

May 10, 2024

MEETING NOTICE
WATER SUPPLY AND DEMAND MANAGEMENT COMMITTEE

Members of the Water Supply and Demand Management Committee:

Nai Hsueh, Director District 5
Richard P. Santos, Director District 3
Barbara F. Keegan, Director District 2

Staff Support of the Water Supply and Demand Management Committee:

Rick L. Callender, Esq., Chief Executive Officer
Rita Chan, Acting Assistant Chief Executive Officer
Darin Taylor, Chief Financial Officer
Aaron Baker, Chief Operating Officer, Water Utility
Christopher Hakes, Chief Operating Officer, Watersheds
Rachael Gibson, Chief of External Affairs
J. Carlos Orellana, District Counsel
Joseph Aranda, Assistant District Counsel
Emmanuel Aryee, Deputy Operating Officer, Water Utility Capital Division
John Bourgeois, Deputy Operating Officer, Watershed Stewardship and Planning Division
Sam Bogale, Deputy Operating Officer, Treated Water Division
Vincent Gin, Deputy Operating Officer, Water Supply Division
Ryan McCarter, Deputy Operating Officer, Dam Safety & Capital Delivery Division
Gregory Williams, Deputy Operating Officer, Raw Water Division
Bart Broome, Assistant Officer, Office of Government Relations
Marta Lugo, Deputy Administrative Officer, Office of Government Relations
Kirsten Struve, Assistant Officer, Water Supply Division
Lisa Bankosh, Assistant Officer, Watershed Stewardship and Planning Division
Andrew Garcia, Assistant Officer, Dam Safety & Capital Delivery Division
Antonio Alfaro, Government Relations Advocate
Vanessa De La Piedra, Groundwater Management Manager
Metra Richert, Water Supply Planning & Conservation Unit Manager
Julianne O'Brien, Pacheco Project Manager
Carmen Narayanan, Financial Planning & Revenue Manager
Charlene Sun, Treasury and Debt Manager
Katherine Maher, Senior Engineer - Imported Water Engineering
Victor Gutierrez, Senior Engineer - Contract Management
Samantha Greene, Senior Water Resources Specialist
Sarah Piramoon, Senior Water Resources Specialist
Jing Wu, Senior Water Resources Specialist
Dana Jacobson, Senior Water Conservation Specialist
Steve Peters, Senior Management Analyst
Karen Adriano, Staff Analyst
Alina Hare, Staff Analyst

The regular meeting of the Water Supply and Demand Management Committee is scheduled to occur on Friday, May 17, 2024 in the Headquarters Building Boardroom located at the Santa Clara Valley Water District, 5700 Almaden Expressway, San Jose, California.

The meeting agenda and corresponding materials are located on our website:

<https://www.valleywater.org/how-we-operate/committees/board-advisory-committees>



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Santa Clara Valley Water District Water Supply and Demand Management Committee Meeting

Headquarters Building Boardroom
5700 Almaden Expressway, San Jose, CA 95118

Join Zoom Meeting:
<https://valleywater.zoom.us/s/92597340524>

REGULAR MEETING AGENDA

**Friday, May 17, 2024
11:00 AM**

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

Water Supply and Demand Management Committee

Dir. Richard P. Santos, Chairperson
(District 3)

Dir. Barbara F. Keegan, Vice Chairperson
(District 2)

Director Nai Hsueh, Member
(District 5)

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.

Vincent Gin,
Ryan McCarter,
Kirsten Struve
(Staff Liaisons)
Stephanie Simunic
Assistant Deputy Clerk II
Office/Clerk of the Board
(408) 630-2408
ssimunic@valleywater.org

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
Water Supply and Demand Management Committee
REGULAR MEETING
AGENDA

Friday, May 17, 2024

11:00 AM

Headquarters Building Boardroom
5700 Almaden Expressway,
San Jose, CA 95118
Join Zoom Meeting
<https://valleywater.zoom.us/s/92597340524>

*****IMPORTANT NOTICES AND PARTICIPATION INSTRUCTIONS*****

Santa Clara Valley Water District (Valley Water) Board of Directors/Board Committee meetings are held as a “hybrid” meetings, conducted in-person as well as by telecommunication, and is compliant with the provisions of the Ralph M. Brown Act.

To maximize public safety while still maintaining transparency and public access, members of the public have an option to participate by teleconference/video conference or attend in-person. To observe and participate in the meeting by teleconference/video conference, please see the meeting link located at the top of the agenda. If attending in-person, you are required to comply with **Ordinance 22-03 - AN ORDINANCE OF THE SANTA CLARA VALLEY WATER DISTRICT SPECIFYING RULES OF DECORUM FOR PARTICIPATION IN BOARD AND COMMITTEE MEETINGS** located at <https://s3.us-west-2.amazonaws.com/valleywater.org;if-us-west-2/f2-live/s3fs-public/Ord.pdf>

In accordance with the requirements of Gov. Code Section 54954.3(a), members of the public wishing to address the Board/Committee during public comment or on any item listed on the agenda, may do so by filling out a Speaker Card and submitting it to the Clerk or using the Raise Hand tool located in the Zoom meeting application to identify yourself in order to speak, at the time the item is called. Speakers will be acknowledged by the Board Chair in the order requests are received and granted speaking access to address the Board.

- Members of the Public may test their connection to Zoom Meetings at: <https://zoom.us/test>
- Members of the Public are encouraged to review our overview on joining Valley Water Board Meetings at: <https://www.youtube.com/watch?v=TojJpYCxXm0>

Valley Water, in complying with the Americans with Disabilities Act (ADA), requests individuals who require special accommodations to access and/or participate in Valley Water Board of Directors/Board Committee meetings to please contact the Clerk of the Board's office at (408) 630-2711, at least 3 business days before the scheduled meeting to ensure that Valley Water may assist you.

This agenda has been prepared as required by the applicable laws of the State of California, including but not limited to, Government Code Sections 54950 et. seq. and has not been prepared with a view to informing an investment decision in any of Valley Water's bonds, notes or other obligations. Any projections, plans or other forward-looking statements included in

the information in this agenda are subject to a variety of uncertainties that could cause any actual plans or results to differ materially from any such statement. The information herein is not intended to be used by investors or potential investors in considering the purchase or sale of Valley Water's bonds, notes or other obligations and investors and potential investors should rely only on information filed by Valley Water on the Municipal Securities Rulemaking Board's Electronic Municipal Market Access System for municipal securities disclosures and Valley Water's Investor Relations website, maintained on the World Wide Web at <https://emma.msrb.org/> and <https://www.valleywater.org/how-we-operate/financebudget/investor-relations>, respectively.

Under the Brown Act, members of the public are not required to provide identifying information in order to attend public meetings. Through the link below, the Zoom webinar program requests entry of a name and email address, and Valley Water is unable to modify this requirement. Members of the public not wishing to provide such identifying information are encouraged to enter "Anonymous" or some other reference under name and to enter a fictional email address (e.g., attendee@valleywater.org) in lieu of their actual address. Inputting such values will not impact your ability to access the meeting through Zoom.

Join Zoom Meeting:

<https://valleywater.zoom.us/j/92597340524>

Meeting ID: 925 9734 0524

Join by Phone:

1 (669) 900-9128, 92597340524#

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: Members of the public who wish to address the Board/Committee on any item not listed on the agenda may do so by filling out a Speaker Card and submitting it to the Clerk or using the "Raise Hand" tool located in the Zoom meeting application to identify yourself to speak. Speakers will be acknowledged by the Board/Committee Chair in the order requests are received and granted speaking access to address the Board/Committee. Speakers' comments should be limited to three minutes or as set by the Chair. The law does not permit Board/Committee action on, or extended discussion of, any item not on the agenda except under special circumstances. If Board/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 Board/Committee may take action on any item of business appearing on the posted agenda.

3. APPROVAL OF MINUTES:

3.1. Approval of April 22, 2024 Water Supply and Demand Management Committee (WSDMC) Minutes. [24-0458](#)

Recommendation: Approve the minutes.
Manager: Candice Kwok-Smith, 408-630-3193
Attachments: [Attachment 1: 042224 WSDMC Minutes](#)
Est. Staff Time: 5 Minutes

4. REGULAR AGENDA:

4.1. Review Potential Water Conservation Targets for Inclusion in the 2050 Water Supply Master Plan; and Recommend to the Santa Clara Valley Water District Board the 126,000 Acre Feet per Year (AFY) (Option B) Water Conservation Goal by 2050 for Inclusion in the Water Supply Master Plan 2050. [24-0448](#)

Recommendation: Recommend to Santa Clara Valley Water District Board the 126,000 Acre Feet per Year (Option B) water conservation goal by 2050 for inclusion in the Water Supply Master Plan 2050.
Manager: Kirsten Struve, 408-630-3138
Attachments: [Attachment 1: PowerPoint](#)
[Attachment 2: 2050 Master Plan Potential Svngs. Goal Memo](#)
[Attachment 3: 2050 Mstr. Pln. Conserv. Meas. Dtls. & Portfs.](#)
[Attachment 4: Link to 2021 Water Conserv. Strategic Plan](#)
Est. Staff Time: 15 Minutes

4.2. Receive Information on the Creation of a Demonstration Garden Featuring Santa Clara Valley Water District's Landscape Rebate Program. [24-0449](#)

Recommendation: Receive information and provide input to staff about the creation of a Demonstration Garden featuring Santa Clara Valley Water District's Landscape Rebate Program.
Manager: Kirsten Struve, 408-630-3138
Attachments: [Attachment 1: PowerPoint](#)
Est. Staff Time: 5 Minutes

4.3. Receive Information on the Water Use Projections, Water Demand Elasticity and Customer Affordability Study and Provide Feedback and Direction to Staff as Necessary. 24-0451

Recommendation: Receive information on the Water Use Projections, Water Demand Elasticity and Customer Affordability Study (Study) and:

- A. Review the Study scope and objectives as identified, and;
- B. Provide feedback and recommendations to staff as necessary.

Manager: Darin Taylor, 408-630-3068

Attachments: [Attachment 1: PowerPoint](#)

Est. Staff Time: 10 Minutes

4.4. Receive Update and Discuss the Water Conservation Program Savings Number for Fiscal Year (FY) 2023. 24-0450

Recommendation: Receive update and discuss the water conservation program savings number for Fiscal Year (FY) 2023.

Manager: Kirsten Struve, 408-630-3138

Attachments: [Attachment 1: PowerPoint](#)
[Attachment 2: Water Conservation Program Flyer](#)
[Attachment 3: Link to 2021 Water Conservation Strategic Plan](#)

Est. Staff Time: 10 Minutes

4.5. Receive an Informational Update on Costs Associated with the Pacheco Reservoir Expansion Project. 24-0446

Recommendation: Receive an informational update on costs associated with the Pacheco Reservoir Expansion Project.

Manager: Ryan McCarter, 408-630-2983

Attachments: [Attachment 1: PowerPoint](#)

Est. Staff Time: 30 Minutes

4.6. Review and Discuss the Water Supply and Demand Management Committee (WSDMC) Work Plan, Upcoming Discussion Items, and the Committee's Next Meeting Date/Schedule. 24-0452

Recommendation: Review and provide feedback on the WSDMC Work Plan, upcoming discussion items, and the Committee's next meeting date/schedule.

Manager: Candice Kwok-Smith, 408-630-3193.

Attachments: [Attachment 1: 2024 Prop. WSDMC Workplan](#)

Est. Staff Time: 5 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/Special Meeting at TBD per Committee.



Santa Clara Valley Water District

File No.: 24-0458

Agenda Date: 5/17/2024

Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Approval of April 22, 2024 Water Supply and Demand Management Committee (WSDMC) Minutes.

RECOMMENDATION:

Approve the 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.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

The approval of minutes is not subject to environmental justice analysis.

ATTACHMENTS:

Attachment 1: 042224 WSDMC Minutes

UNCLASSIFIED MANAGER:

Candice Kwok-Smith, 408-630-3193

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For full meeting record, please review meeting videos at:
<https://www.valleywater.org/how-we-operate/committees/board-committees>

WATER SUPPLY AND DEMAND
MANAGEMENT COMMITTEE MEETING

DRAFT MINUTES

SPECIAL MEETING
MONDAY, APRIL 22, 2024
1:00 PM

(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER:

A special meeting of the Santa Clara Valley Water District (Valley Water) Water Supply and Demand Management Committee (Committee) was called to order in the Valley Water Headquarters Building Boardroom at 5700 Almaden Expressway, San Jose, California, and by Zoom teleconference, at 1:00 p.m.

1.1. Roll Call.

Committee members in attendance were District 2 Director Barbara Keegan, District 3 Director Richard Santos, and District 5 Director Nai Hsueh, constituting a quorum of the Committee.

Staff members in attendance were: Gina Adriano, Joseph Aranda, Aaron Baker, Erin Baker, Audrey Beaman, Wade Blackard, Sam Bogale, Rick L. Callender, Enrique De Anda, Vanessa De La Piedra, Jiana Escobar, Alicia Fraumeni, Vincent Gin, Jaeho Hahn, Katrina Holden, Cody Houston, Candice Kwok-Smith, Peggy Lam, Dave Leon, Ryan McCarter, Patrice McElroy, Nicole Merritt, Julianne O'Brien, Carlos Orellana, Mike Potter, Charlotte Reinthaler, Kristie Resendez, Metra Richert, Don Rocha, Breanne Roderick, Miguel Silva, Stephanie Simunic, Kirsten Struve, Charlene Sun, Darin Taylor, Odilia Teixeira, Cheryl Togami, Gregory Williams.

Public in attendance were: Valley Water Director Rebecca Eisenberg, Diane Asuncion (City of Santa Clara), Ros "Roz" Beckensten, Sarah Clark (Carollo), Chris Cleveland, Kurt Elvert and John Tang (San Jose Water), Helen H., Katja Irvin and Molly Culton (Sierra Club), Forest Olaf Peterson, and Julia Nussbaum (Stanford University), XXX-XXX-8214.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON THE AGENDA:

Director Hsueh declared time open for public comment on any item not on the agenda. There was no one who wished to speak.

Attachment 1

Page 1 of 4

2.1 Election of 2024 Water Supply and Demand Management Committee (WSDMC) Chairperson and Vice Chairperson.

Recommendation: Nominate and elect the 2024 WSDMC Chairperson and Vice Chairperson.

The Committee considered this Item without a staff presentation.

Public Comments:

None.

It was moved by Director Hsueh and seconded by Director Santos and unanimously carried to elect Director Santos as the 2024 Chairperson and Director Keegan as the 2024 Vice Chairperson.

3. APPROVAL OF MINUTES:

3.1 Approval of December 8, 2023 Water Storage Exploratory Committee Minutes (WSEC) and January 29, 2024 Water Conservation and Demand Management (WCaDM) Minutes.

Recommendation: Approve the minutes.

The Committee considered the minutes of the December 8, 2023 WSEC and the January 29, 2024 WCaDM Minutes.

Public Comments:

None.

It was moved by Director Hsueh, seconded by Chairperson Santos, and unanimously carried, to approve the January 29, 2024 WCaDM minutes.

It was moved by Director Hsueh, seconded by Chairperson Santos, and was carried by majority vote, that the WSEC minutes be approved. Vice Chairperson Keegan abstained from the vote.

4. REGULAR AGENDA:

4.1 Approve the Proposed Water Supply and Demand Management Committee (WSDMC) Purpose and Review and Provide Feedback on the WSDMC Work Plan, Upcoming Discussion Items, and the Committee's Next Meeting Date/Schedule.

Recommendation: Approve the proposed WSDMC purpose; and review and provide feedback on the WSDMC Work Plan, upcoming discussion items, and the Committee's next meeting date/schedule.

The Committee considered this Item without a staff presentation.

Kirsten Struve, Darin Taylor, Aaron Baker, Ryan McCarter and Metra Richert were available to answer questions.

Vice Chairperson Keegan suggested adding water conservation to the Committee purpose as it is not included in the new Committee name.

It was moved by Vice Chairperson Keegan, and seconded by Chairperson Santos, and unanimously carried to approve the proposed WSDMC purpose with the amendment to include water conservation.

The amended WSDMC purpose reads as follows: The Water Supply and Demand Management Committee was established to support the Board of Directors in achieving its policy to provide a reliable water supply to meet current and future water usage. The Committee will support the Board by making policy recommendations, receiving reports, and discussing information related to demand management, including water conservation, Sustainable Groundwater Management Act (SGMA) items, and additional water storage options. The Committee representatives may assist their respective Board of Directors on policies and actions related to these matters.

Public Comments:

Katja Irvin expressed disappointment regarding certain agenda items not being present on the new combined Committee work plan and suggested including the additional items to confirm the new Committee scope.

Kirsten Struve confirmed the agenda items noted by Katja Irvin were originally included in the new combined Committee Work Plan, but were mistakenly cut off from the agenda packet or are incorporated under one of the existing agenda items.

Copies of the complete Committee Work Plan, identified as Handout 4.1-A were distributed to the Committee and made available to the public.

Darin Taylor noted that the Committee may desire to invite the consultant to the upcoming May 2024 meeting to discuss water use projection, demand elasticity, and water rate affordability to discuss the scope and deliverables of the project.

The Committee noted support for regular monthly meetings to occur before 1:00 p.m. and to avoid meetings on Mondays.

In response to an inquiry from Director Keegan relating to future key items for the Committee, Aaron Baker noted storage at the Los Vaqueros Reservoir Expansion Project and the B.F. Sisk Dam Raise and Reservoir Expansion Project, the Pacheco Reservoir Expansion Project, demand elasticity, and continued conservation efforts.

The Committee noted support for the potential for a general stand-alone agenda item for water storage projects to address permitting strategies and inquiries from the public regarding project delays or cost increases.

Kirsten Struve stated that the next meeting topics will be a water conservation update, the demonstration garden, an affordability discussion, long term goals, and the Pacheco Reservoir Expansion Project.

Vice Chairperson Keegan acknowledged receipt of a complaint from the public regarding individual condominium submeter charges and noted support for staff reaching out for follow up.

Aaron Baker noted that water retailers generally charge per the common areas and can vary upon the condominium developer and city requirements.

Metra Richert offered to check the Model Water Efficient New Development Ordinance for any language that might encourage individual meters and provide that information to the Committee.

Additional Public Comments:

John Tang confirmed that California Senate Bill 7 requires water meters to be installed in apartments in rental housing buildings constructed after January 1, 2018, and are managed by the owner of the building and not the water retailer.

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.

Nicole Merritt confirmed the Committee elected Director Santos as Chairperson and Director Keegan as Vice Chairperson under Item 2.1; the Committee reviewed and provided feedback relating to the workplan and approved the amended Committee purpose under Item 4.1; confirmed the next meeting will be scheduled through the Board Scheduler, and introduced Stephanie Simunic as the assigned WSDMC Committee Clerk support.

6. Adjourn:

6.1. Adjourn to Regular Meeting/Special Meeting at TBD per Committee.

Chairperson Santos adjourned the meeting at 1:24 p.m., to a subsequently scheduled regular meeting on May 17, 2024 at 11:00 a.m. through the Board Scheduler.

Stephanie Simunic
Assistant Deputy Clerk II

Date Approved:



Santa Clara Valley Water District

File No.: 24-0448

Agenda Date: 5/17/2024

Item No.: 4.1.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Review Potential Water Conservation Targets for Inclusion in the 2050 Water Supply Master Plan; and Recommend to the Santa Clara Valley Water District Board the 126,000 Acre Feet per Year (AFY) (Option B) Water Conservation Goal by 2050 for Inclusion in the Water Supply Master Plan 2050.

RECOMMENDATION:

Recommend to Santa Clara Valley Water District Board the 126,000 Acre Feet per Year (Option B) water conservation goal by 2050 for inclusion in the Water Supply Master Plan 2050.

SUMMARY:

Santa Clara Valley Water District (Valley Water) is the primary water resources agency in Santa Clara County, California, and serves about 2 million residents, primarily through 13 water retailers. Valley Water has been providing water conservation programs to its retail agencies' customers since 1992 and offers over 20 programs to reach all customer sectors to achieve the Valley Water Board of Directors (Board) long-term 2030 and 2040 water conservation goals. The Water Supply and Demand Management Committee (formed by merging the Water Conservation and Demand Management Committee and Water Storage Exploratory Committee (Committee)) and the Board monitor progress on achieving conservation goals. Additionally, the Water Supply Master Plan (Master Plan) which includes the conservation goals is updated every five (5) years and has an annual Monitoring and Assessment Program (MAP) report that presents progress on meeting the conservation goal. Through the Master Plan and MAP updates, the Committee and Board can modify the goals as new technologies, regulations, and trends become available or enacted.

Valley Water is currently developing its Master Plan 2050 and seeks to identify new 2050 conservation goals for inclusion in the Master Plan. Staff are presenting three options to achieve additional savings beyond Valley Water's 2040 conservation goal of 110 thousand acre-feet a year (TAFY). Three (3) potential 2050 Conservation Goals (2050 Goals), the menu of conservation programs, and the cost-effectiveness of achieving the portfolios being considered were presented at the December 2023 and January 2024 Committee meetings. At the January 2024 meeting, the

Committee requested a report back with additional comprehensive rationale presented for Board analysis including further details of comparisons with other similar agencies, current water conservation performance indicators, and the implementation of option strategies. This memorandum includes these additional details.

Goal Development Approach

Valley Water developed three 2050 Goals by evaluating its current program, potential future programs, and peer agency programs. The evaluation of current and potential future program offerings included estimated water savings, estimated community interest, implementability, cost effectiveness, and support for retailers in achieving State regulations. Staff also reviewed peer agency programs to see if there are applicable programs that Valley Water has not yet evaluated. In general, staff found that the number and variety of Valley Water's programs are equal or exceed our peer agency programs, but plan on completing a more detailed benchmarking study of the conservation programs at peer agencies over the next year.

Valley Water offers a comprehensive set of over 20 programs that help all sectors (e.g., residential, agricultural, commercial, industrial, and institutional) reduce their water use and most are cost effective and/or provide important community education about water use and conservation. The current conservation program costs approximately \$600/AF. However, certain programs could be expanded or added in the future if Valley Water increases investment in conservation.

The three 2050 Goals summarized in the next section offer different options for investing in water conservation through 2050. As the conservation goal increases, the cost increases, staffing needs increase, and implementability will likely become more difficult. Implementability may become more difficult because Santa Clara County is relatively efficient, so it may be necessary to engage new customers and install new water-saving technology. Our retail customer average residential gallons per capita per day (GPCD) in the county during non-drought conditions (using years 2018-2020) ranges between approximately 71-74. In comparison, average statewide residential GPCD during the same period was between 85-93. Therefore, Santa Clara County is approximately 20% more efficient than the State of California on average and is in the top 10 of most efficient counties. During drought, additional water use reduction calls may also become more challenging as our community becomes more efficient which could impact meeting Valley Water's Level of Service goal.

Valley Water also considered expected future water use regulations when designing the 2050 Goal options. Per Senate Bill 1157 (SB 1157), the State developed indoor residential water use limits of 42 GPCD starting in 2030. Valley Water estimates that indoor residential water use accounts for approximately 50% of all residential water use. Most of our retailers' customers already achieve the SB 1157 water use limits, although some retailers will need to work with their customers to reduce their water use to meet SB 1157. Each of the three 2050 Goals presented in the next section will help all of Santa Clara County to meet or continue meeting the SB 1157 water use limits.

