April 11, 2022

MEETING NOTICE & REQUEST FOR RSVP

TO: ENVIRONMENTAL AND WATER RESOURCES COMMITTEE

Jurisdiction	Representative	Representative	Representative
District 1	Bonnie Bamburg	Loren Lewis	
District 2	Charles Ice	Elizabeth Sarmiento	
District 3	Janet Higaki	Hon. Bob Nuñez	Charles Taylor
District 4	Susan Blake	Bob Levy	
District 5	Hon. Tara Martin-Milius	Mike Michitaka	
District 6	Hon. Patrick S. Kwok	Diego Mora Tejeda	Jim Piazza
District 7	Tess Byler	Arthur M. Keller, Ph.D.	Hon. Stephen A. Jordan

The regular meeting of the Environmental and Water Resources Committee is scheduled to be held on **Monday, April 18, 2022, at 6:00 p.m.** in the Headquarters Building Boardroom located at the Santa Clara Valley Water District, 5700 Almaden Expressway, San Jose, California. Dinner will be served.

Enclosed are the meeting agenda and corresponding materials. Please bring this packet with you to the meeting. Additional copies of this meeting packet are available on-line at https://www.valleywater.org/how-we-operate/committees/board-advisory-committees

A majority of the appointed membership is required to constitute a quorum, which is fifty percent plus one. A quorum for this meeting must be confirmed at least 48 hours prior to the scheduled meeting date or it will be canceled.

Further, a quorum must be present on the day of the scheduled meeting to call the meeting to order and take action on agenda items.

Members with two or more consecutive unexcused absences will be subject to rescinded membership.

Please confirm your attendance **no later than Thursday, April 14, 2022, 4:30 p.m.** by contacting Ms. Glenna Brambill at 1-408-630-2408, or gbrambill@valleywater.org.

Enclosures

Environmental and Water Resources Committee Meeting

ZOOM LINK is now for the public only-committee members will need to be in-person unless other arrangements were made prior to posting:
https://valleywater.zoom.us/j/94403145442

Meeting ID: 944 0314 5442
One tap mobile
+16699009128,,94403145442# US (San Jose)

Dial by your location
+1 669 900 9128 US (San Jose)
Meeting ID: 944 0314 5442

Santa Clara Valley Water District
Environmental and Water Resources Committee Meeting

HQ Boardroom
5700 Almaden Expressway
San Jose CA 95118

Alternate Location: 170 Alameda de las Pulgas, Redwood City, CA 94062

Public Zoom Link: https://valleywater.zoom.us/j/94403145442

REGULAR MEETING
AGENDA

Monday, April 18, 2022
6:00 PM

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

Bob Levy, Chair
Arthur M. Keller, Ph.D. Vice Chair

Director Tony Estremera
Director Nai Hsueh
Director Linda J. LeZotte

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.

Mr. John Bourgeois
Mr. Vincent Gin
(Staff Liaisons)

Ms. Glenna Brambill
(Committee Liaison)
Management Analyst II
gbrambill@valleywater.org
1-408-630-2408

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
Environmental and Water Resources Committee

REGULAR MEETING
AGENDA

Monday, April 18, 2022	6:00 PM	HQ Boardroom

IMPORTANT NOTICES AND PARTICIPATION INSTRUCTIONS

The Santa Clara Valley Water Board of Directors/Board Committee meeting will be held as a “hybrid” meeting, 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, member of the public have an option to participate by teleconference/video conference or attend in-person. To observed and participate in the meeting by teleconference/video conference, please see meeting link located at the top of the agenda. If attending in person, you are encouraged to wear a mask.

In accordance with the requirements of Gov. Code Section 54954.3(a), members of the public wishing to address the Board/Committee at a video conferenced meeting, during public comment or on any item listed on the agenda, should use the “Raise Hand” tool located in the Zoom meeting link listed on the agenda, 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.

Santa Clara Valley Water District (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 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.

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.

