April 25, 2019

NOTICE OF MEETING – REQUEST FOR RSVPS

Members of the Joint Recycled Water Policy Advisory Committee

Santa Clara Valley Water District:

Director Hon. Tony Estremera – Chair
Director Hon. Barbara Keegan
Director Hon. Gary Kremen

City of San José

Council Member, Sylvia Arenas
Council Member, Lan Diep
Ms. Kerrie Romanow – Alternate

City of Santa Clara:

Council Member Hon. Debi Davis
Council Member Hon. Kathy Watanabe - Alternate

Supporting Santa Clara Valley Water District Staff Members:

Norma J. Camacho, Chief Executive Officer
Stan Yamamoto, District Counsel
Anthony Fulcher, Senior Assistant District Counsel
Nina Hawk, Chief Operating Officer
Rick Callender, Chief of External Affairs
Darin Taylor, Chief Financial Officer
Kurt Arends, Deputy Operating Officer, Raw Water Operations & Maintenance Division Deputy's Office
Garth Hall, Deputy Operating Officer, Water Supply Division
Katherine Oven, Deputy Operating Officer, Water Utility Capital
Bhavani Yerrapotu, Deputy Operating Officer, Treated Water Operations & Maintenance Division Deputy's Office
Rachael Gibson, Deputy Administrative Officer, Government Relations
Aaron Baker, Assistant Officer, Water Utility
Jerry De La Piedra, Assistant Officer, Water Supply Deputy's Division
Hossein Ashktorab, Unit Manager, Recycled and Purified Water Unit
Medi Sinaki, Senior Engineer-Water Quality, Recycled and Purified Water Unit
Miguel Silva, Associate Engineer – Civil, Recycled and Purified Water Unit
Metra Richert, Unit Manager, Water Supply Planning and Conservation Unit
Elise Latedjou-Durand, Senior Environmental Planner, Water Resources Planning Unit

Supporting City of San José Staff Members:
Jeffrey Provenzano, Deputy Director, Water Resources Division
Michele Young, Program Manager, South Bay Water Recycling
Chantel Khatchatourian, Administrative Assistant, Environmental Services Department
Pedro Hernandez, Supervising Environmental Services Specialist, Water Resources Division

Supporting City of Santa Clara Staff Members:
Gary Welling, Assistant Director, Water & Sewer Utilities

A regular annual meeting of the Santa Clara Valley Water District Joint Recycled Water Policy Advisory Committee will take place at **10:00 a.m. on Wednesday, May 1, 2019,** at the Santa Clara Valley Water District's Headquarters Building Boardroom, 5700 Almaden Expressway, San Jose, California 95118.

Enclosed for your convenience is a copy of the agenda and corresponding materials. Please bring these materials to the meeting with you.

Please RSVP at your earliest convenience by calling Glenna Brambill at 1-408-630-2408, or by email to gbrambill@valleywater.org.

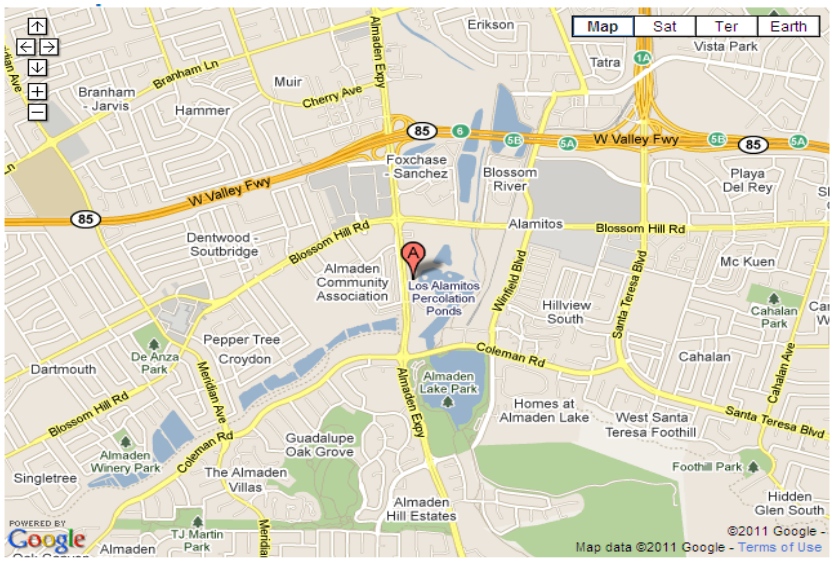
Thank you!

Glenna Brambill
Management Analyst II
Board Committee Liaison
Office of the Clerk of the Board
Santa Clara Valley Water District

Valley Water

Clean Water • Healthy Environment • Flood Protection
5750 Almaden Expressway, San Jose CA 95118

Santa Clara Valley Water District - Headquarters Building, 5700 Almaden Expressway, San Jose, CA 95118



From Oakland:

- Take 880 South to 85 South
- Take 85 South to Almaden Expressway exit
- Turn left on Almaden Plaza Way
- Turn right (south) on Almaden Expressway
- At Via Monte (third traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

From Morgan Hill/Gilroy:

- Take 101 North to 85 North
- Take 85 North to Almaden Expressway exit
- Turn left on Almaden Expressway
- Cross Blossom Hill Road
- At Via Monte (third traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

From Sunnyvale:

- Take Highway 87 South to 85 North
- Take Highway 85 North to Almaden Expressway exit
- Turn left on Almaden Expressway
- At Via Monte (third traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

From San Francisco:

- Take 280 South to Highway 85 South
- Take Highway 85 South to Almaden Expressway exit
- Turn left on Almaden Plaza Way
- Turn right (south) on Almaden Expressway
- At Via Monte (third traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

From Downtown San Jose:

- Take Highway 87 - Guadalupe Expressway South
- Exit on Santa Teresa Blvd.
- Turn right on Blossom Hill Road
- Turn left at Almaden Expressway
- At Via Monte (first traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

From Walnut Creek, Concord and East Bay areas:

- Take 680 South to 280 North
- Exit Highway 87-Guadalupe Expressway South
- Exit on Santa Teresa Blvd.
- Turn right on Blossom Hill Road
- Turn left at Almaden Expressway
- At Via Monte (third traffic light), make a U-turn
- Proceed north on Almaden Expressway approximately 1,000 feet
- Turn right (east) into the campus entrance

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Santa Clara Valley Water District
Joint Recycled Water Policy Advisory Committee Meeting with Cities of San Jose/ Santa Clara/ TPAC

HQ Boardroom
5700 Almaden Expressway
San Jose CA 95118

REGULAR ANNUAL MEETING AGENDA

Wednesday, May 1, 2019
10:00 AM

District Mission: Provide Silicon Valley safe, clean water for a healthy life, environment and economy.

JOINT RECYCLED WATER POLICY ADVISORY COMMITTEE W/ CITY OF SAN JOSE, SANTA CLARA/TPAC

Tony Estremera - District 6
Barbara Keegan - District 2
Gary Kremen - District 7

All public records relating to an item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body will be available for public inspection at the Office of the Clerk of the Board at the Santa Clara Valley Water District Headquarters Building, 5700 Almaden Expressway, San Jose, CA 95118, at the same time that the public records are distributed or made available to the legislative body. Santa Clara Valley Water District will make reasonable efforts to accommodate persons with disabilities wishing to attend Board of Directors' meeting. Please advise the Clerk of the Board Office of any special needs by calling (408) 265-2600.

Note: The finalized Board Agenda, exception items and supplemental items will be posted prior to the meeting in accordance with the Brown Act.

Santa Clara Valley Water District
Joint Recycled Water Policy Advisory Committee with Cities of San Jose/Santa Clara/TPAC
REGULAR ANNUAL MEETING AGENDA

Wednesday, May 1, 2019 **10:00 AM** **HQ Boardroom, 5700 Almaden Expressway, San Jose CA 95118**

1. CALL TO ORDER:

1.1. Roll Call.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON THE AGENDA. *Notice to the public: This item is reserved for persons desiring to address the Committee on any matter not on this agenda. Members of the public who wish to address the Committee on any item not listed on the agenda should complete a Speaker Form and present it to the Committee Clerk. The Committee Chair will call individuals in turn. Speakers comments should be limited to two minutes or as set by the Chair. The law does not permit Committee action on, or extended discussion of, any item not on the agenda except under special circumstances. If Committee action is requested, the matter may be placed on a future agenda. All comments that require a response will be referred to staff for a reply in writing. The Committee may take action on any item of business appearing on the posted agenda.*

3. APPROVAL OF MINUTES:

3.1. Approval of Minutes. 19-0275

Recommendation: Approve the December 3, 2018, Jt RWPAC Draft Minutes.
Manager: Michele King, 408-630-2711
Attachments: Attachment 1: 120318 RWPAC Draft Mins
Est. Staff Time: 5 Minutes

4. ACTION ITEMS:

4.1. Santa Clara Valley Water's Supply and Project Selection Processes. 19-0276

Recommendation: Receive and discuss information on Santa Clara Valley Water's supply and project selection process.
Manager: Jerry De La Piedra, 408-630-2257
Attachments: Attachment 1: PowerPoint
Attachment 2: 2017 Risk Ranking Report
Est. Staff Time: 20 Minutes

4.2. District Water Rates Overview. 19-0277

Recommendation: Receive and discuss information on the Santa Clara Valley Water District's Water Rates Overview.

Manager: Darin Taylor, 408-630-3068

Attachments: Attachment 1: GWP Charge

Est. Staff Time: 40 Minutes

4.3. Update on Countywide Water Reuse Master Plan 19-0278

Recommendation: This is an information only item and no action is required.

Manager: Jerry De La Piedra, 408-630-2257

Attachments: Attachment 1: PowerPoint Presentation

Est. Staff Time: 20 Minutes

4.4. Proposed Operation and Maintenance Budgets FY19-20 - 19-0279
A. Silicon Valley Advanced Water Purification Center Budget
B. South Bay Water Recycling Budget

Recommendation: That the Joint Recycled Water Policy Advisory Committee make recommendations to the Board of Directors of the Santa Clara Valley Water District (Valley Water) and the City Council of the City of San José on their respective proposed budgets for the ensuing fiscal year for the maintenance, expansion, replacement, improvement, and operation of the South Bay Water Recycling system and the Silicon Valley Advanced Water Purification Center (Article 3.G.3 of Integration Agreement).

Manager: Jerry De La Piedra, 408-630-2257

Attachments: Attachment 1: PowerPoint Presentation

Est. Staff Time: 25 Minutes

5. CLERK REVIEW AND CLARIFICATION OF COMMITTEE REQUESTS.

This is an opportunity for the Clerk to review and obtain clarification on any formally moved, seconded, and approved requests and recommendations made by the Committee during the meeting.

6. ADJOURN:

6.1. Adjourn to Regular Annual Meeting in April 2020.

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File No.: 19-0275

Agenda Date: 5/1/2019
Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM

Joint RWPAC with Cities of San Jose/Santa Clara/ TPAC

SUBJECT:
Approval of Minutes.

RECOMMENDATION:
Approve the December 3, 2018, Jt RWPAC Draft Minutes.

SUMMARY:
A summary of Committee discussions, and details of all actions taken by the Committee, during all open and public Committee meetings, is transcribed and submitted for review and approval.

Upon Committee approval, minutes transcripts are finalized and entered into the District's historical records archives and serve as historical records of the Committee's meetings.

ATTACHMENTS:
Attachment 1: 120318 Jt RWPAC Draft Minutes

UNCLASSIFIED MANAGER:
Michele King, 408-630-2711

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JOINT RECYCLED WATER POLICY ADVISORY COMMITTEE
CITY OF SAN JOSÉ/SCVWD/CITY OF SANTA CLARA-TPAC
Special Session – Water Supply and Rates

DRAFT MINUTES

MONDAY, DECEMBER 3, 2018
10:00 AM

(Paragraph numbers coincide with agenda item numbers)

A special session of the Joint Recycled Water Policy Advisory Committee City of San José/SCVWD/City of Santa Clara-TPAC was held on December 3, 2018, in the City Manager's Office at San José City Hall, 200 East Santa Clara Street, San José, California.

1. CALL TO ORDER/ROLL CALL
Chair Director Tony Estremera called the meeting to order at 10:01 a.m.

Santa Clara Valley Water District (SCVWD) Board members in attendance were: Director Tony Estremera, District 6, Director Barbara Keegan, District 2 and Director Gary Kremen, District 7.

City of San José members in attendance: Council Member Sylvia Arenas, District 8, Council Member Lan Diep, District 4, and Ms. Kerrie Romanow.

City of Santa Clara members in attendance: Council Member Debi Davis

SCVWD Staff members in attendance were: Hossein Ashktorab, Glenna Brambill, Norma Camacho, Jerry De La Piedra, Nina Hawk, Metra Richert, Medi Sinaki, Darin Taylor, David Tucker, and Bhavani Yerrapotu.

City of San José Staff members in attendance were: Pedro Hernandez, April Kellett, Henry Louie, Jeffrey Provenzano, Eva Roa, and Rosa Tsongtaatarii.

City of Santa Clara Staff Members in attendance were: Gary Welling.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON AGENDA
There was no one present who wished to speak.

3. APPROVAL OF MINUTES

3.1 APPROVAL OF MINUTES

It was moved by Council Member Debi Davis, seconded by Director Gary Kremen and unanimously carried, to approve the minutes of the April 18, 2018, Joint Recycled Water Policy Advisory Committee City of San José/SCVWD/City of Santa Clara-TPAC meeting, as presented.

4. ACTION ITEMS

4.1 WATER SUPPLY AND RATES

A. Water Supply Overview

Ms. Metra Richert reviewed the materials as outlined in the agenda item.

Director Kremen provided information regarding Santa Clara Valley Water District's (Valley Water) proposed "No Regrets" package. Mr. Jerry De La Piedra stated that Valley Water is facilitating a task force, which includes San José and Santa Clara, as well as Palo Alto, Mountain View and the County and other cities, to develop a model ordinance for water efficiency standards for new developments. The task force is finalizing the ordinance and developing a cost-benefit analysis and white paper to highlight the need for the model ordinance. Once the model ordinance has been finalized, Valley Water will work with cities and developers to have it adopted and implement more efficient fixtures and irrigation for new developments. This process is a result of the last drought, which aims to address any equity issues and support long-term water supply reliability goals.

Ms. Kerrie Romanow stated that CSJ has been participating in the task force and providing comments, including potential impacts to the San José / Santa Clara Regional Wastewater Facility. Ms. Romanow identified the need to engage the City's building department as a key step to move the ordinance forward in San José.

Council Member Arenas inquired about the priority of the projects listed. Ms. Richert explained that projects highlighted are included in the 10-year rate forecast (California WaterFIx, No Regrets Package, Los Vaqueros Transfer-Bethany, Potable Reuse – Ford Pond, Potable Reuse – Injection Wells, and Potable Reuse – Los Gatos Ponds) and already budgeted. The additional projects are currently being considered (Dry Year Options/Transfers, Groundwater Banking, Groundwater Recharge, Los Vaqueros Storage, Pacheco Reservoir, Sites Reservoir, and Water Contract Purchase). It was recognized that not all projects would provide the expected yield. Projects will continue to be evaluated and monitored. Ms. Nina Hawk stated that many projects have regional partnerships and State-involvement. Ms. Hawk illustrated California WaterFix as one example, citing uncertainty with the project scope and future changes to state governance that could impact the project's cost, scope, and viability. Council Member Arenas inquired about the sources of funding for two projects estimated to cost in excess of $1 billion (Potable Reuse – Injection Wells and Potable Reuse – Los Gatos Ponds) and which projects have received funding. Ms. Hawk stated that the highlighted projects are already funded by water rates in North and South County. Additional, regional projects (Los Vaqueros – Storage, Pacheco Reservoir and Sites Reservoir) have received State-funding and are seeking Federal funding. Mr. De La Piedra mentioned these projects are a short list of those currently being analyzed and not projects will move forward and that the goal is to meet Valley Water's reliability target as cost-effectively as possible.

Ms. Norma Camacho emphasized that highlighted project costs are placeholders that are incorporated into rates to achieve a certain level of water supply reliability and meet the additional 41,000 acre-foot per-year projections. Potential issues will impact projects, including California

WaterFix and the Bay Delta Plan. Ms. Camacho stated that as a result, San Francisco Public Utilities Commission, Zone 7 Water District, and Alameda County Water District are evaluating alternative water supplies, including expansion of advanced purified water facilities and brackish water desalination. There are opportunities for regional partnerships that would be beneficial and cost-effective to the community.

Mr. Jeff Provenzano clarified that the highlighted projects are part of future water rate projections and not included in water rates at the present time. Mr. De La Piedra stated that the No Regrets Package does include some funding in the current fiscal year for rain barrel cisterns, advanced metering infrastructure (AMI), and additional programs.

Council Member Arenas inquired as what Valley Water uses as deciding factors to bring a project forward and which projects have matching funds. Ms. Richert stated that this information has been presented to the Valley Water Board and can be forwarded to Council Member Arenas. Director Kremen stated that Pacheco Reservoir is scheduled to receive $484 million in State grants.

Mr. Gary Welling inquired if the highlighted projects were included in Valley Water's Water Supply Master Plan and the role of water conservation. Ms. Hawk stated projects will be evaluated and water demand will be monitored to assess an investment strategy that would ensure long-term water supply reliability. Mr. De La Piedra stated that water conservation has saved approximately 70,000 acre-feet of water per-year, and is projected to increase to 100,000 acre-feet of water per-year by 2030, and 110,000 acre-feet per year, or approximately 20 percent of the County's future demand, by 2040. Future water demand projections will continue to be monitored and altered to reflect data trends.

Council Member Arenas inquired if an increase in water supply is required, due to the recent water usage trends and the City's water conservation goals of 30 percent reduction through Climate Smart San José. Chair Director Estremera recognized the role of conservation as a result of the last drought and stated that projects are needed to meet future demands due to population and economic growth. Director Keegan stated that during future droughts, population growth and development projects would need a reliable water source. Director Keegan noted that the demand projections incorporate water efficiency measures.

Council Member Arenas requested additional information to further knowledge of complex water supply issues.

Ms. Camacho stated that future projected demands are based on cities Urban Water Management Plan's and combined with future conservation measures and built-in drought supplies.

Council Member Arenas commented on the impact of water rates to residents and ratepayers and how the cities conservation goals are incorporated into Valley Water projects and planning. Mr. De La Piedra stated those goals are accounted for and highlighted the future water demands compared to water usage in the 1990s. Director Kremen mentioned the Bay-Delta and other regulatory and environmental constraints that could impact future supplies, and investment is needed to ensure reliable water supplies. Director Keegan stated that 55 percent of the County's

water is imported. The Bay-Delta Plan examines impacted species in the Delta and how to improve water flow to enhance habitat and avoid species extinction. As a result, the State Water Resources Control Board is considering a reduction of 2 million acre-feet of water available for export. This could be impactful to the County during times of drought.

Council Member Davis inquired about risk assessment and commented on Climate Change and future climatic uncertainties. Mr. De La Peidra suggested Valley Water share the initial risk assessment and the monitoring and assessment plan. Director Kremen requested adding a risk layer to highlight the probability of each project. Director Kremen noted the high cost of potable water reuse projects.

Ms. Romanow stated that other cities receive funding for recycled water infrastructure. Mr. Ashktorab and Ms. Hawk commented that Valley Water plays a different role in each city, and in some cases provide funding when there is a clear benefit from the wholesale standpoint. Ms. Camacho clarified that cities would be interested in Valley Water's partnership to meet future recycled water demands. Mr. Welling stated that a primary focus of the City of Santa Clara is to enhance recycled water supplies to meet the demands of developers while offsetting potable water demands. Ms. Camacho commented on the carbon footprint evaluation of each project as part of the process.

Chair Director Estremera instructed staff to schedule a meeting in the first quarter of 2019. Ms. Camacho clarified that the meeting would be with RWPAC to discuss all of the projects and address risk issues in the first quarter of 2019.

Ms. Glenna Brambill clarified that there would be a special meeting, separate and in addition to the standing scheduled April meeting. Chair Director Estremera stated that there may not be a need for the regularly scheduled April meeting. Chair Director Estremera postponed Item 4.2 until the next meeting. Mr. Hossein Ashktorab suggested that the update for the Countywide Water Reuse Master Plan also occur at the next meeting. Ms. Richert stated that the risk assessment information would be presented at the next meeting, which illustrates which projects have been identified as high risk and low risk. In addition, the Dam Safety Program and 10-Year Pipeline Rehabilitation program information would be presented. Mr. Welling requested that timelines be included.

Staff Action/Agenda 4.1:
Chair Director Estremera instructed staff to schedule a special meeting in the first quarter of 2019 to discuss.