Potential Conservation Savings Goals

The potential 2050 Goals would be fulfilled by leaning into Valley Water's existing program while still providing flexibility to enhance existing and add new programs. Three (3) potential 2050 Goals and

unit costs have been identified and are described below:

1. Option A Savings Goal - 119 TAFY by 2050. This goal increases annual water savings by 10 TAFY above the 2040 goal. To achieve the increased savings, Valley Water would continue to offer the existing suite of programs but expand the reach of the programs to access more customers. This option acknowledges that current Valley Water programs are cost effective and provide water saving options to a wide range of users. This goal will cost the least, at approximately \$1,230/acre-foot in 2023 dollars, while still providing additional conservation. However, this goal will not capitalize on proposed new cost-effective programs or incentives.
2. Option B Savings Goal - 126 TAFY by 2050. This goal increases annual water savings by 17 TAFY above the 2040 goal. To achieve the increased savings, Valley Water would need to significantly expand the reach of its current programs and add a leak assistance program. This would require additional conservation investment and increased staffing. To achieve this goal, Valley Water will need to increase annual average active water savings to 14 TAFY from 11 TAFY, which is equivalent to the water savings rate achieved during droughts when messaging and public awareness is at its greatest. Expanding the reach of existing programs and adding new programs will result in a total cost of \$1,338/acre-foot in 2023 dollars. While this goal will require more investment than Option A, it does allow Valley Water to stay at the forefront of conservation by offering new innovative programs and technologies to Santa Clara County residents. With sufficient investment and retail agency outreach support, Valley Water could likely achieve Option B by 2050.
3. Option C Savings Goal - 133 TAFY by 2050. This goal increases annual water savings by 24 TAFY above the 2040 goal. To achieve the increased savings, Valley Water would need to do everything proposed in Option B while also reducing outdoor water use by an additional 25% compared to the 2020 estimated outdoor water use, expanding program offerings, and increasing staffing beyond that needed in Option B. While this option is technically feasible, its implementation would require significant expansion of our landscape rebate program and strong support from our retailers to encourage customer participation. Local ordinances that outlaw watering front yard lawns could help support this savings goal option, but Valley Water understands the significant difficulty and uncertainty involved in working with cities to implement such ordinances. Valley Water estimates that the effort involved to achieve Option C would cost \$1,690/acre-foot.

Figure 1 summarizes the: (1) passive savings achieved as of 2020 within the Valley Water service area, (2) the active savings from past implementation as of 2020, (3) projected additional passive savings estimated to occur in the future, and (4) the additional active savings to be achieved from program implementation that would be required to achieve the potential 2050 Goals.

Figure 1. Potential 2050 Conservation Savings Goals - Active and Passive Savings



Staff Recommendation

Staff recommends the Committee recommend Option B as the 2050 Water Conservation Goal for Board adoption. Option B provides Valley Water an ambitious but implementable goal that will ensure Santa Clara County is a leader in conservation, ensure we use our water supplies wisely, and balances affordability concerns.

While Option A is the lowest cost alternative, based on the committee feedback so far, staff recommends choosing a more aggressive goal. By going with Option A, Valley Water may have to invest in additional expensive supply and storage projects in lieu of the additional savings that could be achieved with Option B. While Option B would require increasing participation by approximately 200%, which in turn will require additional staffing and funding resources, staff are confident that Valley Water can achieve Option B.

Option C would require significant investment to expand staff resources and program offerings. Even with the expanded funding, achieving Option C would still be very difficult and require significant support from our partner agencies. While technically feasible, there is uncertainty as to whether it could be achieved by 2050. If Valley Water chooses Option C, it may risk under-investing in other new supplies and storage if meeting the goal gets delayed and will also affect revenues.

To summarize, selecting Option B:

- 1) Is feasible

- 2) Balances costs with benefits
- 3) Reduces need to invest in additional new supplies and/or storage
- 4) Makes "Conservation a Way of Life" in Santa Clara County
- 5) Allows Valley Water to stay at the forefront of conservation

The long-term water conservation goals (i.e., 2030, 2040, and 2050) are monitored annually by the Committee and the Board as part of the long-term water conservation progress update and the Master Plan Monitoring and Assessment Program (MAP) update. Additionally, the Master Plan, including conservation goals, is updated every five (5) years. Through MAP and the Master Plan updates, the Committee and Board can modify the goals as new technologies, regulations, and trends become available or enacted. Therefore, staff think that Option B is an aggressive, achievable and productive goal, and that Valley Water has processes in place that can allow the Board to increase the goal if new technologies or regulations become available.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

Environmental justice and equity impact on EJ population are expected/likely to result from the implementation of the water conservation program to achieve 2050 Goals. The recommendation of Option B was selected to balance cost and benefit; the benefits and the impact/mitigation strategies on disadvantaged communities are discussed in greater detail below.

Water conservation offers a range of environmental justice benefits by promoting equitable access to clean water, reducing pollution, protecting ecosystems, mitigating climate change, saving costs for vulnerable communities, enhancing drought resilience, and empowering residents with knowledge and skills for sustainable water use. Valley Water provides such water conservation information in multiple languages and via various outreach techniques to reach all members of our community. Valley Water acknowledges that during drought, disadvantaged communities may be disproportionately impacted. To address these impacts, Valley Water promotes access to equitable and affordable water supplies (Water Supply Goal 2.6). Valley Water offers specific programs, such as the Lawn Busters program to provide water-efficient landscapes to low-income, elderly, disabled, or veteran homeowners and schools within disadvantaged communities.

ATTACHMENTS:

- Attachment 1: PowerPoint
- Attachment 2: 2050 Master Plan Potential Savings Goal Memo.
- Attachment 3: 2050 Mstr. Pln. Conserv. Measure Dtls. & Portfolios
- Attachment 4: Link to 2021 Water Conservation Strategic Plan

UNCLASSIFIED MANAGER:

Kirsten Struve, 408-630-3138

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Potential Water Conservation Targets for inclusion in 2050 Water Supply Master Plan

Water Supply and Demand Management Committee, May 17, 2024

Presented by: **Metra Richert**, Water Supply Planning & Conservation Manager

Water Supply Master Plan Background

Guiding document for long-term water supply investments

Major update every five years

Current Goals: 99 TAFY by 2030 and 110 TAFY by 2040

Develop 2050 Conservation Targets

Program to Meet 2030-2040 Goals

>20 programs across all sectors

Cost-effective water savings (e.g., landscape rebate program)

Community education

Costs <\$600/Acre-foot

Program expansion needed to meet a 2050 goal

2050 Conservation Goal Development

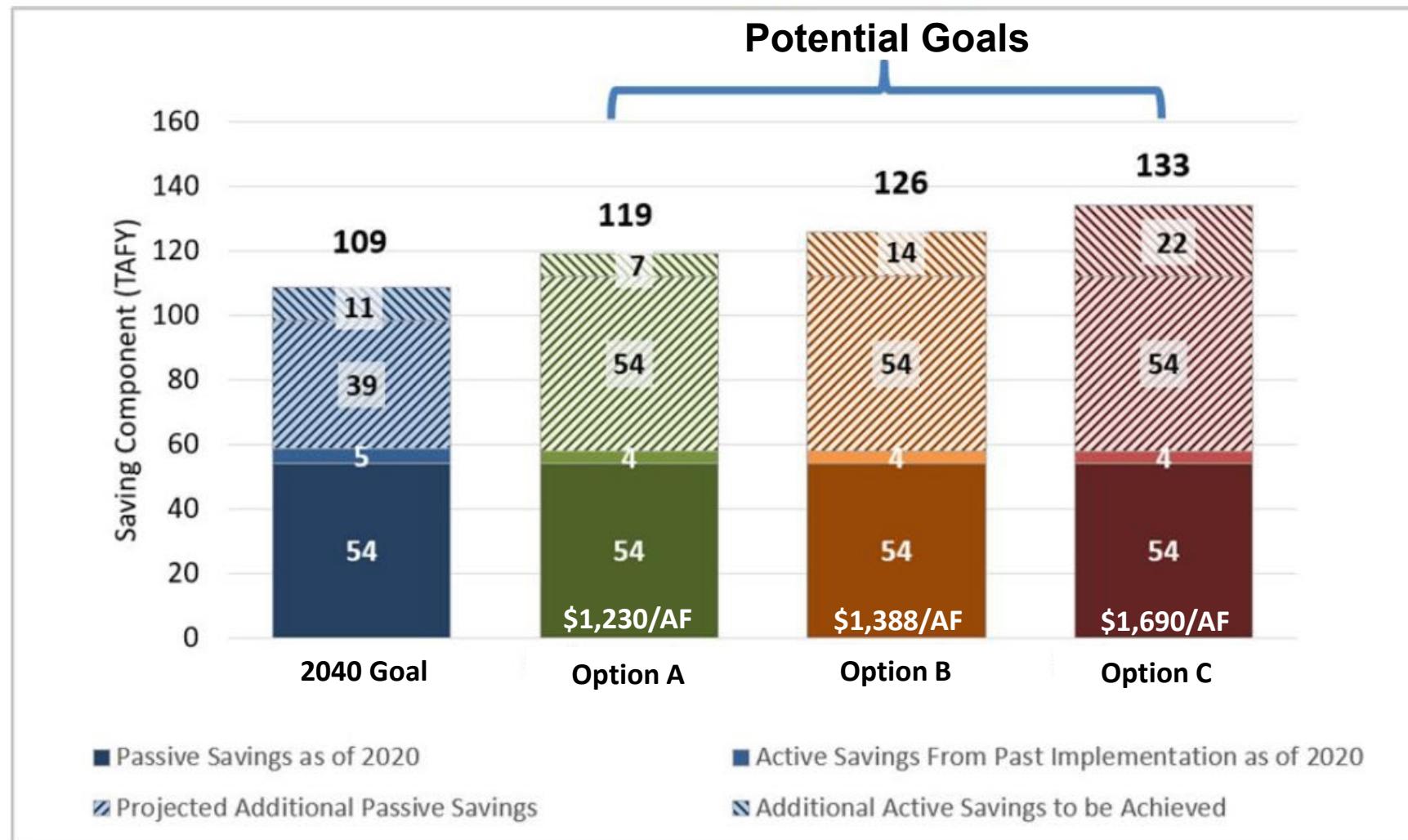
Estimated water savings from program expansion options

Considered community interest, cost/benefit, regulations

Evaluated program implementability

Reviewed peer agency programs

Potential Savings Targets



Recommendation Basis

Implementability

Cost

Staffing

GPCD – currently 20% more efficient than State

Regulations and policies (e.g., SB 1157 and “Making Water Conservation a Way of Life”)

Staff Recommend Option B

Aggressive goal that balances cost/benefit

- 200% increase in participation, larger rebates, increased staffing

Complements the State's "Making Water Conservation a Way of Life"

<30 Indoor R-GPCD in 2050 --> exceeds SB1157

Sufficient feasible program expansion options with community interest

Maintains elasticity to meet drought call

Next Steps

Bring the committee's recommendation to the board for approval

Once approved by the Board, update the Master Plan modeling analysis

Committee Recommendation

A. Recommend to Valley Water Board 126,000 Acre Feet per Year (Option B) water conservation target by 2050 for inclusion in the Water Supply Master Plan 2050.

QUESTIONS





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Final - 6 November 2023

MEMORANDUM

To: Ashley Shannon (Valley Water)
Metra Richert (Valley Water)

From: Andree Lee (EKI)
Anona Dutton (EKI)

Subject: 2050 Master Plan Potential Savings Targets
Valley Water
(EKI C00054.00)

Valley Water is currently developing its 2050 Master Plan (Master Plan) and seeks to identify Conservation Portfolio(s) for potential inclusion in the Master Plan. The Conservation Portfolio(s) will provide options to maintain or achieve additional savings beyond Valley Water's currently planned water conservation activities (i.e., the activities and anticipated savings through 2040 as identified in Valley Water's 2021 Water Conservation Strategic Plan [2021 Strategic Plan]).

This memorandum provides a summary of: (1) the potential 2050 Conservation Savings Targets (2050 Targets) for the Master Plan, and (2) the preliminary Conservation Measures List. Following Valley Water's review and confirmation of each potential 2050 Target and selection of up to ten Conservation Measures¹, EKI will identify up to three Conservation Portfolios (e.g., one for each of the 2050 Targets), each with a different combination of four to six measures.² EKI will evaluate the cost-effectiveness of achieving each 2050 Target through implementation of the associated measures. Valley Water may select one or more 2050 Targets and accompanying portfolios for inclusion in the Master Plan.

1. EXISTING 2040 CONSERVATION SAVINGS TARGET

EKI recently completed Valley Water's 2021 Strategic Plan that included, among other things, water use profiles for each Valley Water retail agency, a detailed analysis of the water conservation programs offered within Valley Water's service area, and recommendations to Valley Water on how to increase its long-term conservation savings from about 80 thousand acre-feet per year (TAFY) in 2022 to about 99 TAFY by 2030 and 109 TAFY by 2040 relative to a baseline of 1992. **Figure 1** shows the projected water savings to reach the 2040 Targets from achieved passive savings, active savings from past implementation, projected additional passive savings, and remaining savings needed from additional active programs.³ Passive savings come from plumbing codes, appliance water use standards, and other regulations that improve water use efficiency over time. These passive savings would be realized over time regardless of Valley Water or retail agency conservation programs. Active savings come from water conservation

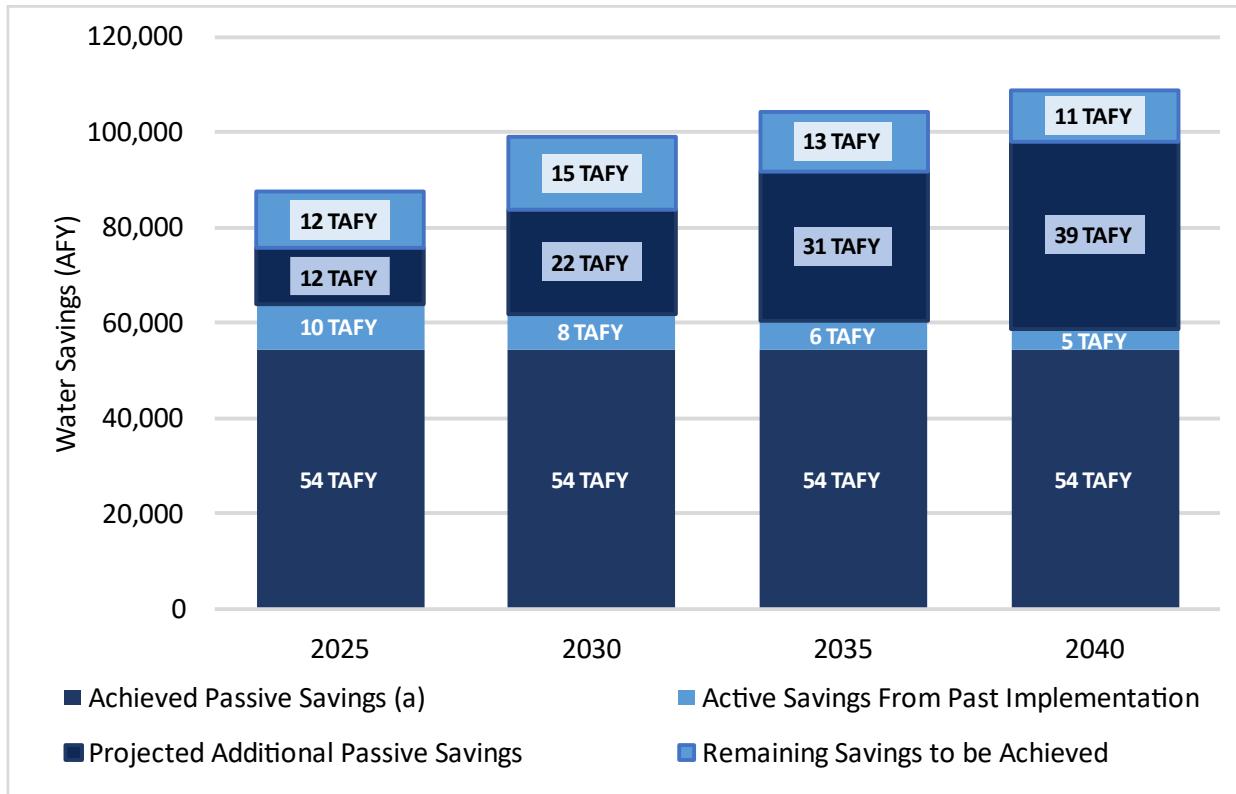
¹ Up to 10 conservation measures will be selected from the preliminary 15 Conservation Measures considered in the detailed analysis.

² It is important to note that measures not selected for inclusion in a portfolio may still be offered by Valley Water in the future.

³ Valley Water, 2021. Adapted from Figure 4-6.

programs run by Valley Water or its retail agencies, such as plumbing fixture rebates, turf replacement rebates, and home water use reports and surveys.

Figure 1. Projected Water Savings to Reach 2040 Targets



Note:

(a) Achieved Passive Savings are estimated from 1992 onward, with 1992 as the first year that passive savings are accrued. Appendix D of Valley Water's 2021 Strategic Plan provides greater detail on the calculations and assumptions used to project water savings.

2. POTENTIAL CONSERVATION SAVINGS TARGETS

EKI has identified three potential 2050 Targets, described below, for consideration.

1. *Option A Savings Target:* This target assumes future conservation savings through 2050 at rates that are consistent with the water savings projected to be achieved from implementation of Valley Water's existing mix of conservation programs by 2040 (from the 2021 Strategic Plan), while accounting for a reduced future active conservation savings potential due to demand hardening. This target assumes existing conservation programs at recent average rates of implementation (i.e., median implementation rate for 2018 to 2020).
2. *Option B Savings Target:* This target assumes future conservation savings through 2050 at the rates projected to be achieved through implementation of the Broad Program Mix portfolio by 2040 (from the 2021 Strategic Plan), while accounting for a reduced future active conservation savings potential due to demand hardening. This target assumes that implementation rates are

scaled to achieve the 2030 and 2040 conservation targets in the 2021 Strategic Plan, then savings rates are sustained through the new 2050 target.

3. *Option C Savings Target:* This target assumes future conservation savings to achieve a goal of an additional 25% reduction in outdoor water use within Valley Water's service area by 2050 compared to estimated outdoor water use in 2020, which includes water savings achieved through implementation of Valley Water's existing programs. This target does not build upon the Option A or Option B targets.

The potential 2050 Targets for only active savings are provided in **Figure 2** below, and for both passive and active savings are provided in **Figure 3**. The methodology and assumptions are summarized in **Table 1** and further described below.

Figure 2. Potential 2050 Conservation Savings Targets – Active Savings

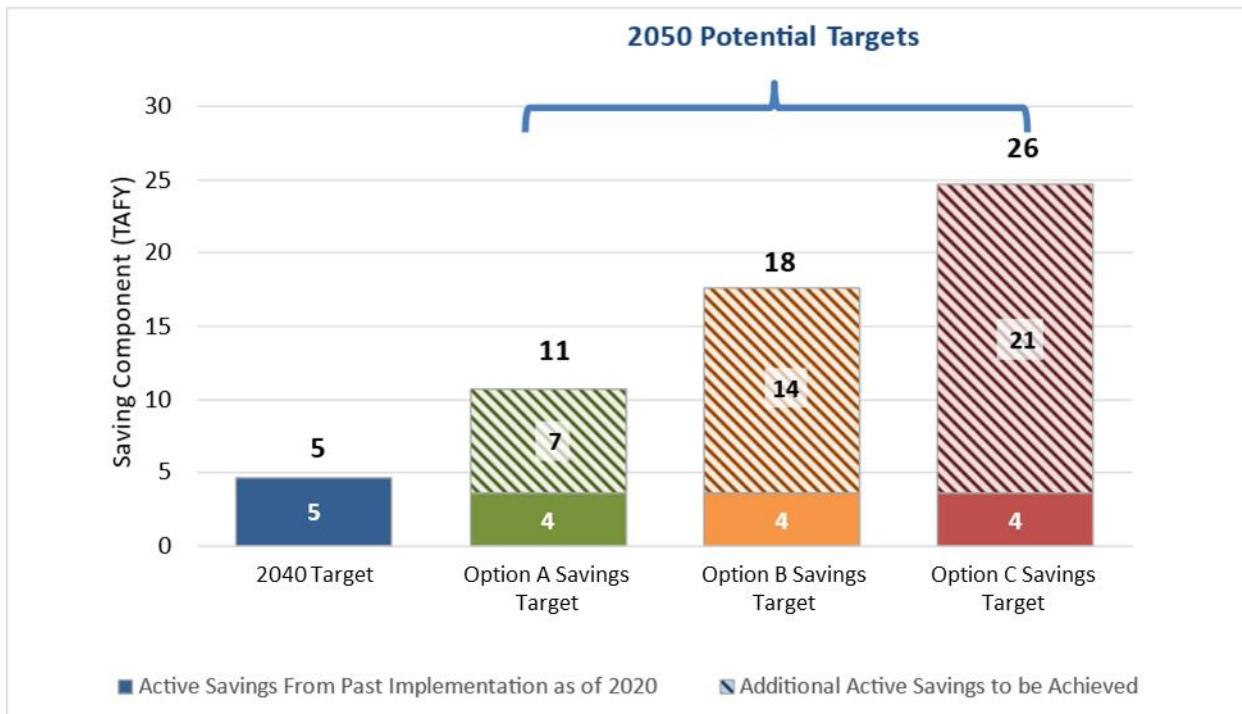


Figure 3. Potential 2050 Conservation Savings Targets – Active and Passive Savings

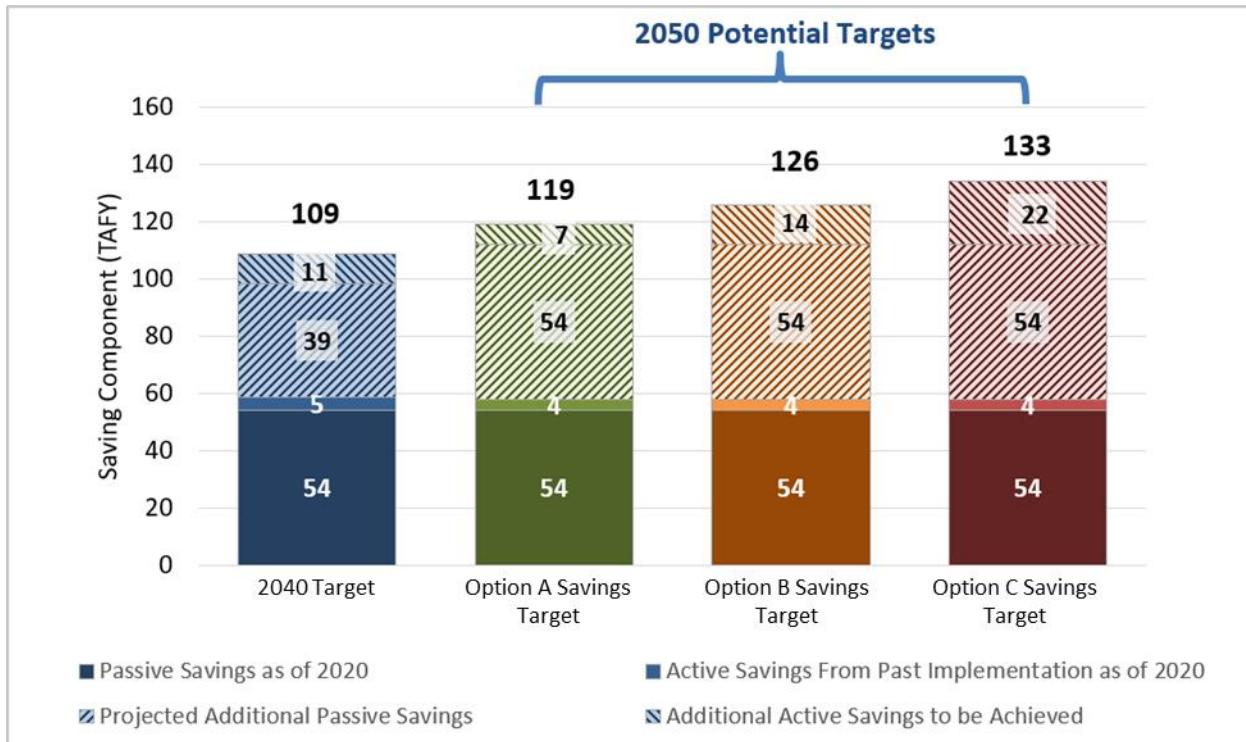


Table 1. Methodology and Assumptions for Calculating Savings Targets

	Option A Savings Target	Option B Savings Target	Option C Savings Target
Approach	Beyond the projected passive savings in 2050, maintaining a consistent active savings rate of 7 TAFY, which is consistent with the trend of active savings from 2020 through 2040 without the MWENDO ⁴ Scenario shown in the 2021 Strategic Plan (Figure 1).	Beyond the projected passive savings in 2050, maintaining a consistent active savings rate of 14 TAFY from program implementation, which is consistent with the active savings from the “Broad Program Mix” without MWENDO Scenario shown in the 2021 Strategic Plan.	Beyond the projected passive savings in 2050, targeting further outdoor water demand reduction in addition to the 2050 active savings from past programs targeting outdoor water use. This target does not specifically consider the MWENDO Scenario shown in the 2021 Strategic Plan.
Passive Savings as of 2020	54 TAFY as documented in the 2021 Strategic Plan.		
Active Savings From Past Implementation as of 2020	4 TAFY of active savings (residual savings ⁵) is estimated to be available in 2050 from the past program implementation as of 2020 per the M.Cubed Model output.		
Future Additional Passive Savings	54 TAFY obtained by subtracting the 2020 estimated passive savings from the 2050 estimated passive saving per the M.Cubed Model dated 1 May 2021.		
Additional Savings to be Achieved	The identified additional savings to be achieved reduces from 15 TAFY in 2030 to 11 TAFY in 2040, as shown in Figure 1 . Thus, assuming a linearly decreasing trend as a result of demand hardening, the active savings to be achieved in 2050 would be 7 TAFY.	Extend the “Broad Program Mix” without MWENDO Scenario saving rates in 2040 (i.e., 18 TAFY) to 2050. The savings rate is further adjusted by 4 TAFY to account for active savings from implementation through 2040. Thus, 14 TAFY of additional savings are needed to achieve a similar savings rate.	Reduce the estimated outdoor water demand in Valley Water’s 11 urban retailers by 25% from the estimated outdoor water demand in 2020, for an additional 21 TAFY of savings.
2050 Target⁶	119 TAFY	126 TAFY	133 TAFY

2.1 Option A Savings Target

The Option A Savings Target assumes that Valley Water will seek to maintain a consistent trend of active conservation savings from 2040 through 2050 as planned from 2020 through 2040. Consistent with the savings trends from 2020 through 2040 without the MWENDO Scenario projected in the 2021 Strategic Plan and M.Cubed Model output, the Option A Savings Targets anticipates that passive conservation will continue to increase in the Valley Water service area through 2050, totaling 54 TAFY of additional passive

savings from 2020 to 2050 in addition to the 54 TAF of passive savings achieved as of 2020. This target also assumes that 4 TAFY of residual active savings from past implementation of active conservation programs will be maintained in 2050. In addition to the passive savings and residual active savings, the Option A Savings Target aims to achieve an additional active savings of 7 TAFY in 2050. This is consistent with the trend of declining active savings from 2020 through 2040 shown in the 2021 Strategic Plan for the “Business as Usual” scenario without the MWENDO Scenario as a result of demand hardening.