Public Zoom Link:
https://valleywater.zoom.us/j/94403145442
Meeting ID: 944 0314 5442
Join by Phone:
1 (669) 900-9128, 944 0314 5442

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 Committee on any item not listed on the agenda should access the "Raise Hand" tool located in Zoom meeting link listed on the agenda or in-person should complete a Speaker Form and present it to the Committee Clerk.. Speakers will be acknowledged by the Committee Chair in order requests are received and granted speaking access to address the Committee. Speakers comments should be limited to two minutes or as set by the Chair. The law does not permit Committee action on, or extended discussion of, any item not on the agenda except under special circumstances. If Committee action is requested, the matter may be placed on a future agenda. All comments that require a response will be referred to staff for a reply in writing. The Committee may take action on any item of business appearing on the posted agenda.*

3. APPROVAL OF MINUTES:

3.1. Approval of Minutes. 22-0497

Recommendation: Approve the January 24 2022, Meeting Minutes.
Manager: Candice Kwok-Smith, 408-630-3193
Attachments: Attachment 1: .01242022 EWRC Draft Mins
Est. Staff Time: 5 Minutes

4. ACTION ITEMS:

4.1. Receive updates on Fish and Aquatic Habitat Collaborative Effort (FAHCE) 22-0498

Recommendation: Receive update on FAHCE.

Manager: John Bourgeois, 408-630-2990

Attachments: Attachment 1: FAHCE

Est. Staff Time: 20 Minutes

4.2. Drought Response Plan Update - Benchmark Study. 22-0499

Recommendation: Receive Drought Response Plan Update - Benchmark Study.

Manager: Kirsten Struve, 408-630-3138

Attachments: Attachment 1: Drought Response Plan Benchmark Study Tech Me
Attachment 2: DRP presentation

Est. Staff Time: 15 Minutes

4.3. One Water Plan - General Update and Upper Pajaro River Watershed Planning. 22-0500

Recommendation:
A. Receive information on the One Water Plan's Santa Clara Countywide Framework and Coyote Creek Watershed Plan, and
B. Provide feedback on Upper Pajaro River Watershed Challenges and Opportunities.

Manager: Lisa Bankosh 408-630-2618

Attachments: Attachment 1: PowerPoint Presentation
Attachment 2: Exec Summary One Water Countywide Framework
Attachment 3: Exec Summary One Water-Coyote Creek Watershe

Est. Staff Time: 60 Minutes

4.4. Review and Receive Updates on the Environmental and Water Resources Committee's Working Groups. 22-0501

Recommendation:
A. Review and receive updates on the Environmental and Water Resources Committee's Working Groups, and
B. Provide comments to the Board on implementation of Valley Water's mission applicable to working groups' recommendations.

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

Attachments: Attachment 1: EWRC WGs Spreadsheet

Est. Staff Time: 15 Minutes

4.5. Review Environmental and Water Resources Committee Work Plan, the Outcomes of Board Action of Committee Requests; and the Committee's Next Meeting Agenda. 22-0502

Recommendation: Review the Committee work plan to guide the committee's discussions regarding policy alternatives and implications for Board deliberation.

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

Attachments: Attachment 1: EWRC 2022 Work Plan

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. REPORTS:

6.1. Director's Report

6.2. Manager's Report

6.3. Committee Member Report

6.4. Informational Links:
https://www.valleywater.org/how-we-operate/committees/board-committees

- Board Policy and Planning Committee (BPPC)
- Stream Planning and Operations Committee (SPOC) (formerly FAHCE Ad Hoc Committee)
- Environmental Creek Cleanup Committee (formerly Homeless Encampment Committee)
- Water Storage Exploratory Committee (WSEC)

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

- Water Conservation and Demand Management Committee (WCaDMC)

https://www.valleywater.org/your-water/water-supply-planning/monthly-water-tracker

- Water Tracker

7. ADJOURN:

7.1. Adjourn to Regular Meeting at 6:00 p.m., on Monday, July 18, 2022.

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Santa Clara Valley Water District

File No.: 22-0497

Agenda Date: 4/18/2022
Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM

Environmental and Water Resources Committee

SUBJECT:
Approval of Minutes.

RECOMMENDATION:
Approve the October 18, 2021, Meeting Minutes.

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

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

ATTACHMENTS:
Attachment 1: 10182021, EWRC Draft Meeting Mins.

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

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ENVIRONMENTAL AND WATER RESOURCES COMMITTEE

DRAFT MINUTES

MONDAY, JANUARY 24, 2022

(Paragraph numbers coincide with agenda item numbers)

A regular scheduled meeting of the Environmental and Water Resources Committee (Committee) Meeting was held on January 24, 2022, Teleconference via Zoom in San Jose, California.

1. CALL TO ORDER/ROLL CALL

Committee Chair Mr. Bob Levy called the meeting to order at 6:00 p.m. A quorum was established with 12 Members present.

Members in attendance were:

Jurisdiction	Representative	Representative	Representative
District 1	Loren Lewis		
District 2	Charles Ice*	Elizabeth Sarmiento	
District 3	Janet Higaki*	Hon. Bob Nuñez	Charles Taylor
District 4	Susan Blake	Bob Levy	
District 5	Hon. Tara Martin-Milius	Mike Michitaka	
District 6	Hon. Patrick S. Kwok		
District 7	Tess Byler	Hon. Stephen A. Jordan	Arthur M. Keller, Ph.D.