Council Member Arenas requested additional information, including project assessment / deciding-factors to bring a project forward, and identify which projects have matching funds.

Council Member Davis requested additional information; Valley Water staff to provide initial risk assessment and the monitoring and assessment plan.

Director Kremen requested adding a risk layer to highlight the probability of each project.

4.2 WATER RATES OVERVIEW
Chair Estremera postponed until next meeting.

5. CLERK REVIEW AND CLARIFICATION OF COMMITTEE REQUESTS AND RECOMMENDATIONS.
Committee Action/Agenda 4.1:

Staff Action/Agenda 4.1:
Chair Director Estremera instructed staff to schedule a special meeting in the first quarter of 2019 to discuss.

Council Member Arenas requested additional information including project assessment / deciding-factors to bring a project forward, and identify which projects have matching funds.

Council Member Davis requested additional information including initial risk assessment and monitoring and assessment plan.

Director Kremen requested presentation add a risk layer to highlight the probability of each project.

6. ADJOURN
Chair Director Estremera adjourned the meeting at 11:09 a.m. to the next scheduled meeting at the Santa Clara Valley Water District Headquarters Boardroom, 5700 Almaden Expressway, San José, California.

Pedro Hernandez
City of San José
Water Resources Division

Approved:

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File No.: 19-0276

Agenda Date: 5/1/2019
Item No.: 4.1.

COMMITTEE AGENDA MEMORANDUM

Joint RWPAC with Cities of San Jose/Santa Clara/ TPAC

SUBJECT:
Santa Clara Valley Water's Supply and Project Selection Processes.

RECOMMENDATION:
Receive and discuss information on Santa Clara Valley Water's supply and project selection process.

SUMMARY:

Water Supply Master Plan
As the groundwater management agency and primary water resources agency for Santa Clara County, the Santa Clara Valley Water District (Valley Water) has a mission to provide safe, clean water for the County. The Water Supply Master Plan (Water Master Plan) is Valley Water's strategy for providing a reliable and sustainable water supply in a cost-effective manner. It informs investment decisions by describing the type and level of water supply investments Valley Water is planning to make through 2040, the anticipated schedule, the associated cost and benefits, and how the Water Master Plan implementation will be monitored and adjusted annually.

Strategy
In January 2019, the Board reaffirmed the "Ensure Sustainability" strategy which guides the Water Master Plan. The strategy is comprised of three elements:

1. Secure existing supplies and infrastructure;
2. Expand the water conservation and reuse; and
3. Optimize the use of existing supplies and infrastructure.

Together these elements protect and build on Valley Water's past investments in water supply reliability, leverage those investments, and develop alternative supplies and demand management measures to manage risk and meet future needs, especially during extended droughts in a changing climate.

Level of Service
The water supply reliability level of service goal guides long-term water supply planning efforts and informs Board decisions regarding investments. The level of service goal is an interpretation of Board Policy E-2 that "there is a reliable, clean water supply for current and future generations." As part of the Water Master Plan update, in January 2019, the Board adopted a revised level of service goal to "develop water supplies designed to meet at least 100 percent of average annual water demand

identified in Valley Water's Water Supply Master Plan during non-drought years and at least 80 percent of average annual water demand in drought years."

Staff recommended using the Water Master Plan demand projections because it is closer to historical trends than the Urban Water Management Plan projection and will be reviewed and updated annually as part of the Water Master Plan monitoring. Furthermore, staff recommended updating the level of service goal for planning for drought reliability to meet 80 percent of demands because it strikes a balance between minimizing shortages and the costs associated with investing in a higher level of service. Additionally, the community was able to reduce water use by as much as 28 percent in 2015, indicating that shortages in the range of 20 percent are manageable.

Supply and Demand

To meet the future water supply needs and promote greater supply diversity, Valley Water continues to explore additional water supply and demand management options. Water supply diversity helps reduce the County's exposure to the risk of any one supply investment not performing up to expectations. In addition, developing alternative supplies reduces Valley Water's reliance on imported water supplies. Projects being considered include additional water conservation, non-potable recycled water, potable reuse, surface and groundwater storage, stormwater capture, additional recharge ponds, dry year options, etc.

Valley Water recognizes that every project has unique characteristics and considers a variety of factors when analyzing the cost and benefits of projects. Considerations include yield, the impact to rates, operational flexibility, regulatory restrictions, and environmental impacts to name a few. The aim is to strike a balance between long-term reliability, project costs, and impacts on water rates.

Water Supply Investments

In September 2017, the Board approved planning for a variety of water conservation and stormwater capture projects, referred to as the "No Regrets" package in the Water Master Plan update. These projects would be implemented in any future water supply scenario and are designed to reduce water demands by about 10,000 acre-feet per year (AFY) and increase natural groundwater recharge by about 1,000 AFY. The package, which increases the conservation savings goal to 110,000 AFY by 2040, consists of the following water conservation and stormwater capture projects:

- Advanced metering infrastructure;
- Graywater rebate program expansion;
- Leak repair incentives;
- New Development Model Ordinance; and
- Stormwater capture (agricultural land recharge, stormwater recharge in the City of San Jose and Saratoga, rain barrel rebates, and rain garden rebates).

In December 2017, the Board approved pursuing a public-private partnership to develop up to 24,000 AFY of potable reuse capacity using the Los Gatos Ponds to percolate purified water into the groundwater basin. In May 2018, the Board approved participation in the California WaterFix. In June 2018, the Board approved pursuing the Pacheco Reservoir Expansion Project, which is eligible to receive up to $484.5 million in State funding.

Staff analyzed the effect of these Board-approved efforts, along with additional recharge in the Llagas Groundwater Subbasin that groundwater modeling indicates is needed to meet future demands, on water supply reliability. The projects that are approved for planning would be sufficient to meet the District's water supply reliability level of service goal of meeting 100 percent of demands in normal years and at least 80 percent of demands in drought years.

Monitoring and Assessment
All projects have challenges, uncertainties, and risks as presented in Valley Water's 2017 Risk Ranking Report (attachment 2). These include but are not limited to climate change, policy changes, and regulatory action affecting the Delta (e.g., Bay Delta Water Quality Control Plan). This could result in some projects not materializing or resulting in a lower yield than expected. Therefore, the District continues to identify, analyze, and monitor projects that could serve as an alternative project should change be needed.

This uncertainty will be managed through the annual Water Master Plan review. Staff will monitor and report to the Board on the demands, supplies, and status of projects and programs; and will identify where adjustments to the Water Master Plan might be needed to respond to changed conditions. The proposed Monitoring and Assessment Plan (MAP) approach for the Water Master Plan has four steps:

1. Develop an implementation schedule;
2. Manage unknowns and risk;
3. Report to Board annually, or as needed; and
4. Adjust the MAP as necessary to serve as input to annual rate forecast, CIP and budget.

Next Steps
The next steps for the Water Master Plan are to prepare a draft Water Master Plan based on Board direction from the November 20, 2018, December 11, 2018, and January 14, 2019 Board meetings. Staff anticipates completing a draft Water Master Plan for Board and stakeholder review in spring 2019. The intent is to hold at least two workshops as part of this review - one with water retailers and one with other stakeholders. Additional presentations may be made at Board advisory committees. Staff plans to present a final Water Master Plan to the Board in late summer 2019. The next annual report would be presented to the Board in Summer 2020, and then any changes would be incorporated into the CIP, budget, and water rates setting processes.

ATTACHMENTS:
Attachment 1: PowerPoint
Attachment 2: 2017 Risk Ranking Report

UNCLASSIFIED MANAGER:
Jerry De La Piedra, 408-630-2257

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Providing water for Silicon Valley

Metra Richert

Water Supply and Project Selection Process

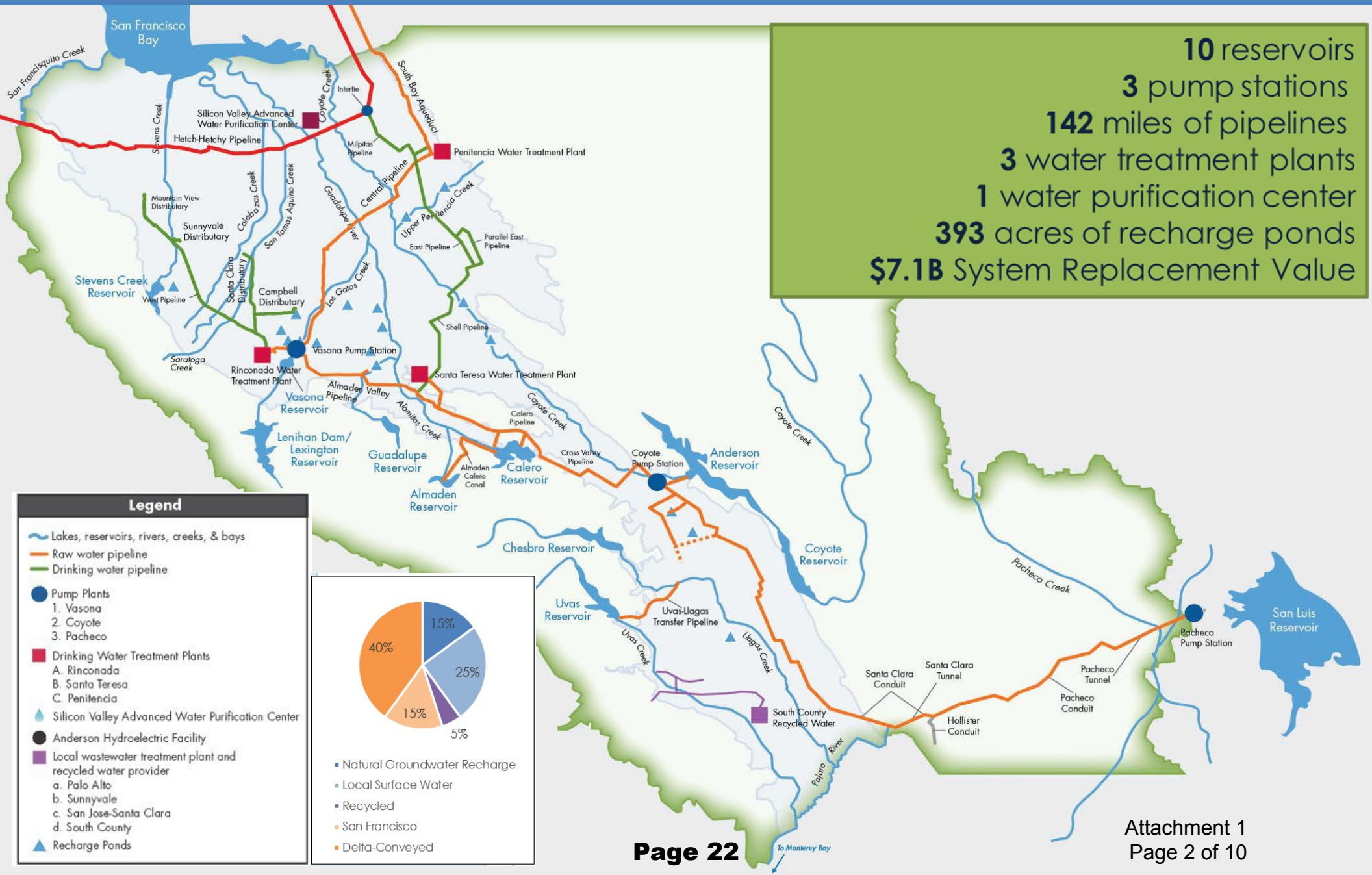
Valley Water

May 1, 2019

Valley Water

Clean Water • Healthy Environment • Flood Protection

A Comprehensive, Flexible Water System



Diversified Portfolio for a Reliable Supply

Imported water

Local surface & groundwater

Conservation

Recycled Water

Board-Adopted Long-term Water Supply Planning Policy & Strategy

Policy:

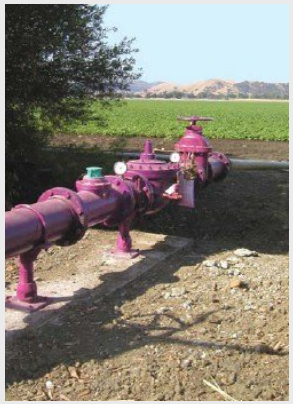
Develop water supplies designed to meet at least 80% of average annual water demands identified in the Water Supply Master plan during drought years

Strategy Elements:

1. Securing existing supplies and infrastructure
2. Expand conservation and reuse
3. Optimize the system

Many Projects and Portfolios of Projects have been Evaluated for Filling the Gap







Many Considerations are Analyzed

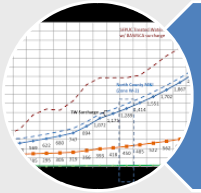
Sustainability

Climate Change

Operational Flexibility

Cost

Yield



Rate Impacts

Local vs. Regional Supply

Regulatory Restrictions

Environmental Impacts

And more…

Project Costs and Risks Vary

Project	Average Annual Yield (AFY)	District Lifecycle Cost (present value, 2018$)	Unit Cost	Risk
California WaterFix	41,000	$630 million	$600/AF	High/Extreme
Dry Year Options/Transfers	2,000	$100 million	$1,400/AF	Low
No Regrets Package	11,000	$100 million	$400/AF	Medium
Groundwater Banking	2,000	$60 million	$1,300/AF	Low
Los Vaqueros[1] (LVE) Storage	3,600	$131 million	$1,200/AF	Medium
LVE Transfer-Bethany Pipeline[1]	3,500	$78 million	$700/AF	Medium
Water Contract Purchase	12,000	$360 million	$800/AF	Medium
Pacheco Reservoir[2]	6,000	$340 million	$2,000/AF	Medium
Lexington Pipeline	3,000	$90 million	$1,000/AF	Low
Potable Reuse	19,000	$1.22 billion	$2,000/AF	Medium
Sites Reservoir[1]	8,000	$250 million	$1,200/AF	High
South County Recharge	2,000	$20 million	$400/AF	Low

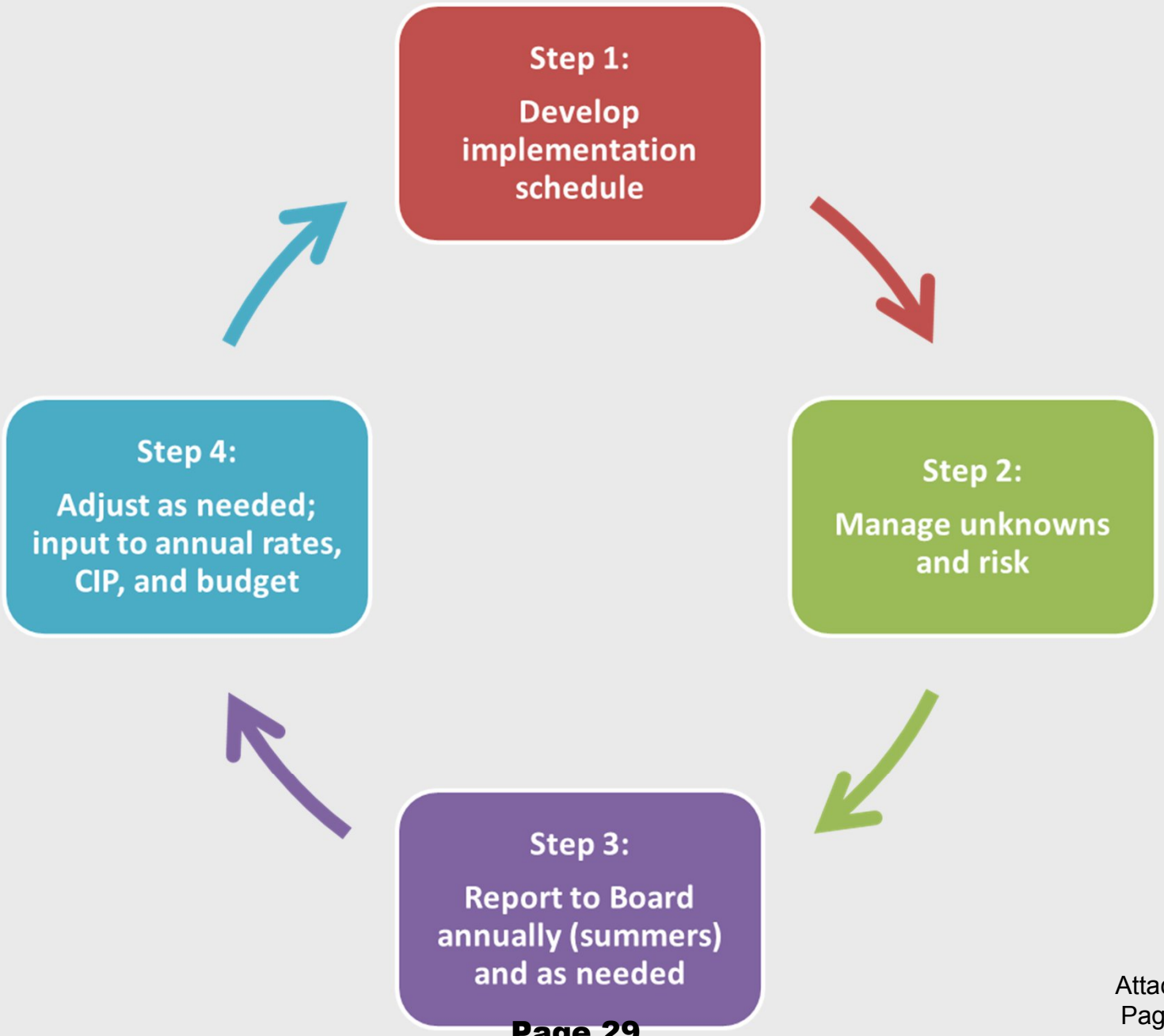
In proposed 10-year rate forecast

1. Assumes Prop 1 Water Storage Investment Program funding. Costs would roughly double without funding
2. Assumes Prop 1 and WIIN funding, WIFIA loan, and partner agencies pay 20% of the project

Ultimately the amount of project yield and benefit that is usable by Valley Water depends on the portfolio of water supply projects that Valley Water ultimately implements and the outcome of ongoing regulatory processes

Manage Unknowns and Risks

RoadMAP (Monitoring & Assessment Plan)



Next Steps

- Incorporate Board input into draft Water Supply Master Plan
- Solicit stakeholder input on draft Water Supply Master Plan – Spring 2019
- Present Final Water Supply Master Plan – Summer 2019

WATER SUPPLY MASTER PLAN 2017 – PROJECT RISKS

9/8/2017

Results of Pairwise and Traditional Risk Analyses

Contents

Appendices

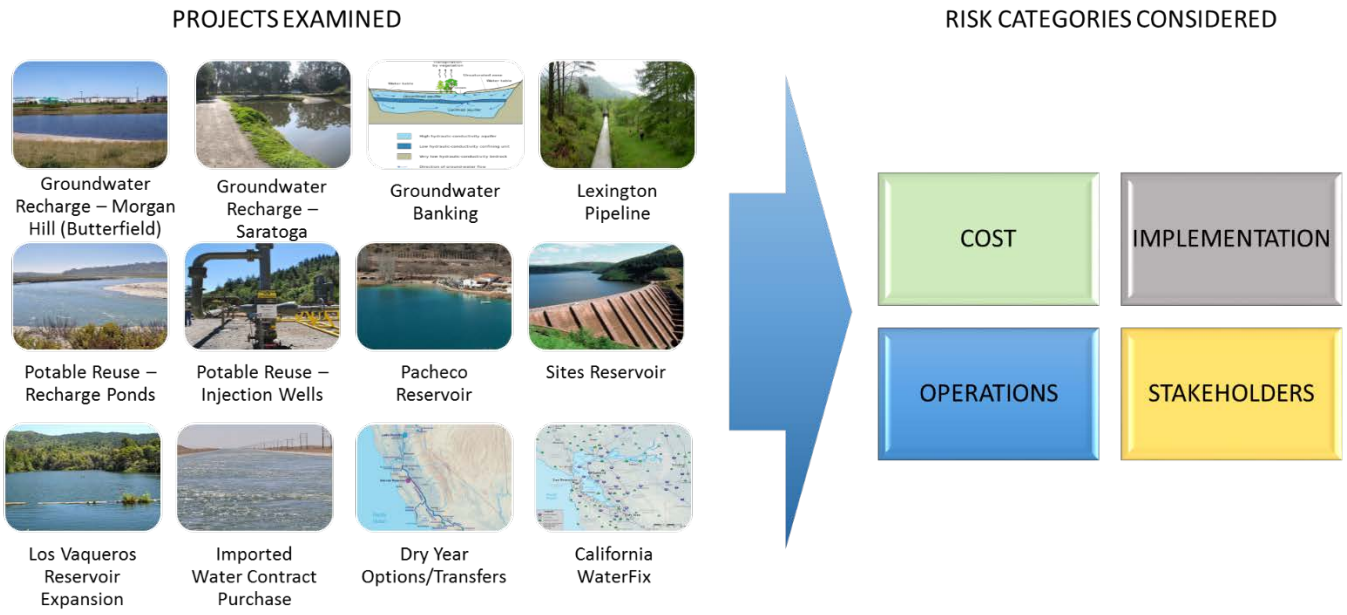
A. Project Descriptions
B. Methodology

OVERVIEW

Santa Clara Valley Water District (District) staff conducted a risk analysis of the projects being considered for inclusion in the 2017 Water Supply Master Plan (WSMP; Figure 1). The WSMP is the District's strategy for providing a reliable and sustainable water supply in a cost-effective manner. The WSMP process includes assessing the existing water supply system, estimating future supplies and demands, identifying and evaluating projects to fill gaps between supplies and demands, and recommending a strategy for long-term water supply reliability. This risk analysis helps evaluate the types, severity, and likelihood of risk associated with each WSMP project so that the District Board of Directors and community better understand the uncertainties associated with each project's ability to meet future water demands.