2.2 Option B Savings Target

The Option B Savings Target assumes that Valley Water will achieve a consistent savings rate of 14 TAFY from program implementation beyond the residual active savings. This level of savings is consistent with the active savings from the “Broad Program Mix” without MWENDO Scenario shown in the 2021 Strategic Plan. Consistent with the savings trends projected in the 2021 Strategic Plan and M.Cubed Model output, the Option B Savings Targets anticipates that passive conservation will continue to increase in the Valley Water service area through 2050, totaling 54 TAFY of additional passive savings from 2020 to 2050 in addition to the 54 TAF of passive savings achieved as of 2020. This target also assumes that 4 TAFY of residual active savings from past implementation of active conservation programs will be maintained in 2050. In addition to the passive savings and residual active savings, the Option B Savings Target aims to achieve an additional active savings of 14 TAFY in 2050. This is consistent with the “Broad Program Mix” without MWENDO Scenario in the 2021 Strategic Plan, reduced by 4 TAFY to account for the residential active savings.

2.3 Option C Savings Target

The Option C Savings Target assumes that Valley Water will aim to reduce outdoor water use within the service area by 25% by 2050, compared to the estimated outdoor water use in 2020. Consistent with the other savings targets, the Option C Savings Targets anticipates that passive conservation will continue to increase through 2050, totaling 54 TAFY of additional passive savings from 2020 to 2050 in addition to the 54 TAF of passive savings achieved as of 2020. This target also assumes that 4 TAFY of residual active savings from past implementation of active conservation programs will be maintained in 2050. In addition to the passive savings and residual active savings, the Option C Savings Target aims to achieve an additional active savings of 21 TAFY in 2050. It is anticipated that the savings would be achieved through aggressive implementation of conservation measures primarily targeting outdoor water use. Further details on the methodology for estimating outdoor water use in the Valley Water service area are provided below.

2.3.1 Estimated Outdoor Water Demand within Valley Water

To establish the Option C Savings Target, current outdoor water use was estimated within the Valley Water service area using monthly production data for the Valley Water retail agencies. The potable water

⁴ The Model Water Efficient New Development Ordinance (MWENDO) represents a new conservation initiative being pursued by Valley Water. The model ordinance is intended to be adopted by all cities within Santa Clara County. MWENDO savings are assumed will occur gradually increase over time, from 100 AFY in 2025 to 4,200 AFY in 2040.

⁵ Active savings refers to savings generated by water conservation programs currently funded by Valley Water, whereas residual savings are savings refers to savings generated by water conservation programs previously funded by Valley Water.

⁶ Total may not sum due to rounding.

production for 13 Valley Water retail agencies⁷ is shown in **Table 2**. Red shading is used to highlight years where the agency's annual demand was higher than average, while blue shading indicates years where the demand was lower than the average demand from 2015 to 2022.

2.3.2 Methodologies and Assumptions of the Outdoor Water Demand Estimate

Table 3 presents the estimated proportion of outdoor water demand for each Valley Water retail agency. Red shading is used to highlight years where the annual outdoor demand proportion was higher than average, while blue shading indicates years where the proportion was lower than the average. In order to calculate the outdoor water demand, it is assumed that the minimum water production month represents indoor water usage exclusively and remains consistent throughout the year.⁸ The remaining water production is then assumed to be allocated for outdoor water use. The minimum production month may vary by supplier, as shown in **Table 4**.

2.3.3 Outdoor Water Demand Estimate Results

Table 5 presents the estimated outdoor water demand for each Valley Water retail agency. The 2020 water demand was selected as the base year for outdoor water use reduction because it reflects the recent developments within Valley Water and is not constrained by drought restrictions. Similarly, red shading is used to highlight years where the annual outdoor demand was higher than average, while blue shading indicates years where the demand was lower than the average.

⁷ DWR defines an “urban water supplier” as “a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually.” Retail agencies that meet this definition are required to report their monthly water demand to the State Water Resources Control Board (SWRCB). Purissima Hills Water District and Stanford University do not meet this definition and thus do not report their monthly water demand to SWRCB. However, these suppliers do report their water demand to the Bay Area Supply and Conservation Agency (BAWSA).

⁸ It is important to note that some outdoor irrigation still occurs during the minimum water production month. However, for the purposes of this analysis, outdoor irrigation during the minimum water production month is assumed to be negligible.

Table 2. Total Potable Water Production (AFY)

Agencies (a)	2015	2016	2017	2018	2019	2020	2021	2022	Avg.
City of Gilroy	6,870	6,983	7,813	7,854	7,691	8,219	7,822	7,411	7,583
City of Milpitas	8,665	8,589	8,742	7,808	9,319	9,366	9,006	8,628	8,765
City of Morgan Hill	(b)	6,280	7,079	7,272	7,235	7,809	7,182	6,884	7,106
City of Mountain View	8,871	8,741	9,202	9,526	9,474	10,033	9,412	8,992	9,281
City of Palo Alto	9,539	9,901	10,921	10,918	10,775	11,222	10,922	11,282	10,685
City of Santa Clara	17,621	17,160	18,681	18,481	17,789	18,301	17,317	16,913	17,783
City of Sunnyvale	15,387	16,507	18,639	18,573	18,771	19,811	18,840	18,243	18,096
CWS - Los Altos	10,189	10,265	11,656	12,438	11,863	13,024	11,440	10,761	11,454
Great Oaks Water Company	8,943	8,911	9,996	10,277	10,393	(b)	10,379	9,389	9,755
Purissima Hills Water District	(b)	(b)	(b)	(b)	(b)	2,060	(b)	(b)	2,060
San José Municipal Water	16,072	15,740	16,563	17,069	16,860	17,545	16,636	15,989	16,559
San Jose Water Company	105,713	103,676	111,543	115,123	113,928	121,454	113,455	105,291	111,273
Stanford University	(b)	(b)	(b)	(b)	(b)	2,712	(b)	(b)	2,712

Abbreviations:

AFY = Acre-feet per year

CWS = California Water Service

Notes:

(a) Production data was obtained from the SWRCB for urban water suppliers as defined by DWR. Production data for suppliers that do not meet the definition of an urban water supplier was obtained from BAWSCA. This analysis only includes data starting in 2015 as this is the first year in which reliable data is available.

(b) Production data was not available.

Sources:

(1) SWRCB monthly reporting data dated 15 May 2023, accessed online via: https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html.

(2) BAWSCA monthly reporting data, provided on 28 June 2023.

Table 3. Estimated Outdoor Water Use Proportion

VW Agencies	2015	2016	2017	2018	2019	2020	2021	2022
City of Gilroy	29%	34%	40%	36%	40%	41%	34%	33%
City of Milpitas	17%	19%	22%	22%	21%	20%	24%	21%
City of Morgan Hill	(a)A	42%	48%	45%	43%	49%	40%	38%
City of Mountain View	27%	39%	37%	32%	35%	33%	29%	33%
City of Palo Alto	34%	37%	47%	40%	39%	36%	41%	40%
City of Santa Clara	22%	28%	33%	26%	27%	28%	25%	23%
City of Sunnyvale	25%	30%	34%	30%	31%	30%	28%	28%
CWS Los Altos	42%	46%	53%	45%	46%	50%	42%	45%
Great Oaks Water Company	28%	30%	35%	31%	34%	(a)	31%	27%
Purissima Hills Water District	(a)	(a)	(a)	(a)	(a)	67%	(a)	(a)
San José Municipal Water	26%	29%	35%	35%	35%	34%	30%	30%
San Jose Water Company	26%	27%	33%	30%	33%	34%	28%	26%
Stanford University	(a)	(a)	(a)	(a)	(a)	55%	(a)	(a)

Abbreviations:

AFY = Acre-feet per year

CWS = California Water Service

Note:

(a) Production data were not available.

Table 4. Minimum Water Production Month by Agency

Agencies	Month (a)						
	2015	2016	2017	2018	2019	2020	2021
City of Gilroy	Dec	Jan	Feb	Dec	Feb	Jan	Dec
City of Milpitas	Dec	Jan	Jan	Mar	Dec	Jan	Dec
City of Morgan Hill	Dec	Jan	Feb	Mar	Dec	Jan	Dec
City of Mountain View	Nov	Jan	Apr	Jan	Dec	Jan	Jan
City of Palo Alto	Nov	Jan	Jan	Dec	Feb	Jan	Jan
City of Santa Clara	Nov	Jan	Jan	Dec	Jan	Jan	Jan
City of Sunnyvale	Oct	Jan	Feb	Jan	Dec	Jan	Dec
CWS Los Altos	Dec	Jan	Feb	Dec	Feb	Jan	Dec
Great Oaks Water Company	Dec	Jan	Feb	Jan	Feb	Jan	Dec
Purissima Hills Water District	(b)	(b)	(b)	(b)	(b)	Jan	(b)
San José Municipal Water	Dec	Dec	Feb	Dec	Feb	Jan	Dec
San Jose Water Company	Dec	Jan	Feb	Jan	Feb	Jan	Dec
Stanford University	(b)	(b)	(b)	(b)	(b)	Apr	(b)

Note:

(a) Monthly water production was normalized by the number of days in a month.

(b) Production data were not available

Table 5. Estimated Total Potable Water Production for Outdoor Use (AFY)

Agencies	2015	2016	2017	2018	2019	2020	2021	2022	Avg.
City of Gilroy	2,015	2,346	3,119	2,857	3,061	3,354	2,647	2,467	2,733
City of Milpitas	1,471	1,610	1,946	1,706	1,941	1,886	2,175	1,828	1,820
City of Morgan Hill	(a)	2,666	3,426	3,300	3,089	3,796	2,875	2,588	3,106
City of Mountain View	2,386	3,381	3,399	3,050	3,269	3,292	2,689	2,928	3,049
City of Palo Alto	3,287	3,648	5,093	4,363	4,161	4,072	4,516	4,507	4,206
City of Santa Clara	3,881	4,790	6,117	4,750	4,719	5,174	4,316	3,933	4,710
City of Sunnyvale	3,907	4,995	6,346	5,480	5,862	5,969	5,240	5,182	5,373
CWS Los Altos	4,296	4,691	6,174	5,544	5,505	6,558	4,802	4,869	5,305
Great Oaks Water Company	2,470	2,638	3,488	3,193	3,527	(b)	3,183	2,582	3,076
Purissima Hills Water District	(a)	(a)	(a)	(a)	(a)	1,382	(a)	(a)	1,382
San Jose Municipal Water	4,220	4,581	5,841	5,904	5,899	5,914	4,929	4,860	5,268
San Jose Water Company	27,158	28,457	36,802	34,707	37,542	41,825	31,645	27,503	33,205
Stanford University	(a)	(a)	(a)	(a)	(a)	1,500	(a)	(a)	1,500
Total	55,092	63,804	81,751	74,854	78,575	86,750	69,018	63,247	71,636

Abbreviations:

AFY = Acre-feet per year

CWS = California Water Service

Notes:

(a) Production data were not available.

(b) The estimated outdoor water demand of Great Oaks Water Company in 2020 is assumed to be similar to what it was in 2019.

As shown in **Table 5**, the total estimated outdoor water demand in the Valley Water service area in 2020 was approximately 85.4 TAFY. Assuming a 25% reduction after adjusting for the residual active savings from program implementation through 2040 for the irrigation sector⁹, the outdoor water reduction target would be 21 TAFY, as shown in **Table 6**.

⁹ The residual active savings in 2050 from program implementation through 2040 is estimated to be 0.433 TAFY per the “Business-As-Usual” without MWENDO Scenario.

Table 6. Outdoor Water Demand Reduction Target (TAFY)

	(a)	Values (b)	Unit
2020 Estimated Outdoor Demand	[A]	85.4	TAFY
2050 Active savings from past irrigation program implementation	[B]	0.4	TAFY
25% Reduction	[C]	21	TAFY

Notes:

(a) Values shown above are obtained by: $[C] = ([A]-[B])*25\%$.

(b) Total may not sum due to rounding.

3. PRELIMINARY LIST OF CONSERVATION MEASURES

As shown in **Attachment A**, a comprehensive list of potential Conservation measures were evaluated using the following criteria:

- Measures that were previously identified in the 2021 Strategic Plan as having high water savings potential (e.g., savings potential above the median of 90 AF of water savings in 2030).
- Measures that target key end uses (irrigation, cooling tower, pool, etc.), in particular end uses that will not be impacted by passive conservation savings.
- Measures provide alternative supplies (e.g., rainwater, graywater, etc.).
- Measures that break down known customer barriers to participation (e.g., direct install turf, Water Efficient Technologies [WET] program, and leak repair assistance) or benefit a potentially underserved segment of Valley Water's customer base, such as renters and/or low-income residential customers.
- Measures that leverage and/or maintain the benefits of Valley Water's investment in Advanced Metering Infrastructure (AMI).
- Previously considered and new measures of interest to Valley Water and/or that have been successfully implemented by other agencies.

As shown in **Table 6**, EKI then developed a preliminary list of 15 Conservation Measures for potential inclusion in the Master Plan Conservation Portfolio(s) that met the following criteria:

1. Existing measures with estimated water savings above the median water savings in 2030 that meets at least one of the additional criteria described above; or
2. Potential new measures, for which estimated water savings have not yet been calculated, that meet at least two of the additional criteria described above.

Table 7. Preliminary List of Conservation Measures

Measure	Sector	Current Program	Previously Evaluated	Estimated Savings in 2030 (AF) (a)
Large Landscape Water Budgets	IRR	Yes	Yes	5,197
Rain Sensors	IRR	Yes	Yes	110
Large Land. Irrigation Controller	IRR	Yes	Yes	255
Flow Sensor with Automatic Shutoffs/Dedicated Irrigation Meter	IRR	Yes	Yes	219
Agriculture Mobile Lab	OTH	Yes	Yes	2,000
WET	CII	Yes	Yes	154
AMI Leak Alert & Home Water Report	SFR	Yes	Yes	811
Large Landscape Program	IRR	Yes	Yes	104
Residential Irrigation Controller, SFR	IRR	Yes	Yes	358
Turf Replacement Rebate	IRR	Yes	Yes	396
Whole House Graywater/Reuse	SFR	No	No	TBD
Leak Assistance Program	SFR	No	No	TBD
Direct Install Turf Replacement, SRF/MFR	IRR	No	No	TBD
Pool Covers	IRR	No	No	TBD
Submetering (Multi-family and ADU)	MFR	No	No	18,615
Abbreviations:				
ADU = additional dwelling unit		IRR = irrigation		
AF = acre-feet		MFR = Multi-Family Residential		
AMI = Advanced Metering Infrastructure		OTH = other		
CCF = hundred cubic feet		SFR = Single-Family Residential		
CII = Commercial, Industrial, and Institutional		WET = Water Efficient Technologies		
Notes:				
(a) The estimated savings in 2030 are provided for informational purposes, based on Table 6-8 of the 2021 Strategic Plan and studies conducted by Valley Water to evaluate savings generated for submetering. These values will be re-evaluated, or developed where not currently available, in the subsequent modeling effort.				

4. NEXT STEPS

Following Valley Water's approval of the 2050 Targets and selection of ten Conservation Measures for further analysis, EKI will identify up to three Conservation Portfolios (e.g., one for each of the 2050 Targets) each with a different combination of four to six programs. Modeling will be completed, in coordination with M.Cubed, to assess the magnitude of implementation of the selected measures that would be required to achieve the level of savings required for each target, as well as the overall cost per acre-foot saved for each portfolio.

ATTACHMENTS

Tables

Table 1. Methodology and Assumptions for Calculating Savings Targets

Table 2. Total Potable Water Production (AFY)

Table 3. Estimated Outdoor Water Use Proportion

Table 4. Minimum Water Production Month by Agency

Table 5. Total Potable Water Production for Outdoor Use (AFY)

Table 6. Outdoor Water Demand Reduction Target

Table 7. Preliminary List of Conservation Measures

Figures

Figure 1. Projected Water Savings to Reach 2040 Targets

Figure 2. Potential 2050 Conservation Savings Targets – Active Savings

Figure 3. Potential 2050 Conservation Savings Targets – Active and Passive Savings

References

Valley Water, 2021. Water Conservation Strategic Plan, Valley Water, dated July 2021.

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17 January 2024

MEMORANDUM

To: Justin Burks, Santa Clara Valley Water District (Valley Water)
Ashley Shannon, Valley Water
Metra Richert, Valley Water

From: Andree Lee, EKI Environment & Water, Inc. (EKI)
Anona Dutton, EKI
Vanessa De Anda, EKI

Subject: Technical Memorandum #2: 2050 Master Plan Conservation Measure Details and Conservation Portfolios
Valley Water
(EKI C00054.00)

Valley Water is currently developing its 2050 Water Supply Master Plan (Master Plan) and seeks to identify conservation portfolio(s) for potential inclusion in the Master Plan. The conservation portfolio(s) will provide options to maintain or achieve additional savings beyond Valley Water's currently planned water conservation activities (i.e., the activities and anticipated savings through 2040 as identified in Valley Water's *2021 Water Conservation Strategic Plan* [2021 Strategic Plan]).

This Technical Memorandum (TM #2) provides a summary of the potential water conservation measures and estimates the savings potential and costs for the ten measures identified for further analysis by Valley Water in the *2050 Master Plan Potential Savings Targets Technical Memorandum* (TM #1). TM #2 also identifies three conservation portfolios, one for each of the 2050 Conservation Savings Targets (2050 Targets) identified in TM #1. Modeling was completed to assess the measure implementation rates that would be required to achieve each 2050 Target, as well as the cost effectiveness of the associated conservation portfolios. Valley Water may select one or more 2050 Targets and accompanying portfolios for inclusion in the Master Plan.

1. POTENTIAL CONSERVATION SAVINGS TARGETS

Three 2050 Targets were identified for consideration in the Master Plan in TM #1. The 2050 Targets build upon the "Business-as-Usual without Model Water Efficient New Development Ordinance (MWENDO)" scenario in the 2021 Strategic Plan. The potential 2050 Targets include:

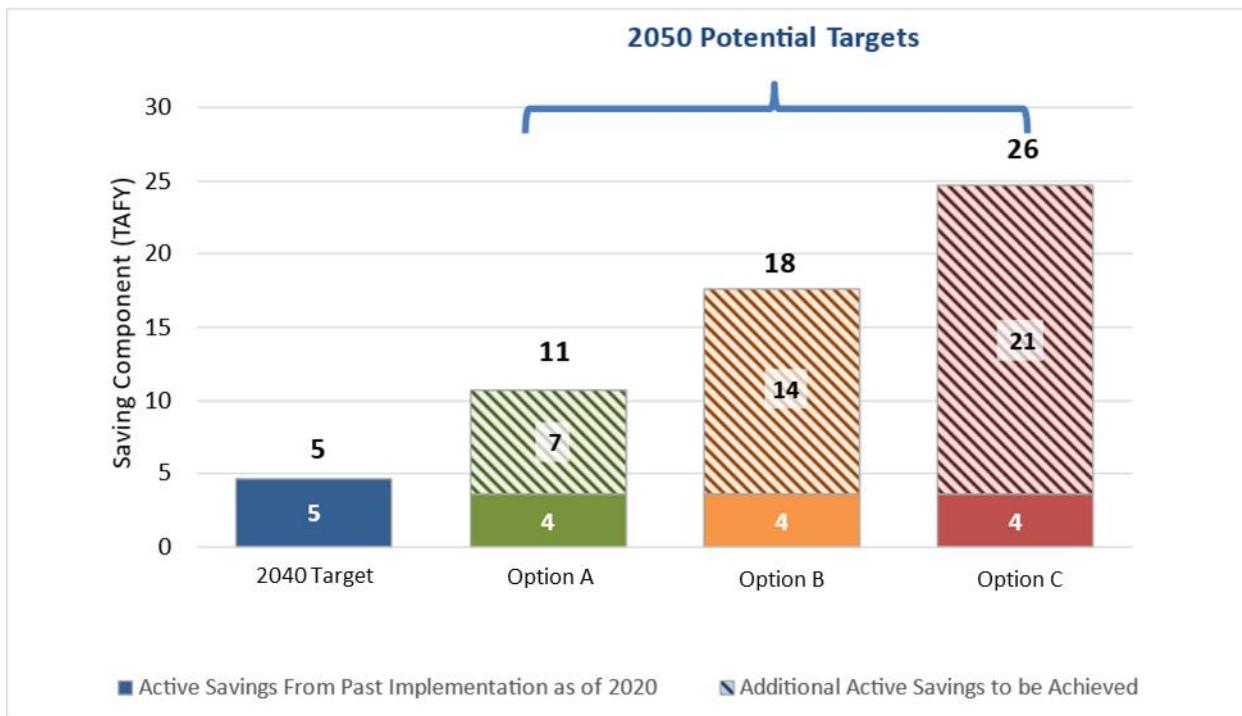
1. **Option A:** This target assumes future conservation savings through 2050 at rates that are consistent with the water savings projected to be achieved from implementation of Valley Water's existing mix of conservation programs by 2040 (from the 2021 Strategic Plan), while accounting for a reduced future active conservation savings potential due to demand hardening. This target assumes that the existing conservation programs will continue to be implemented at recent average rates (i.e., the median implementation rate observed between 2018 and 2020).
2. **Option B:** This target assumes future conservation savings through 2050 at the rates projected to be achieved through implementation of the "Broad Program Mix" portfolio by 2040 (from the

2021 Strategic Plan), while accounting for a reduced future active conservation savings potential due to demand hardening. This target assumes that implementation rates are increased to achieve the conservation targets identified in the 2021 Strategic Plan and then sustained through 2050.