Members not in attendance were:

Jurisdiction	Representative	Representative	Representative
District 1	Bonnie Bamburg		
District 6	Diego Mora Tejeda	Jim Piazza	

*Committee Members

Board members in attendance were: Director Tony Estremera and Director Linda J. LeZotte (Board Representatives) and Director Nai Hsueh (Board Alternate).

Staff members in attendance were: Aaron Baker, Neeta Bijoor, John Bourgeois, Glenna Brambill, Justin Burks, Vincent Gin, Rene Moreno, Metra Richert, Kirsten Struve, Jing Wu, and Bhavani Yerrapotu.

Public in attendance was: Director Richard P. Santos (Valley Water Board Member, District 3).

2. PUBLIC COMMENT

There was no one present who wished to speak.

*Ms. Janet Higaki logged on at 6:11 p.m.

3. APPROVAL OF MINUTES

3.1 APPROVAL OF MINUTES

It was moved by Hon. Stephen Jordan, seconded by Ms. Tess Byler, and by roll call and unanimous vote carried, to approve the October 18, 2021, Environmental and Water Resources Committee meeting minutes with the following correction on page 13, to read:

Agenda item 6.2. MANAGER'S REPORT

Mr. John Bourgeois reported on: FAHCE Draft EIR comments were due Friday, October 15, 2021, Valley Water received public comments from several agencies and individuals, and staff is reviewing those substantive comments.

4. ACTION ITEMS

4.1 ELECTION OF CHAIR AND VICE CHAIR

Committee Chair Mr. Bob Levy opened the floor for nominations for Chair and Vice Chair. Hon. Patrick Kwok nominated Mr. Bob Levy for Chair and Mr. Charles Taylor nominated Dr. Arthur M. Keller for Vice Chair.

The Environmental and Water Resources Committee by roll call and unanimous vote elected Mr. Bob Levy as Committee Chair and Dr. Arthur M. Keller as Committee Vice Chair for 2022.

4.2 REVIEW AND APPROVE 2021 ACCOMPLISHENTS REPORT FOR PRESENTATION TO THE BOARD (COMMITTEE CHAIR)

Committee Chair Mr. Bob Levy reviewed the materials as outlined in the agenda item.

It was moved by Mr. Loren Lewis, seconded by Ms. Tess Byler, and by roll call and unanimous vote carried, to approve the 2021 EWRC Accomplishments Report.

4.3 DROUGHT REPONSE UPDATE

Ms. Neeta Bijoor reviewed the materials as outlined in the agenda item.

***Mr. Charles Ice logged on at 6:29 p.m.

The Environmental and Water Resources Committee discussed the following: year-end percentages, snow pack, state water calculations, normal rainfall for January, reservoir draining of Anderson, groundwater recharge, saving water, landscape watering, federal government funding, outreach programs-getting the water conservation message out to the masses, long-term/short-term recycling (purple piping), water savings chart, Anderson Dam spillway, dry wells/subsidence, thank staff-receiving water conservation materials in a timely manner now, gray water, Model Ordinances, heating water through recirculation pumps and d'mand.

Ms. Kirsten Struve, Mr. Vincent Gin, Mr. Aaron Baker, Director Nai Hsueh,

Ms. Metra Richert and Mr. Justin Burks were available to answer questions.

The Environmental and Water Resources Committee took no action.

4.4 REVIEW AND RECEIVE UPDATES ON THE ENVIRONMENTAL AND WATER RESOURCES COMMITTEE'S WORKING GROUPS.
Committee Chair Mr. Bob Levy reviewed the materials as outlined in the agenda item.

The Environmental and Water Resources Committee received the following working groups reports:

Natural Flood Protection Working Group Lead, Arthur M. Keller reported on:
Met with staff January 19, 2022, and discussed the following projects' phases, studies designs, construction, and fundings:

- Shoreline Project
- Sunnyvale Shoreline Resilience Vision
- Upper Penitencia Creek
- Anderson Reservoir
- Coyote Creek and Guadalupe River maintenance.
- Alum Rock Creek
- San Francisquito Creek

Water Supply Working Group Lead, Arthur M. Keller reported on:
Met with staff January 18, 2022, and discussed the following:

- Update on Anderson Project-design, permitting and construction
- Recycled Water Project-recycled water needs and purified water
- Pacheco Reservoir Expansion Project-potential partnerships

Environmental Stewardship Working Group Lead, Bob Levy reported on:

- Bob Levy will serve as Chair and the group will meet next week with staff

Climate Change Working Group Bob Levy reported on:
Met with Staff March 2, 2022, mixed up invite of the Environmental Stewardship and Climate Change groups—which was corrected.