This report summarizes the results of the risk analysis developed to quantitatively assess the types and level of risk impacting each project. Project descriptions and cost estimates are in Appendix A - Project Descriptions. Appendix B details the methodology used to conduct the risk analysis.

FIGURE 1. PROJECTS AND RISK CATEGORIES – PROJECTS BEING CONSIDERED FOR THE 2017 WSMP AND THE TYPES OF RISK INCLUDED IN THE RISK ANALYSIS.



RISK CATEGORIES

During an Expert Panel meeting on June 8, 2017, staff and panel experts discussed different types of project risks. Afterwards, staff grouped the risks into four risk categories: Cost, Implementation, Operations, and Stakeholders. The types (or elements) of risk are summarized in Table 1 by risk category. At four meetings, one for each risk category, District subject matter experts discussed risk elements within the risk category and then conducted pairwise and traditional risk analyses of the 2017 WSMP projects. Many risks spanned the categories, but the aspects of the risk were distinct in each meeting. For example, the capital costs risk was considered during the Cost and Stakeholders risk meetings, but the Costs meeting considered the uncertainty of the capital cost estimates for each project while the Stakeholders meeting considered whether higher capital costs could result in greater stakeholder opposition. Table 1 summarizes the risks by risk category.

TABLE 1. RISK ELEMENTS BY CATEGORY. SUBJECT MATTER EXPERTS IN EACH RISK CATEGORY MET TO ASSESS PROJECT RISK WITH CONSIDERATION OF THE RISK ELEMENTS WITHIN EACH RISK CATEGORY. SEPARATE MEETINGS WERE HELD FOR EACH RISK CATEGORY.

Risk Category	Risk Elements
Costs	• Capital costs, including quality of cost estimate • Costs of regulatory compliance • Match requirements and cost-sharing • Counter-party risk/ability of partners to pay costs • Stakeholders and rate payer ability to pay • Financing and funding security • Scheduling issues • Economic fluctuations and instability • Potential for stranded assets
Implementation	• Phasing potential • Project duration and schedule • Reoperation requirements • Land availability • Constructability (e.g., structural issues, technology) • Managerial capacity (knowledge and resource availability) • Range of implementation options • Regulatory requirements • Project planning maturity
Operations	• Climate change • Yield variability and reliability • Operating Partnerships • Uncertainty of long-term operations and maintenance costs • Project inter-dependency • Environmental and water quality regulations • Control • Appropriate infrastructure • Redundancy • Emergency operations/asset failures
Stakeholders	• Public support • Permitting risks • Media • Internal stakeholder concerns • External stakeholder opposition • Environmental/special interest groups • Partnership risks • Government stakeholders • Costs

PAIRWISE RISK ANALYSIS

A pairwise risk analysis provides a quantitative approach for ranking projects by risk. Having projects ranked by riskiness improves the District Board's and community's ability to compare projects' ability to meet future needs. To complete the risk assessment, the project team assembled five to six subject matter experts from the District into four groups, one group for each risk category. The team chose District experts that had knowledge specific to their assigned risk category. Then, the subject matter experts compared each project against another project using the pairwise matrix in Table 2. The crossed-out boxes represent duplicate comparisons or compare the project against itself. The subject matter experts each determined which of the two projects being compared was a higher risk for the risk category. For example, the first comparison is Morgan Hill (Butterfield) Recharge and Groundwater Banking. If someone determined that Groundwater Banking has more risk, they would enter a "G" for Groundwater Banking

PAIRWISE RISK ANALYSIS BY RISK ELEMENT

Tables 3a-d provide the results of the pairings by risk category. Each project is represented by an abbreviation and the numbers indicate how many people chose it as the higher risk. For example, all six participants assessing cost risks thought that Imported Water Contract Purchase was higher risk than Morgan Hill (Butterfield) Recharge, so the associated cell is filled with "I6." Alternatively, two of the six participants thought Imported Water Rights Purchase (I) was higher risk than Groundwater Banking (G), so the associated cell is filled with "I2 G4."

TABLE 2. PAIRWISE COMPARISON MATRIX. EACH SUBJECT MATTER EXPERT COMPLETED THE PAIRWISE ANALYSIS BY ENTERING THE LETTER ASSOCIATED WITH THE HIGHER RISK PROJECT IN EACH EMPTY CELL.

* Morgan Hill (Butterfield) Recharge Pond

	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge-Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California Water Fix **C**
Dry Year Options/ Transfers **D**	X												
Lexington Pipeline **LX**	X	X											
Groundwater Recharge-Saratoga **SP**	X	X	X										
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X									
Groundwater Banking **G**	X	X	X	X	X								
Sites Reservoir **S**	X	X	X	X	X	X							
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X						
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X					
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X				
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X			
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X		
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	
California WaterFix **C**	X	X	X	X	X	X	X	X	X	X	X	X	X

TABLE 3A-D. PAIRWISE COMPARISON RESULTS. THE TABULATED RESULTS FOR THE COST (A), IMPLEMENTATION (B), OPERATION (C), AND STAKEHOLDER (D) PAIRWISE ANALYSIS. EACH LETTER PRESENTS A PROJECT AS SHOWN IN THE HEADER ROW AND COLUMN. THE NUMBER FOLLOWING THE LETTERS IN EACH CELL REPRESENTS THE NUMBER OF EXPERTS WHO THINK THE ASSOCIATED PROJECT IS RISKIER.

a.

COST RISKS	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California WaterFix **C**
Dry Year Options/ Transfers **D**	X	D2 LX2	D2 SP2	D2 B2	D2 G2	D0 S4	D0 L4	D1 PL3	D1 PF3	D1 PI3	D2 I2	D0 PR4	D0 C4
Lexington Pipeline **LX**	X	X	LX3 SP1	LX4 B0	LX1 G3	LX0 S4	LX0 L4	LX0 PL4	LX0 PF4	LX0 PI4	LX2 I2	LX0 PR4	LX0 C4
Groundwater Recharge-Saratoga **SP**	X	X	X	SP4 B0	SP1 G3	SP0 S4	SP0 L4	SP0 PL4	SP0 PF4	SP0 PI4	SP1 I3	SP0 PR4	SP0 C4
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X	B0 G4	B0 S4	B0 L4	B0 PL4	BO PF4	B0 PI4	B0 I4	B0 PR4	B0 C4
Groundwater Banking **G**	X	X	X	X	X	G1 S3	G0 L4	G0 PL4	G0 PF4	G0 PI4	G1 I3	G0 PR4	G0 C4
Sites Reservoir **S**	X	X	X	X	X	X	S3 L1	S3 PL1	S3 PF1	S3 PI1	S3 I1	S0 PR4	S0 C4
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X	L3 PL1	L3 PF1	L3 PI1	L2 I2	L0 PR4	L0 C4
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X	PL1 PF3	PL0 PI4	PL2 I2	PL0 PR4	PL0 C4
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X	PF0 PI4	PF2 I2	PF0 PR4	PF0 C4
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X	PI2 I2	PI0 PR4	PI0 C4
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X	I0 PR4	I0 C4
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	PR1 C3
California WaterFix **C**	X	X	X	X	X	X	X	X	X	X	X	X	X

* Morgan Hill (Butterfield) Recharge Pond

b.

IMPLEMEN-TATION RISKS	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge-Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California WaterFix **C**
Dry Year Options/ Transfers **D**	X	D1 LX3	D2 SP2	D3 B1	D4 G0	D0 S4	D0 L4	D1 PL3	D0 PF4	D0 PI4	D4 I0	D0 PR4	D0 C4
Lexington Pipeline **LX**	X	X	LX3 SP1	LX3 B1	LX3 G1	LX1 S3	LX1 L3	LX1 PL3	LX1 PF3	LX1 PI3	LX3 I1	LX0 PR4	LX0 C4
Groundwater Recharge-Saratoga **SP**	X	X	X	SP3 B1	SP2 G2	SP2 S2	SP1 L3	SP1 PL3	SP0 PL4	SP0 PI4	SP3 I1	SP0 PR4	SP0 C4
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X	B3 G1	B0 S4	B0 L4	B0 PL4	B0 PF4	B0 PI4	B3 I1	B0 PR4	B0 C4
Groundwater Banking **G**	X	X	X	X	X	G0 S4	G0 L4	G0 PL4	G0 PI4	G0 PI4	G3 I1	G0 PR4	B0 C4
Sites Reservoir **S**	X	X	X	X	X	X	S3 L1	S4 PL0	S3 PF1	S4 PI0	S4 I0	S0 PR4	S0 C4
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X	L3 PL1	L2 PF2	L3 PI1	L4 I0	L1 PR3	L0 C4
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X	PL3 PF1	PL0 PI4	PL4 I0	PL0 PR4	PL0 C4
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X	PF1 PI3	PF4 I0	PF0 PR4	PF0 C4
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X	PI2 I2	PI0 PR4	PI0 C4
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X	I0 PR4	I0 C4
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	PR0 C4
California WaterFix C	X	X	X	X	X	X	X	X	X	X	X	X	X

* Morgan Hill (Butterfield) Recharge Pond

c.

OPERATION RISKS	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge-Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California Water Fix **C**
Dry Year Options/ Transfers **D**	X	D3 LX2	D4 SP1	D4 B1	D3 G2	D0 S5	D2 L3	D3 PL2	D3 PF2	D2 PI3	D4 I1	D1 PR4	D0 C4
Lexington Pipeline **LX**	X	X	LX5 SP0	LX5 B0	LX0 G5	LX0 S5	LX0 L5	LX0 PL5	LX0 PF5	LX0 PI5	LX2 I3	LX0 PR5	LX0 C5
Groundwater Recharge-Saratoga **SP**	X	X	X	SP1 B4	SP0 G5	SP0 S5	SP0 L5	SP0 PL5	SP0 PF5	SP0 PI5	SP0 I5	SP0 PR5	SP0 C5
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X	B0 G5	B0 S5	B0 L5	B0 PL5	B0 PF5	B0 PI5	B2 I3	B0 PR5	B0 C5
Groundwater Banking **G**	X	X	X	X	X	G0 S5	G0 L5	G3 PL2	G3 PF2	G1 PI4	G2 I3	G0 PR5	G0 C5
Sites Reservoir **S**	X	X	X	X	X	X	S5 L0	S5 PL0	S5 PF0	S4 PI1	S5 I0	S4 PR1	S0 C5
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X	L5 PL0	L5 PF0	L4 PI1	L5 I0	L5 PR0	L0 C4
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X	PL3 PF2	PL1 PI4	PL3 I2	PL0 PR5	PL0 C5
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X	PF0 PI5	PF3 I2	PF0 PR5	PR0 C5
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X	PI4 I1	PI0 PR5	PI0 C5
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X	I0 PR5	I0 C5
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	PR0 C5
California WaterFix **C**	X	X	X	X	X	X	X	X	X	X	X	X	X

* Morgan Hill (Butterfield) Recharge Pond

d.

STAKE-HOLDER RISKS	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge-Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California WaterFix **C**
Dry Year Options/ Transfers **D**	X	D1 LX2	D1 SP2	D1 B2	D1 G2	D1 S2	D1 L2	D1 PL2	D1 PF2	D1 PI2	D2 I1	D0 PR3	D0 C3
Lexington Pipeline **LX**	X	X	LX2 SP1	LX3 B0	LX1 G2	LX0 S3	LX0 L3	LX1 PL2	LX1 PF2	LX1 PI2	LX1 I2	LX0 PR3	LX0 C3
Groundwater Recharge-Saratoga **SP**	X	X	X	SP3 B0	SP1 G2	SP0 S3	SP0 L3	SP0 PL3	SP0 PF3	SP0 PI3	SPI I2	SP0 PR3	SP0 C3
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X	B1 G2	B0 S3	BO L3	B0 PL3	B0 PF3	B0 PI3	B2 I1	B0 PR3	B0 C3
Groundwater Banking **G**	X	X	X	X	X	G1 S2	G1 L2	G1 PL2	G1 PF2	G1 PI2	G2 I1	G0 PR3	G0 C3
Sites Reservoir **S**	X	X	X	X	X	S3 S0	S2 L1	S2 PL1	S2 PF1	S2 PI1	S2 I1	S0 PR3	S0 C3
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X	L1 PL2	L1 PF2	L1 PI2	L2 I1	L0 PR3	L0 C3
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X	PL1 PF2	PL0 PI3	PL2 I1	PI0 PR3	PL0 C3
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X	PF0 PI3	PF2 I1	PF0 PR3	PF0 C3
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X	PI2 I1	PI0 PR3	PI0 C3
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X	I0 PR3	I0 C3
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	PR0 C3
California WaterFix C	X	X	X	X	X	X	X	X	X	X	X	X	X

* Morgan Hill (Butterfield) Recharge Pond

PAIRWISE RANKING RESULTS

Table 4 shows the pairwise ranking results. The letter designation represents the riskier project based on the results of the four subject matter expert groups combined. The percentage indicates the amount of agreement between the four groups. 100% indicates that all four risk groups agree the project was riskier. Where 75 percent is indicated, three of four teams ranked it higher risk (where 75%* is noted, the result was three of four, and one tie). Where 66% is indicated, two of three groups agreed and a tie in the fourth group. Finally, 50 percent indicates an even split between the four risk categories. Most the comparisons had agreement among the four categories.

TABLE 4. PAIRWISE RANKING RESULTS

ALL RISK CATEGORIES	Dry Year Options/ Transfers **D**	Lexington Pipeline **LX**	Ground-water Recharge-Saratoga **SP**	Ground-water Recharge - Morgan Hill* **B**	Ground-water Banking **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Los Gatos Ponds **PL**	Potable Reuse – Ford Pond **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Contract Purchase **I**	Pacheco Reservoir **PR**	California WaterFix **C**
Dry Year Options/ Transfers **D**	X	LX 66%	D/SP 50%	D/B 50%	D 66%	S 100%	L 100%	PL 75%	PF 75%	PI 100%	D 75%	PR 100%	C 100%
Lexington Pipeline **LX**	X	X	LX 100%	LX 100%	G 75%	S 100%	L 100%	PL 100%	PF 100%	PI 100%	I 66%	PR 100%	C 100%
Groundwater Recharge-Saratoga **SP**	X	X	X	SP 75%*	G 75%*	S 75%*	L 100%	PL 100%	PF 100%	PI 100%	I 75%	PR 100%	C 100%
Groundwater Recharge - Morgan Hill* **B**	X	X	X	X	G 75%	S 100%	L 100%	PL 100%	PF 100%	PI 100%	B/I 50%	PR 100%	C 100%
Groundwater Banking **G**	X	X	X	X	X	S 100%	L 100%	PL 75%	PF 75%	PI 100%	G/I 50%	PR 100%	C 100%
Sites Reservoir **S**	X	X	X	X	X	X	S 100%	S 100%	S 100%	S 100%	S 100%	PR 75%	C 100%
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	X	X	X	L 75%	L/PF 50%	L 75%	L 75%*	PR 100%	C 100%
Potable Reuse – Los Gatos Ponds **PL**	X	X	X	X	X	X	X	X	PL/PF 50%	PI 100%	PL 75%*	PR 100%	C 100%
Potable Reuse – Ford Pond **PF**	X	X	X	X	X	X	X	X	X	PI 100%	PF 75%*	PR 100%	C 100%
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	X	X	X	X	PI 50%	PR 100%	C 100%
Imported Water Contract Purchase **I**	X	X	X	X	X	X	X	X	X	X	X	PR 100%	C 100%
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	X	X	X	X	C 100%
California WaterFix **C**	X	X	X	X	X	X	X	X	X	X	X	X	X

* Morgan Hill (Butterfield) Recharge Pond

From the pairwise analysis results, California WaterFix is the riskiest project being considered, followed by the surface water reservoirs and potable reuse using injection wells. The two potable reuse projects using recharge ponds are tied, as are groundwater banking and the Lexington Pipeline. The least risky projects are the groundwater recharge projects.

TABLE 5. PAIRWISE COMPARISON RISK RANKING. Project pairwise rank determined using the count of comparisons for which each project was determined as the riskiest. The total votes by experts lists the sum of the raw scores for each project.

PAIRWISE TOTALS	PAIRWISE RANK	TOTAL VOTES BY EXPERTS
California WaterFix C	13	187
Pacheco Reservoir PR	12	165
Sites Reservoir S	11	146
Los Vaqueros Reservoir Expansion L	9	130
Potable Reuse – Injection Wells PI	10	120
Potable Reuse – Ford Road PF	8	96
Potable Reuse – Los Gatos Ponds PL	8	93
Groundwater Banking G	6	62
Imported Water Contract Purchase I	3	61
Dry Year Options/Transfers D	4	58
Lexington Pipeline LX	6	58
Groundwater Recharge - Saratoga SP	2	38
Groundwater Recharge Morgan Hill (Butterfield) B	1	23

RISK SEVERITY AND LIKELIHOOD ANALYSIS

The four risk category teams also assessed the severity and likelihood of risk for each project. The goal of this risk scoring exercise is to help determine how much riskier one project is compared to another and to identify if the risk is primarily from the likelihood that the risk materializes, the severity of the outcome if the risk materializes, or both. The methodology and risk scoring criteria are included in Appendix B. Each risk category expert scored the risk severity and likelihood for each project on a scale from 1 to 4, with four (4) being the highest magnitude of risk. The definitions are summarized in Table 6. Table 7 presents the sum of the median score for each of the risk categories by project, from highest to lowest risk. The relative ranking of risk using the severity and likelihood is the same as when the pairwise results are used. Figure 2. Risk Matrix. illustrates the severity and likelihood analysis results in a risk matrix.