3. **Option C:** This target assumes future conservation savings to achieve a goal of an additional 25% reduction in outdoor water use within Valley Water's service area by 2050 compared to estimated outdoor water use in 2020, which includes water savings achieved through implementation of Valley Water's existing programs. A 25% reduction in outdoor use aligns with the 2021 Strategic Plan findings that future savings will need to be found predominately from outdoor conservation due to demand hardening from over 30 years of indoor conservation and code improvements. This target does not build upon the Option A or Option B targets described above.

For reference, the potential 2050 Targets for active savings are provided in **Figure 1**. These potential 2050 Targets build upon Valley Water's existing water conservation target of approximately 99,000 acre-feet per year (AFY) in 2030 to about 109,000 AFY in 2040, equivalent to approximately 1,000 AFY between 2030 and 2040. A potential 2050 Target of 26,000 AFY under Option C, for example, is more than twice the annual rate of savings of the existing water conservation target.

Figure 1. Potential 2050 Targets – Active Savings



Source: EKI, 2023. Adapted from Figure 2.

2. POTENTIAL CONSERVATION MEASURES

EKI evaluated a comprehensive list of conservation measures for potential inclusion in the Master Plan to meet the 2050 Targets. Based on this evaluation, EKI presented a preliminary list of 15 conservation

measures to Valley Water in TM #1. Of the 15 conservation measures, Valley Water selected ten conservation measures for further evaluation, summarized in **Table 1**.

Table 1. List of Selected Conservation Measures

Conservation Measures	Sector (a)	Program Status	Previously Evaluated
Large Landscape Water Budgets and Large Landscape Surveys	IRR	Existing Program	Yes
Large Landscape Irrigation Controller	IRR	Existing Program	Yes
Flow Sensor with Automatic Shutoffs	IRR	Existing Program	Yes
WET	CII	Existing Program	Yes
AMI Leak Alert & Home Water Report	SFR	Existing Program	Yes
Residential Irrigation Controller, SFR	IRR	Existing Program	Yes
Turf Replacement Rebate	IRR	Existing Program	Yes
Submetering (MFR and ADU)	MFR	Existing Program	Yes
Whole House Graywater/Reuse	SFR	New Program	No
Leak Assistance	SFR	New Program	No

Abbreviations:

ADU = additional dwelling unit
AMI = Advanced Metering Infrastructure
CII = Commercial, Industrial, and Institutional
IRR = irrigation

MFR = Multi-Family Residential
SFR = Single-Family Residential
WET = Water Efficient Technologies

Notes:

(a) The conservation measures may target more sectors than listed (e.g., AMI Leak Alert incentivizes more than just SFR accounts). However, for modeling purposes, the primary sector listed for each measure is consistent with what was used in the 2021 Strategic Plan and savings model.

Table 2 provides the baseline cost and benefit assumptions for each of the ten conservation measures selected for further evaluation, including annual savings per unit, useful life, Valley Water costs, and participant costs. The baseline assumptions for the eight conservation measures that were previously evaluated in the 2021 Strategic Plan (identified in **Table 1**) are consistent with the assumptions included in the 2021 Strategic Plan. Assumptions for the two new conservation measures were developed based on literature review and data provided by neighboring agencies.

Table 2: Baseline Assumptions for Modeling the Conservation Measures

Conservation Measures	Sector	Unit	Annual Savings, Per Unit (gpy)	Useful Life (years)	Valley Water Costs (\$/unit)	Participant Costs (\$/unit)
Large Landscape Water Budgets and Large Landscape Surveys	IRR	Survey / Site	423,400	5	\$110	(a)
Large Landscape Irrigation Controller	IRR	Controller	265,355	10	\$764	(a)
Flow Sensor with Automatic Shutoffs	IRR	Meter	132,860	20	\$722	(a)
WET	CII	CCF	748	10	\$3 (b)	(a)
AMI Leak Alert & Home Water Report	SFR	Home	365	20	\$5	(a)
Residential Irrigation Controller, SFR	IRR	Controller	18,615	10	\$233	(a)
Turf Replacement Rebate	IRR	Sq ft	36	20	\$2 (b)	(a)
Submetering (MFR and ADU)	MFR	Meter	5,518	20	\$150	(a)
Whole House Graywater/Reuse	SFR	Home	40,000	20	\$5,000	\$15,000
Leak Assistance	SFR	Home	22,551	0.33	\$257	-

Abbreviations:

ADU = accessory dwelling unit

IRR = irrigation

AMI = Advanced Metering Infrastructure

MFR = Multi-Family Residential

CCF = one hundred cubic feet

SFR = Single-Family Residential

CII = Commercial, Industrial, and Institutional

sq ft = square foot

gpy = gallons per year

WET = Water Efficient Technologies

Notes:

(a) Participant costs were previously evaluated in 2021 Strategic Plan and not directly included in Valley Water's Conservation Tracking Model.

(b) Since the 2021 Strategic Plan, the Valley Water unit cost for WET has increased to \$4 per unit, and the Valley Water unit cost for the Turf Replacement Rebate has decreased to \$1 per sq ft of turf replaced as of January 2024. However, for the purposes of this analysis, the Valley Water unit costs were assumed to be consistent with the assumptions used in the 2021 Strategic Plan.

3. POTENTIAL CONSERVATION PORTFOLIOS

Three conservation portfolios were developed to meet each of the potential 2050 Targets. The conservation portfolios build upon Valley Water's planned water conservation activities through 2040 (i.e., the 2021 Strategic Plan's "Business-as-Usual without MWENDO" scenario) by incorporating implementation of the ten selected conservation measures from 2041 through 2050 to achieve the 2050 Targets. This section provides a summary of the measures included in each potential conservation portfolio and their implementation schedule, implementation rates, and unit costs.

3.1. Implementation Rates

Through 2040, each potential conservation portfolio is comprised of the conservation measures currently planned for implementation through 2040 as identified in the 2021 Strategic Plan (i.e., the “Business-as-Usual without MWENDO” scenario from the 2021 Strategic Plan).¹ From 2041 through 2050, each portfolio then incorporates a combination of the ten conservation measures selected by Valley Water in TM #1 to achieve the 2050 Targets. The implementation schedules and rates assumed for each conservation measure from 2041 through 2050 fall into one of two categories:

- 1. Existing Measures:** Conservation measures included in the 2021 Strategic Plan and selected in TM #1. It is assumed that annual implementation rates of these eight conservation measures (see **Table 1**) will be consistent with the 2021 Strategic Plan “Business-as-Usual without MWENDO” scenario recommendations through 2040, and then scaled up from 2040 levels as needed to meet 2050 Targets.
- 2. New Measures:** Conservation measures not included in the 2021 Strategic Plan but selected in TM #1. It is assumed that these two conservation measures (see **Table 1**) will be implemented for some potential conservation portfolios when 2050 Targets cannot be reached by extending the 2040 implementation levels for the “Existing Measures.” These additional new measures will require additional staff and contractor resources to design, implement, and administer.

Valley Water’s Conservation Tracking Model was used to assess the implementation rates that would be required from 2041 through 2050 for the ten selected conservation measures to achieve each 2050 Target. The average annual implementation rates for the selected conservation measures to achieve each 2050 Target, compared to the “Business-as-Usual without MWENDO” scenario in the 2021 Strategic Plan, are shown in **Table 3**. Based on this analysis, implementation rates would need to be scaled as follows:

- Option A, with a potential 2050 Target of 11,000 AFY, would require scaling the annual implementation rates for seven of the eight selected existing measures by 86% from 2041 through 2050 (relative to implementation rates through 2040);²
- Option B, with a potential 2050 Target of 18,000 AFY, would require scaling the annual implementation rates for the eight existing measures by 192% and adding Leak Assistance; and
- Option C, with a potential 2050 Target of 26,000 AFY, would require scaling the annual implementation rates for the eight existing measures by 290% and adding both Leak Assistance and Whole House Greywater/Reuse.

Successful implementation of the conservation portfolios requires dedicated staff and resources to, among other things, provide program administration, market the conservation programs, conduct stakeholder engagement, and monitor program implementation. The 2021 Strategic Plan recommended that Valley Water’s conservation staffing level be increased to at least 10 staff in order to adequately

¹ Conservation measures in the 2021 Strategic Plan are assumed to be implemented consistent with the 2021 Strategic Plan “Business-as-Usual without MWENDO” scenario recommendations through 2040 unless selected by Valley Water in TM #1 (i.e., Valley Water can stop offering some of the measures included in the 2021 Strategic Plan in 2040 while still meeting the 2050 Target).

² While the Submetering (MFR and ADU) conservation measure was selected in TM #1, Option A assumes that Valley Water will sunset the conservation measure after 2040 as it is not needed to achieve the Option A Target.

support achievement of the 2040 Target. Therefore, it is assumed that Option A could be implemented with the 10 staff recommended in the 2021 Strategic Plan. However, implementation of Option B and Option C would likely not be feasible without additional staff based on staffing levels observed throughout the state for similarly sized agencies with similar water conservation programs. For Options B and C, staffing assumptions were scaled up consistent with measure implementation rates (e.g., 192% of "Business-as-Usual without MWENDO" for Option B and 290% of "Business-as-Usual without MWENDO" for Option C). As shown in **Table 4**, Valley Water would need to almost double the 2021 Strategic Plan recommended staff levels to implement Option B and almost triple the 2021 Strategic Plan recommended staff levels to implement Option C. Depending on drought conditions, seasonal and program needs, part-time temporary staff, student interns, and/or contractors could provide support needed to achieve the measure implementation rates. However, this would likely increase Valley Water's administrative staff needed to manage and oversee the support staff.

For Options B and C, marketing resources and outreach would also need to be scaled up significantly consistent with measure implementation rates. As recommended in the 2021 Strategy Plan, this would likely require leveraging strategies that work in "hot spots" of participation (i.e., areas where higher density of program participation is observed than would be expected by randomly distributed participation) and applying it to "cold spots" areas (i.e., areas of lower-than-expected participation).

Table 3: Average Annual Implementation Levels

Conservation Measures	Sector	Unit	2021 Strategic Plan “Business-As-Usual without MWENDO” Scenario Annual Participation (through 2040)	Participation (2041 – 2050)		
				Option A	Option B	Option C
Large Landscape Water Budgets and Large Landscape Surveys	IRR	Survey / Site	2,647 (a)	86% of Business-as- Usual without MWENDO Annual Participation	192% of Business-as- Usual without MWENDO Annual Participation	290% of Business-as- Usual without MWENDO Annual Participation
Large Landscape Irrigation Controller	IRR	Controller	34			
Flow Sensor with Automatic Shutoffs	IRR	Meter	36			
WET	CII	CCF	10,446			
AMI Leak Alert & Home Water Report	SFR	Home	600			
Residential Irrigation Controller, SFR	IRR	Controller	661			
Turf Replacement Rebate	IRR	sq ft	384,854			
Submetering (MFR and ADU) (b)	MFR	Meter	236		0	
Whole House Graywater/Reuse	SFR	Home	0		0	500
Leak Assistance	SFR	Home	0		500	500

Abbreviations:

ADU = accessory dwelling unit

AMI = Advanced Metering Infrastructure

CCF = one hundred cubic feet

CII = Commercial, Industrial, and Institutional

IRR = irrigation

MFR = Multi-Family Residential

SFR = Single-Family Residential

sq ft = square foot

WET = Water Efficient Technologies

Notes:

(a) Since the 2021 Strategic Plan, the total number of participants has increased to 3,879 sites as of the end of fiscal year 2023. Valley Water anticipates the number of participants will increase in the next two fiscal years to support California’s Framework for the Making Conservation a California Way of Life regulation. However, for the purposes of this analysis, the participation was assumed consistent with the 2021 Strategy Plan.

(b) Option A assumes that Valley Water will continue offering the Submetering (MFR and ADU) conservation measure through 2040 but sunset the program after 2040 as it is not needed to achieve the Option A Target. Option B and Option C assume that Valley Water will continue offering the Submetering (MFR and ADU) through 2050 as it provides additional savings needed to achieve the higher savings thresholds.

Table 4: Average Annual Implementation Units and Staff Levels

Conservation Measures	Sector	Unit	Historical Average Participation (2011-2020)	Participation (2041 – 2050)		
				Option A	Option B	Option C
Large Landscape Water Budgets and Large Landscape Surveys	IRR	Survey / Site	1,253	2,288 (b)	5,085	7,674
Large Landscape Irrigation Controller	IRR	Controller	96	29	65	99
Flow Sensor with Automatic Shutoffs	IRR	Meter	34	31	69	104
WET	CII	CCF	6,707	9,031	20,067	30,286
AMI Leak Alert & Home Water Report	SFR	Home	500	600	96,300	145,344
Residential Irrigation Controller, SFR	IRR	Controller	469	571	1,270	1,916
Turf Replacement Rebate	IRR	sq ft	1,195,272	332,702	739,276	1,115,777
Submetering (MFR and ADU)	MFR	Meter	250	0 (c)	452	683
Whole House Graywater/Reuse	SFR	Home	0	0	0	500
Leak Assistance	SFR	Home	0	0	500	500
Staffing Levels			-	10	19	29

Abbreviations:

ADU = accessory dwelling unit

MFR = Multi-Family Residential

AMI = Advanced Metering Infrastructure

SFR = Single-Family Residential

CCF = one hundred cubic feet

sq ft = square foot

CII = Commercial, Industrial, and Institutional

WET = Water Efficient Technologies

IRR = irrigation

Notes:

(a) Average participation includes participation during the historic 2014 – 2016 drought.

(b) Since the 2021 Strategic Plan, the total number of participants has increased to 3,879 sites as of the end of fiscal year 2023. Valley Water anticipates the number of participants will increase in the next two fiscal years to support California's Framework for the Making Conservation a California Way of Life regulation. However, for the purposes of this analysis, the participation was assumed consistent with the 2021 Strategic Plan.

(c) Average annual participation in the Submetering (MFR and ADU) conservation measure for Option A is 0 because no participation is required to achieve the Option A Target.

3.2. Incentive Program Unit Costs for Each Conservation Portfolio

As previously shown in **Table 3**, implementation levels of existing measures for Option B and Option C will need to be scaled significantly to achieve the level of savings for the corresponding 2050 Targets. Given

the implementation levels for Option B and Option C are higher than current planned levels (per the 2021 Strategic Plan), it is anticipated that Valley Water will have to increase the incentive program benefits (e.g., rebate amounts, Valley Water cost share amounts, or administrative costs) to drive increased participation. In the Conservation Tracking Model, the Valley Water unit costs for measures under Option B and Option C have been scaled by 192% and 290%, respectively, consistent with the increased participation levels required to achieve the 2050 Targets (see **Table 3**). The resultant conservation measure unit costs for the ten selected measures under each conservation portfolio are shown in **Table 5**.

Table 5: Incentive Program Unit Costs

Conservation Measures	Valley Water Costs for (\$/unit)		
	Option A	Option B (a)	Option C (a)
Large Landscape Water Budgets and Large Landscape Surveys	\$110	\$212	\$319
Large Landscape Irrigation Controller	\$764	\$1,468	\$2,215
Flow Sensor with Automatic Shutoffs	\$722	\$1,387	\$2,093
WET	\$3	\$5	\$8
AMI Leak Alert & Home Water Report	\$5	\$7	\$9
Residential Irrigation Controller, SFR	\$233	\$448	\$676
Turf Replacement Rebate	\$2	\$3	\$5
Submetering (MFR and ADU)	\$150	\$288	\$435
Whole House Graywater/Reuse	\$5,000	\$5,000	\$5,000
Leak Assistance	\$257	\$257	\$257

Abbreviations:

ADU = accessory dwelling unit

SFR = Single-Family Residential

AMI = Advanced Metering Infrastructure

WET = Water Efficient Technologies

MFR = Multi-Family Residential

Notes:

(a) Unit costs are scaled to 192% of “Business-as-Usual without MWENDO” scenario unit costs for Option B and 290% of “Business-as-Usual without MWENDO” scenario unit costs for Option C, consistent with participation level multiplier factors (see **Table 3**).

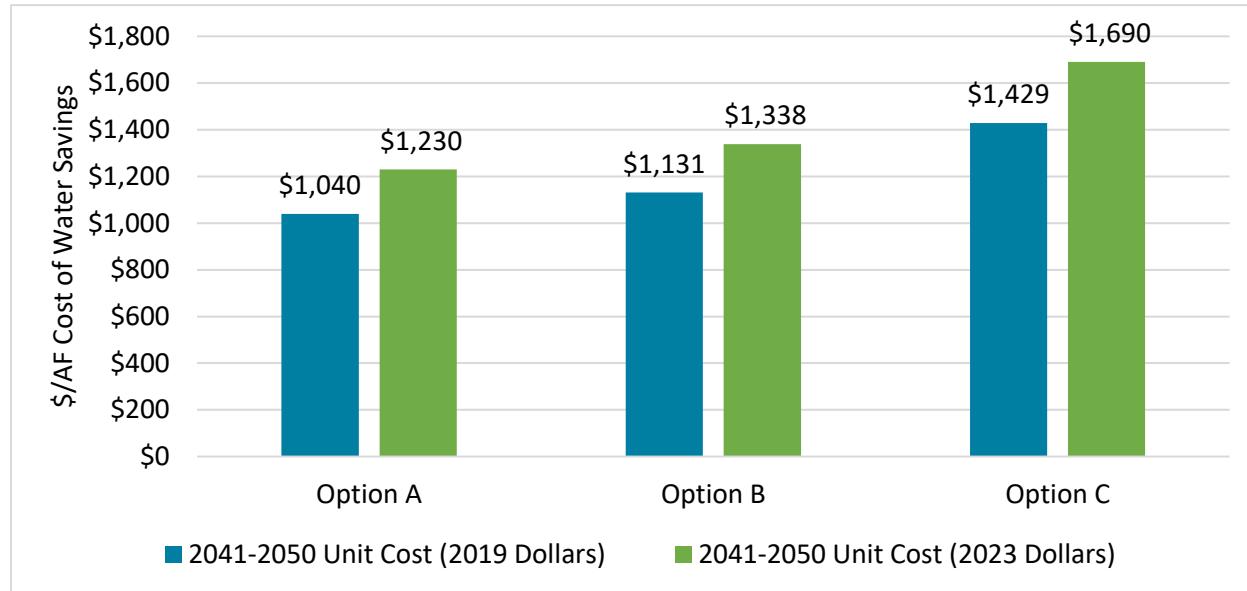
4. RESULTS

The Conservation Tracking Model was used to determine the cost to achieve each 2050 Target through implementation of the associated measures in each conservation portfolio. The cost per acre foot (AF) of savings for each conservation portfolio is a function of the assumed annual savings per unit, useful life, implementation rates, and Valley Water costs for implementation (e.g., staffing required to achieve each 2050 Target). The cost per AF of water savings for each 2050 Target is provided in **Figure 2**. The cost per

unit of water savings from 2041 through 2050 is approximately \$1,000 for Option A, \$1,100 for Option B, and \$1,400 for Option C in 2019 dollars consistent with the 2021 Strategic Plan.

As previously described, the incentive program unit costs for conservation measures under Option B and Option C were scaled to achieve unprecedented participation rates. Furthermore, the higher savings targets required implementation of more expensive conservation measures, such as the Whole House Graywater/Reuse, due to more easily attainable and affordable successes already being implemented. As a result, the cost to achieve each additional unit of water savings is progressively more expensive. The cost of water savings, per AF, is approximately 9% higher for Option B and approximately 37% higher for Option C, compared to Option A.

Figure 2: Cost to Valley Water to Achieve 2050 Targets



5. NEXT STEPS

The Valley Water Board Committee will be asked to review the conservation portfolios. Input from the Valley Water Board Committee will be used to refine the conservation portfolios, and one conservation portfolio will be selected for potential inclusion in the Master Plan.

REFERENCES

EKI, 2023. 2050 Master Plan Potential Savings Targets Technical Memorandum #1. Dated 28 September 2023.

Valley Water, 2021. Water Conservation Strategic Plan, Valley Water, dated July 2021.

**[https://www.valleywater.org/
droughtsaving-water/studies-
and-reports.](https://www.valleywater.org/droughtsaving-water/studies-and-reports)**



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Santa Clara Valley Water District

File No.: 24-0449

Agenda Date: 5/17/2024

Item No.: 4.2.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Receive Information on the Creation of a Demonstration Garden Featuring Santa Clara Valley Water District's Landscape Rebate Program.

RECOMMENDATION:

Receive information and provide input to staff about the creation of a Demonstration Garden featuring Santa Clara Valley Water District's Landscape Rebate Program.

SUMMARY:

Santa Clara Valley Water District (Valley Water) intends to install a Demonstration Garden (Garden) located at the southeast corner of Valley Water's Headquarters building located on Almaden Expressway. The Valley Water Garden will highlight a watershed approach to landscaping and serve as a beautiful, functional demonstration garden and community gathering space. Specifically, the Garden would showcase Valley Water's Landscape Rebate Program, serving as a tangible example for the public to see, to engage with, and to learn from. While rebate participants often inquire about visiting Valley Water's campus to find inspiration for their landscaping projects, at this time, they are redirected to gardens installed and maintained by other organizations and agencies throughout the county.

The Garden will convert approximately 22,000 square feet of existing landscape areas into a low water-use, Bay-friendly landscape and will include the creation of several Low Impact Development (LID) features. These LID features will include vegetated swales/rain gardens within the landscape and the renovation of existing bioretention areas in the main parking lot to infiltrate and treat stormwater runoff. High-efficiency irrigation technology and a rainwater harvesting demonstration system are planned. This project will also include the creation of a public gathering area, permeable hardscape, and educational signage. Due to the public location of this project, multiple internal and external stakeholder groups will be included in the design process to ensure the Garden achieves its full potential. The Garden, easily accessible by the public, will reflect garden design elements that can be applied to both residential and commercial sites.

Valley Water currently plans to release the Request for Proposal for design services later this year and hopes to begin construction in FY26. The estimated cost for design and construction is \$1.4 million. Safe Clean Water funding will be used in addition to potential grants and other Valley Water funding sources.