- Look at the Climate Change Action Plan (CCAP) and begin to prioritize
- Elizabeth Sarmiento may be lead once she understands the role
- The group will be meeting to determine next steps

Integrated Water Resources Management Committee:

- Have not met but Elizabeth Sarmiento will decide if she will be the lead once she understands the role

John Bourgeois reiterated the roles of the working groups:

1. Primary role is working on Board directed assignments
2. May bring relevant topics to the full committee

3. Staff support (liaisons) for the working groups

Director Nai Hsueh and Director Tony Estremera were available to answer questions.

The Environmental and Water Resources Committee took no action:

4.5 REVIEW OF ENVIRONMENTAL AND WATER RESOURCES COMMITTEE WORK PLAN, THE OUTCOMES OF BOARD ACTION OF COMMITTEE REQUESTS AND THE COMMITTEE'S NEXT MEETING AGENDA

Committee Chair Mr. Bob Levy reviewed the materials as outlined in the agenda item.

Question on the tasks or goals for Business Management which did not rise for needing a working group currently.

1. Homeless Encampments
2. Guadalupe and Pajaro Watershed Plans
3. FAHCE update
4. Drought-short term and long-term, 30,000 foot view and handling climate crisis?

Public comments are due February 15, 2022, on Draft EIR for the Pacheco Reservoir Expansion Project.

The Environmental and Water Resources Committee took no action, but Committee Chair Bob Levy and Committee Vice Chair Dr. Arthur Keller, will work with staff for work plan items.

5. INFORMATION ITEMS:

5.1. Standing Items

The Environmental and Water Resources Committee took no action.

6.. CLERK REVIEW AND CLARIFICATION OF COMMITTEE'S REQUESTS TO THE BOARD

Ms. Glenna Brambill reported there were no action items for Board consideration.
The Committee did elect Chair and Vice Chair and approved the 2021 Accomplishments Report.

7. REPORTS

7.1 DIRECTOR'S REPORT

Director Nai Hsueh reported on:

- Board Chair for 2022 is Director Gary Kremen
- Board Vice Chair for 2022 is Director John L. Varela

7.2. MANAGER'S REPORT

Mr. John Bourgeois and Mr. Rene Moreno reported on:
Grants, the grant application portal is now open for standard grants! This year, we have $1.4 million in grant funding available to support projects that improve water conservation, wildlife habitat restoration, offer access to trails and open space, pollution prevention, volunteer creek cleanups, and education. The Grants & Partnerships Program is part of the Safe, Clean Water and Natural Flood Protection Program, a special parcel tax that Santa Clara County voters passed in November 2020.

Grant applications will be accepted through March 4, 2022.

Thank you again for the opportunity to announce our FY22 Standard Grant Cycle. Below, I've included additional information on the application process and our upcoming virtual informational session. We hope that you can share this information with your networks.

7.3 COMMITTEE MEMBER REPORTS

Ms. Elizabeth Sarmiento reported on:

- Annual Valley Water Landscape Summit on February 17, 2022, 9-11:30 a.m. an inspiring and action-based event, help spread the word and an email will be sent to the committee.

2 new Members, Ms. Janet Higaki and Hon. Bob Nunez (District 3) introduced themselves and their backgrounds.

Mr. John Bourgeois reported that the One Water Framework and Coyote Creek Watershed Plan going to be presented to the Board at tomorrow's meeting (January 25, 2022).

7.4 INFORMATIONAL LINK REPORTS

Links are contained in the agenda.

8. ADJOURNMENT

Committee Chair Bob Levy adjourned at 8:07 p.m. to the next regular meeting on Monday, April 18, 2022, at 6:00 p.m.

Submitted by:

Glenna Brambill
Board Committee Liaison
Office of the Clerk of the Board

Approved:

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File No.: 22-0498

Agenda Date: 4/18/2022
Item No.: 4.1.

COMMITTEE AGENDA MEMORANDUM
Environmental and Water Resources Committee

SUBJECT:
Receive updates on Fish and Aquatic Habitat Collaborative Effort (FAHCE)

RECOMMENDATION:
Receive update on FAHCE.