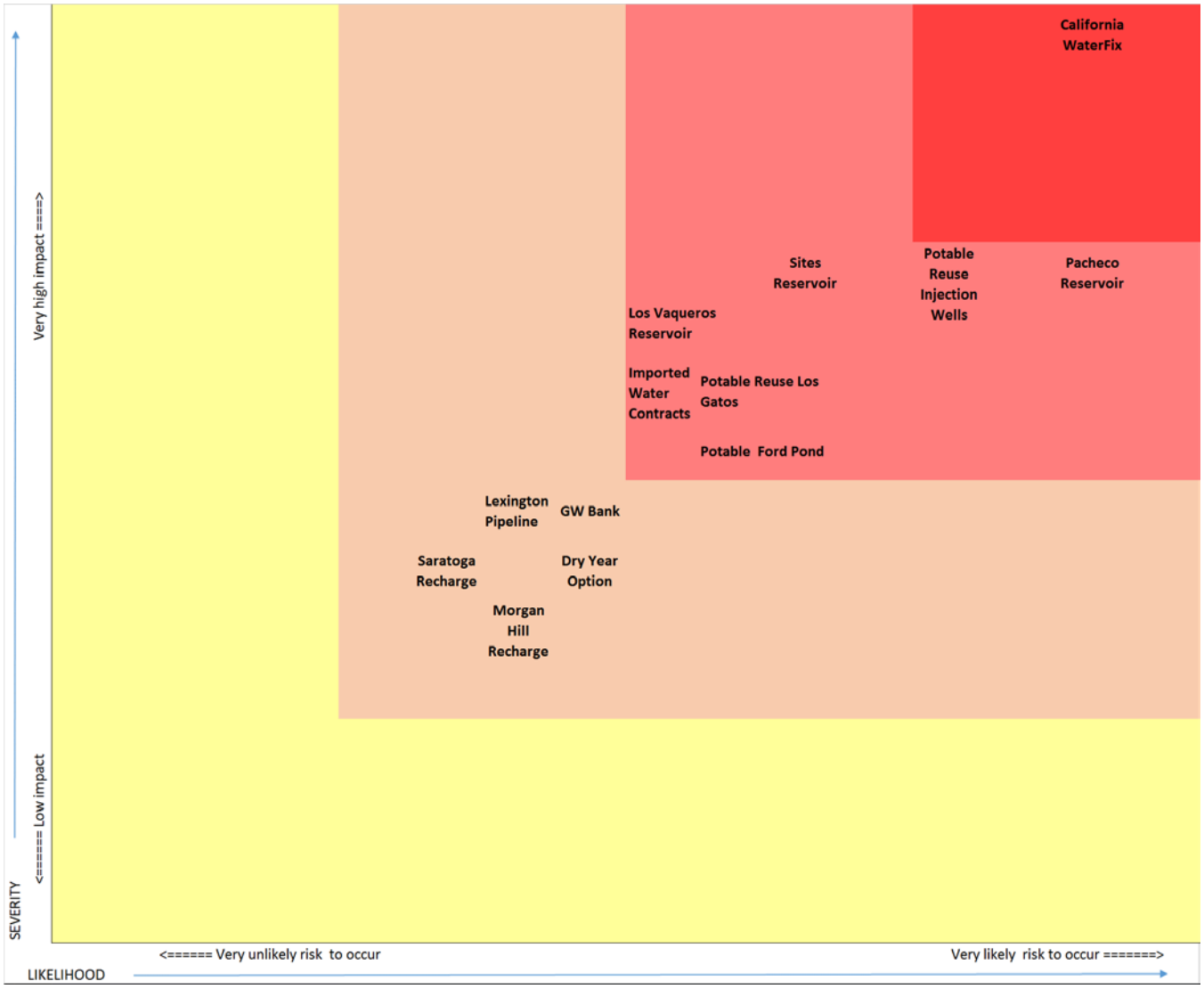
TABLE 6. RISK SEVERITY AND LIKELIHOOD DEFINITIONS

Severity	1. Low= low to no effect on project 2. Medium = minor to modest impacts 3. High = significant or substantial impacts 4. Very High = extreme potential impacts
Likelihood	1. Very Unlikely = Risks will not materialize 2. Unlikely = Risks probably will not materialize 3. Likely = Risks probably will materialize 4. Very Likely = Almost certain risks will materialize

TABLE 7. RISK SEVERITY AND LIKELIHOOD RESULTS

Project	Severity Score (Max. of 16)	Likelihood Score (Max of 16)
California WaterFix C	16	15
Pacheco Reservoir PR	12	15
Sites Reservoir S	12	11
Potable Reuse – Injection Wells PI	12	13
Los Vaqueros Reservoir Expansion L	11	9
Potable Reuse – Ford Road PF	9	10
Potable Reuse -Los Gatos Ponds PL	10	10
Groundwater Banking G	8	8
Lexington Pipeline LX	8	7
Dry year options/transfers D	7	8
Imported Water Contract Purchase I	10	9
Groundwater Recharge -Saratoga SP	7	6
Groundwater Recharge Morgan Hill (Butterfield) B	6	7

FIGURE 2. RISK MATRIX. LIKELIHOOD OF PROJECT IMPACT INCREASES UPWARD ALONG THE VERTICAL AXIS AND SEVERITY INCREASES ALONG THE HORIZONTAL AXIS. SEE TABLE 9 FOR THE RAW DATA USED TO DEVELOP THIS FIGURE.



TOTAL PROJECT RISK CALCULATION

Staff calculated the total project risk for each category by weighting the pairwise ranking by the severity and likelihood (equation 1).

Equation 1

$$Risk_{category} = (1 + \frac{Severity + Likelihood}{8}) \times Pairwise\ Ranking$$

The severity and likelihood score is divided by eight (the maximum possible combined score) to represent severity and likelihood as a portion of the maximum possible combined score. This proportion is then added to one (1) so that the pairwise analysis remains the primary driver of the order of risk, and then the severity and likelihood is a multiplicative factor that acts on the risk ranking. If the severity and likelihood is significant, it will substantially increase the total risk score. If the severity and likelihood score are small, there will be little impact on the total risk score. Alternatively, not adding one (1) to the severity and likelihood proportion would result in the severity and likelihood decreasing the ranking number unless the severity and likelihood proportion equals one. Then the risk score was normalized by dividing by the maximum possible score and multiplying by 100 to convert to a percentage value. The project risks for each category are in Figures 3 through 6. The combined total project risk is in Figure 7.

FIGURE 3. WEIGHTED COST RISK

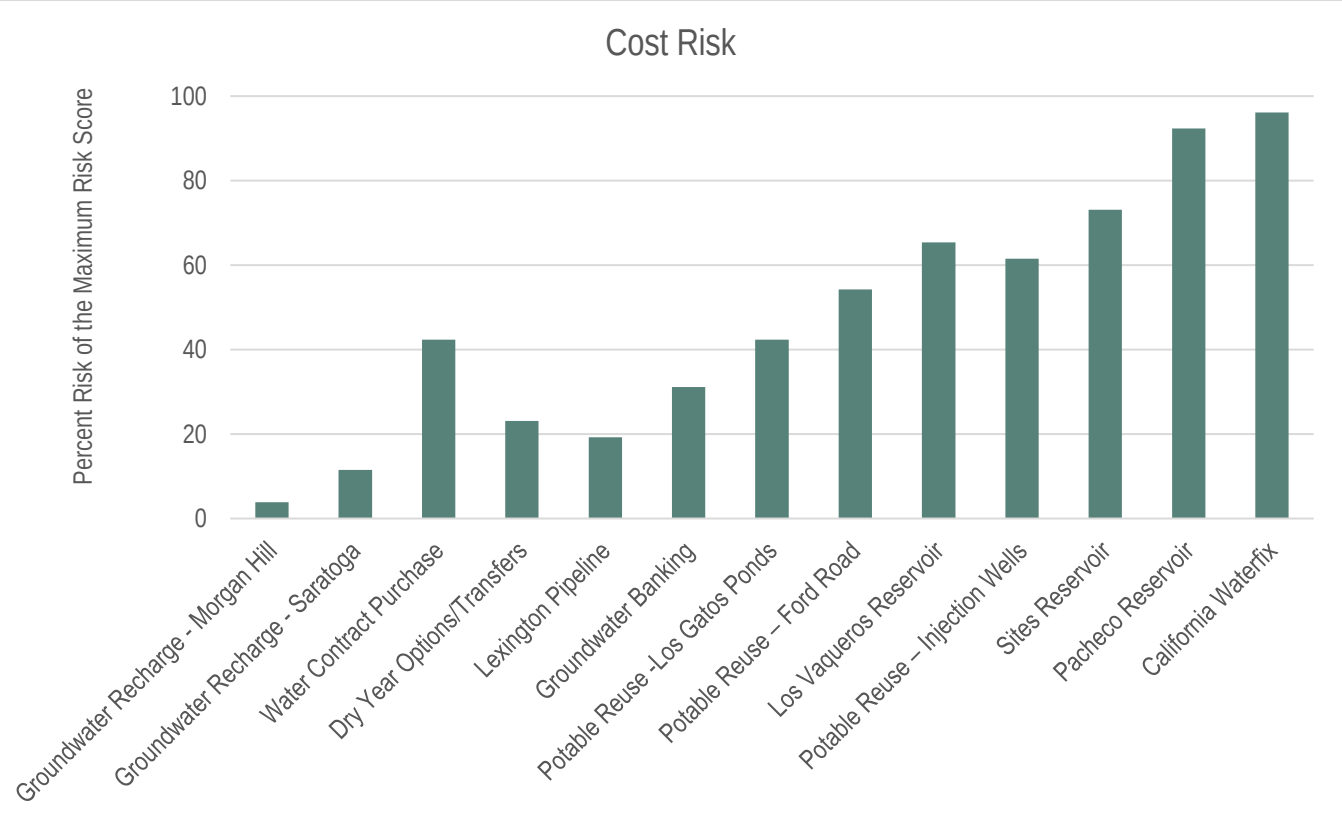


FIGURE 4. WEIGHTED IMPLEMENTATION RISK

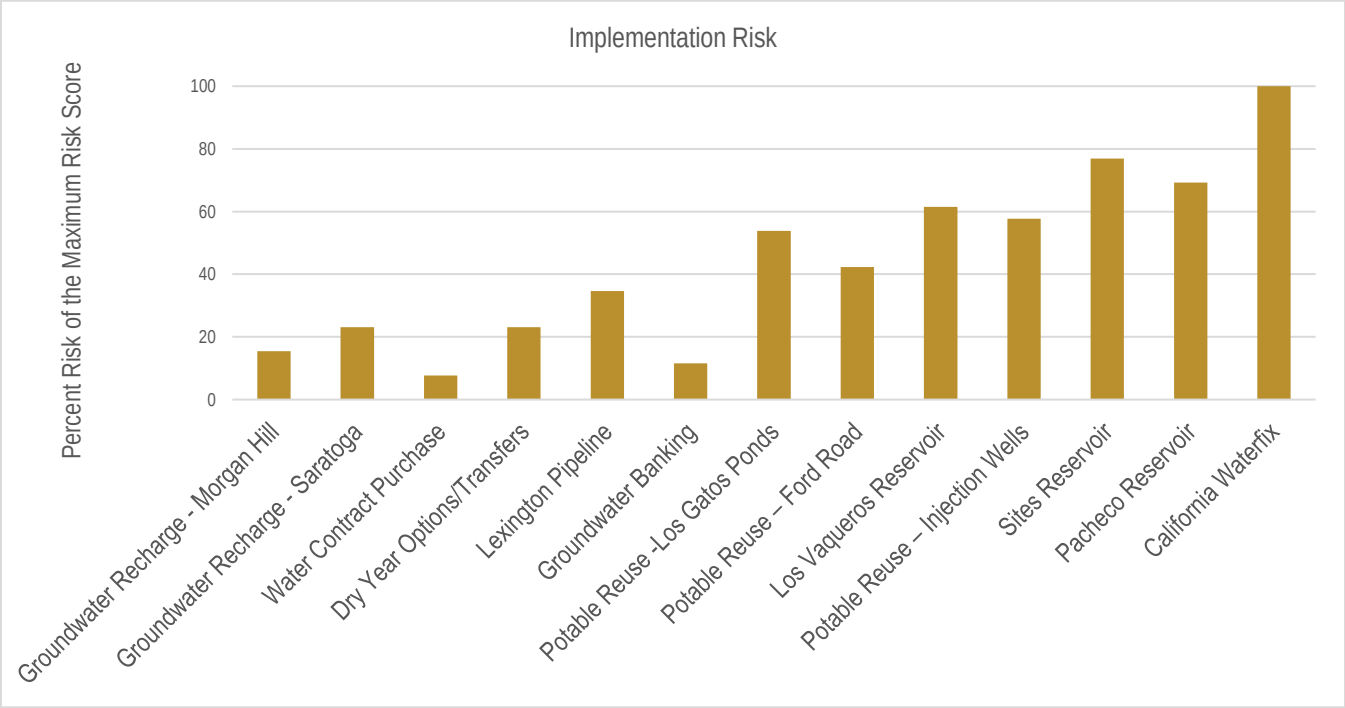


FIGURE 5. WEIGHTED OPERATIONS RISK

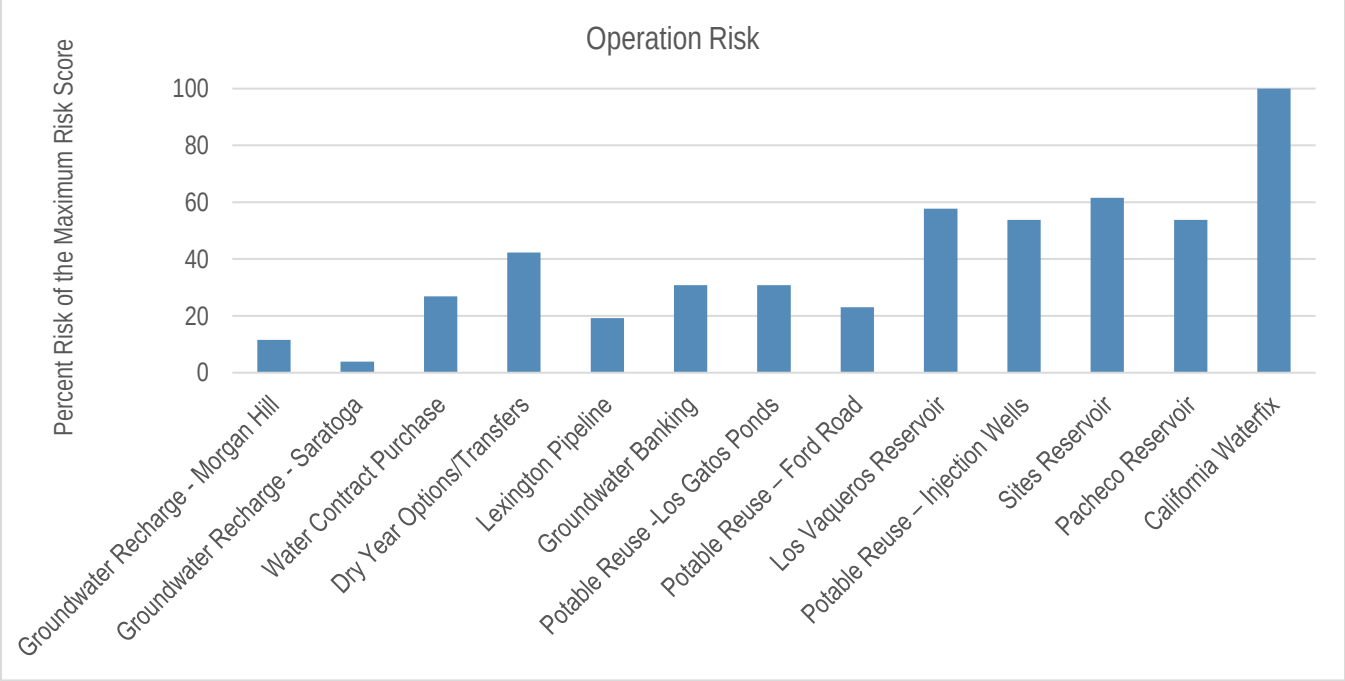


FIGURE 6. WEIGHTED STAKEHOLDER RISK

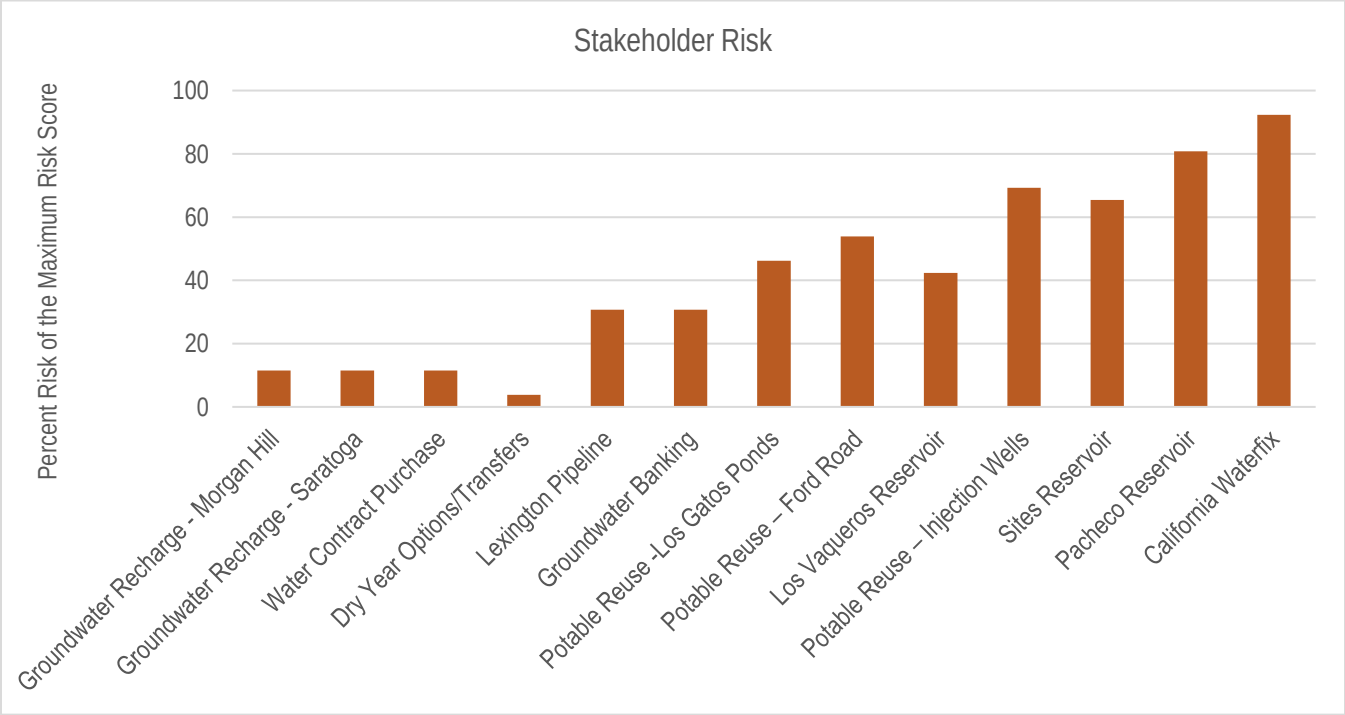
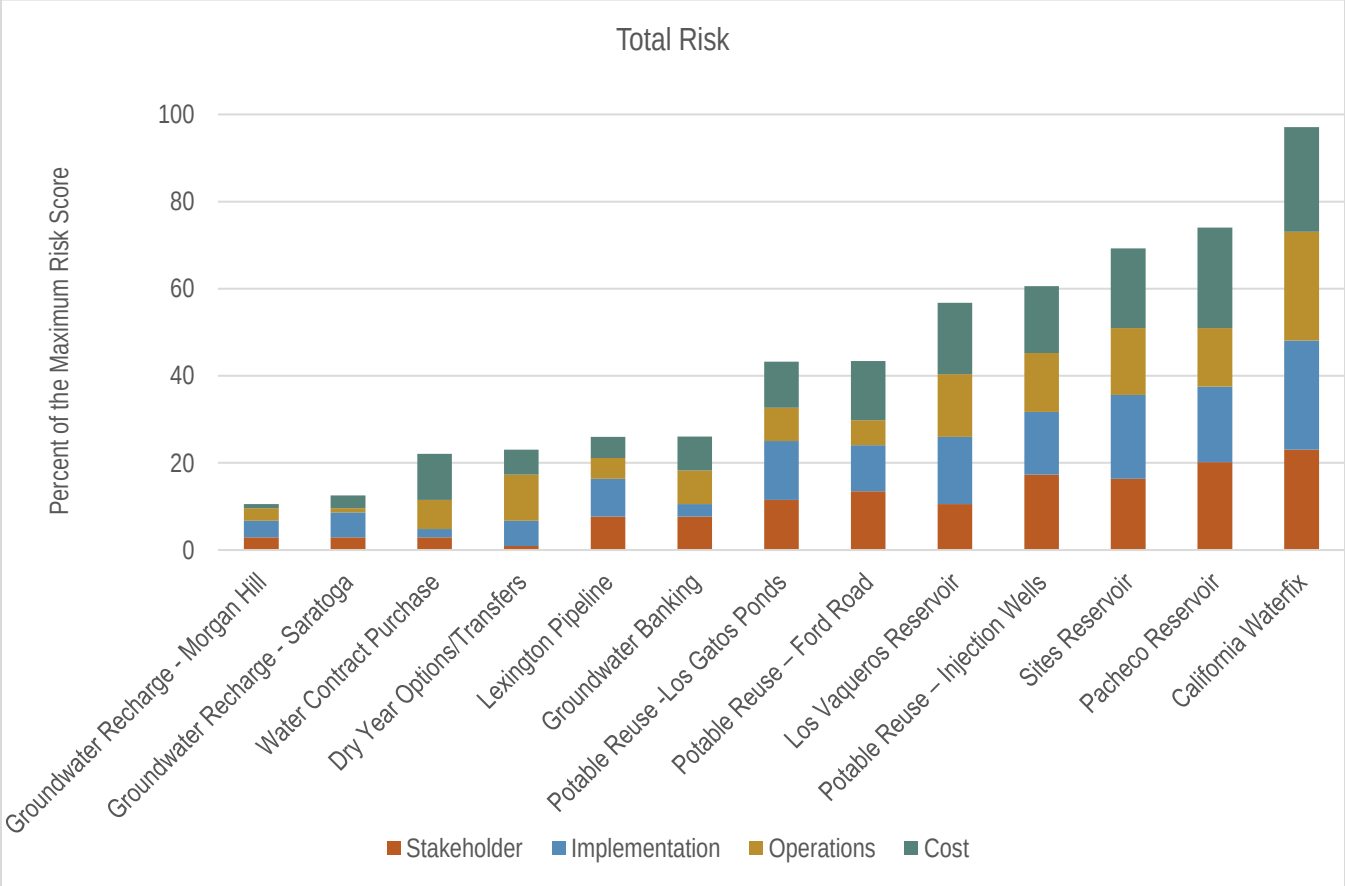


FIGURE 7. TOTAL WEIGHTED PROJECT RISK



PROJECT RISK SUMMARY AND CONCLUSIONS

California WaterFix and the three surface water reservoirs (Pacheco, Sites, and Los Vaqueros) are among the highest risk projects based on this analysis. California WaterFix and Sites Reservoir risk is distributed relatively evenly among the four categories, while Pacheco has more cost risk and Los Vaqueros has less stakeholders risk compared to the other risk categories.

