally sound and responsible manner. These projects will ensure high-quality, reliable water supplies into the future and help us comply with federal and state regulations. Extensive work is underway at the treatment plant located next to our office. We are replacing aging equipment installed during the 1980s. These improvements will enhance overall operations for the water treatment process.



REPLACING AGING WATER SYSTEMS

Tony, Operations Manager >

**SAVINGS & PLANNING
LEARN ABOUT
HINKLE
RESERVOIR**

Hinkle Reservoir is a critical facility for your water supply, water quality and public health. This 12.5-acre reservoir holds and protects 62 million gallons of water prior to it entering the distribution system. It also provides emergency storage.

Hinkle Reservoir is lined and covered to ensure your water quality is protected from the time treated water leaves our water treatment plant until it enters the distribution system. The liner and cover were installed in the 1980s with an expected "life" of 20 years. Through responsible maintenance, San Juan staff extended that life for another 20 years, providing significant savings for our ratepayers.

Extending the life of either one is no longer possible and they must be replaced. We are planning to do so at a currently estimated cost of \$30 million, which is nearly equivalent to four times our present annual non-drought period Wholesale revenue. A key planning priority for this year is to determine how to pay for these critical facilities.

AGENDA ITEM VIII-1 DRAFT

Water Supply & Reliability Committee Meeting Minutes San Juan Water District October 13, 2016 3:00 p.m.

Committee Members: Bob Walters, Chair
Dan Rich, Director

District Staff: Shauna Lorance, General Manager
Greg Zlotnick, Water Resources Specialist
Teri Grant, Board Secretary/Administrative Assistant

Topics: Water Management and Reliability Study Update (W)
a. Status of Final Report
b. Final Report Presentation at Joint Board Meeting
c. Review TM6
d. Remaining Tasks and Schedule
Current Water Use Reductions Update (R)
Other Matters
Public Comment

1. Water Management and Reliability Study Update (W)

- a. Status of Final Report
Ms. Lorance informed the committee that Mr. Keith Durkin consolidated the comments that were provided by staff and committee members on September 29th, and mentioned that there were no comments received from other agencies. She explained that the comments will be incorporated by MWH in the draft final report and provided to the District by October 20th so that the report can be included in the Board packet for the October 26th Board meeting.
- b. Final Report Presentation at Joint Board Meeting
Ms. Lorance reported that MWH provided an overview of the draft final report to the Wholesale Customer Agencies (WCAs) on September 22nd. The WCAs requested that a presentation be conducted at a joint Board meeting. The committee recommends that the SJWD Board review the report, with no action recommended, and then consider scheduling a joint Board meeting.
- c. Review TM6
Ms. Lorance informed the committee that TM6 includes a Feasibility Study Scope of Work, a preliminary budget, and the next steps and schedule. Mr. Zlotnick suggested that the Board consider starting discussions on Task 1 regarding the Policies and Protocols.
- d. Remaining Tasks and Schedule
Ms. Lorance informed the committee that a final presentation will be scheduled. The committee recommends that a joint Board meeting be scheduled separate from the regular SJWD Board meeting.

For information only; no action requested.

2. Current Water Use Reductions Update (R)

Ms. Lorance reported that the District is meeting the 10% voluntary conservation amount since the self-certification went into effect, and is at a 26% cumulative conservation savings since June 2015. She commented that the State Water Resources Control Board is concerned about the lowered conservation amounts since allowing self-certification from water agencies.

Ms. Lorance reported that the long term water conservation requirements will be based on interior and exterior water usage calculations. It is expected that there will be a 55 gpd per person restriction for interior water use and exterior water use will be based on satellite imagery, etc, and irrigable area. There is concern that this puts limits on the amount of water the District can use which could result in a taking of the Districts water rights.

Ms. Lorance informed the committee that the draft long term water conservation requirements will be coming out on November 4th and there will be a 10-day comment period. Comments are being drafted and there may be a joint comment letter. Ms. Lorance informed the committee that she needs direction regarding the strategy on this topic. Ms. Lorance suggested that another committee meeting be scheduled with the District's legal counsel, Josh Horowitz, in attendance. The committee discussed this and then decided that the whole Board should be in attendance and this will be discussed at the October 26th Board meeting under Closed Session.

For information only; no action requested.

3. Other Matters

There were no other matters discussed.

3.1 Next Meeting Date

The next committee meeting will be scheduled as needed.

4. Public Comment

There were no public comments.

The meeting adjourned at 3:57 pm.