An update was provided to the Environmental and Water Resources Committee (EWRC) at their April 15, 2024 meeting. EWRC was supportive of the demonstration garden.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

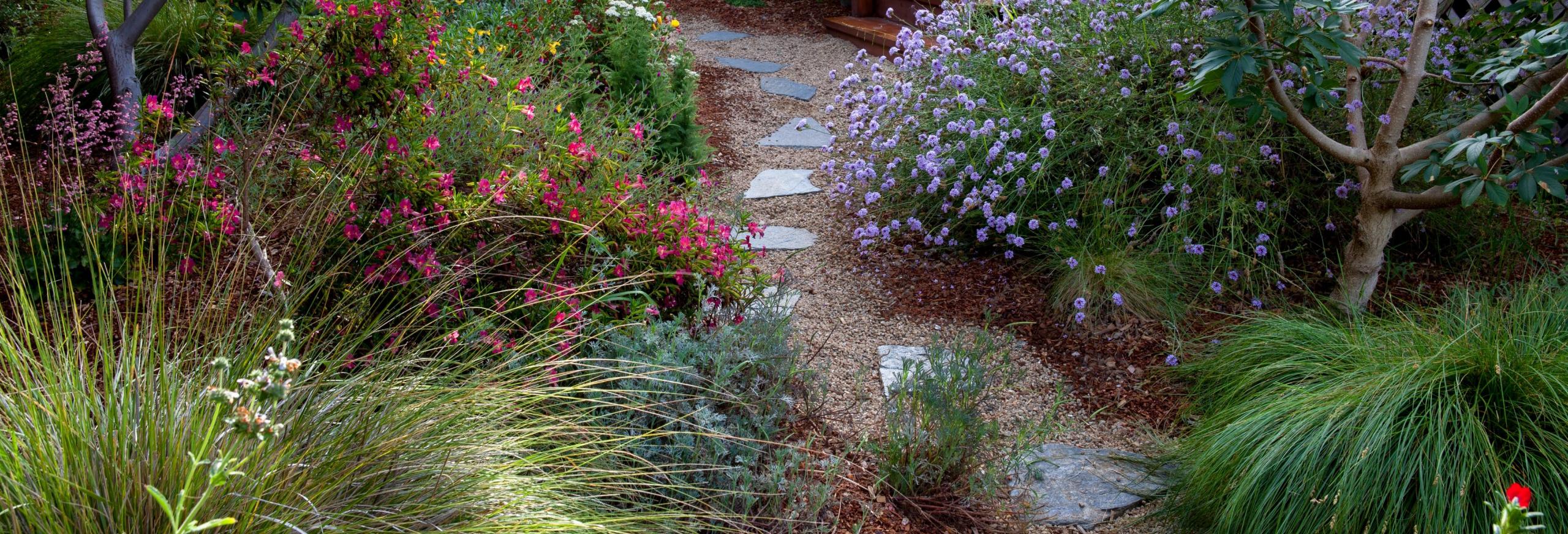
The Valley Water Garden addresses water supply equity by helping to reduce water use and lower water bills in all communities (including disadvantaged communities) by providing inspirational and educational resources needed to successfully complete water conservation rebates and utilize tools for reducing water demand.

ATTACHMENTS:

Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:

Kirsten Struve, 408-630-3138



Valley Water Demonstration Garden

Water Supply and Demand Management Committee

May 17, 2024

Valley Water Demonstration Garden

2

Inspiration

- Opportunity to exemplify leadership in sustainable landscaping
- Educate and inspire the community to rethink traditional lawn-centered landscapes
- Opportunity to create a multi-functional public gathering space



City of Santa Rosa Sustainable Education Garden design rendering.

Valley Water Demonstration Garden

3

Project Overview

- Multi-functional garden that serves as a public gathering space, demonstrates Landscape Rebate Program requirements and highlights a watershed approach to sustainable landscaping
- Replace 22,000 sq ft of existing, struggling landscape



Valley Water Demonstration Garden

4

Design Elements

- Public gathering and educational space
- Climate-appropriate planting, prioritizing CA native plants
- High-efficiency irrigation equipment
- Rainwater capture
- Stormwater management
- Educational signage
- ADA Accessible
- Space enhancement through art installations



UCCE Master Gardener Demonstration Garden, Martial Cottle Park.

Valley Water Demonstration Garden

5

Draft Timeline

- Design RFP: Release Q1 FY25
- Construction RFP: Release Spring 2025
- Begin Construction FY26

Estimated Costs

- Design: \$100K-\$150K
- Construction: \$1M - \$1.25M
- Maintenance: TBD

Funding Sources

- Safe Clean Water A2 funding
- Potential grants (Prop 1 Stormwater, Green Stormwater Infrastructure, etc.)
- Contributions from multiple Valley Water units



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Santa Clara Valley Water District

File No.: 24-0451

Agenda Date: 5/17/2024

Item No.: 4.3.

COMMITTEE AGENDA MEMORANDUM

Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Receive Information on the Water Use Projections, Water Demand Elasticity and Customer Affordability Study and Provide Feedback and Direction to Staff as Necessary.

RECOMMENDATION:

Receive information on the Water Use Projections, Water Demand Elasticity and Customer Affordability Study (Study) and:

- A. Review the Study scope and objectives as identified, and;
- B. Provide feedback and recommendations to staff as necessary.

SUMMARY:

Santa Clara Valley Water District (Valley Water) has engaged consultants to validate and/or suggest refinements to current water use projections for Valley Water-managed water use; perform a water demand elasticity analysis; and determine the affordability of water to residents and businesses within Santa Clara County. The majority of residents and businesses have water service from a retailer, while Valley Water acts as the water wholesaler. Study results may impact future Valley Water groundwater charges.

The Financial Planning and Revenue Collection office manages long term forecast models and the annual rate setting process for the Water Utility. Water charges are adopted annually. Based upon feedback received from the Board during recent long term forecasting cycles, staff opted to pursue a Study to help inform future rate setting cycles.

The consultants - Raftelis Financial Consultants, Inc. and Hazen and Sawyer - will be tasked to provide analyses for the following Study scope and objectives:

1. Analyze water use projections in Santa Clara County, for retailers, their direct customers, and private well owners and how it informs Valley Water-managed water use projections. Valley Water-managed water use translates to revenue for the Water Utility.

2. Prepare a water demand elasticity analysis to better understand how rates impact water demand.
3. Determine the affordability of water provided by Valley Water to Santa Clara County residents and businesses now and based on future rate projections.

The Study assumes leveraging readily-available data from Valley Water, such as the most-recent water demand model Hazen developed for the Water Supply Planning & Conservation Unit in 2019. The 2019 demand model was used to support scenario development for the Water Supply Master Plan 2050. This Study will adapt that model for use in rate setting, which will involve collecting water use data from 2019-2023 and developing future water use scenarios. Valley Water staff and the consultants both recognize that the scope of this Study presents unique challenges, one of which is obtaining detailed water usage data from non-Valley Water sources.

Staff anticipates technical memorandums for each of the three (3) analyses to be completed followed by a final report documenting the study.

At this time, staff recommends material Study updates be presented to the Water Supply and Demand Management Committee periodically with final Study results presented to the full Board.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

Further analysis is necessary to determine the environmental justice and equity impacts associated with results of the Study. Updated environmental justice and equity determinations will be included in future Study update to the Water Supply and Demand Management Committee and ultimately the Board.

ATTACHMENTS:

Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:

Darin Taylor, 408-630-3068



Valley Water

**Water Use Projections,
Water Demand Elasticity,
and Customer Affordability**

Water Supply and Demand Management Committee Meeting

May 17, 2024

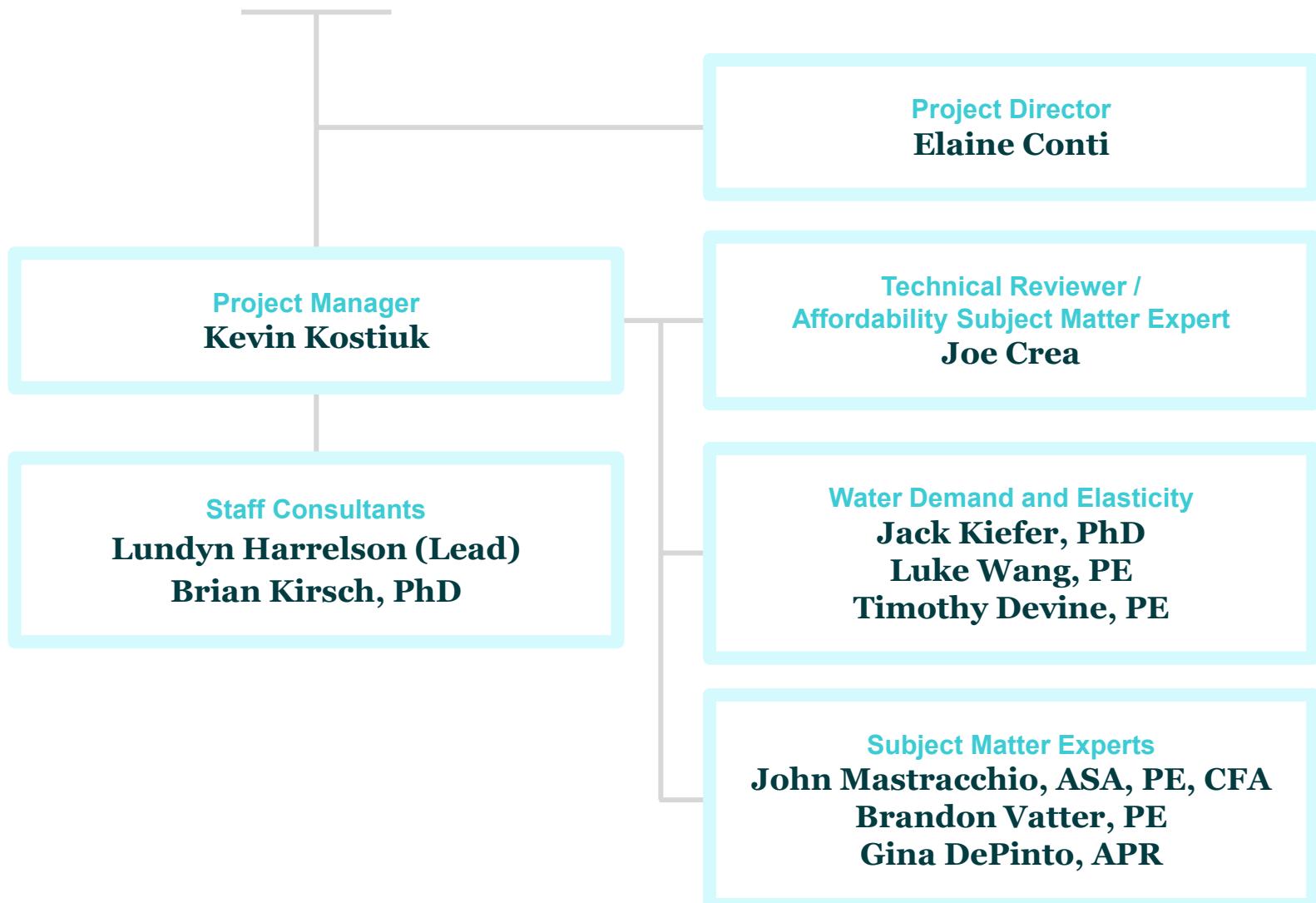


Agenda

1. The Team
2. Study Scope
3. Key Assumptions
4. Study Timeline
5. Q&A

Project Team

Valley Water

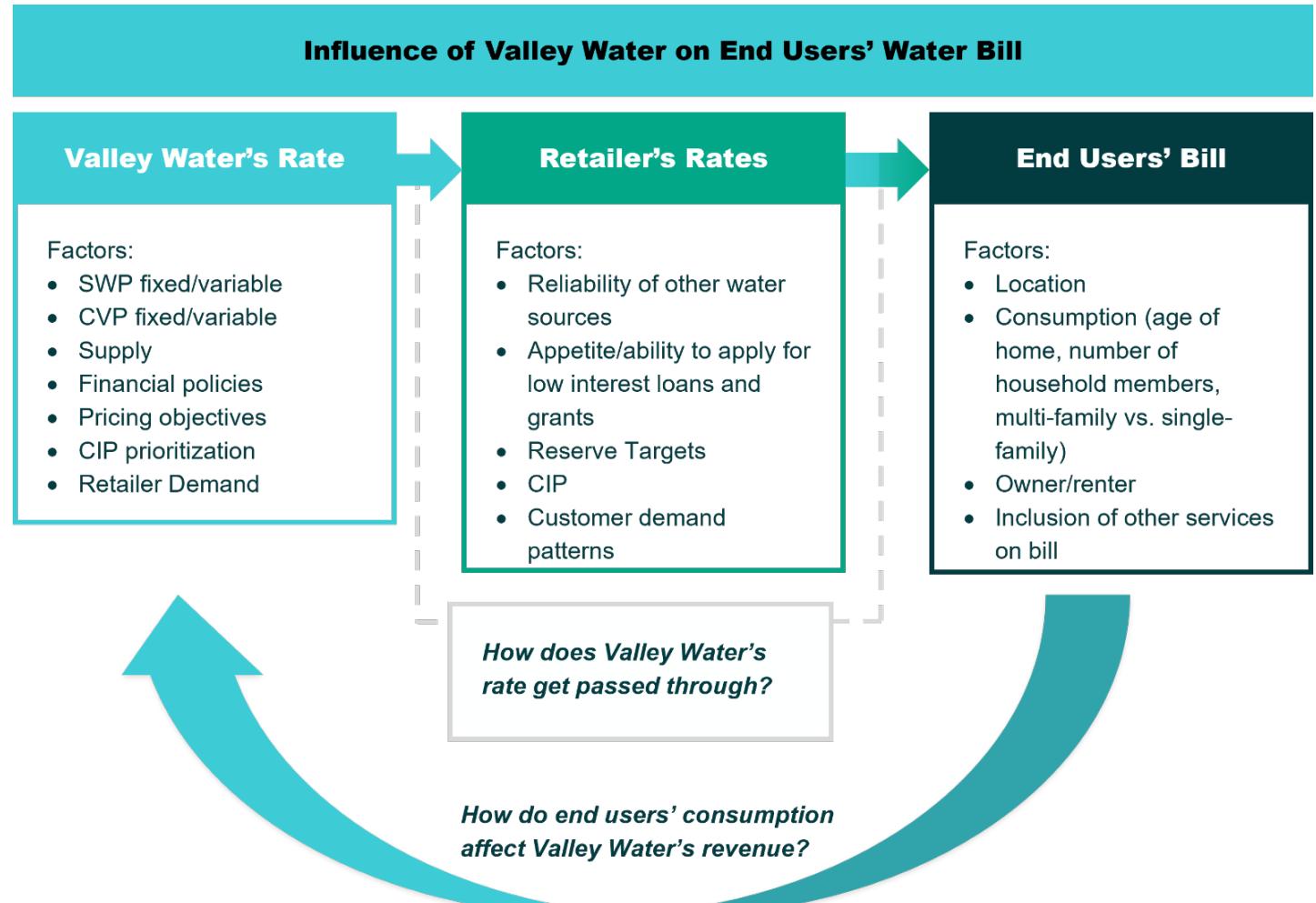


Study Scope – Primary Tasks

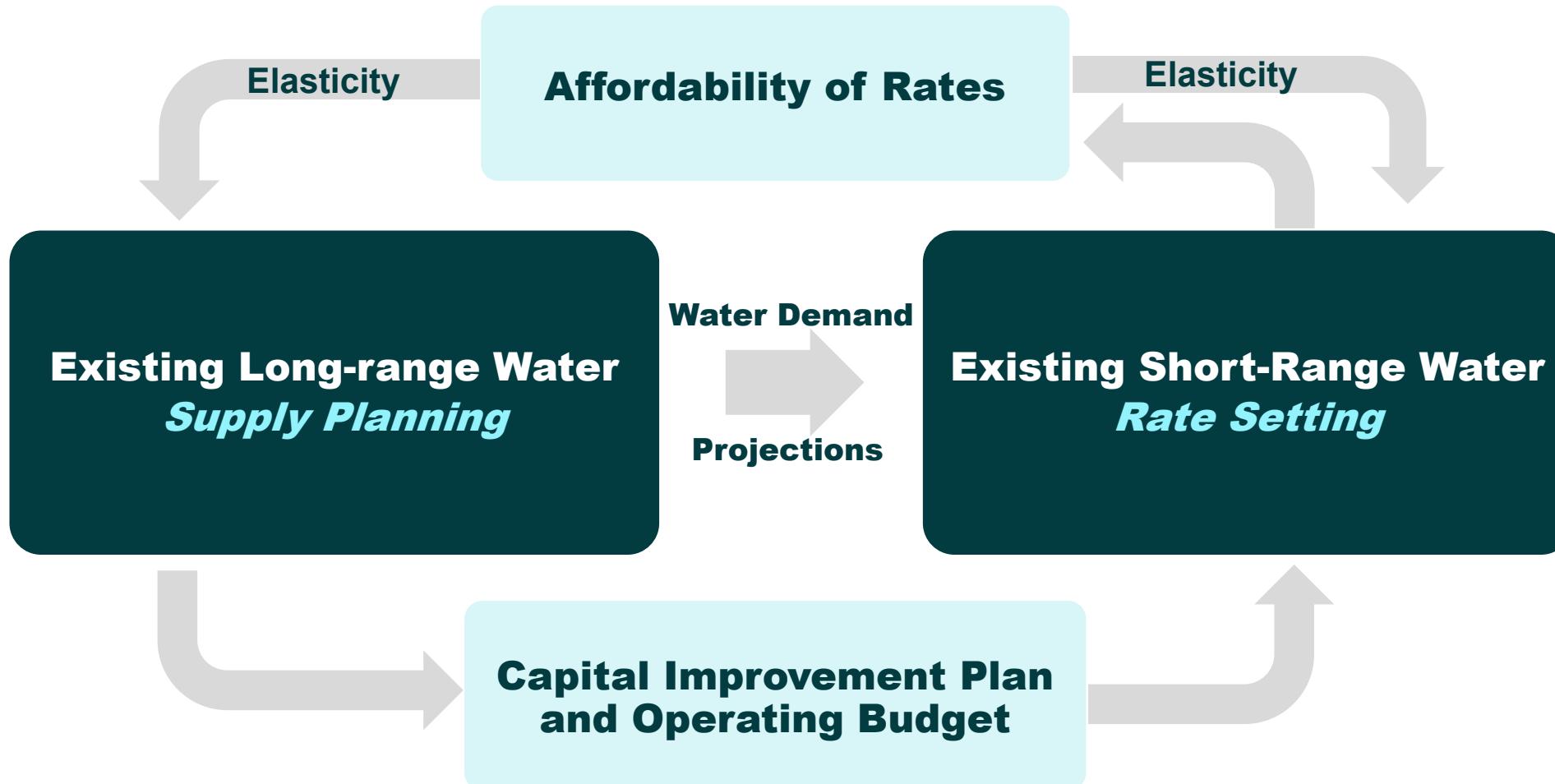
- *Analyze and understand the interrelationships of price elasticity, affordability, and water demand*
- Tasks:
 - › Water Demand Analysis
 - › Elasticity of Demand Analysis
 - › Water Rate Affordability

Project Goals

- Answer how Valley Water's rates impact water demand (elasticity) and affordability of water service
- Validate/refine water demand forecasting for rate setting



Link Valley Water Long-Range Planning to Rate Setting



Link Valley Water Planning Efforts to Rate Setting

Existing Long-Range Demand Forecasting Model

- 3 principal sectors
- Monthly time step
- Econometric modeling of Retailer data (2000 – 2018)
- **Variables considered including:**
 - Systematic seasonality
 - Weather
 - Drought restrictions
 - Socioeconomic factors (income, etc.)
 - Macroeconomic (economic index)
 - **Price**

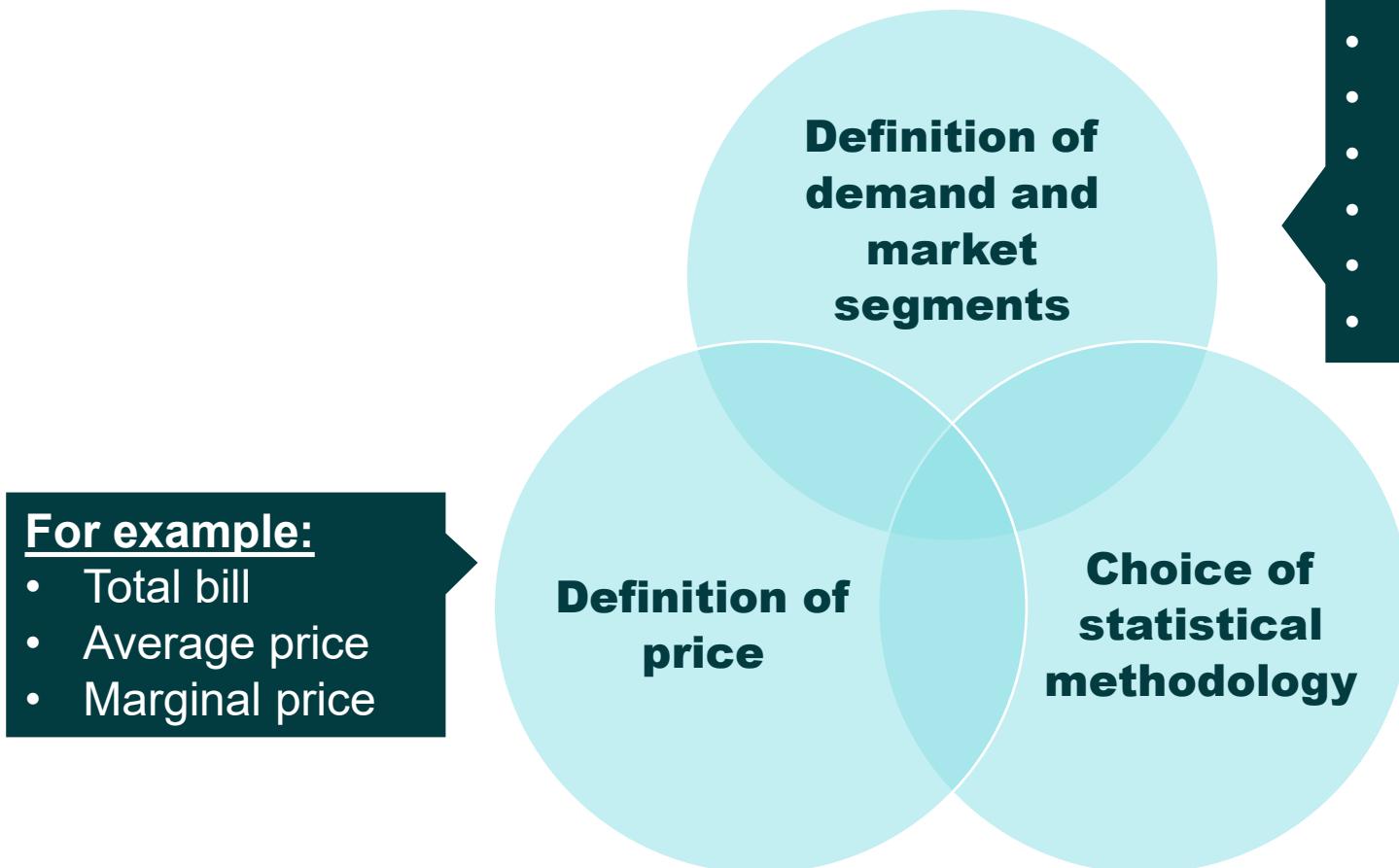
Decision Support for Water Supply and Reliability Planning

- UWMP demand forecast
- Cost of Water Shortage Model
- Drought Response Plan

Existing Water Rate Setting

- Shorter time horizon
- District-supplied demands
- Operational and capital needs define:
 - Cost of service
 - Revenue requirements
 - Rate schedule

Study Design Considerations for Estimating Price Elasticity



For example:

- Total bill
- Average price
- Marginal price

For example:

- Total system
- Sectoral system
- Retailer
- Annual or Monthly
- Retailer-Sector-Monthly
- Household income cohorts
- Type of business

For example:

- End user vs classes
- Pooled data vs individual time-series
- OLS with price “instrument”
- Instrumental variables/2SLS

Rate Affordability Approaches

ASSESSMENT V. AFFORDABILITY

Financial Capability Assessment

- » Macro
- » Measures ability of community to support capital investments
- » Used as part of LTCP/CD schedule negotiations



Household Affordability

- » Micro
- » Measures ability of households to pay for water and sewer service
- » Used as part of recurring rate increase discussions

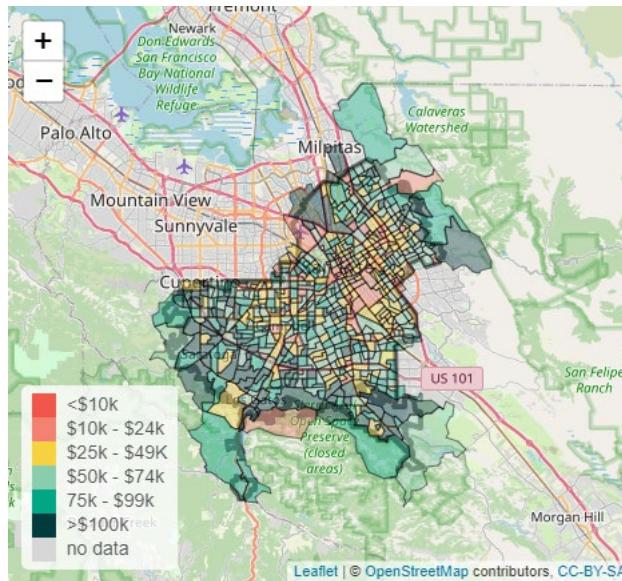
Two sides of the same coin

Rate Affordability Approach

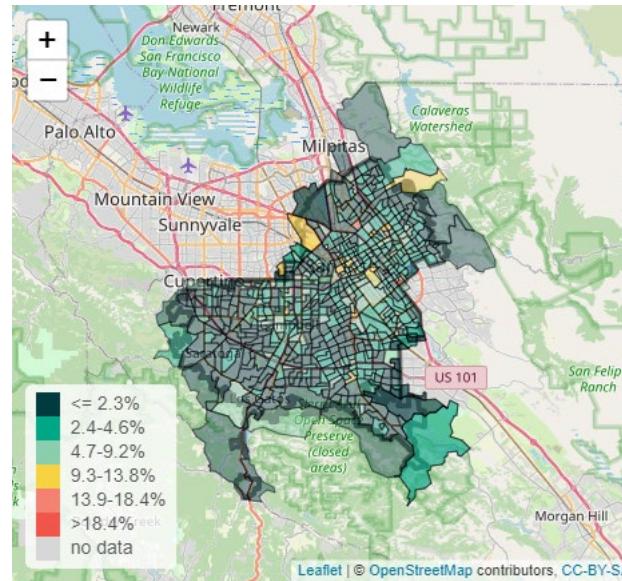
Integrated Planning Financial Capability Assessment						
Community Mosaic	Residential Bills		Utility Financial Viability			
Income Distribution: Census Tract, Quintiles, Type	Unemployment & Poverty Rates	Rate & Bill History	Local Costs of Living	Bond Rating	Cash-based Financial Plan	Debt Profile
Income by type: owner, renter, receiving assistance, etc.	Demographics: elderly, families, etc.	Bill as % of MHI by tract	AR ₂₀ & Hours Worked	Liquidity: cash on hand & working capital	CIP Financing	Debt Ratio
Income v. state and national averages	Educational Attainment	Political realities, i.e. rate increase limits	Bill as % of lowest quintile limits	System size/diversity	Coverage and Financial Performance	Debt per customer

Community Characteristics

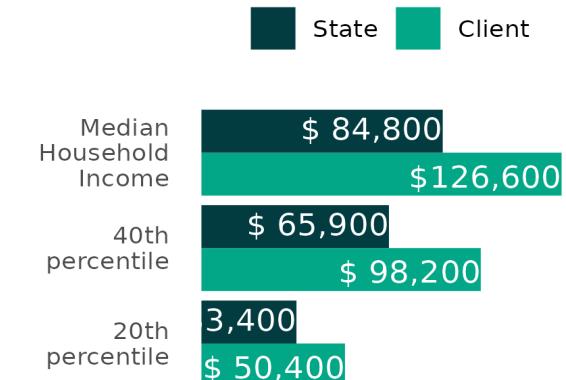
LQI in Service Area



MHI in Service Area

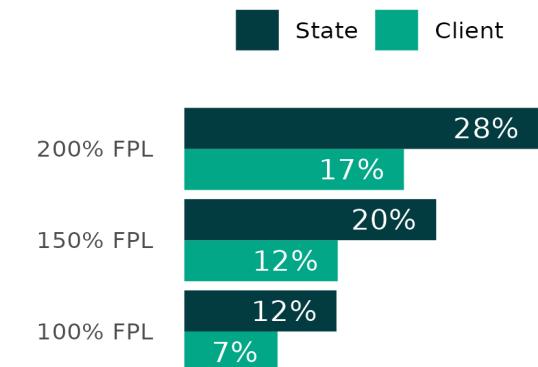


Household Income



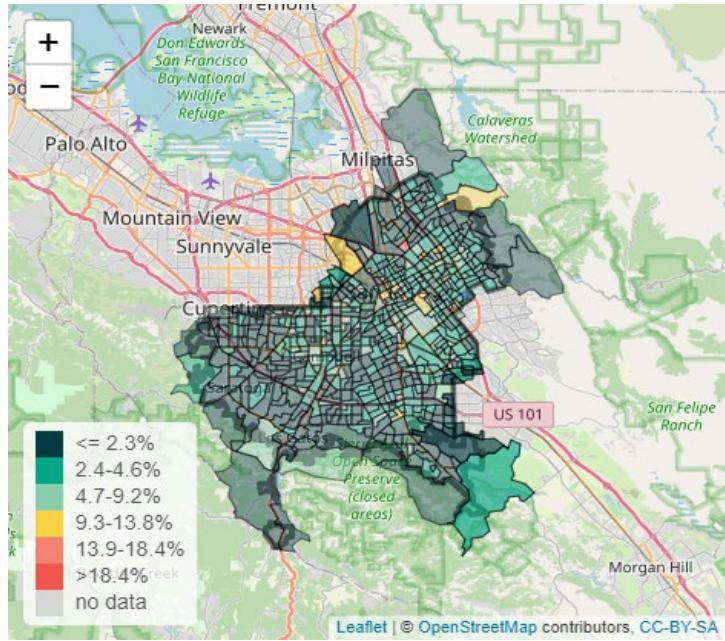
- The 20th percentile of income (LQI) in the service area is \$50,436 which is higher than the state average.
- The median household income (MHI) is \$126,560 under the same approach and is higher than the state average.
- 7.4% of households live at or below the Federal Poverty Line (FPL), 12.1% live at or below 150% of the FPL, and 17.4% live at or below 200% of the FPL. This is **below** the state average.

Households in Poverty

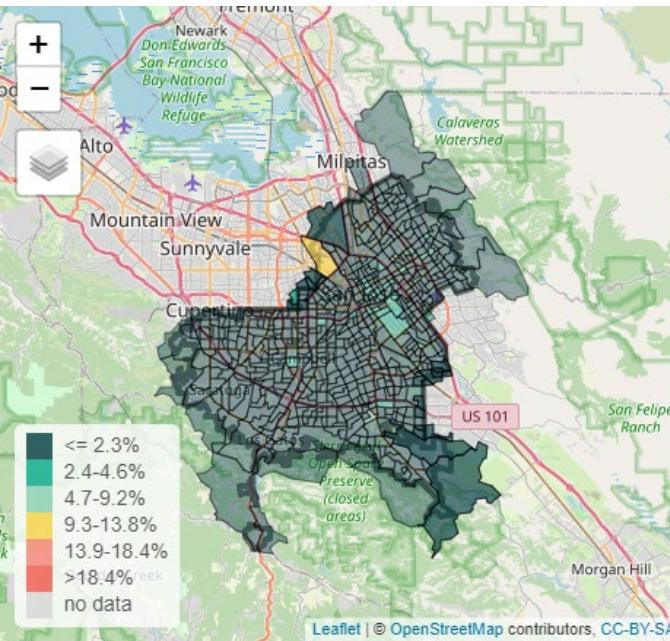


Affordability Metrics

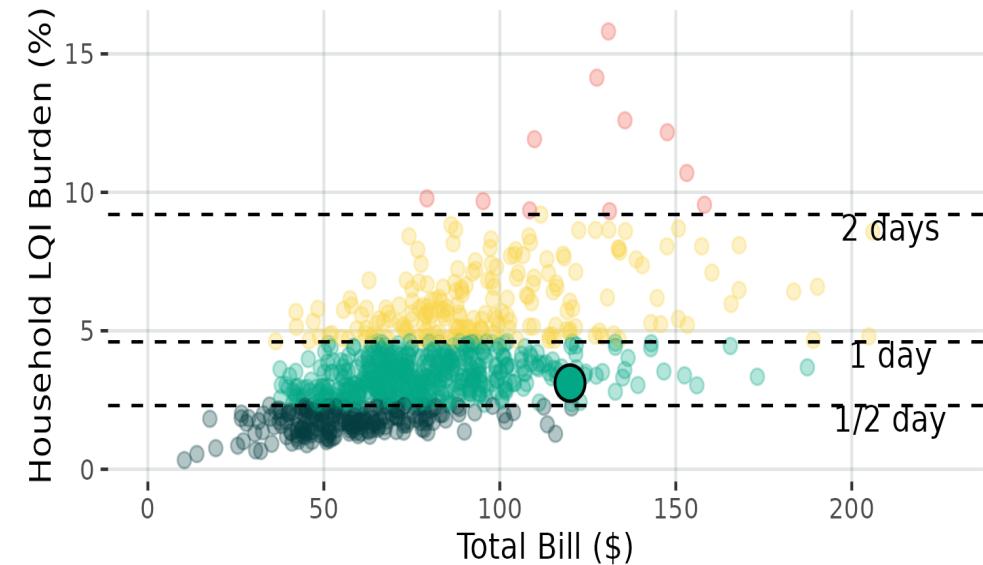
LQI Burden



MHI Burden



Cost Comparison with All Utilities in Dataset



Collectively, 5,000 gallon water bills represent 1.3% of MHI, which is **below** the commonly used affordability metric of 4.5% for households with median income. Households with income at the 20th percentile spend more of their income on utility bills (3.11% and they are below the commonly used affordability metric of 7% for low-income households). A customer would have to work 7.46 hours of work at the minimum wage (\$16.07) in order to pay for a 5,000 gallon water bill; this is **below** the commonly used metric of 8 hours as affordable.

Study Assumptions

- Leverage available data
 - › 2019 Demand Model
 - › Valley Water data sources
- Willing participation from Retailers
 - › Assumes some retailers will be willing to share detailed billing data for the purposes of this Study
- Defined Study Scope
 - › Supports meeting deadlines for purposes of informing FY2025-26 Rate Setting Cycle

Study Challenges & Limitations

- Availability of data
- Reliability of data
- Level of effort to acquire and model data
- How to define affordability local to Santa Clara County
- Defining key drivers of local demand elasticity
 - › Potential influencers: mix of customers and land uses, indoor versus outdoor usage, density and property sizes, incomes, etc.
- Limitations of demand elasticity approach
 - › Excludes Retailer customer account / parcel level estimation

County v Retailer / Agencywide v Class

County



Retailers



Sectors



Study Schedule

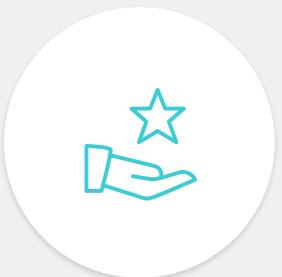


What Sets us Apart



Resources & Expertise

With more than 160+ consultants across California and in the U.S., including Hazen expertise



Valley Water Knowledge

Both Raftelis and Hazen staff have experience working with Valley Water over numerous years



Local and National Experience

Successful projects conducting water demand and elasticity and affordability



Access to Datasets

Raftelis has access to Valley Water specific demand data, and local/national affordability and rate structure datasets



Communications

Experts with board engagement and public communications



Affordability Assessment Experience

Raftelis has worked with utilities throughout the country related to

ALL aspects of affordability:

- 1997 Financial Capability Assessment
- Integrated Planning
- 2019 Affordability Assessment (NACWA)
- CAP Evaluation & Development
- Affordability Rate Design
- Racial and Socioeconomic Equity
- Bill Delinquency Evaluation
- Policy Development

Akron	NEORSD
Arlington County	New Orleans Sewerage and Water Board
Atlanta	Newport News
Baltimore	Northampton
Birmingham Water Works Board	Philadelphia Water Depa
Borrego Water District	Phoenix
Chicopee	Pittsburgh Water and Sewer Authority
DC Water	Pomona
El Paso Water	Richmond
Flint	San Antonio Water Syst
Gwinnett DWR	Seattle Public Utilities
Hallsdale-Powell Utility District	Massachusetts
Jackson	Stoughton
Lakewood	Washington Suburban Sanitary Commission
Melrose	

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Santa Clara Valley Water District

File No.: 24-0450

Agenda Date: 5/17/2024

Item No.: 4.4.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Receive Update and Discuss the Water Conservation Program Savings Number for Fiscal Year (FY) 2023.

RECOMMENDATION:

Receive update and discuss the water conservation program savings number for Fiscal Year (FY) 2023.

SUMMARY:

Valley Water has provided a robust water conservation program to our community since 1992. In November 2019, Valley Water's Board of Directors (Board) approved the 2040 Water Supply Master Plan that updated the long-term conservation goals to 99,000 acre-feet per year (AFY) and 110,000 AFY by 2030 and 2040 (compared to the 1992 baseline), respectively.

Valley Water staff tracks progress towards the long-term conservation goals using a custom, Excel-based Water Conservation Savings Model (Savings Model). Every year, staff inputs annual participation totals from the prior fiscal year into the Savings Model to track progress towards the long-term conservation goals.

The purpose of this memorandum is to provide an update on total annual savings number from the water conservation program for Fiscal Year (FY) 2023. Information about current conservation programs is detailed in the attached flyer (Attachment 2) and can be found at www.watersavings.org <<http://www.watersavings.org>>.

Savings Update

To meet the Board adopted long-term conservation goals, the 2021 Water Conservation Strategic Plan (Strategic Plan) determined that 1) Valley Water must sustain drought-year level participation in non-drought years to generate at least 2,400 AFY in additional savings annually; and 2) outdoor conservation and Program participation by commercial, industrial, and institutional (CII) including

multifamily residential (MF) sites must increase. As Valley Water transitioned out of its most recent drought response in March 2023, drought-level participation was sustained throughout FY 2023.

In FY 2023, long-term water conservation increased 3,096 acre-feet to 83,174 AFY (from a 1992 baseline). For context, this is a slight decrease from the 3,522 AFY increase observed in FY 2022, yet approximately 41% above the 5-year average annual increase of 2,037 AFY. The FY 2023 increase was influenced strongly through sustaining the Landscape Rebate Program (LRP) rebate at \$2 per square foot and, impressive participation rate increases in Valley Water's Programs in response to new policies by Valley Water and the State discussed below.

Existing Programs with New Trends

Landscape Rebate Program

Using funding from Safe, Clean Water, the current Landscape Rebate Program (LRP) landscape conversion rebate increased from \$1 to \$2 in July 2021, and the CII and MF maximum rebate increased from \$50,000 to \$100,000 in July 2022.

Overall, LRP participation for turf conversion projects has increased year-to-year since FY 2020 and the proportion of LRP CII participation has increased since FY 2022 (Table 1). This shift toward CII and MF participation from single-family residential participation was likely influenced through the higher rebate amounts, increased outreach to these properties, and a combination of local and statewide actions targeting inefficient irrigation and prohibiting irrigation of nonfunctional turf for CII properties discussed further below. CII and MF rebates require comparable amounts of time for staff to process yet typically result in significantly larger water-savings per property than projects at single family residential sites.

Prior to FY 2023, CII and MF sites accounted for an average of 25% of all turf converted and 5% of rebate applications (Table 1). In FY 2023 and FY 2024 (through March 2024), CII and MF jumped to an average of 43% of all turf converted and about 10% of rebated applications.

Table 1: Summary of total and percentage of square footage converted as well as percentage of rebate applications by property type.

Fiscal Year	Square Footage	CII and MF		
		Percent of Rebated Applications (%)	Total	CII and MF Percent of Area (%)
Single Family	CII and MF	Total	CII and MF Percent of Area (%)	
FY 2019	259,508	107,209	366,717	29% 5%
FY 2020	229,207	73,482	302,689	24% 5%
FY 2021	258,644	82,415	341,059	24% 5%
FY 2022	804,226	231,316	1,035,542	22% 5%
FY 2023	1,153,764	832,605	1,986,369	42% 9%

FY 2024 (through March 2024)	606,094	476,469	1,082,563	44%	11%
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Other Program Trends

The strongest performing water conservation programs are outdoor conservation programs, Advanced Metering Infrastructure, and the Online Shopping Cart Program (Table 2).

Most individual programs have different unit-savings, useful life for generating savings, and interactions with California Plumbing Code that influences how savings accumulate over time. For example:

- Water Wise Outdoor Surveys is an educational program that assumes savings may be sustained for 5 years;
- Installing high-efficiency irrigation equipment (such as weather-based irrigation controllers) is replacing actual hardware that studies have shown can generate savings for up to 10 years after installation; and
- Fixtures distributed from the Online Shopping Cart Program continue to generate savings from years prior until they break at which point they can only be replaced with code-compliant efficient equipment.

Table 2: Summary of Existing Programs that Drive Active Savings Trends

Program Name	FY 2023 ¹
Large Landscape Program	35.8%
Advanced Metering Infrastructure and Water Use	19.6%
Mobile Irrigation Lab	13.9%
Landscape Rebate Program - Turf Replacement	12.6%
Landscape Rebate Program - Irrigation Equipment	9.0%
Online Shopping Cart Program	4.0%
Submeter Rebate Program	2.5%
Water Efficient Technology (WET) Rebate Program	1.5%
Fixture Replacement Program ²	1.0%
Water Wise Outdoor Surveys	0.1%
Landscape Rebate Program - Rainwater Capture	<0.1%
Graywater - L2L	<0.1%

¹ The percent of total active savings yielded by each program in FY 2023.

² Includes savings from a pilot program with PG&E to provide services comparable to the Fixture Repl

Table 2 demonstrates the need for sustained investment in water conservation programming. Without reinvesting and expanding the Program, the savings levels achieved would diminish by thousands of

acre-feet each year.

Policy Changes Impacting Long-Term Water Savings

In April 2023, the Board rescinded its declaration of a water shortage emergency condition and subsequently called for a voluntary reduction in water usage by 15% across Santa Clara County. To further sustain the water demand reductions observed during the drought, the Board adopted two new policies in June 2023:

1. Ordinance 23-02 expanded upon existing water waste prohibitions, to establish a comprehensive enforcement process for responding to reports of violations during and outside of droughts, focusing on enforcement and education respectively, and to grant Valley Water the authority to impose fines on property owners for repeat violations under specific conditions. This effort included adopting permanent water waste prohibitions, including a ban on irrigating non-functional turf with potable water at CII properties is in effect. A similar (but less strict) ban on non-functional turf irrigation on CII properties was also passed at the State-level through AB 1572, which will be phased-in between 2027 and 2031.
2. Resolution 23-52, Calling for Water Conservation as a Way of Life in Santa Clara County committed Valley Water to be a leader in water conservation through 11 Guiding Principles to guide staff's efforts towards promoting long-term water conservation and to adopt best practices outlined in the Strategic Plan. At the State level, the Making Conservation a California Way of Life regulatory framework (Conservation Framework; AB 1668/SB 606) is anticipated to be finalized this year. The Conservation Framework will put new water-use efficiency requirements on water retailers throughout the State. Valley Water's Programs (particularly including LRP and the Large Landscape Program; Attachment 3) will be critical tools to help ensure local and regional compliance with these new policies.

Staff anticipates these policy changes to positively impact Program participation rates in future fiscal years. Between local and statewide efforts, Valley Water Programs aim to support compliance which will ultimately increase long-term savings trends into the future.

Challenges and Opportunities

With about 75% of FY 2023 being during a drought response, Program savings remained high. Historically, Program participation remains elevated for about a year after a drought ends-staff expects this momentum to continue in the current fiscal year and then decline in FY 2025 without investments or strategies to bolster participation rates. The increased rebate rate for LRP was initially intended to be a temporary increase during the drought and before the historic worldwide inflation of the last several years. Long-running programs like the Water Efficient Technology (WET) Rebate Program historically were a cornerstone in generating CII water savings, yet participation is on a multi-year downward trend that impacts current year and long-term savings projections.

The increased CII participation in LRP shows promising opportunities to better connect and market Programs to the CII sector. Additionally, the Submeter Rebate Program can be a useful tool for ensuring accessory dwelling units (ADUs) built in Santa Clara County are water-efficient while also

helping municipalities meet their housing goals.

Conclusion

Long-term water savings increased to 83,174 AFY in FY 2023. To achieve the Board's long-term conservation goals, the Strategic Plan identified the need to maintain drought-level participation outside of droughts and to increase CII participation. Progress has been made with regards to advertising the Programs for most of the year and testing new outreach approaches for the CII sector. However, maintaining the increased LRP rebate amount at \$2 a square foot is not guaranteed with other budget constraints. Higher rebates paired with increased awareness of existing and future regulatory changes to encourage water-use efficiency will remain critical elements in maintaining staff's progress as we transition from drought-response to long-term conservation. In parallel, staff will continue to improve existing programs and develop new programs to achieve board goals.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

Environmental justice and equity impacts on local communities are expected/likely to result from implementation of the water conservation program toward meeting the long-term water conservation 2030 and 2040 goals.

Water conservation offers a range of environmental justice benefits by promoting equitable access to clean water, reducing pollution, protecting ecosystems, mitigating climate change, saving costs for vulnerable communities, enhancing drought resilience, and empowering residents with knowledge and skills for sustainable water use. Valley Water provides such water conservation information in multiple languages and via various outreach techniques to reach all members of our community. Valley Water acknowledges that during drought, disadvantaged communities may be disproportionately impacted. To address these impacts, Valley Water promotes access to equitable and affordable water supplies (Water Supply Goal 2.6).

ATTACHMENTS:

- Attachment 1: PowerPoint Presentation
- Attachment 2: Water Conservation Program Flyer (PDF)
- Attachment 3: Link to 2021 Water Conservation Strategic Plan

UNCLASSIFIED MANAGER:

Kirsten Struve, 408-630-3138

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Water Conservation Program Savings Update (FY23)

Water Supply and Demand Management Committee, May 17, 2024
Justin Burks, Sr. Water Conservation Specialist

Watersavings.org

All Water Conservation Programs



Rebates & Surveys



Outdoor Conservation



Landscape Guides & Resources



Indoor Conservation



Understanding Your Water Use



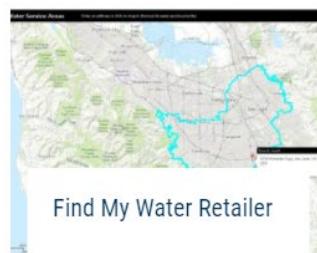
Water Saving Devices



Report Water Waste



Water Saving Videos



Find My Water Retailer

Water Conservation Infographic



www.watersavings.org



2. Rain Garden

Add a rain garden [to your landscape and receive a rebate!](#) Rain gardens allow water from downspouts to soak into the ground instead of flowing into storm drains.