Uncertainties related to future regulatory requirements for the California WaterFix may affect project operations and impact water supply yields. Although significant contingencies have been included in the cost estimates, there could be cost overruns due to the size and complexity of the construction project. Additionally, opposition from vocal stakeholders and potential legal challenges could lead to schedule delays and changes in proposed operations that impact the project's water supply benefit.

Sites Reservoir would depend on Sacramento River flows and Pacheco Reservoir would store Delta-conveyed supplies (along with local water), causing uncertainty in the amount of water that either reservoir will supply. Future environmental regulations and hydrologic changes could significantly affect the modeled yields from the reservoirs. In addition, both reservoirs will likely have significant environmental mitigation requirements that could further reduce the water supply and increase the project costs.

In contrast to Sites, California WaterFix, and Los Vaqueros, the risk analysis results suggest that the Pacheco Reservoir cost-related risk is more significant than the stakeholders, implementation, and operations risks. The cost risks are based on concerns that Pacheco partners have less financial resources and the project has less secure funding sources compared to Sites, California WaterFix, or Los Vaqueros. In addition, the cost estimate for construction and operations/maintenance could increase considerably since the project is in the early phases of planning.

The analysis shows that Los Vaqueros Reservoir has a relatively low risk compared to the other reservoir proposals and California WaterFix, with 12 percent less total risk than the next riskiest reservoir (Sites Reservoir). Risk experts from each of the risk categories commented that Los Vaqueros has been expanded before with little opposition, on time, and on budget. In addition, experts from the costs group noted that there are several potential cost-sharing partners that are financially reliable. There are potential implementation and operation complexities due to the large number of partners.

The analysis also shows that potable reuse using injection wells is riskier than potable reuse using recharge ponds. Injection wells are a relatively new technology compared to recharge ponds and recharge pond operations, maintenance, and costs are better understood. However, experts were concerned that Ford Ponds will require decommissioning several retailer wells, potentially being a stakeholder acceptance and project implementation issue. General potable reuse concerns included public acceptance, poor cost estimates for advanced purification systems, and unknown regulatory requirements. However, experts thought it is less risky than reservoirs or California WaterFix because the water will be a drought-proof, reliable, local supply and that the current socio-political environmental surrounding potable reuse as a water supply will help improve public perception.

Groundwater banking and Lexington Pipeline both had the same amount of total risk. However, compared to Lexington Pipeline, groundwater banking had higher cost and operations risks and lower implementation risks. Since the District already participates in groundwater banking with Semitropic Water Storage District (Semitropic), stakeholders are familiar banking and the associated costs risks. In addition, implementation risks and operations risks are like those with Semitropic in that there needs to be exchange capacity in dry years and the storage is not in-county. While those risks exist, they are relatively small compared to other projects

since the District has experience planning for and mitigating those risks. However, the new potential banking partners will need to build infrastructure to be able to bank District water.

In contrast to groundwater banking, most of the risk associated with Lexington Pipeline is implementation risk. The implementation concern is the ability to build the pipeline through urban areas and potentially complex geologies. Since the pipeline would be locally maintained and operated, there are less operational and cost-related risks. The main cost risk associated with Lexington Pipeline is the construction cost. In contrast, the District would not control the groundwater banking operations and costs would be a recurrent negotiation.

Imported water contract purchase and dry year transfer risks are primarily associated with cost and operation. The contract purchase option is a permanent transfer of SWP Table A contractual water supplies, which are subject to the same regulatory restrictions and delivery uncertainties as our current imported water supplies. In addition, the SWP South Bay Aqueduct has conveyance limits that could make it difficult to receive additional Table A contract water during higher allocation years. In contrast, dry year transfers can only be delivered during specific months. However, if dry year transfers are available, there is little risk that the District will not receive the purchased transfer water. Imported water contract purchase and dry year transfer are both lower risk relative to most other projects since neither require construction, reducing their implementation and cost risks. However, stakeholder experts suggested that it may have poor optics to buy more Table A water when we already do not receive 100 percent of our contract allotment and that it may be difficult to find someone interested in selling their Table A water contract. Similarly, dry year transfers may not be available for purchase when needed.

The Morgan Hill (Butterfield) recharge channel and Saratoga recharge pond were the lowest risk projects because they are less costly than other projects, are local, and the District has successfully completed similar projects. Morgan Hill (Butterfield) recharge channel is currently owned by Morgan Hill and actively used for stormwater conveyance during the winter. To use the channel for recharge as planned, the District will need to coordinate operations with Morgan Hill and extend the District's Madrone Pipeline to the channel. The chief concern with Saratoga recharge pond is identifying and purchasing a suitable property for recharge.

In general, the lowest risk projects are those that are locally controlled or similar to already completed projects. Imported water rights purchase, dry year transfer, and groundwater banking are current practices, so the District is prepared for the uncertainties associated with those projects. Similarly, Morgan Hill (Butterfield) recharge channel is similar to the Madrone recharge channel and is locally controlled. Potable reuse is the newest technology the District is considering, but the facilities are locally controlled and the District is currently testing potable reuse to confirm its operational capabilities. Experts did find potable reuse with recharge ponds to be lower risk than potable reuse with injection wells. The District has experience managing recharge ponds, consistent with the conclusion that lower risk projects are those that are most similar to existing District projects. Projects that require substantial construction and cost-sharing are higher risk, such as California WaterFix and the Pacheco, Sites, and Los Vaqueros Reservoirs.

This risk assessment helps provide the Board of Directors and external stakeholders more thorough understanding of each proposed project. Understanding project risks and how these risks may materialize can help determine which projects to invest in and what project-related issues to prepare for in the future as project development proceeds.

Appendix A: Project and Program Descriptions (as of September 2017)

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
California WaterFix: Constructs two 40-foot diameter tunnels at least 100 feet below ground surface capable of diverting up to 9,000 cubic feet-per-second from the Sacramento River and delivering it to the federal and state pumps. Alternative to conveying water all Central Valley Project and State Water Project supplies through the Delta. Would require environmental flow and water quality criteria be met.	• Secures existing Delta-conveyed supplies • Upgrades aging infrastructure • Protects the environment through less impactful diversions • Improves reliability of other Delta-conveyed supplies and transfers • Protects water quality	• Implementation complexity • Long-term operational uncertainty • Stakeholder opposition • Financing uncertainty	41,000	$620 million	$600
Dry Year Options / Transfers: Provides 12,000 AF of State Water Project transfer water during critical dry years. Amount can be increased or decreased. Can also include long-term option agreements.	• Provides supply in critical years when needs are greatest • Allows for phasing • Can implement in larger increments • Complements all other projects	• Subject to Delta-restrictions • Increases reliance on Delta • Cost volatility • Uncertainty with willing sellers	2,000	$100 million	$1,400

[1] The average annual yield of many projects depends on which projects they are combined and the scenario being analyzed. For example, groundwater banking yields is higher in portfolios that include wet year supplies. Similarly, they would be lower in scenarios where demands exceed supplies and excess water is unavailable for banking.

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
Groundwater Banking: Provides 120,000 AF of banking capacity for Central Valley Project and State Water Project contract water. Sends excess water to a groundwater bank south of the Delta during wet years and times of surplus for use during dry years and times of need. Annual put and take capacities of 30,000 AFY. Project more effective in portfolios that include new supplies.	• Significantly reduces drought shortages when paired with projects with all-year supply • Allows for phasing	• Subject to Delta restrictions • Uncertainty with Sustainable Groundwater Management Act implementation	2,000	$170 million	$3,900
Groundwater Recharge – Morgan Hill Recharge: Extends the Madrone Pipeline from Madrone Channel to Morgan Hill's Butterfield Channel and Pond near Main Street. Would need to be operated in conjunction with the City's stormwater operations.	• Optimizes the use of existing supplies • Conjunctive use strategy • Helps drought recovery • Local project	• Minimal impact on drought shortages • North County locations limited • Potential siting conflicts with existing land uses	2,000	$20 million	$400
Groundwater Recharge – Saratoga: Constructs a new groundwater recharge facility in the West Valley, near the Stevens Creek pipeline.			1,000	$50 million	$1,300

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
Lexington Pipeline: Constructs a pipeline between Lexington Reservoir and the raw water system to provide greater flexibility in using local water supplies. The pipeline would allow surface water from Lexington Reservoir to be put to beneficial use elsewhere in the county, especially when combined with the Los Gatos Ponds Potable Reuse project which would utilize the capacity of the Los Gatos recharge ponds where most water from Lexington Reservoir is currently sent. In addition, the pipeline will enable the District to capture some wet-weather flows that would otherwise flow to the Bay.	• Optimizes the use of existing local supplies • Increases local flexibility • Complements potable reuse	• Water quality issues will require pre-treatment/management • Minimal reduction in drought shortages	3,000	$90 million	$1,000

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
Los Vaqueros Reservoir: Secures an agreement with Contra Costa Water District and other partners to expand the off-stream reservoir by 110,000 AF (from 160 TAF to 275 TAF) and construct a new pipeline (Transfer-Bethany) connecting the reservoir to the South Bay Aqueduct. Assumes District's share is 35,000 AF of storage, which is used to prorate costs. Emergency storage pool of 20,000 AF for use during droughts. District would also receive Delta surplus supplies when there is capacity to take. Average yield for District about 3,000 AFY. Assumes sales of excess District supplies to others. Transfer-Bethany Pipeline provides about ¾ of the project benefits at ¼ of the cost.	• Provides drought supplies • Improved transfer/exchange capacity • Allows for phasing (Transfer-Bethany Pipeline provides significant benefit) • Complements projects with all-year supply • Supports regional reliability • Public and agency support	• Operational complexity • Institutional complexity	3,000	$40 million	$400
Pacheco Reservoir: Enlarges Pacheco Reservoir to 140,000 AF. Assumes local inflows and ability to store Central Valley Project supplies in the reservoir. Construction in collaboration with Pacheco Pass Water District and San Benito County Water District. Potential other partners.	• Locally controlled • Addresses San Luis Reservoir Low-Point problem • Provides flood protection • Provides cold water for fisheries • Increases operational flexibility	• Impacts to cultural resources • Long-term operational uncertainty • Increases long-term environmental commitments • May require use of Delta-conveyed supplies to meet environmental commitments • Stakeholder opposition	6,000	$450 million	$2,700

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
Potable Reuse – Ford Pond: Constructs potable reuse facilities for 5,000 AFY of groundwater recharge capacity at/near Ford Ponds.	• Local supply • Not subject to short or long term climate variability • Allows for phasing	• Reverse osmosis concentrate management for injections wells and Los Gatos Ponds projects • Uncertainty with agreements with San Jose • Injection well operations complex • Potential public perception concerns	3,000	$190 million	$2,500
Potable Reuse – Injection Wells: Constructs (or expands in conjunction with the Los Gatos Ponds project) potable reuse facilities for 5,000 to 15,000 AFY of groundwater injection capacity.			5,000 – 15,000	$290 million - $860 million	$2,000
Potable Reuse -Los Gatos Ponds: Constructs facility to purify water treated at wastewater treatment plants for groundwater recharge. Potable reuse water is a high-quality, local drought-proof supply that is resistant to climate change impacts. Assumes 24,000 AFY of advanced treated recycled water would be available for groundwater recharge at existing recharge ponds in the Los Gatos Recharge System.			19,000	$990 million	$1,700

Project	Pros	Cons	Average Annual Yield (AFY)[1]	Present Value Cost to District (2017)	Cost/AF
Sites Reservoir: Establishes an agreement with the Sites JPA to build an off-stream reservoir (up to 1.8 MAF) north of the Delta that would collect flood flows from the Sacramento River and release them to meet water supply and environmental objectives. Assumes District's share is 24,000 AF of storage, which is used to prorate yields from the project. The project would be operated in conjunction with the SWP and CVP. In some years, District would receive less Delta-conveyed supply with the project than without the project.	• Off-stream reservoir • Improves operational flexibility of Statewide water system	• Increases reliance on the Delta • Subject to Delta risks • Long-term operational uncertainty • Operational complexity • Institutional complexity	8,000	$170 million	$800
Water Contract Purchase: Purchase 20,000 AF of SWP Table A contract supply from other SWP agencies.	• Provides all year supply	• Increases reliance on the Delta • Subject to Delta risks • Willing sellers' availability	12,000	$360 million	$800

APPENDIX B. WSMP 2017 PROJECT RISK ANALYSIS METHODOLOGY

CONTENTS

The following staff participating in the risk analysis:

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Marty Grimes
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Samantha Green
Tracy Hemmeter
Vanessa De La Piedra

BACKGROUND:

At the expert panel meeting on June 8, 2017, a panel member suggested that the Water Supply Planning team conduct a risk assessment on the projects being considered as part of the WSMP. A participant at the expert panel meeting suggested using a Paired Comparison Analysis. The WSMP project team and expert panel brainstormed elements of project risk, which the technical team then used to create risk categories that encompassed the risk elements. After the meeting, the project team identified internal subject matter experts for each risk category to participate in the paired comparison risk assessment. The project team then decided to combine the paired comparison risk analysis with a traditional risk ranking (severity and likelihood) to better understand the relative magnitude of each risk. This provides a detailed explanation of the methodology employed. The results and conclusions are presented in the September 8, 2017, *WSMP 2017 – PROJECT RISKS: Results of Pairwise and Traditional Risk Analyses.*

RISK CATEGORIES

The WSMP project team reviewed the risk elements brainstormed during the expert panel meeting and grouped them into four risk categories: stakeholder, implementation, operations, and cost (Table 1). The risk categories reflect the different stages of a project where risk can occur. Each project requires approval or support from a diverse set of stakeholders, ranging from the public to the Board of Directors. This may be needed only at the beginning of a project, or throughout as is the case with regulatory approval. Once a project is supported by stakeholders, the project enters the planning/implementation phase. Implementation risks capture risks that occur during planning, design, permitting, and construction. The cost risk category encompasses elements of uncertainty associated with the initial cost estimates through the uncertainty associated with recurring operations and maintenance costs during the project's lifespan. Once the project is implemented, issues associated with project operations will need to be addressed throughout the lifespan of the project. An example of a potential recurring operations issue is the need to re-operate as environmental regulations or climate changes.

Once the project team determined the risk categories, they reviewed risk management references to ensure they were presenting a comprehensive assessment of risk. During the literature review, the technical team found a risk category structure named POET that is analogous to their risk categorization (TRW, Inc.). POET categories include political, operational, economic, and technical, and is used to assess challenges and opportunities associated with programs, customer challenges, and strategies, regardless of the size and complexity.

- Political: Assess and articulate associated leadership, mission/business decision drivers, organizational strengths/weaknesses, policies, governance, expectation management (e.g., stakeholder relationship), program management approach, etc.
- Operational: Obtain and evaluate mission capabilities, requirements management, operational utility, operational constraints, supporting infrastructure and processes, interoperability, supportability, etc.
- Economic: Review capital planning and investment management capabilities, and assess the maturity level of the associated processes of budgeting, cost analysis, program structure, acquisition, etc.
- Technical: Assess and determine the adequacy of planned scope/scale, technical maturity/obsolescence, policy/standards implementation, technical approach, etc.

The risk categories determined by the project team have slightly different names than the POET categories, but they cover very similar content.

Table 1: Risk Category and Risk Elements.

Risk Category	Risks
Costs	• Capital costs, including quality of cost estimate • Costs of regulatory compliance • Match requirements and cost-sharing • Counter-party risk • Stakeholders and rate payer perspective and ability to pay • Financing and funding security • Scheduling issues • Economic fluctuations and instability • Stranded assets
Implementation	• Phasing potential • Required time table • Reoperation requirements • Land availability • Constructability (e.g., structural issues, technology) • Managerial capacity (knowledge and resource availability) • Range of implementation options • Regulatory requirements • Project planning maturity
Operations	• Climate change • Yield variability and reliability • Operating Partnerships • Uncertainty of long-term operations and maintenance costs • Project inter-dependency • Environmental and water quality regulations • Control • Appropriate infrastructure • Redundancy • Emergency operations/asset failures
Stakeholders	• Public support • Permitting risks • Media • Internal stakeholder concerns • External stakeholder opposition • Environmental/special interest groups • Partnership risks • Government stakeholders • Costs

After a review of risk assessment methodologies, the project team determined that while a pairwise comparison provides the relative risk ranking of projects, it does not indicate how much riskier one project is in comparison to one of lower rank. To quantify the magnitude of risk, the project team decided to add an evaluation of risk severity and likelihood.

To complete the risk assessment, the project team assembled five to six subject matter experts from the District into four groups, one group for each risk category. The team chose District experts that had knowledge specific to their assigned risk category (Table 1). At each of the four risk assessment meetings, the following agenda was followed:

1) Projects were discussed to the experts could understand the projects sufficiently to perform their analysis.
2) District experts reviewed and brainstormed additional elements of risk associated with the category.
3) District experts independently completed a pairwise comparison.
4) A meeting facilitator tallied the pairwise comparisons during the meeting and the District experts discussed some of the project comparisons where experts had disagreements.
5) District experts independently completed the risk magnitude assessment, which was tallied afterwards.

After this assessment was completed, the project team added four additional projects to the list. This required the analysis to be conducted again with the added projects. The same process was followed for the second analysis, with the following exceptions:

- A subset of the same staff was used in the second analysis, with four to five experts per category.
- The subject matter experts did not meet in person for the second analysis, so there was not the same level of discussion or ability to ask questions about projects as during the first analysis.

PAIRED COMPARISON

The subject matter experts received a matrix of the projects where they could complete their paired comparisons (Table 2A). Each expert compared one project to another and identified which project between the two is of greater risk for the risk category being evaluated. The project team then tabulated the results during the meeting for the first phase (Table 2B- All results), and the experts discussed some of the project comparisons where there was not consensus. Given time constraints, not all paired comparisons with disagreements could be discussed; instead, the project team selected the most significant disagreements for discussion. For the second phase, the experts were provided the same information and forms, and they completed the assessments on their own.

Table 2A: Pairwise Template

OPERATIONS Risk	Butterfield Recharge Pond **B**	Groundwater Banking South of Delta **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Ford Road **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Rights Purchase **I**	Pacheco Reservoir **PR**	California Waterfix **C**
Butterfield Recharge Pond **B**	X								
Groundwater Banking South of Delta **G**	X	X							
Sites Reservoir **S**	X	X	X						
Los Vaqueros Reservoir Expansion **L**	X	X	X	X					
Potable Reuse – Ford Road **PF**	X	X	X	X	X				
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X			
Imported Water Rights Purchase **I**	X	X	X	X	X	X	X		
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	
California Waterfix **C**	X	X	X	X	X	X	X	X	X

Table 2B: Pairwise Results

	Butterfield Recharge Pond **B**	Groundwater Banking South of Delta **G**	Sites Reservoir **S**	Los Vaqueros Reservoir Expansion **L**	Potable Reuse – Ford Road **PF**	Potable Reuse – Injection Wells **PI**	Imported Water Rights Purchase **I**	Pacheco Reservoir **PR**	California Waterfix **C**
Butterfield Recharge Pond **B**	X	G5	S5	L5	PF5	PI5	I4 B1	PR5	C5
Groundwater Banking South of Delta **G**	X	X	S5	L3 G2	PF3 G2	PI2 G3	I2 G3	PR5	C5
Sites Reservoir **S**	X	X	X	S5	S5	PI1 S4	S5	PR5	C5
Los Vaqueros Reservoir Expansion **L**	X	X	X	X	PF1 L4	PI1 L4	I1 L4	PR5	C5
Potable Reuse – Ford Road **PF**	X	X	X	X	X	PI5	I3 PF2	PR5	C5
Potable Reuse – Injection Wells **PI**	X	X	X	X	X	X	I3 PI2	PR5	C5
Imported Water Rights Purchase **I**	X	X	X	X	X	X	X	PR5	C5
Pacheco Reservoir **P**	X	X	X	X	X	X	X	X	C4 PR1
California Waterfix **C**	X	X	X	X	X	X	X	X	X

RISK SCORING METHODOLOGY

Following the pairwise comparison, the experts scored the risk severity and likelihood for individual projects (Table 3). The goal of this risk scoring exercise is to help determine how much riskier one project is from another and to identify if the risk is primarily from the likelihood that the risk materializes, the severity of the outcome if the risk

did materialize, or both. For example, it is unlikely that an earthquake would destroy a dam, but if it did, the results could be catastrophic for life and property (low likelihood, high severity). However, when completing this exercise, experts considered all the risk elements discussed during the pairwise comparison activity to determine one project risk rating for severity and one for likelihood. The ranking criteria for each risk category is explained in detail in the next section.