SUMMARY:
This update provides the Committee a reminder on the program background, key elements of the FAHCE program, progress to date both in planning and restoration measure implementation, especially work done since 2018. The update also includes next steps and access for periodic updates.

ATTACHMENTS:
Attachment 1: FAHCE Program Update

UNCLASSIFIED MANAGER:
John Bourgeois, 408-630-2990

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Update on Fish and Aquatic Habitat Collaborative Effort

Prepared for Environmental and Water Resources Committee
April 18, 2022

Presentation Outline

I. FAHCE background
II. Key Elements of FAHCE Program
III. Progress to Date
IV. Next Steps
V. Access to FAHCE updates

I. What is FAHCE?

- Solution to the water rights challenge in Northern Santa Clara County Watersheds:
    - Coyote Creek
    - Stevens Creek
    - Guadalupe River
- Primary concerns: steelhead and Chinook salmon

I. Goals of FAHCE Program

- Resolve water rights complaints
- Ensure regulatory compliance
- Balance beneficial uses (water supply and fisheries)
  - Improve fish passage
  - Provide in-stream habitat enhancements
- Phased Implementation – 10 Years/Phase

I. 2003 Settlement Agreement

Purpose: *"…restore and maintain healthy steelhead and salmon populations as appropriate to each of the three creeks by providing:*

A) suitable spawning and rearing habitat; and

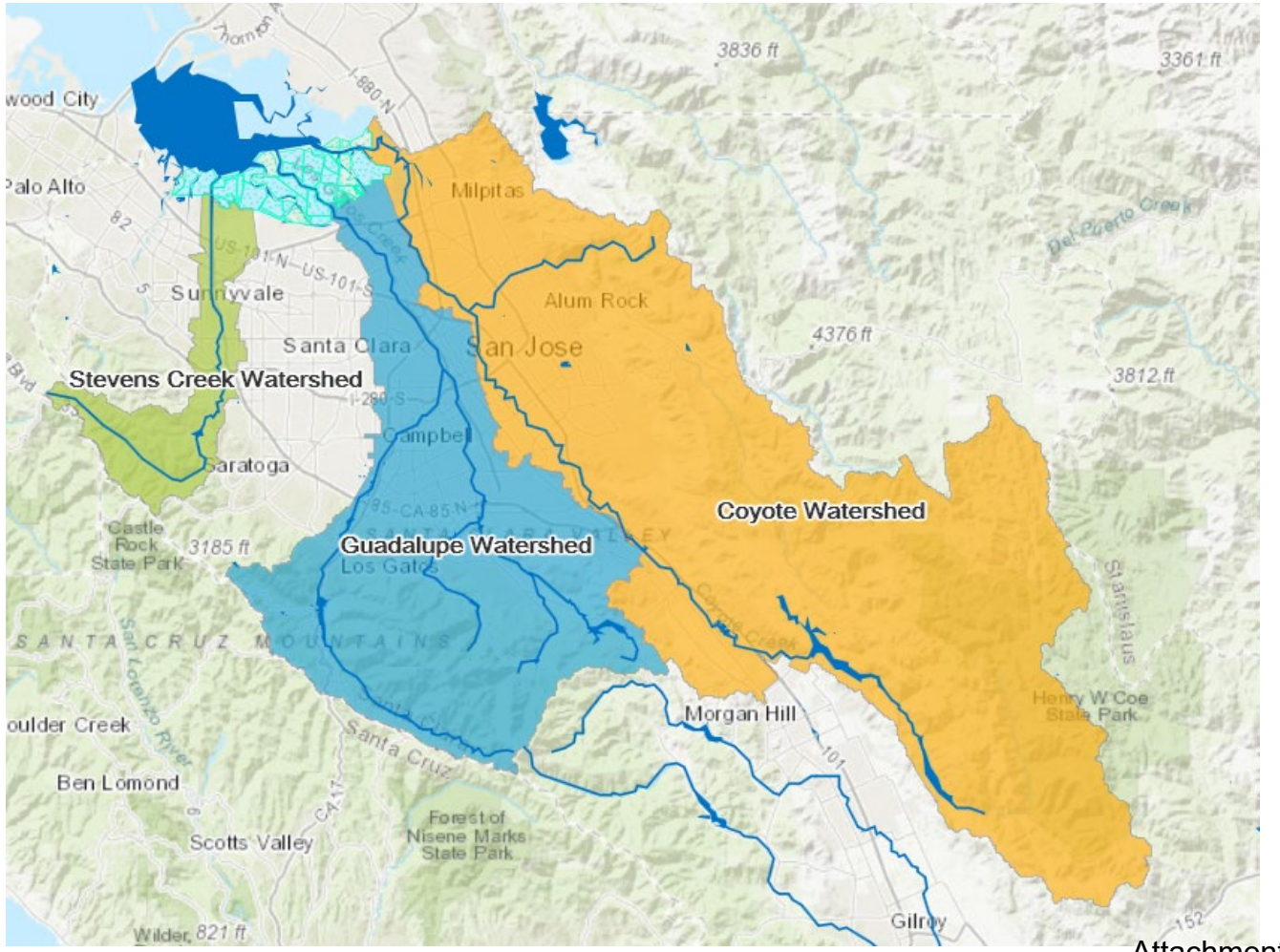
B) adequate passage for adult….and outmigration of juveniles."