- Frequently Asked Questions: <https://valleywater.dropletportal.com/faq/rainwater>
- Program Overview: <https://www.valleywater.org/saving-water/rebates-surveys/landscape-rebates>
- Qualified Rain Garden Plants: valleywater.dropletportal.com/documents/pdf/SCVWD_Qualified_Rain_Garden_Plants.pdf



5. "Laundry-to-Landscape" Graywater System

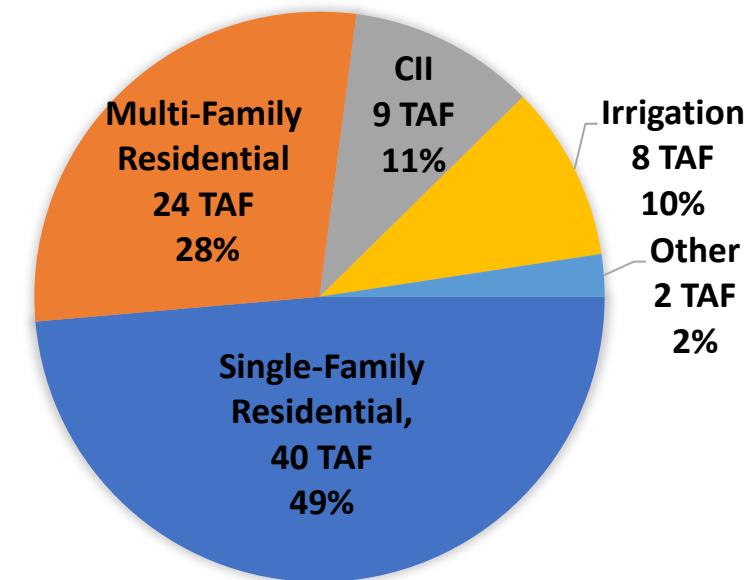
Install a Graywater Laundry-to-Landscape system that diverts water from your washing machine to your landscape and receive a rebate! This project can be Do-It-Yourself or installed by a trained professional and can save about 6,600 gallons or more per year.

- Laundry to Landscape Graywater System Application: cloud.valleywater.org/ords/r/appweb/graywater-laundry-to-landscape-rebate-program/login
- Get started and learn about other graywater systems: valleywater.org/saving-water/outdoor-conservation/about-graywater

Water Conservation as a Way of Life

- Long-term conservation reduces risks for current and future droughts
- Conservation Savings Targets
 - 99,000 AF/year by 2030
 - 110,000 AF/year by 2040

WATER SAVINGS BY SECTOR



TAF = 1,000 acre-feet

Water Conservation Savings Model

- Built from a national, Excel-based model
- Tracks progress towards targets
- Evaluates individual & program
 - Savings
 - Cost effectiveness
- Strategic Plan (2021)
 - Blueprint for success
 - Support tool for program marketing and design

Model inputs

- 1992 baseline
- Inflation and real discount rate
- Population, employment, and building types
- Behavior
- % of efficient fixtures in county
- Costs
- Objective savings data



Water Conservation Tracking Model

Input Worksheets

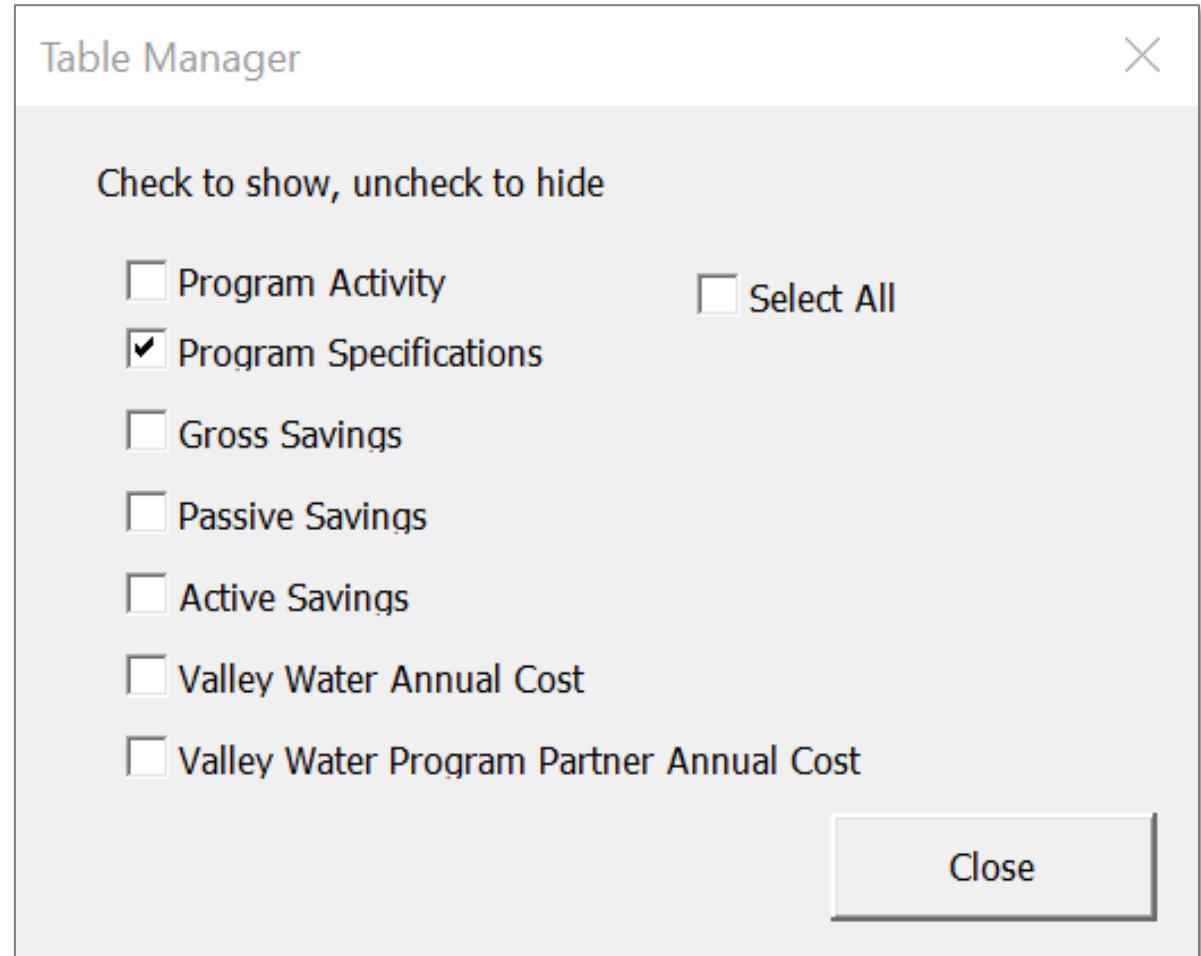
[Population & Housing](#)
[Conservation Programs](#)

Summary Worksheets

[Water Savings Summary](#)
[Plumbing Fixture Saturation](#)
[Valley Water Cost Summary](#)
[Program Partner Cost Summary](#)

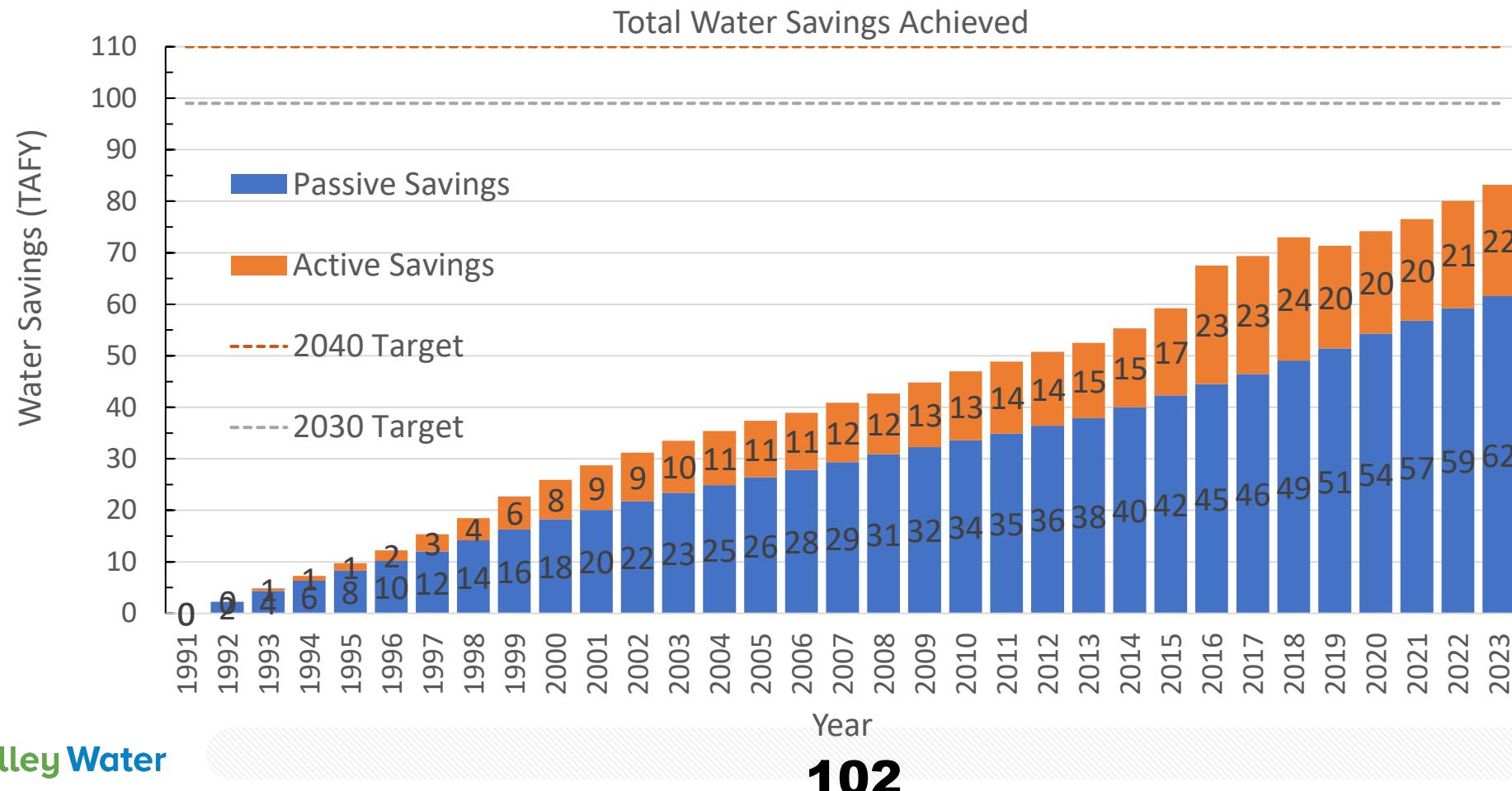
Model Outputs

- Changes in % of efficient fixtures
- Water savings
 - programmatic
 - Specific customer classes
 - Overall
- Cost per acre-foot



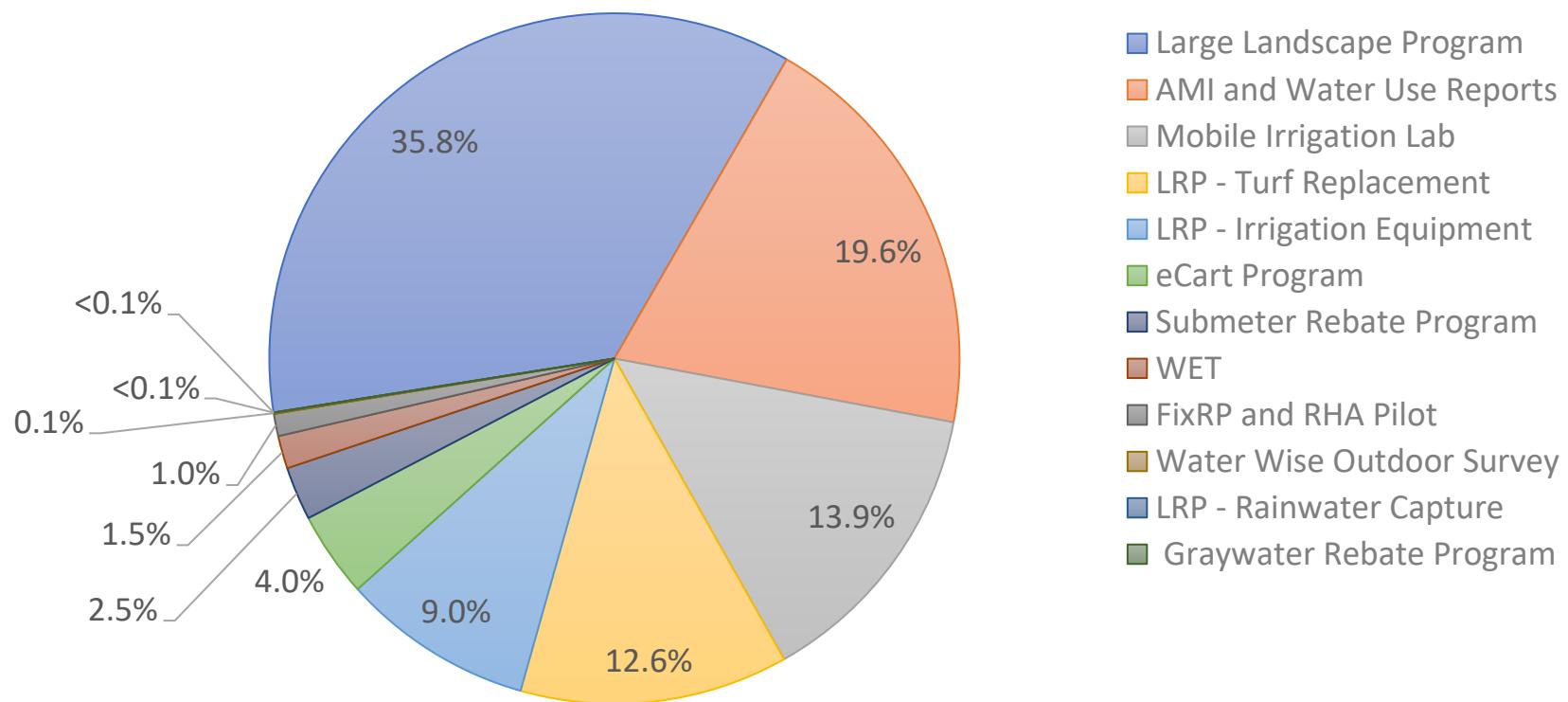
Progress Towards Conservation Targets

83,174 AF/year saved through 2023



Savings Drivers

Percent of Active Savings Yielded per program



Policy Changes Impacting Savings

Valley Water	California	VW Program Support
Water Waste Prohibitions (Ordinance 23-02)	Ban on Irrigating Nonfunctional Turf (AB 1572)	<ul style="list-style-type: none">• Landscape Rebate Program• Large Landscape Program• Water Waste Program
Water Conservation Guiding Principles (Resolution 23-52)	Conservation Framework establishes Urban Water Use Objectives for indoor and outdoor efficiencies and CII performance metrics (AB 1668/SB 606)	<ul style="list-style-type: none">• Landscape Rebate Program• Large Landscape Program• Water Efficient Technology Rebate Program• AMI and Water Use Reports

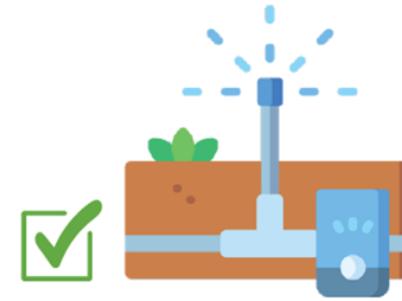
Conservation Milestones During Last Drought



3.4 Million Sq. Ft. of Turf Converted



Water Use Dropped 25% in the Last 5 Years



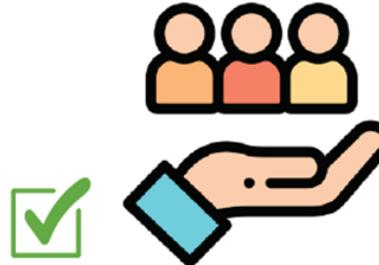
20+ Water Conservation Programs Underway



On Track for Long-Term Water Savings



Robust Outreach Campaign



Drought Resources Increased



Total Water Use Down Amid Historic Population Growth

Next Steps

Maintain drought participation in a non-drought year

Continue to improve existing programs and develop new program offerings

Pursue benchmark study to evaluate program offerings and incentive levels compared to peer agencies

Leverage local and statewide policies to increase engagement with CII sector for indoor and outdoor conservation programs

Water Conservation Rebates and Programs



Valley Water

Say YES to Saving Water!

Valley Water's water conservation rebates and programs are designed to make water conservation easier, helping you say YES to saving water. Learn more about all of our conservation programs and resources by visiting watersavings.org.

Online Shopping Cart

Valley Water offers free water conservation devices that can help you save water. You can request free water efficient devices and free resources to evaluate your water use efficiency. Visit cloud.valleywater.org/shopping-cart to order your FREE gear and literature today!

Landscape Rebate Program

The Landscape Rebate Program can help you create beautiful drought resilient landscapes. Get started by finding more information at valleywater.dropletportal.com. Make sure you submit an online application for approval and schedule a pre-inspection **before beginning any work** on your project.

▪ Rebate Caps

The following landscape rebate site caps apply to the combined program components, including Landscape Conversion, Large Landscape Lawn to Mulch, Irrigation Equipment Upgrade and Rainwater Catchment.

- \$3,000 for single-family or multi-family residential properties (4 or fewer units)
- \$100,000 for all commercial, industrial, institutional properties or multi-family residential properties (5 or more units)

Rebate rates and caps may be higher in some areas.

Other programs are capped separately.

▪ Landscape Conversion

Any property with qualifying high-water using landscapes (i.e., lawn or functional swimming pools) can receive a rebate of at least \$2 per square foot (sq. ft.) for converting to a drought resilient landscape.

▪ Large Landscape Lawn to Mulch

Any commercial, industrial, institutional properties or multi-family residential properties can receive a rebate of at least \$1 per sq. ft. for converting a qualifying lawn to a minimum of 3 inches of mulch (minimum 15,000 sq. ft. lawn area). The irrigation system watering any trees in the converted lawn area needs to be converted to a low-flow irrigation system. Golf course options are offered.



A converted low-water use garden featuring California poppies in bloom.

▪ Irrigation Equipment Upgrade

Rebates are offered for replacing old, inefficient irrigation equipment with new, qualifying high-efficiency equipment, including:

- High-efficiency nozzles (up to \$5 each)
- Rotor sprinklers or spray bodies with pressure regulation and or check valves (up to \$20 each)
- Rain Sensors (up to \$50)
- Flow sensors, hydrometers, and dedicated landscape meters (up to \$1,000)
- Smart irrigation controllers (up to \$300-\$2,000 each)
- Sprinkler to In-Line Drip Conversion (\$0.25 per sq. ft.)

▪ Rainwater Capture

Rainwater capture or diversion projects collecting rainwater from existing downspouts can receive rebates for the following:

- Rain barrels up to 199 gallons (up to \$35 per barrel)
- Cisterns 200 gallons or more (\$0.50 per gallon)
- Rain gardens (\$1 per sq. ft. of roof area diverted, up to \$300)

Graywater Rebate Program

Receive at least \$200 per home for transforming your clothes washer into a graywater system. Plants don't need drinking water to thrive: reuse graywater in your yard! Apply online and find how-to videos at watersavings.org. No pre-inspection is required but **wait for approval before beginning any work**.

Landscape Surveys

Request to have your landscape and irrigation system surveyed by a trained irrigation professional for FREE. Following the survey, the specialist will provide you with a customized report, outlining any apparent leaks or inefficiencies, suggestions for irrigation scheduling, and recommendations for money-saving landscape rebates. Whether your landscape is small or large, we have a program to fit your needs.

▪ Water Wise Outdoor Survey Program

A Water Wise Outdoor Survey is for landscapes at single-family, small commercial, industrial, institutional properties or multi-family residential sites up to half an acre. To get started, have a recent copy of your water bill on hand and submit a request at valleywater.org/outdoor-survey.

Call **408-630-2000** or email waterwise@valleywater.org with questions. If you are a customer of San Jose Water Company, please contact them directly to schedule a CATCH survey at **408-279-7900** or customer.service@sjwater.com.

▪ Large Landscape Program

A Large Landscape Survey is for landscapes at commercial, industrial, institutional properties or multi-family residential common areas with over half an acre. Also, free landscape water budgets are available for some properties, which compare your actual irrigation use to a property specific budget. Visit waterfluence.com to see if your property already receives this free benefit. Request a survey at watersavings.org.

Commercial and Facility Rebates

Receive up to \$100,000 for replacing or updating equipment with water-efficient technology that results in measurable water savings. This custom rebate based on the measured amount of water saved is available to qualifying facilities including facilities like businesses, schools, hospitals and government buildings. The rebate is \$4 per 100 cubic ft. of water saved per year, or 100% of the project cost (excluding labor and taxes), whichever is less.

Fixture Replacement Program

Replace old qualifying fixtures for FREE! Inefficient fixtures can be replaced for free by licensed plumbers at qualifying commercial, industrial, institutional properties or multi-family residential properties. Inefficient fixtures that qualify include toilets, urinals, showerheads, faucet aerators, and pre-rinse spray valves. Sign up at blusinc.com, call **800-597-2835**, or customerservice@blusinc.com.

Submeter Rebate Program

Submeters can save 10-30% of water used! Received at least \$150 per installed water submeter by upgrading from a single meter. Accessory dwelling units (ADUs or granny units), mobile home parks, apartments, and condominium complexes can qualify. There is no rebate cap when all eligibility requirements are met.

Report Water Waste

Help local residents and businesses preserve our shared water supply by confidentially reporting water waste and violations of outdoor water-use restrictions. Any specific notes like location, date and time, or frequency will help our inspectors follow up. To report water waste, you may do one of the following:

- Use our Access Valley Water app (by downloading or using the QR code)
- Email waterwise@valleywater.org
- Call **408-630-2000**



CONTACT US

To find out the latest information on Valley Water projects or to submit questions or comments, use our **Access Valley Water** customer request system at access.valleywater.org.

FOLLOW US



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Join our mailing list:
<https://delivr.com/2uz9z>

**[https://www.valleywater.org/
droughtsaving-water/studies-
and-reports.](https://www.valleywater.org/droughtsaving-water/studies-and-reports)**



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Santa Clara Valley Water District

File No.: 24-0446

Agenda Date: 5/17/2024

Item No.: 4.5.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Receive an Informational Update on Costs Associated with the Pacheco Reservoir Expansion Project.

RECOMMENDATION:

Receive an informational update on costs associated with the Pacheco Reservoir Expansion Project.

SUMMARY:

On October 13, 2023 staff and Committee Member Hsueh presented potential topics regarding the Pacheco Reservoir Expansion Project (Project) to be brought before the Water Storage Exploratory Committee (WSEC) for more detailed discussion in future quarterly updates, and, later, to be brought before the full Board for discussion. This approach and these proposed Project topics were then discussed before the full Board on November 14, 2023 and approved. Additionally, WSEC acknowledged that some topics may require more time to prepare and recommended adjusting the quarterly update schedule as necessary. With the recent Board realignment of committees, the Project will now be presenting updates to the newly formed Water Supply and Demand Management Committee (WSDM).

Previous presentations by staff have included cost information for the Project. In response to the updated list of future topics, staff has prepared a presentation providing a more detailed explanation of these project cost numbers:

- Construction Cost based on the 30% Design Cost Estimate
- Five-Year Capital Improvement Program (CIP) Total Project Cost (TPC) without Inflation
- Five-Year CIP TPC with Inflation
- Projected Financed Cost with 35% Partnership
- Projected Financed Cost without 35% Partnership

Staff has also provided additional detail on the funding sources for the Project and more detailed information on the financing costs of the Project. The presentation also includes updated information

on Project expenditures through the end of March 2024.