Table 3: Risk Scoring Template

	Severity of Implementation Risk Impact 1-4, 1 - Low Severity 4 - High severity	**Likelihood of Implementation Risk Impact 1-4, 1 - Very unlikely 4 - Very likely within timeframe**
Butterfield Recharge Pond		
Groundwater Banking South of Delta		
Sites Reservoir		
Los Vaqueros Reservoir Expansion		
Potable Reuse – Ford Road		
Potable Reuse – Injection Wells		
Imported Water Rights Purchase		
Pacheco Reservoir		
California Waterfix		

The scores from this exercise were multiplied by the ordered ranking from the pairwise analysis to determine total risk. The following section provides detailed methods for the total risk calculation.

An example of how the subject matter experts could consider risk rating was provided, but not relied upon due to the many different sub-elements of risk to consider.

EXAMPLE:

Rank the **likelihood** of a stakeholder risk adversely impacting the project

1 = Very unlikely – Support available within 5 to 10 years

2 = Unlikely – appropriate support will Probably be garnered within 5 to 10 years

3 = Likely - Probably will NOT get support within 5 to 10 years

4 = Very likely - Almost certain NOT to get needed support within 5 to 10 years

Rank the **severity** of a stakeholder risk adversely impacting the project:

1 = Low – Stakeholder support exists or lack of support will not affect project success

2 = Medium –Potential for stakeholder issues to impact project success

3 = High – Potential for stakeholder issues to significantly impact project success

4 = Very High – Likely that lack of stakeholder support would result in project failure

TOTAL PROJECT RISK CALCULATION

The project team calculated category risk for each project by weighting the pairwise ranking by the severity and likelihood (equation 1). Then, the category risks were summed to obtain each project's total risk.

Equation 1

$$Risk_{category} = (1 + \frac{Severity + Likelihood}{8}) \times Pairwise\ Ranking$$

The severity and likelihood score is divided by eight (the maximum possible combined score) to represent severity and likelihood as a portion of the maximum possible combined score. The technical team then added that proportion to one (1) so that the pairwise analysis remains the primary driver of the order of risk, and then the severity and likelihood is a multiplicative factor that acts on the risk ranking. If the severity and likelihood is significant, it will substantially increase the total risk score. If the severity and likelihood score are small, there will be little impact on the total risk score. Alternatively, not adding one (1) to the severity and likelihood proportion would result in the severity and likelihood decreasing the ranking number unless the severity and likelihood proportion equals one.

CONCLUSION

The risk assessment methods were easy to apply to the projects and provided a robust and multi-variant method assess risks associated with each project. However, explaining the methods clearly to the subject matter experts was needed. Since the second phase of review with the added project did not include discussions or the opportunity to ask questions, it may have been subject to less project understanding by the experts.

The results are discussed in September 8, 2017, *WSMP 2017 – PROJECT RISKS: Results of Pairwise and Traditional Risk Analyses.*

File No.: 19-0277

Agenda Date: 5/1/2019
Item No.: 4.2.

COMMITTEE AGENDA MEMORANDUM

Joint RWPAC with Cities of San Jose/Santa Clara/ TPAC

SUBJECT:
District Water Rates Overview.

RECOMMENDATION:
Receive and discuss information on the Santa Clara Valley Water District's Water Rates Overview.

SUMMARY:
Each year, the Board establishes groundwater production charges for two zones of benefit (Zone W-2 in the North County and Zone W-5 in the South County) in accordance with Section 26 of the District Act. Although not specified under the District Act, the Board also sets surface water charges, recycled water charges, treated water surcharges, and the amount of the State Water Project cost to be recouped through the State Water Project tax, within the framework of the groundwater charge setting process.

The Water Utility taxing and pricing policy, summarized in Attachment 1, and legal requirements, guide staff in the development of the overall structure for these charges.

In late 2017, the State Supreme Court found that proposition 218 is not applicable to groundwater production charges. However, the Court did determine that Proposition 26 does apply to groundwater charges. This means that for the groundwater charge to qualify as a nontax fee under Proposition 26, it must satisfy both of the following requirements:

1. That the groundwater charge be established in an amount that is no more than necessary to cover the reasonable costs of the government activity, and
2. The manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from the government activity.

The FY 2019-20 groundwater production charge setting process is being conducted consistent with Proposition 26's requirements. The FY 2019-20 surface water charge setting process continues to be conducted consistent with Proposition 218's requirements for property-related fees for water services

Under the District Act, Section 26.5, an annual report referred to as the Report on Protection and Augmentation of Water Supplies (PAWS) is to be filed with the Clerk of the Board on or before the first Tuesday in April. A public hearing must be held on or before the fourth Tuesday in April and it must be noticed to the public in a newspaper of general circulation at least 10 days in advance. In addition, all well owners and well operators on record are notified of proposed groundwater production increases in writing, and of the public hearing at least 45 days in advance. Groundwater

production charges must be determined for the ensuing fiscal year prior to July 1 of the ensuing fiscal year. For each zone of benefit, groundwater production charges must be fixed and uniform per acre-foot for agricultural water and fixed and uniform per acre-foot for all water other than agricultural water.

Under the District Act, Section 26.3, groundwater production charges are to be used for the following purposes:
1. Pay for construction, operation, and maintenance of imported water facilities;
2. Pay for imported water purchases;
3. Pay for constructing, maintaining, and operating facilities which will conserve or distribute water including facilities for groundwater recharge, surface distribution, and purification and treatment; or
4. Pay for debt incurred for purposes 1, 2 and 3.

The Board may establish zones of benefit in accordance with the District Act. The objective of establishing various groundwater charge zones is to recover costs for the benefits resulting from District activities within that zone. The benefits and costs which are apportioned to zones by customer class are presented in the annual PAWS report.

The groundwater production charge reflects the benefit of District activities to protect and augment groundwater supplies and is applied to water extracted from the groundwater basin in Zones W-2 and W-5. Zone W-2 encompasses the Santa Clara groundwater subbasin north of Metcalf Road or the North County. Zone W-5 includes both the Coyote Valley and Llagas subbasin from Metcalf Road south to the Pajaro River or South County.

The District protects and augments water supplies for the health, welfare, and safety of the community. County-wide, groundwater replenished by the District makes up, on average, two-thirds of the groundwater used by residents, retailers, and businesses. The District replenishes the groundwater basins with local water and purchased water imported from the Sierra Nevada mountains and conveyed thru the San Francisco Bay Delta Estuary. The activities undertaken by the District to acquire, monitor, recharge, and protect the water supply are funded, in part, through groundwater production charges.

Staff Proposed Rates for FY 2019-20

For Fiscal Year 2019-20, staff proposes a 6.6% increase in the North County (Zone W-2) Municipal and Industrial groundwater production charge, and recommends maintaining the treated water surcharge at $100 per acre-foot and the non-contract treated water surcharge at $50 per acre-foot. The average household in Zone W-2 would experience an increase in their monthly bill of $2.93 or about 10 cents a day.

In the South County (Zone W-5), staff recommends a 6.9% increase in the M&I groundwater production charge. The average household in Zone W-5 would experience an increase in their monthly bill of $1.07 or about 4 cents per day.

Customers in both areas of North and South County may also experience additional charge increases enacted by their retail water providers.

For agricultural groundwater, staff has not provided a recommendation in the annual PAWS report, but instead has reflected the agricultural groundwater production charge at the maximum allowed per the District Act as a placeholder to provide flexibility for Valley Water's Board of Directors as they deliberate the agricultural water pricing policy. The surface water charge and recycled water charge recommendations are primarily a function of the groundwater charge recommendations.

Investments in large infrastructure, public safety, and reliability are of critical importance to the water supply and will help to prepare for the next drought. Of critical importance to water supply reliability and public safety are the seismic retrofits and upgrades at several dams, most notably Anderson Dam. Until Anderson Dam is restored, the district must operate the largest reservoir in the county at a fraction of its storage capacity due to state imposed restrictions. The upgrade of Rinconada Water Treatment Plant is more than half complete, and will extend the plant's service life for the next 50 years, increasing its capacity by 25%. The Pacheco Reservoir Expansion Project is an excellent opportunity for Valley Water to increase the reliability of future water supplies through additional storage capacity. The district received $485 million in grant funding from the state last summer for this important project, and continues to seek outside funding to help offset costs. Finally, critical imported water deliveries are expected to decline in the future without the California WaterFix. This state proposed plan will improve the infrastructure that is to provide roughly 40% of the county's water supply. Valley Water is conscientious about the rising cost of water.

A concerted effort has been made to reduce the groundwater charge projection by contemplating several water supply investment scenarios in accordance with the Water Supply Master Plan (WSMP), and selecting a path forward that will help ensure future water supply reliability at the lowest cost.

ATTACHMENTS:
Attachment 1: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Darin Taylor, 408-630-3068

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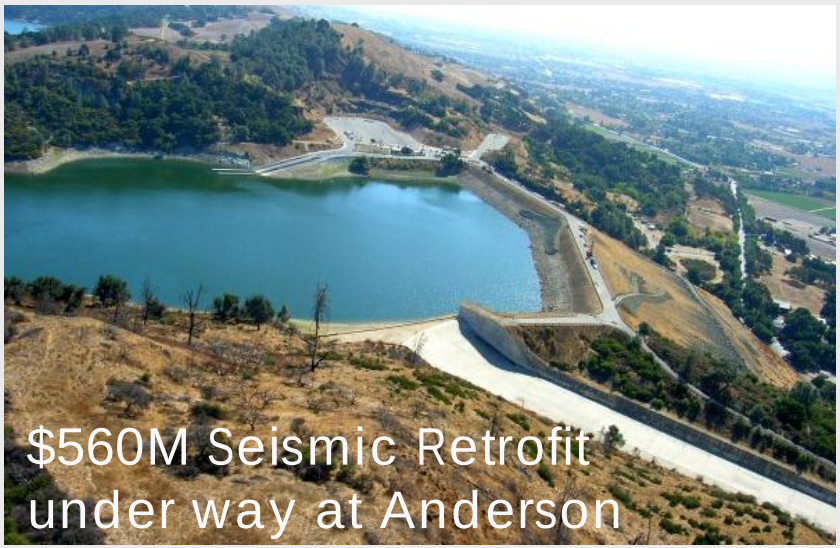
SCVWD Water Charge Overview

May 1, 2019

Santa Clara Valley Water District

Why do well owners pay SCVWD to pump water from the ground?

Construction at Anderson Reservoir, 1951



$560M Seismic Retrofit under way at Anderson

- Local rainfall cannot sustain Santa Clara County water needs
- Planning in early 1900's called for construction of reservoirs to capture rainwater to percolate into the ground
- Groundwater Production Charge is a reimbursement mechanism
  - pays for efforts to protect and augment water supply

A comprehensive, flexible water system serves 1.9 million people

10 Reservoirs

393 acres of recharge ponds

142 miles of pipelines

3 water treatment plants

1 water purification center

3 pump stations

$7.1B system replacement value

Many activities ensure safe, reliable groundwater supplies

- Plan & construct improvements to infrastructure
- Operate & maintain local reservoirs
- Purchase imported water
- Operate & maintain raw & recycled water pipelines
- Monitor & protect groundwater from pollutants

Completed Penitencia WTP Delivery Main and Force Main Seismic Retrofit ($33 Million)

Beginning 10-Year Pipeline Rehabilitation ($115M)

District Act Defines Purposes for Groundwater Charges

1

Imported Water Facilities

2

Imported Water Purchases

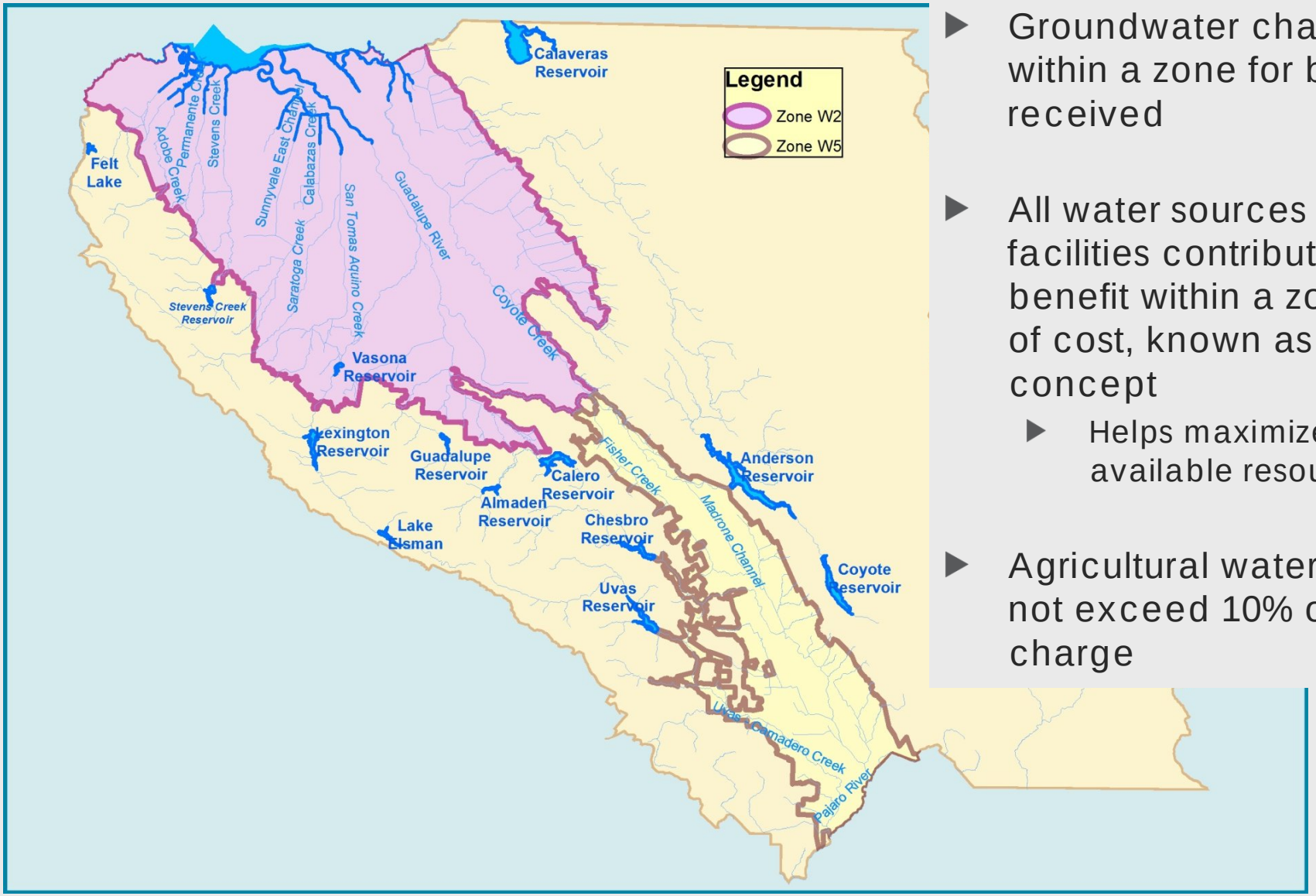
3

All Facilities which will "conserve or distribute water including facilities for groundwater recharge, surface distribution, and purification and treatment"

4

Debt

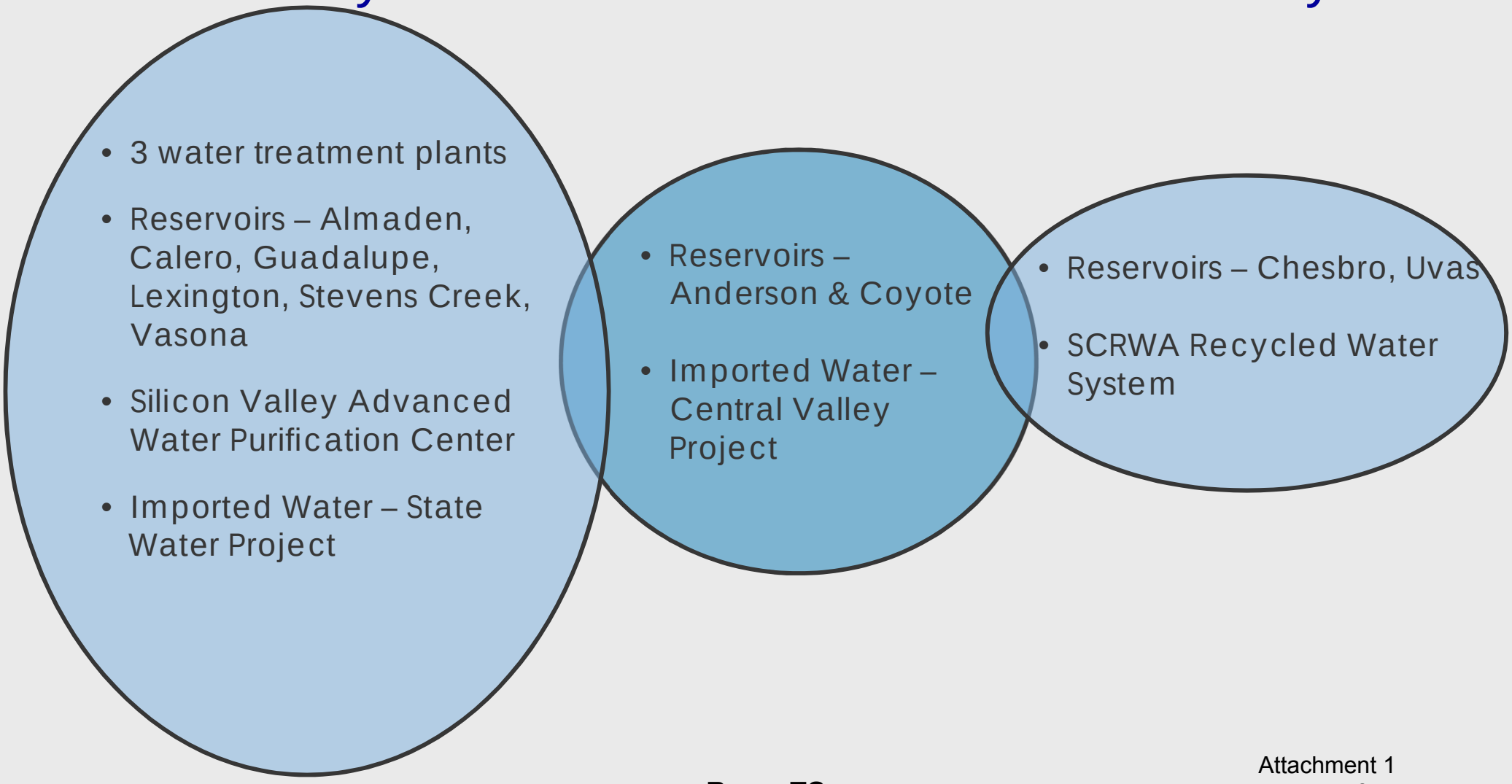
Resolution 99-21 is the Board's Pricing Policy