I. Current List of Initialing Parties

1. Santa Clara Valley Water District (Valley Water)
2. United States Department of the Interior, Fish and Wildlife Service
3. United States Department of Commerce, National Marine Fisheries Service
4. California Department of Fish and Wildlife
5. Trout Unlimited
6. Pacific Coast Federation of Fishermen's Associations
7. California Trout, Inc.
8. Northern California Council of Federation of Fly Fishers

II. Geographical Extent of Program

- Three Watersheds
- 500 square miles
- 100 miles of creek
- 7 reservoirs



valleywater.org

II. Main Implementation Elements

New Rule Curves for Reservoir Operations

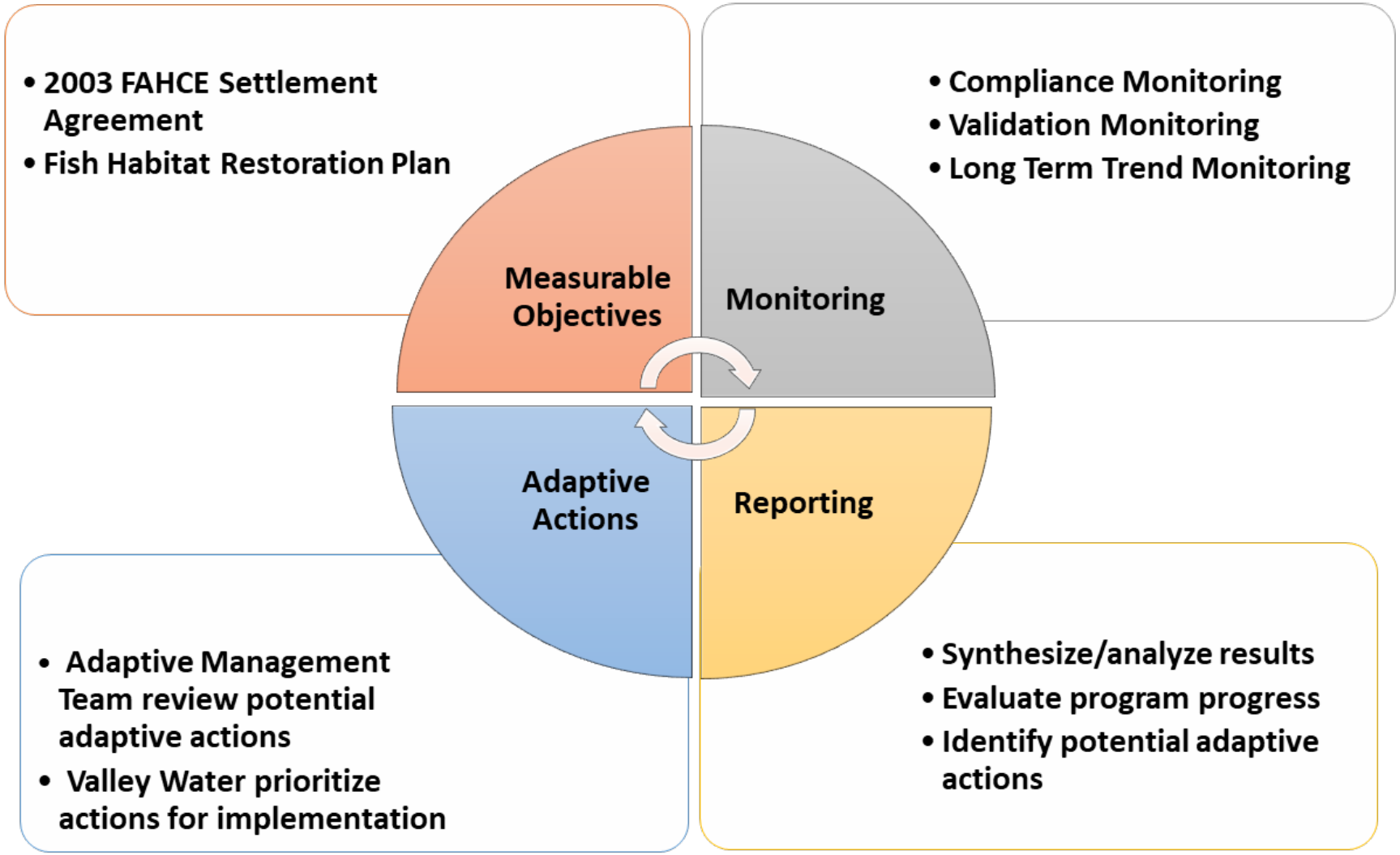
Pulse Flows for Fish Passage

Priority Fish Barrier Removal

Instream Habitat Complexity

ADAPTIVE MANAGEMENT PROGRAM
(includes Monitoring)

II. Adaptive Management Program

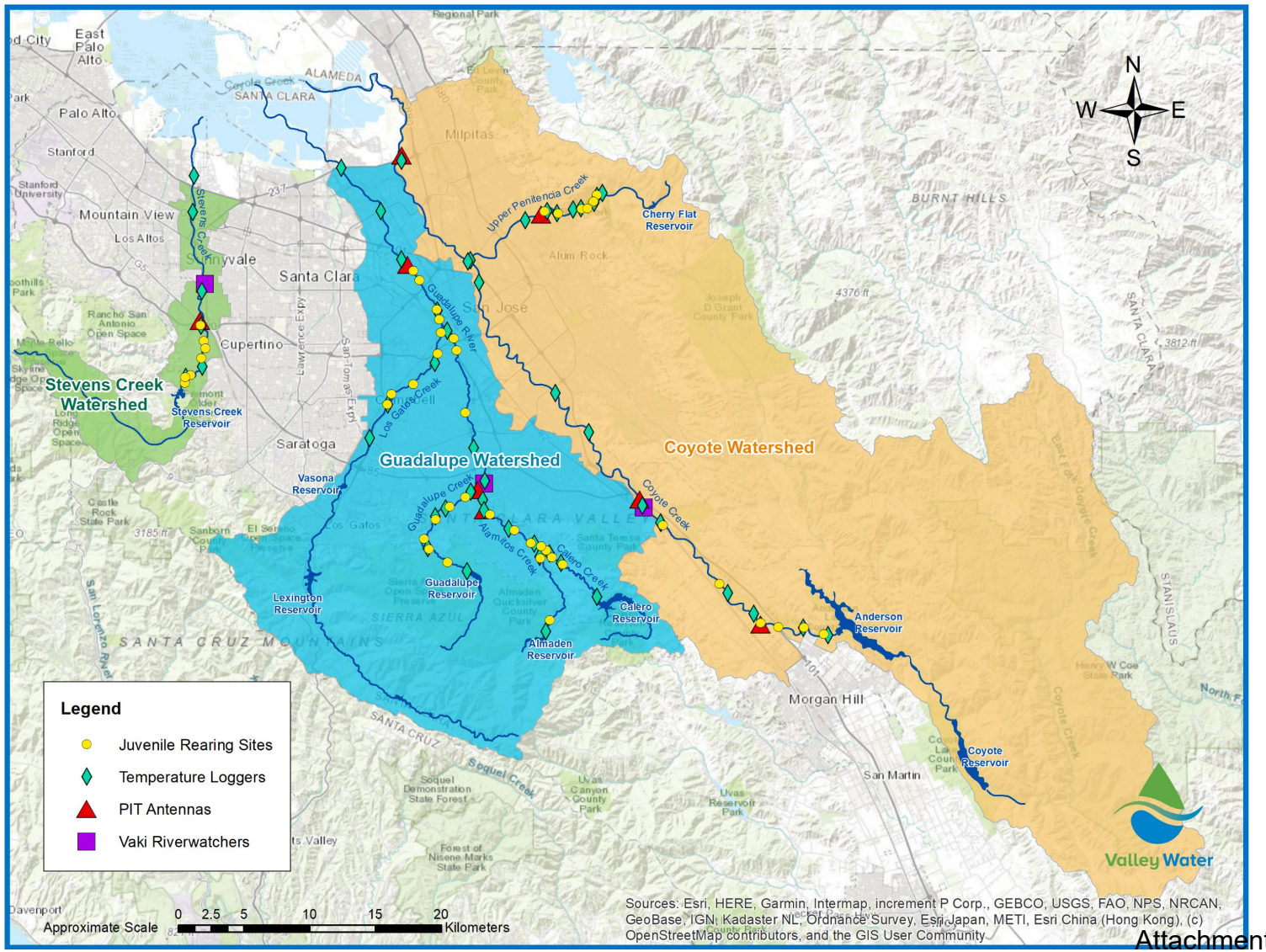


II. Monitoring Program Objectives

- Develop an overall better understanding of our watershed
- Assess trends
- Inform management decisions to protect these important species