After this meeting, staff intends to provide this cost update to the full Board in June 2024. Staff then intends to present the next Project topic from the list to the WSDM in August and to the full Board in September 2024.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

There are no Environmental Justice impacts associated with this item.

ATTACHMENTS:

Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:

Ryan McCarter, 408-630-2983

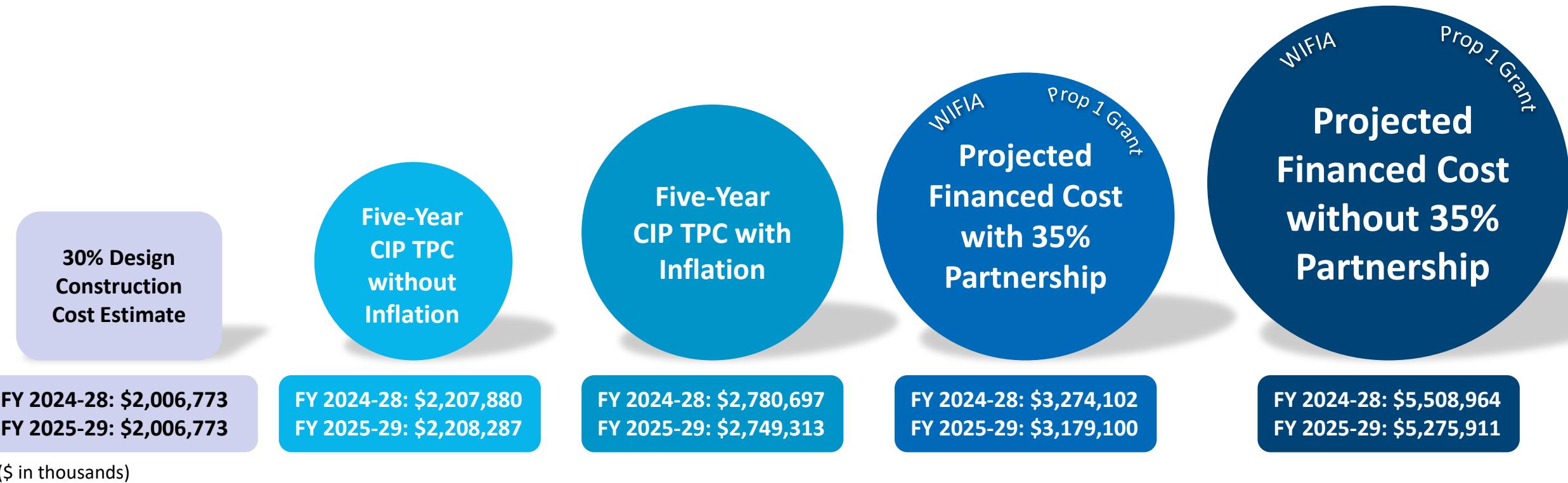


Pacheco Reservoir Expansion Project: Cost & Financing Water Supply and Demand Management Committee

May 17, 2024

Total Project Cost (TPC) & Financed Cost

2

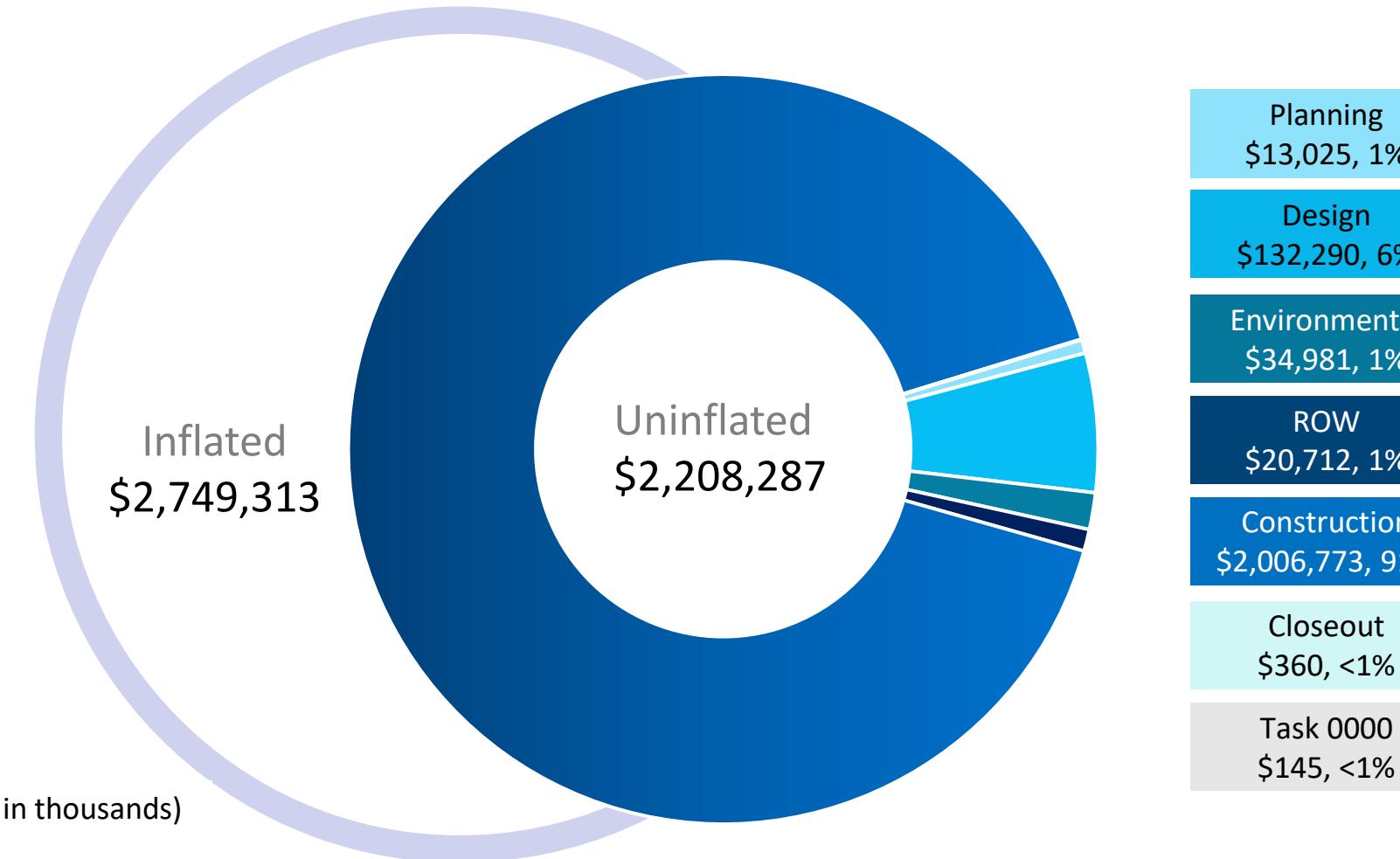


Note: Total Project Cost (TPC) includes all project components including Planning, Design, Environmental, Right of Way, Construction and Closeout

Total Project Cost (TPC) by Phase

FY 2025-29 CIP

3



Includes \$50M in mitigation costs

Planning	\$13,025, 1%
Design	\$132,290, 6%
Environmental	\$34,981, 1%
ROW	\$20,712, 1%
Construction	\$2,006,773, 91%
Closeout	\$360, <1%
Task 0000	\$145, <1%

Expenditures to Date

Data as of March 29, 2024

4

(\$ in thousands)



Expenditures by Phase and Type

	Labor	Services & Supplies	Total
Planning	\$ 3,478,604	\$ 9,546,682	\$ 13,025,286
Environmental	\$ 5,141,415	\$ 14,464,311	\$ 19,605,726
Design	\$ 5,376,400	\$ 39,762,965	\$ 45,139,365
ROW	\$ 1,090,240	\$ 1,544,350	\$ 2,634,590
Task 0000	\$ 18,477	\$ 43,026	\$ 61,503
Total	\$ 15,105,135	\$ 65,361,335	\$ 80,466,470

Note: Labor includes salaries, benefits, and overhead.

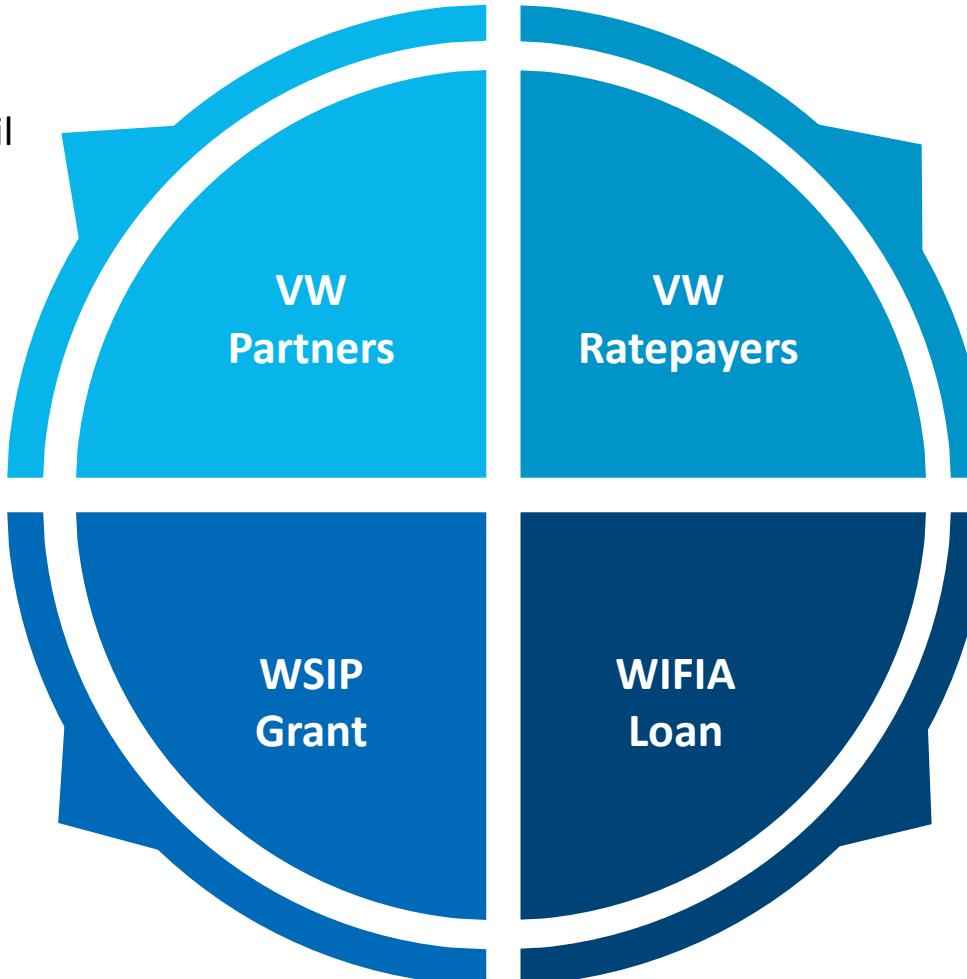
Services & Supplies Expenditures by Category

	Total
Consultant	\$ 61,609,474
Public Agency	\$ 2,412,286
Appraisals, Permit, Title, Other Fees	\$ 807,621
Equipment, Software	\$ 249,248
Other	\$ 81,452
Testing, Inspection	\$ 79,724
Communications	\$ 68,258
Tribal Consultation	\$ 53,271
Total	\$ 65,361,335

Project Funding

Target participation of 35%

- Per VW Board direction on April 14, 2021
- No participation required per CA Water Commission (CWC)



WSIP Grant of **\$504,141,383** from CWC

- Conditionally awarded on December 15, 2021
- Reimbursement of \$26M per early funding agreement
- Remainder of grant funds available when project is in construction

Water Utility (Fund 61)

- 84% from North County (Zone W-2)
- 16% from South County (Zones W-5, W-7, W-8)

WIFIA loan of **\$1.4B** from Environmental Protection Agency (EPA)

- Closed on October 30, 2023
- 10 loans over 8 years
- \$92M for planning and design
 - First interest on 6/1/2032
 - First principal on 6/1/2052
 - Final principal on 6/1/2062

Projected Financing Cost

Based on FY 2025-29 CIP

6

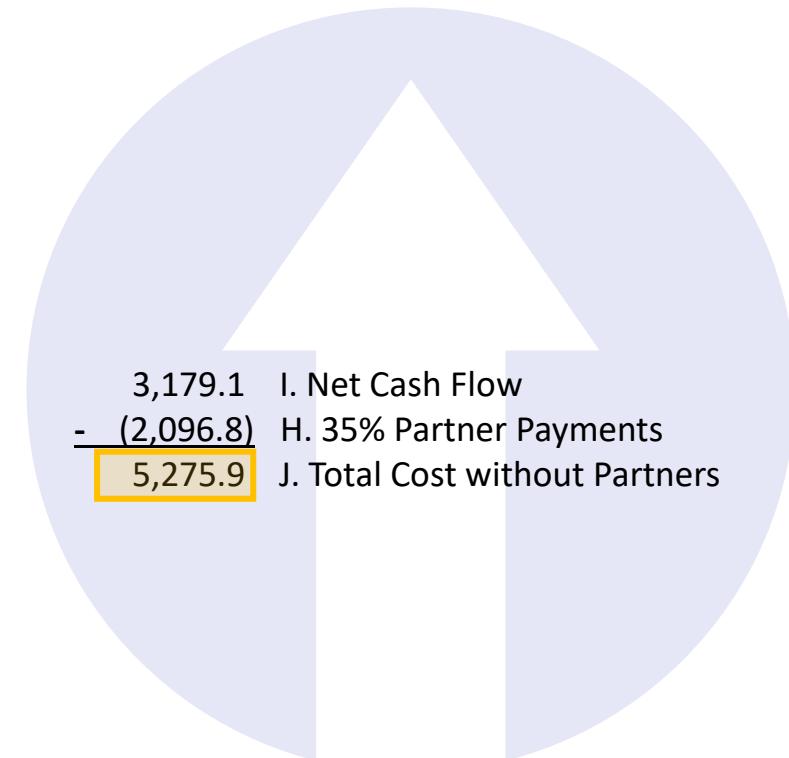
(\$ in millions)

Cost with 35% Partnership = \$3.179B

A Fiscal Year	B	C	D	E	F	G	H	I
In 5 Year Increments	Capital Cost	Prop 1 Grant	WIFIA Debt Proceeds	Rev Bond Debt Proceeds	WIFIA Debt Service	Rev Bond Debt Service	35% Partner Payments	Net Cash Flow
FY 19 - 23	66.4	(20.8)	-	-	-	-	-	45.7
FY 24 - 28	378.9	(92.8)	(167.0)	(46.0)	-	1.6	(6.6)	68.1
FY 29 - 33	1,623.7	(390.5)	(770.6)	(189.0)	13.2	62.1	(49.6)	299.2
FY 34 - 38	680.3	-	(409.6)	-	292.0	81.7	(206.4)	437.9
FY 39 - 43	-	-	-	-	464.6	81.7	(271.8)	274.4
FY 44 - 48	-	-	-	-	464.6	81.7	(271.8)	274.4
FY 49 - 53	-	-	-	-	490.0	81.7	(280.2)	291.5
FY 54 - 58	-	-	-	-	843.4	80.1	(396.9)	526.6
FY 59 - 63	-	-	-	-	883.2	19.6	(373.4)	529.4
FY 64 - 67	-	-	-	-	672.1	-	(240.3)	431.9
Total	2,749.3	(504.1)	(1,347.3)	(235.0)	4,123.1	489.9	(2,096.8)	3,179.1

Note: Column H is calculated based on an assumed 35% partner participation of the capital cost less Prop 1 grant plus financing costs allocable to partners.

Cost without 35% Partnership = \$5.276B



Key Assumptions:

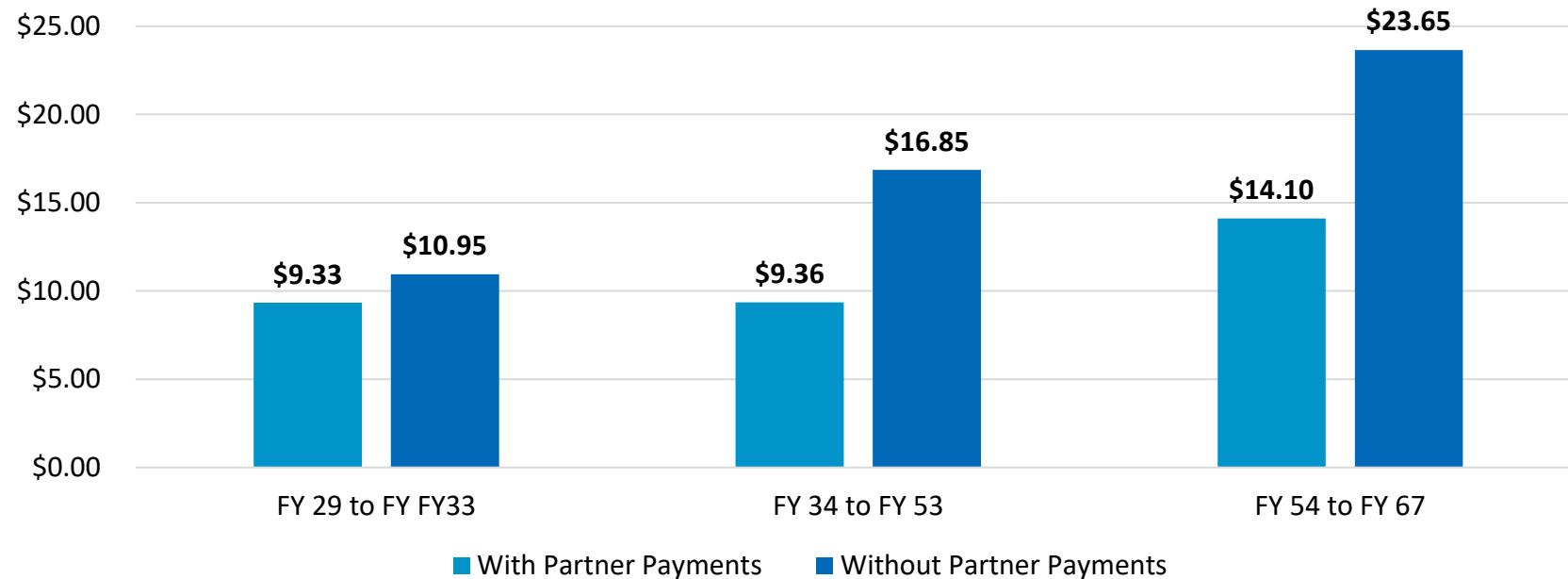
- WIFIA interest payments for construction loan begin in FY 36 with first principal payments in FY 55 and payoff in FY67
- WIFIA borrowing rate is 5.08% for planning and design loan, 5.7% for construction loan
- WIFIA loan draws start in FY 27, including refunding short-term debt issued in prior years

Projected Rate Impacts

Based on FY 2025-29 CIP

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Translation of net cash flow to North County groundwater charge, or average monthly impact to average household:



	With 35% Partner Payments	Without 35% Partner Payments
Financed Cost	\$3.179B	\$5.276B
FY 29 to FY 33:	\$271/AF or \$9.33/month	\$317/AF or \$10.95/month
FY 34 to FY 53:	\$272/AF or \$9.36/month	\$488/AF or \$16.85/month
FY 54 to FY 67:	\$409/AF or \$14.10/month	\$686/AF or \$23.65/month

Summary of the WIFIA Program

8

- Administered by the United States Environmental Protection Agency
- Funds up to 49% of eligible project costs (min \$20M project size)
- Water, wastewater, desalination/recharge/water recycling projects
- Master Credit Agreement establishes terms and conditions for the WIFIA Loans that may be drawn down over time to match project design and construction schedule
- Interest rate is set at closing of each WIFIA Loan equal to US Treasury rate plus 0.01% of a similar maturity
- One-time option to reset loan rate prior to any loan draws (eligible project costs remaining > WIFIA loan)
- Loan repayment schedule is customizable
- Match debt service payment dates to anticipated revenues and expenses
- Up to 35 years repayment period after project substantial completion (ensures inter-generational equity)
- Defer payments up to 5 years after project substantial completion (interest can be capitalized at loan rate)
- Loans are immediately prepayable (no lock-out period) with no penalty
- Subordinate to senior debt (spring to senior in bankruptcy event)
- National Environmental Policy Act (NEPA), Davis-Bacon, American Iron and Steel, BABA and federal cross-cutter

QUESTIONS ?



Valley Water

Clean Water • Healthy Environment • Flood Protection



Santa Clara Valley Water District

File No.: 24-0452

Agenda Date: 5/17/2024

Item No.: 4.6.

COMMITTEE AGENDA MEMORANDUM Water Supply and Demand Management Committee

Government Code § 84308 Applies: Yes No
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:

Review and Discuss the Water Supply and Demand Management Committee (WSDMC) Work Plan, Upcoming Discussion Items, and the Committee's Next Meeting Date/Schedule.

RECOMMENDATION:

Review and provide feedback on the WSDMC Work Plan, upcoming discussion items, and the Committee's next meeting date/schedule.

SUMMARY:

Under direction of the Clerk, Work Plans are used by Board Committees to increase Committee efficiency, provide increased public notice of intended Committee discussions, and enable improved follow-up by staff. Work Plans are dynamic documents managed by Committee Chairs and are subject to change.

ENVIRONMENTAL JUSTICE AND EQUITY IMPACT:

The review and approval of the Committee's Work Plan is not subject to environmental justice analysis.

ATTACHMENTS:

Attachment 1: 2024 Proposed WSDMC Work Plan.

UNCLASSIFIED MANAGER:

Candice Kwok-Smith, 408-630-3193.

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PROPOSED Water Supply and Demand Management Committee 2024 WORKPLAN

Task	Agenda Item	January	February	March	April	May	June	July	August	September	October	November	December
FY 24 Drought Preparation													
1.1	Drought Response Plan								X				
FY 23 WSMP Strategy 1: Secure Existing Supplies - 99,000 AF Conservation by 2030													
2.1	Water Conservation Savings Model/Annual Water Conservation Savings							X					
2.2	Water Conservation as a Way of Life recommendations (including water waste restrictions)								X				
2.3	New Programs (Lawn Busters, Pilot programs, landscape design assistance, demonstration garden)						X		X				
2.4	Outreach (including to Renters/Landlords)										X		
2.5	SCW funding									X			
2.6	affordability discussion/supporting underserved communities							X		X			
2.7	Collaboration with retailers									X			
FY 24 WSMP Strategy 2: Increase Water Conservation (109,000 AF) and Stormwater Capture (1,000 AF) by 2040													
3.1	Investments in no-regrets package, including stormwater resource plan							X					
3.2	Stormwater Capture/ FloodMAR							X					
3.3	Find opportunities to ensure new development has improved water wise features (MWENDO, land use coordination)										X		
3.4	Resource Needs											X	
3.5	Review long-term goals as part of WSMP update			X		X							
FY 24 WSMP Strategy 3 Optimize the Use of Existing Supplies and Infrastructure (SGMA/groundwater management and storage projects)													
4.1	Sustainable Groundwater Management Act (SGMA) - annual update											X	
4.2	South County Recharge											X	
4.3	Los Vaqueros Reservoir Expansion Project						X			X		X	
4.4	Sites Reservoir Expansion							X		X			
4.5	BF Sisk Dam Raise						X		X				X
4.6	Groundwater Banking Opportunities										X		
4.7	Semitropic Groundwater bank										X		
4.8	Pacheco Reservoir Expansion Project					X		X			X		

*Red item added.

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