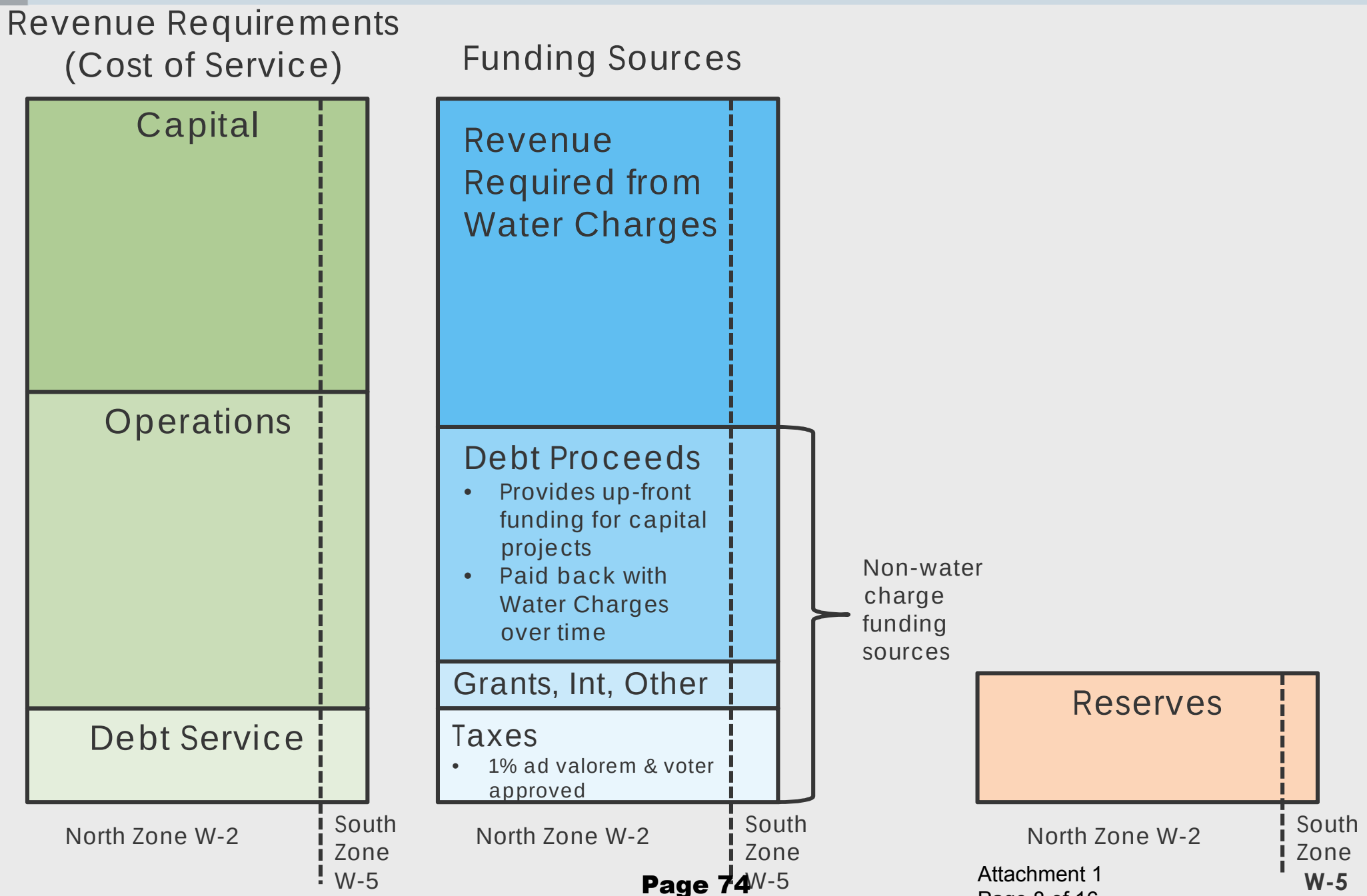
- Groundwater charges are levied within a zone for benefits received
- All water sources and water facilities contribute to common benefit within a zone regardless of cost, known as "pooling" concept
  - Helps maximize effective use of available resources
- Agricultural water charge shall not exceed 10% of M&I water charge

Zone of Benefit Study in progress

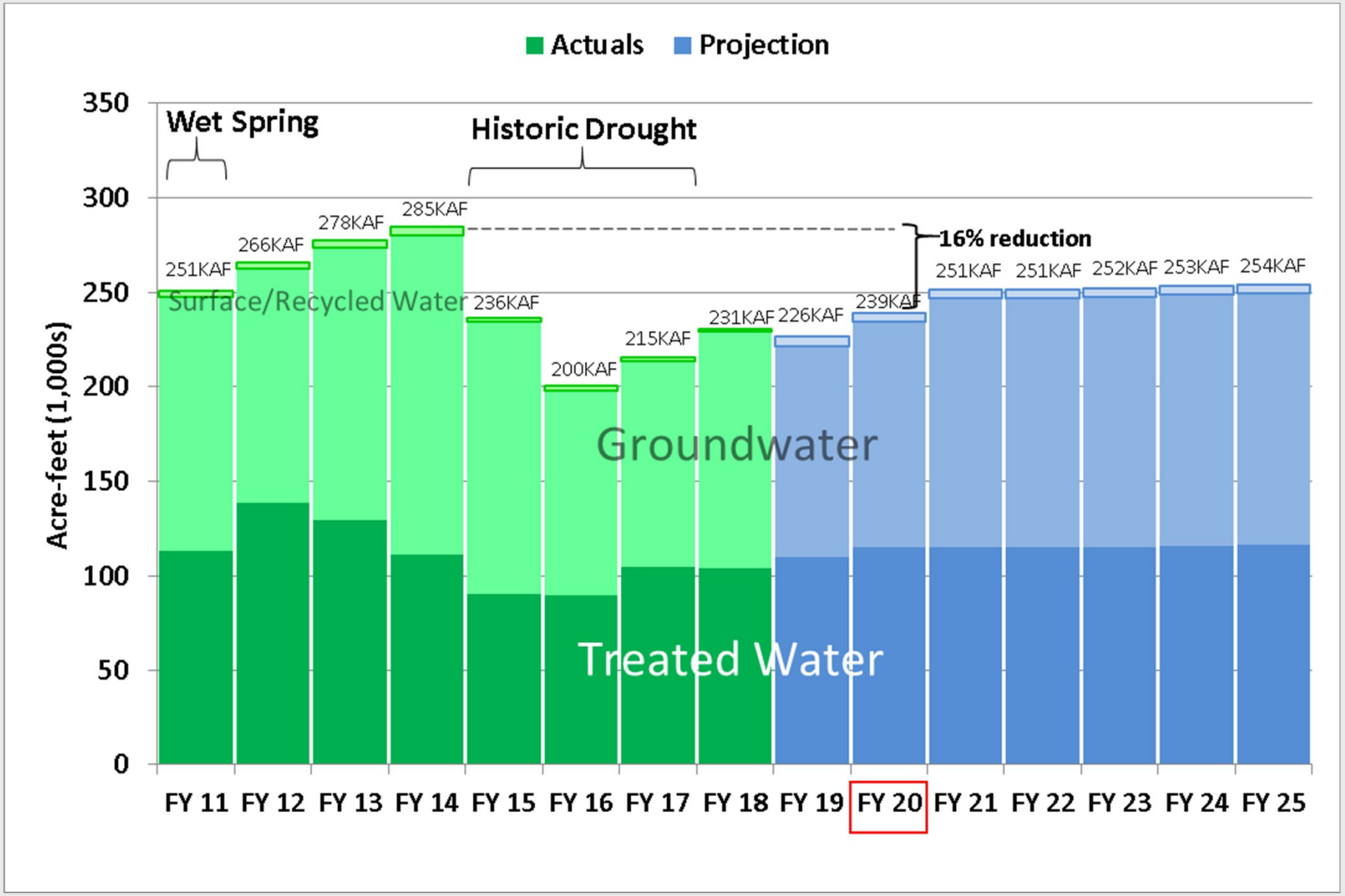
Infrastructure differences drive different groundwater production charges in each zone



"Revenue Requirements" approach used to determine revenue required from water charges



Water Usage (District Managed)



Note: FY 20 refers to fiscal year 2019-20

FY 20 Key Assumptions for 10-year groundwater charge projection

Investments would help achieve water supply reliability Level of Service goal of 80% of average annual water demand in drought years

- Board reviewed 9 investment scenarios

Investments include:

- Anderson, Calero, Guadalupe, Almaden Dam Seismic Retrofits/Improvements
- Rinconada Water Treatment Plant Reliability Improvement
- Potable Reuse Phase 1 to produce 24KAF by FY 28 (vs FY 25)
- Long Term Purified Water Program (Phase 2) to produce 20KAF pushed out beyond 10-year rate projection horizon
- Pacheco Reservoir Expansion Project assuming $250M WIIN funding + WIFIA loan, & Partner Agencies pay 20% of project
- California WaterFix (state side)
- California WaterFix (federal side) pushed out beyond 10-year rate projection horizon
- Transfer Bethany Pipeline

Key Water Supply Projects

Dam Seismic Retrofits/Improvements
($875 Million)

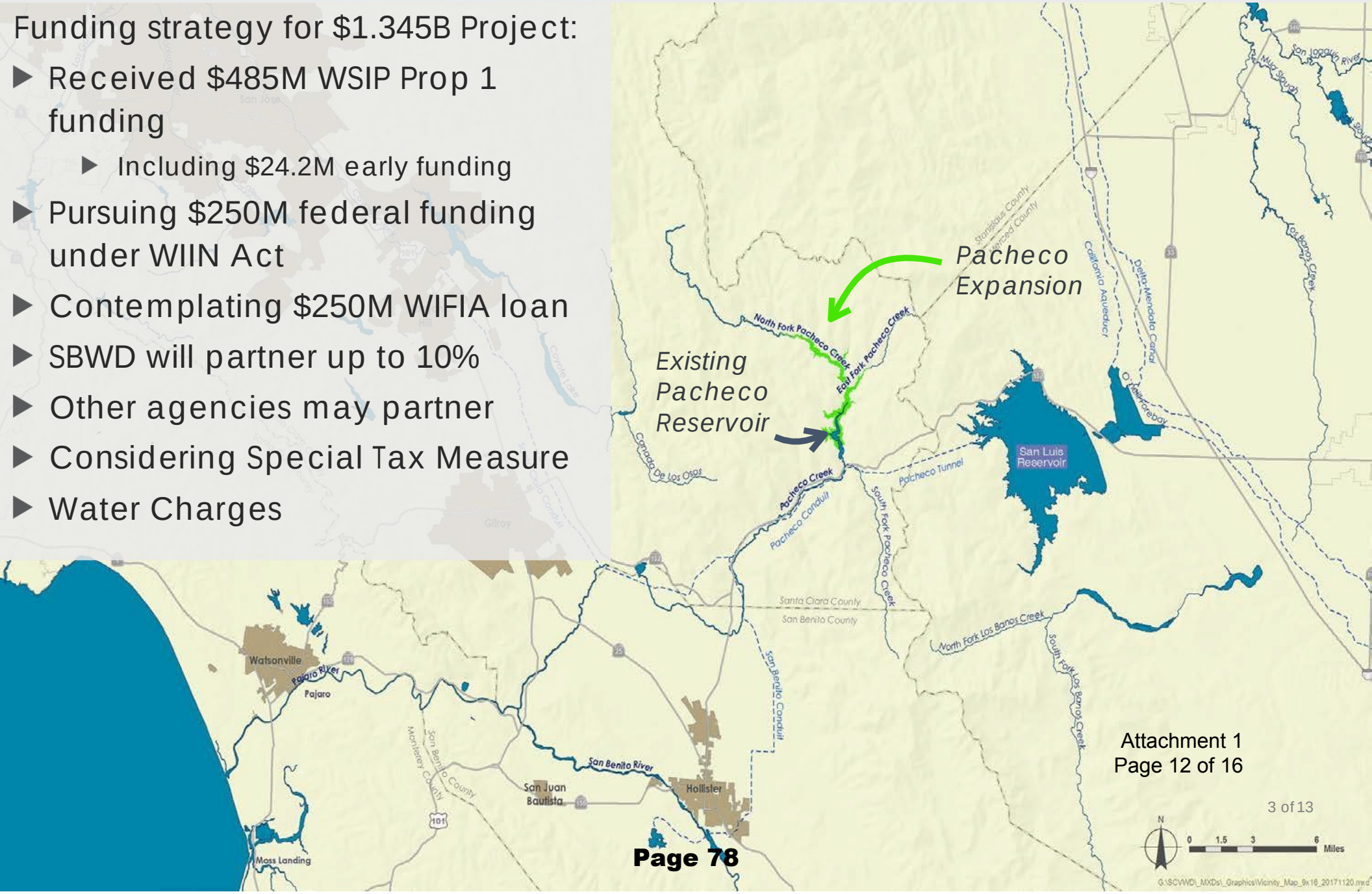
RWTP Reliability Improvements
($295 Million)

Expedited Purified Water Program
($650M via P3)

Key Water Supply Projects - Pacheco Reservoir

Funding strategy for $1.345B Project:

- Received $485M WSIP Prop 1 funding
  - Including $24.2M early funding
- Pursuing $250M federal funding under WIIN Act
- Contemplating $250M WIFIA loan
- SBWD will partner up to 10%
- Other agencies may partner
- Considering Special Tax Measure
- Water Charges



Attachment 1
Page 12 of 16

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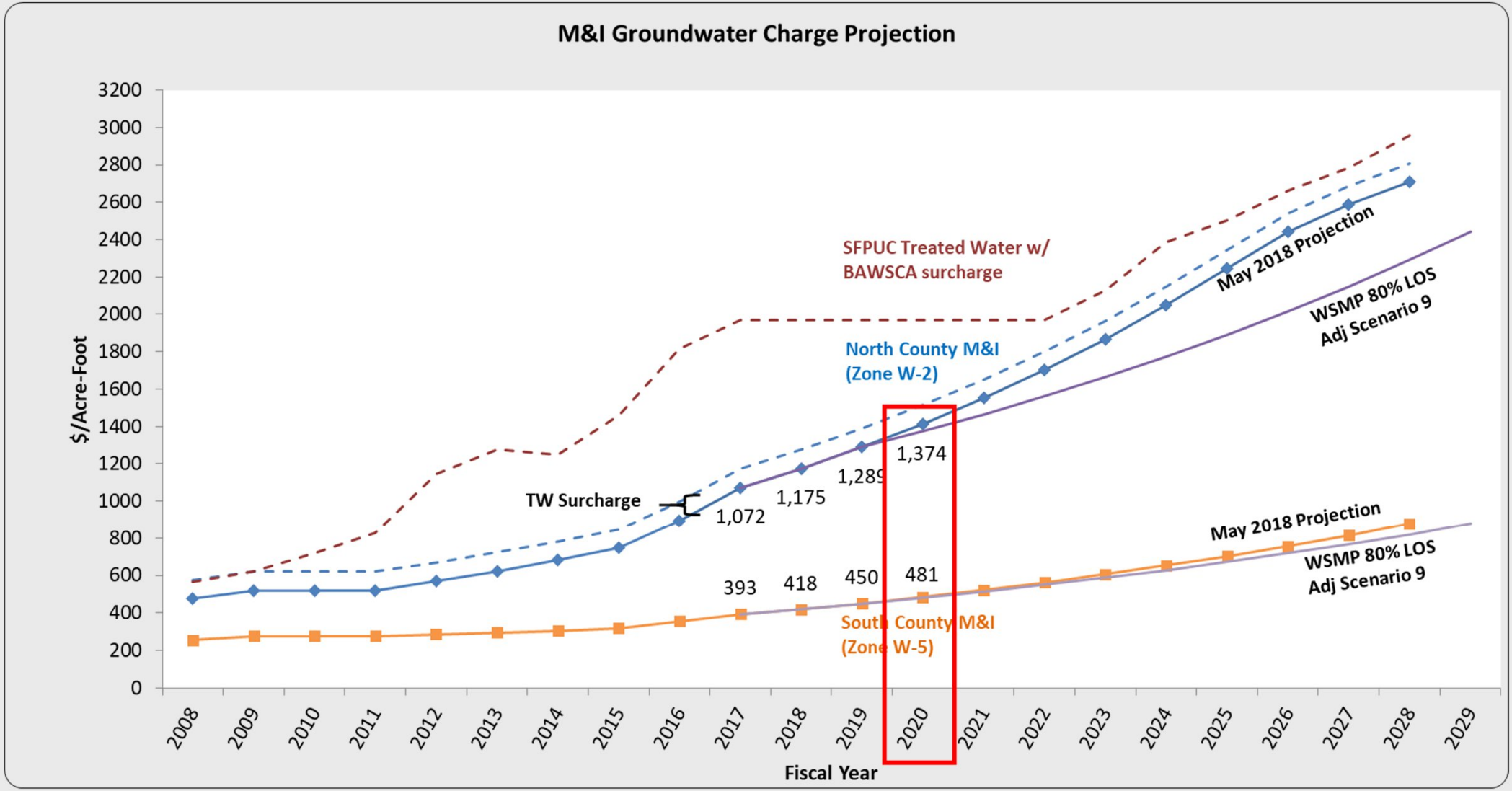
Groundwater Production Charge Projection

($ in millions)

Water Utility Enterprise Fund



Note: This projection does not account for impacts associated with the Bay Delta Water Quality Control Plan

Financial Analysis:
Water Supply Investment Scenarios

No. County M&I Groundwater Charge Y-Y Growth %

	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
May 2018	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	8.7%	5.9%	4.7%	
1) WSMP 90% LOS	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%
9) WSMP 80% LOS w/ Xfer Bethany + WIIN	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
9 Adj) WSMP 80% LOS w/ Xfer Bthny + WIIN	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%

So. County M&I Groundwater Charge Y-Y Growth %

	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
May 2018	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	
1) WSMP 90% LOS	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%
9) WSMP 80% LOS w/ Xfer Bethany + WIIN	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
9 Adj) WSMP 80% LOS w/ Xfer Bthny + WIIN	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%

Financial Analysis:
Water Supply Investment Scenarios

No. County Increase per Month per Avg Household*

	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
May 2018	$4.31	$4.72	$5.18	$5.68	$6.24	$6.84	$6.73	$4.96	$4.19	
1) WSMP 90% LOS	$3.60	$3.89	$4.20	$4.54	$4.91	$5.31	$5.74	$6.20	$6.71	$7.25
9) WSMP 80% LOS w/ Xfer Bethany + WIIN	$2.84	$3.02	$3.22	$3.42	$3.64	$3.87	$4.12	$4.39	$4.67	$4.97
9 Adj) WSMP 80% LOS w/ Xfer Bthny + WIIN	$2.93	$3.12	$3.33	$3.55	$3.78	$4.03	$4.30	$4.58	$4.89	$5.21

So. County Increase per Month per Avg Household*

	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
May 2018	$1.19	$1.29	$1.38	$1.49	$1.61	$1.73	$1.86	$2.01	$2.16	
1) WSMP 90% LOS	$1.19	$1.29	$1.38	$1.49	$1.61	$1.73	$1.86	$2.01	$2.16	$2.33
9) WSMP 80% LOS w/ Xfer Bethany + WIIN	$1.02	$1.09	$1.16	$1.24	$1.32	$1.41	$1.50	$1.60	$1.71	$1.82
9 Adj) WSMP 80% LOS w/ Xfer Bthny + WIIN	$1.07	$1.14	$1.22	$1.31	$1.40	$1.49	$1.60	$1.71	$1.82	$1.95

* Calculated based on groundwater production charge (assumes 1,500 cubic feet of water usage per month)

FY 2019-2020 Schedule

✓	Jan 8	Board Meeting: Preliminary Groundwater Charge Analysis
✓	Jan 16	Water Retailers Meeting: Preliminary Groundwater Charge Analysis
✓	Jan 23	Water Commission Meeting: Prelim Groundwater Charge Analysis
✓	Feb 12	Board Meeting: Review draft CIP & Budget development update
✓	Feb 22	Mail notice of public hearing and file PAWS report
✓	Mar 20	Water Retailers Meeting: FY 20 Groundwater Charge Recommendation
✓	Apr 2	Landscape Committee Meeting
✓	Apr 8	Ag Water Advisory Committee
✓	Apr 9	Open Public Hearing
✓	Apr 10	Water Commission Meeting
✓	Apr 11	Continue Public Hearing in South County
✓	Apr 23	Conclude Public Hearing
✓	Apr 24-26	Board Meeting: Budget work study session
	May 14	Adopt budget & groundwater production and other water charges

File No.: 19-0278

Agenda Date: 5/1/2019
Item No.: 4.3.

COMMITTEE AGENDA MEMORANDUM

Joint RWPAC with Cities of San Jose/Santa Clara/ TPAC

SUBJECT:
Update on Countywide Water Reuse Master Plan

RECOMMENDATION:
This is an information only item and no action is required.

SUMMARY:
This item provides an update on Santa Clara Valley Water District's (Valley Water's) Countywide Water Reuse Master Plan (Reuse Master Plan), an integral component of the Water Supply Master Plan which describes our strategy to provide a reliable and sustainable water supply.

The Reuse Master Plan aims to improve water supply reliability through water reuse for Santa Clara County (County) in collaboration with recycled water producers, wholesalers, retailers, users, and other interested parties. The Reuse Master Plan will identify: the volume of water available for potential potable reuse (PR) development and non-potable reuse (NPR) expansion; the optimal allocation between PR and NPR; options for system integration; recommendations for building upon NPR projects and potential new PR projects; and proposals for governance alternatives, including roles and responsibilities.

BACKGROUND:
Valley Water Board policy sets an objective to meet at least 10% of the County's total water demands using recycled and purified water. To achieve this objective, Valley Water is developing a Reuse Master Plan that will initially provide up to 24,000 acre feet per year of potable water reuse. The Reuse Master Plan builds upon existing planning studies (including the South Bay Water Recycling Strategic and Master Plan) by integrating information and evaluating the potential for collaboration. Studies and analysis are being developed into a series of technical memoranda (TMs), which will eventually be assembled into a final Reuse Master Plan. The Reuse Master Plan team has developed the following TMs as summarized below:

Project Definition, Roles and Responsibilities Technical Memorandum
This TM establishes the project purpose, describes roles and responsibilities of Valley Water and Partner Agencies, and provides a basis for subsequent deliverables.

Regulatory Framework Technical Memorandum
This TM provides a brief history and overview of water reuse policy in California, including relevant regulations, regulatory agencies' responsibilities, recycled water in the County and recycled water

regulatory structure. The Regulatory Framework TM will inform future decision making and permitting for Reuse Master Plan finalization and potential implementation.

Baseline Analysis Technical Memorandum
This TM describes the current state of water reuse in the County. Demand projections using 2015 Urban Water Management Plans as well as updates from Partner Agencies provide a basis for developing portfolios to meet future reuse demands. Valley Water analyzed these current and projected conditions at each of the four recycled water producers to calculate the volume of water available for future potable reuse. The Baseline Analysis TM will identify key countywide water reuse assumptions and existing conditions for the Reuse Master Plan to build upon.

Project Portfolio Development
This TM describes conceptual water reuse projects developed with stakeholders to achieve shared objectives of sustainable water supply. The process used to develop these potential projects included developing guiding principles with stakeholders, identifying project elements, and grouping elements into Portfolios. Based on Partner Agency feedback, Valley Water combined 18 potential project elements into five portfolios for further evaluation. These Portfolios may include a mix of potential projects, including some previously proposed projects (from recycled water master plans) and some new elements.

Direct Potable Reuse (DPR) Evaluation
Although regulatory framework for DPR is still under development by California regulators, individual case-by-case permitting is possible. In concept, DPR alternatives could utilize existing drinking water treatment and distribution systems and avoid the cost and environmental impact of constructing dedicated IPR facilities. In October 2018, the Project Partner Group expressed general support for potable reuse alternatives including DPR. Based on this discussion, additional consideration for DPR will be incorporated into the continuing Portfolio analysis

NEXT STEPS:
Leading to completion of the Reuse Master Plan, the highest ranked portfolios will be further refined with hydraulic modeling, cost analysis, and preliminary engineering (10% design). Other factors such as energy usage and greenhouse gas emissions will be considered to further evaluate the portfolios. Since each of the Portfolios identified will require reverse osmosis concentrate management, they will be further examined in Valley Water's Reverse Osmosis Concentrate Management Planning process, which is being developed in parallel with this Reuse Master Plan.

Additional feedback from stakeholders and Partner Agencies will help refine these portfolios. Additional meetings of the Stakeholder Task Force and Project Partner Group are planned throughout 2019 for this purpose. These meetings will allow the Partners to continue further evaluate and provide feedback regarding future opportunities for IPR and DPR expansion within their service areas. The Reuse Master Plan is anticipated to be completed by the end of 2019.

ATTACHMENTS:
Attachment 1: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Jerry De La Piedra, 408-630-2257

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Santa Clara Valley Water District

Countywide Water Reuse Master Plan Update

JOINT RECYCLED WATER POLICY ADVISORY COMMITTEE

May 1, 2019

Outline

1. Background and Purpose
2. Regulatory Framework
3. Baseline Analysis
4. Reuse Master Plan Next Steps

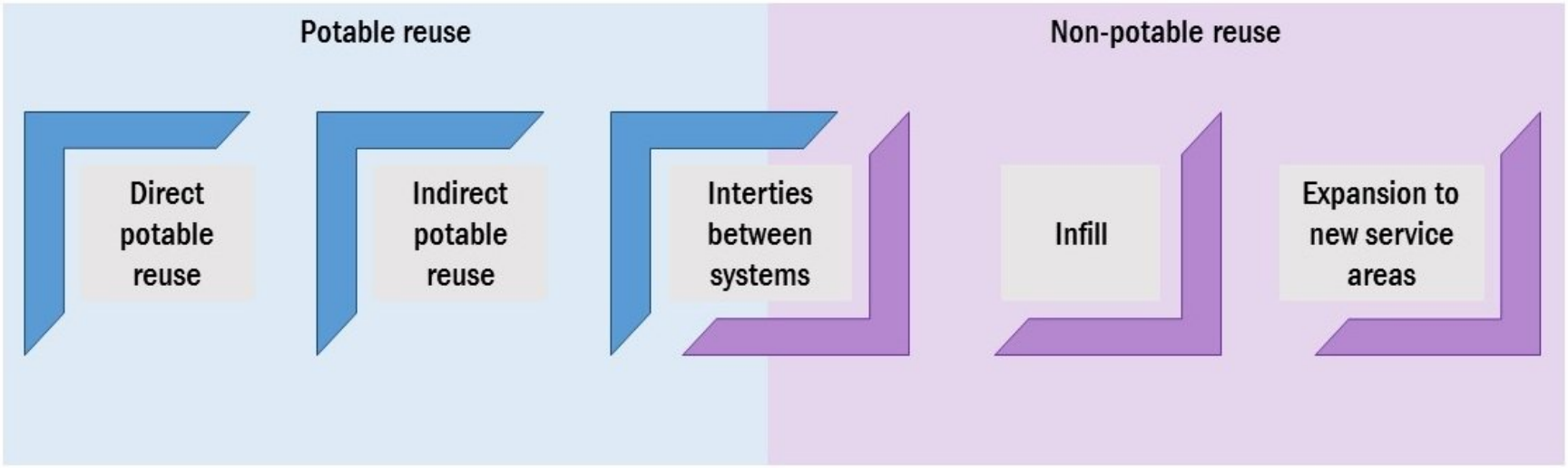
Drivers

- Fulfillment of District Ends Policies:
  - Meet 10% of County's total water demands using water reuse

- Alignment with Water Supply Master Plan update
  - Investment in water recycling (24,000 AFY of potable reuse)
  - Diversity of water supply alternatives (local control)
  - Meeting service area demands (resiliency during drought)

Purpose

Improve water supply reliability through water reuse in collaboration with multiple stakeholders.



Portfolios will reflect a combination of potable and non-potable reuse.

Objectives

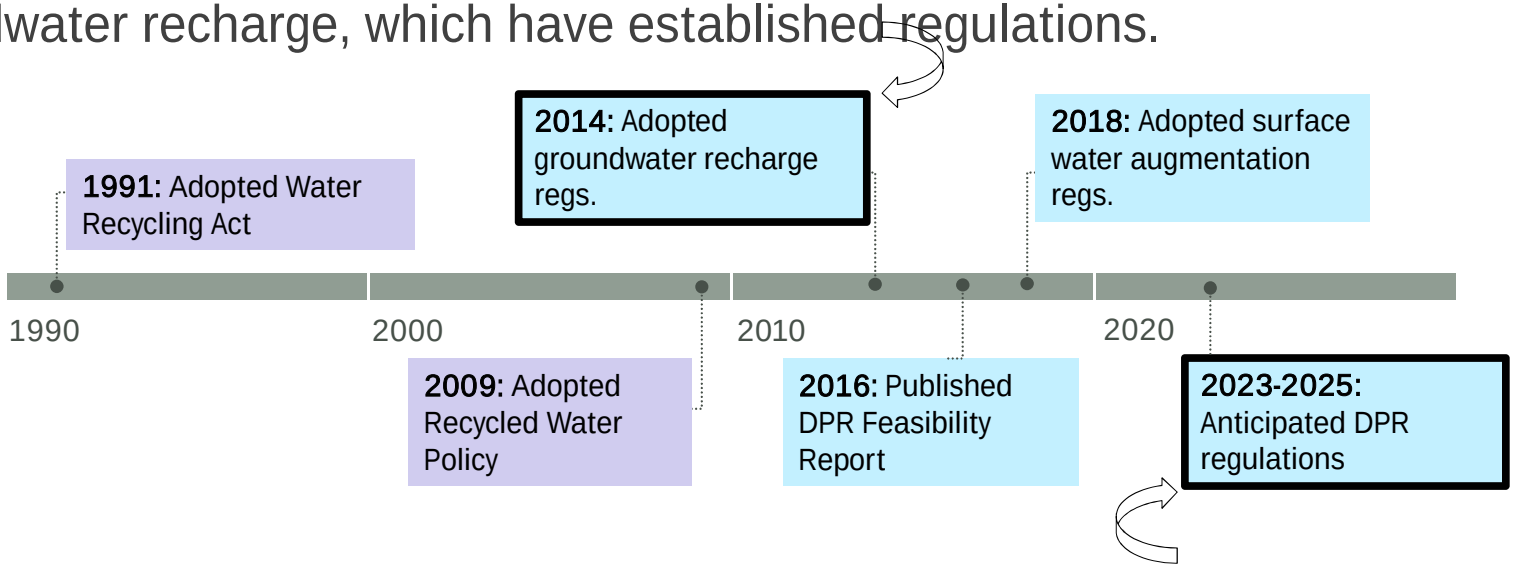
- Identify **water available** for PR and NPR
- Evaluate options for **system integration**
- Guide expansion via **interagency agreements** and **governance structures**
- Generate support by **engaging stakeholders**

Stakeholders at a 2018 meeting in District HQ

PR = Potable Reuse
NPR = Non-Potable Reuse

California Regulatory Framework

- Reuse Master Plan Concepts primarily consist of non-potable reuse expansion and groundwater recharge, which have established regulations.



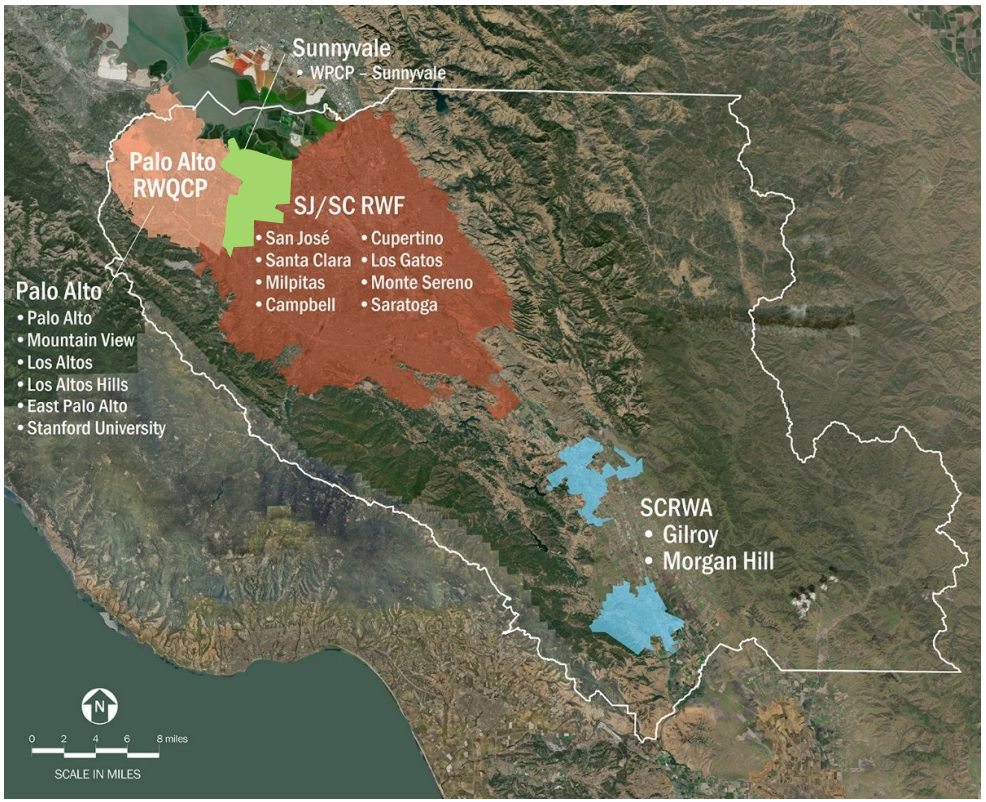
- Potential for direct potable reuse is also included. Regulations are under development.

Slide 6

JDLP8 update last bullet to be consistent with 2/26 ppt (portfolios instead of concepts)
Jerry De La Piedra, 3/27/2019

Potential Water Reuse Partners

- Palo Alto Regional Water Quality Control Plant (RWQCP)
- Sunnyvale Water Pollution Control Plant (WPCP)
- San José-Santa Clara Regional Wastewater Facility (SJ/SC RWF)
- South County Regional Wastewater Authority (SCRWA) WWTP



* Figure is for illustration purposes. Boundaries are not exact.

History of Water Reuse Collaboration – 50 Years

1970s

- District & Gilroy **Reclamation and Irrigation Project**
- District & Palo Alto **2 MGD Advanced Reclamation Plant**

1980s

- District and San José **Tertiary Recycled Water Study** for irrigation and industrial use

1990s

- District regional **Feasibility of Indirect Potable Reuse** study
- District provides **rebates** to Sunnyvale and San José for recycled water
- District partners with San José on planning of **SBWR**
- District & Gilroy **South County Integration Agreement**

2000s

- The District and San José sign the **Silver Creek and Integration Agreements**
- District and SCRWA completed **South County Recycled Water Master Plan**

2010s

- District and San José complete ***SBWR Strategic and Master Plan***
- The District approved **$5M** for the South County recycled water projects
- Grand opening of the **Silicon Valley Advanced Water Purification Center** in San José

Present

- The District has current **MOUs** with Sunnyvale, Palo Alto, Mountain View and SFPUC
- District & Sunnyvale **Wolfe Road Recycled Water Pipeline**
- **Countywide Water Reuse Master Plan**

*List is not comprehensive.

Stakeholder Engagement

32 meetings/workshops planned

Project Start
(Jan 2018)

Final Report
(Fall 2019)

Stakeholder Task Force
Representing interests/organizations:

- Business/economy
- Chambers of Commerce
- Planning
- Public policy
- Environment
- Environmental justice
- Medical community
- Diversity
- Stormwater
- Groundwater
- Ratepayers
- Other water and recycled water suppliers/agencies/organizations

Board of Directors

Board committees

- Recycled Water Committee (RWC) (District Board only)
- Joint Committees (District Board and Partner Agency city council members)

Executives

- One-on-one meetings
- Executive Leadership Group (ELG)

Staff

- Project Partner Group (PPG)

Regulators

Independent Advisory Panel (IAP)

Public

20+ meetings in 2018 with 50+ organizations

- 1 meeting of the Board of Directors (1/23/2018)
- 1 update to the District Board and Sunnyvale City Council (12/17/2018)
- 3 updates to the Recycled Water Committee
- 2 updates to the Joint Recycled Water Committee with City of Palo Alto
- 1 meeting of the Joint Water Resources Committee with Gilroy and Morgan Hill
- 1 meeting of the Joint Recycled Water Policy Advisory Committee with San José
- 4 meetings or conferences with the Project Partner Group
- 1 meeting of the Stakeholder Task Force
- 6 meetings one-on-one with agencies
- 2 meetings with water retailers

Planning Framework (developed through stakeholder process)

- Expand countywide reuse (NPR and/or PR) with Partner Agencies
- Develop 24,000 AFY of potable reuse supply
- Consider new projects and previously explored projects
- Leverage existing infrastructure where possible
- Reflect a combination of NPR and PR projects

Developing Portfolios

- Shared draft portfolios with stakeholders

- Next steps:
  - Estimate costs and impact to water rates/local economy
  - Develop reverse osmosis concentrate management plans

Next Steps for the Reuse Master Plan include:

1. Develop Portfolios (Winter 2018/2019)
2. Refine Portfolios (Spring 2019)
3. Draft Reuse Master Plan Report (Summer 2019)
4. Finalize Reuse Master Plan Report (Late 2019)

File No.: 19-0279

Agenda Date: 5/1/2019
Item No.: 4.4.

COMMITTEE AGENDA MEMORANDUM

Joint RWPAC with Cities of San Jose/Santa Clara/ TPAC

SUBJECT:
Proposed Operation and Maintenance Budgets FY19-20 -
A. Silicon Valley Advanced Water Purification Center Budget
B. South Bay Water Recycling Budget

RECOMMENDATION:
That the Joint Recycled Water Policy Advisory Committee make recommendations to the Board of Directors of the Santa Clara Valley Water District (Valley Water) and the City Council of the City of San José on their respective proposed budgets for the ensuing fiscal year for the maintenance, expansion, replacement, improvement, and operation of the South Bay Water Recycling system and the Silicon Valley Advanced Water Purification Center (Article 3.G.3 of Integration Agreement).

SUMMARY:
On March 2, 2010, the Recycled Water Facilities and Programs Integration Agreement (Integration Agreement) was executed between the City of San Jose and Valley Water.

The Integration Agreement outlines the terms of the operational support payments upon commencement of operation of the Silicon Valley Advanced Water Purification Center (SVAWPC) as well as the policy considerations for the recycled water produced and blended with the purified water distributed by the City of San José via the South Bay Water Recycling system (SBWR) and purified water produced by the SVAWPC.

The Integration Agreement also specifically requires that on an annual basis, before May 1 of each year, that the parties review the budgets of SBWR and SVAWPC and make recommendations to the Board of Directors of the Santa Clara Valley Water District and the City Council of the City of San José on their respective proposed budgets for the ensuing fiscal year for the maintenance, expansion, replacement, improvement, and operation of the SBWR and the SVAWPC (Article 3.G.3 of Integration Agreement).

The proposed fiscal year 19-20 budget for SBWR is $10,710,808 and for the SVAWPC is $5,233,608.

ATTACHMENTS:
Attachment 1: PowerPoint Presentation

UNCLASSIFIED MANAGER:

Jerry De La Piedra, 408-630-2257

4.4 Proposed O&M Budgets for SVAWPC and SBWR (FY 19-20)

SVAWPC O&M Highlights

- SVAWPC product water met all permit requirements

- SVAWPC reverse osmosis (RO) concentrate met all City
- requirements

- Valley Water continues to improve and optimize operations of SVAWPC:

  - Plant-scale RO membrane replacement
  - Pilot-scale RO chemical dose testing
  - Membrane cleaning study

SVAWPC Budget (FY18-20)

Description	FY18 Actual	FY19 Adopted	FY20 Proposed
Energy	$535,249	$629,000	$600,000
Chemicals	$387,400	$400,000	$400,000
Labor	$2,103,123	$2,172,875	$2,405,495
Other operations & maintenance (O&M) service & supplies	$616,698	$1,569,500	$1,010,500
Sinking fund expense (MF, RO, UV)	$0	-$840,000	$0
Capital project expenses	$0	$0	$817,613
Budgeted sinking fund for MF and RO membrane replacement	$0	$0	$0
Total O&M budget	$3,642,470	$3,931,375	$5,233,608

SBWR O&M Highlights

- SJ/SC RWF maintained 100% compliance with all NPDES effluent limitations
- SBWR replaced HVAC systems at Pump Station 5, Pump Station 8 / 11
- SBWR replaced 1,000 hp pump at TPS
- SBWR completed CT study, feasibility and engineering report in-progress

SBWR Budget (FY19-20)

Description	Actuals FY17-18[1]	Adopted FY18-19	Proposed FY19-20
Program Administration, Permitting and Compliance	$4,355,156	$5,316,322	$5,505,762
System Operations and Maintenance	$2,362,048	$3,141,072	$4,010,582 [3]
Capital Planning and Engineering (Studies)	$229,068	$227,655	$230,000
Communication and Outreach	$132	$17,000	$17,000
City of San José Overhead and Capitated Services	$722,432	$861,331	$947,464
TOTAL SBWR Operating Expenses	$7,668,836	$9,563,380	$10,710,808
SBWR Wholesale Recycled Water Sales	$11,210,872	$13,957,943	$15,221,585
City Net Operating Cost: (Savings)	-$3,542,036	-$4,394,563	-$4,510,777
City Net Operating Revenue	$3,542,036	$4,394,563	$4,510,777

SBWR Budget (FY19-20)

- [1]These are financial audited numbers for FY18.

- [2]FY20 proposed budget subject to San José City Council approval.

- [3]This includes valve exercising, Variable Frequency Drive replacement for the pumps, communication system upgrade, SBWR system hydraulic assessment, master meter and monitoring implementation, and routine preventative maintenance at pump stations, reservoirs, and distribution system.

Staff's Budget Recommendations

That the Joint Recycled Water Policy Advisory Committee recommends:

1. The San José City Council (SJCC) considers inputs provided by the Committee regarding the SBWR FY 19-20 Draft Budget; and

2. The Valley Water Board adopts the SVAWPC Proposed FY 19-20 Budget

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