II. Fish Monitoring Program Overview

A. Stream temperature
B. Transect monitoring
C. Juvenile rearing
D. PIT tracking
E. Vaki Riverwatcher



III. FAHCE Program Progress

Major Program Activities

1996

Guadalupe-Coyote Resource Conservation District (GCRCD) filed complaint with State Water Resources Control Board (SWRCB)

2003

Settlement Agreement initialed

Start

Key Measures Completed

1998

- Coyote & Guadalupe -discontinued use of in-stream gravel dams
- Upper Penitencia Creek -Maybury Weir Retrofit and Fish Screen
- Guadalupe River- SJWC Low-Flow Crossing Remediation

1999

- Upper Penitencia Ck -Noble Fish Ladder and Fish Screen Install
- Coyote Creek Percolation Pond Fish Ladder Install

2000

- Guadalupe River- Hillsdale Avenue Bridge Fish Barrier Removal
- Guadalupe Creek – Masson Diversion Fish Ladder and Screen

2001

- Guadalupe River- Alamitos Drop Structure Fish Ladder Install

2002

- Stevens Creek - Stream Gage 35 Barrier Removal

2003

- Guadalupe River - Removal of Old Julian Street Bridge Fish Barrier

Major Program Activities

2003-2013
Permitting pathway – began development of Admin Draft Habitat Conservation Plan

2014
Change to Regulatory Pathway- State Water Rights Permitting

2015
Water Rights Change Petitions Initiated

Key Measures Completed

2004
- Guadalupe River - St. John Street Weir Fish Barrier Removal
- Guadalupe Creek - Stream Gage 43 Weir Retrofit

2006- 2009
- Guadalupe Watershed- Solar Bees installed at various locations for Mercury TMDL study

2008
- Guadalupe Creek – U Frame Channel Fish Ladder Install

2009
- Stevens Creek -Implemented a 2,100-foot geomorphic restoration at Blackberry Farm
- Stevens Creek – Remediated 4 fish barriers at Blackberry Farms

2013 - Current
- Guadalupe Reservoirs and Stevens Creek Reservoir- hypolimnetic oxygenation systems installed to reduce methyl- mercury

2014
- Guadalupe River- Highway 880 Weir Retrofit for Fish Passage

Major Program Activities

2015

Notice of Notice of Preparation: Circulated

2016

Flow and Biological Model development for EIR, Model validation, Initiated Fisheries Monitoring Program

2017

FAHCE EIR Scoping Meeting

Acquired Permits and Continue Fish Monitoring

2019

Coyote Creek watershed Phase 1 FAHCE measures moved to the Anderson Dam Seismic Retrofit Project (ADSRP)
Environmental Impact Report (EIR)
Continue Fish Monitoring

2020

Adaptive Management Team formation
Pilot rule curves implementation in Guadalupe & Stevens Creeks
Continue fish monitoring

2021

Stream Planning and Operations Committee (SPOC) Formed
Release of draft EIR for Guadalupe River& Stevens Creek
Continue fish monitoring

Key Restoration Measures Completed

2016

- Stevens Creek- Evelyn Fish Ladder Remediation

2016 - 2020

Conducted Engineering Feasibility Studies Including:

- Moffett Fishway
- Ogier Ponds
- Lake Almaden
- Large Woody Debris and Gravel Augmentation

2021

- Lake Almaden Creek and Lake Separation Final EIR Completed
- Ogier Pond Planning Study Initiated

2021

Removal of low-flow crossing of Coyote Creek at Singleton Road and placement of a clear-span railcar bridge

IV. Next Steps

A. Ongoing

- Fisheries and Flow Monitoring
- Pilot Flows in Stevens Creek and Guadalupe Creek
- Collaboration with Initialing Parties and Adaptive Management Team
- Coordination with Anderson Project
- Periodic updates to SPOC

B. Release Draft EIR for ADSRP

C. Finalize the EIR for Guadalupe River and Stevens Creek

D. Formalize Water Rights Change Petitions and Acquire Necessary Permits

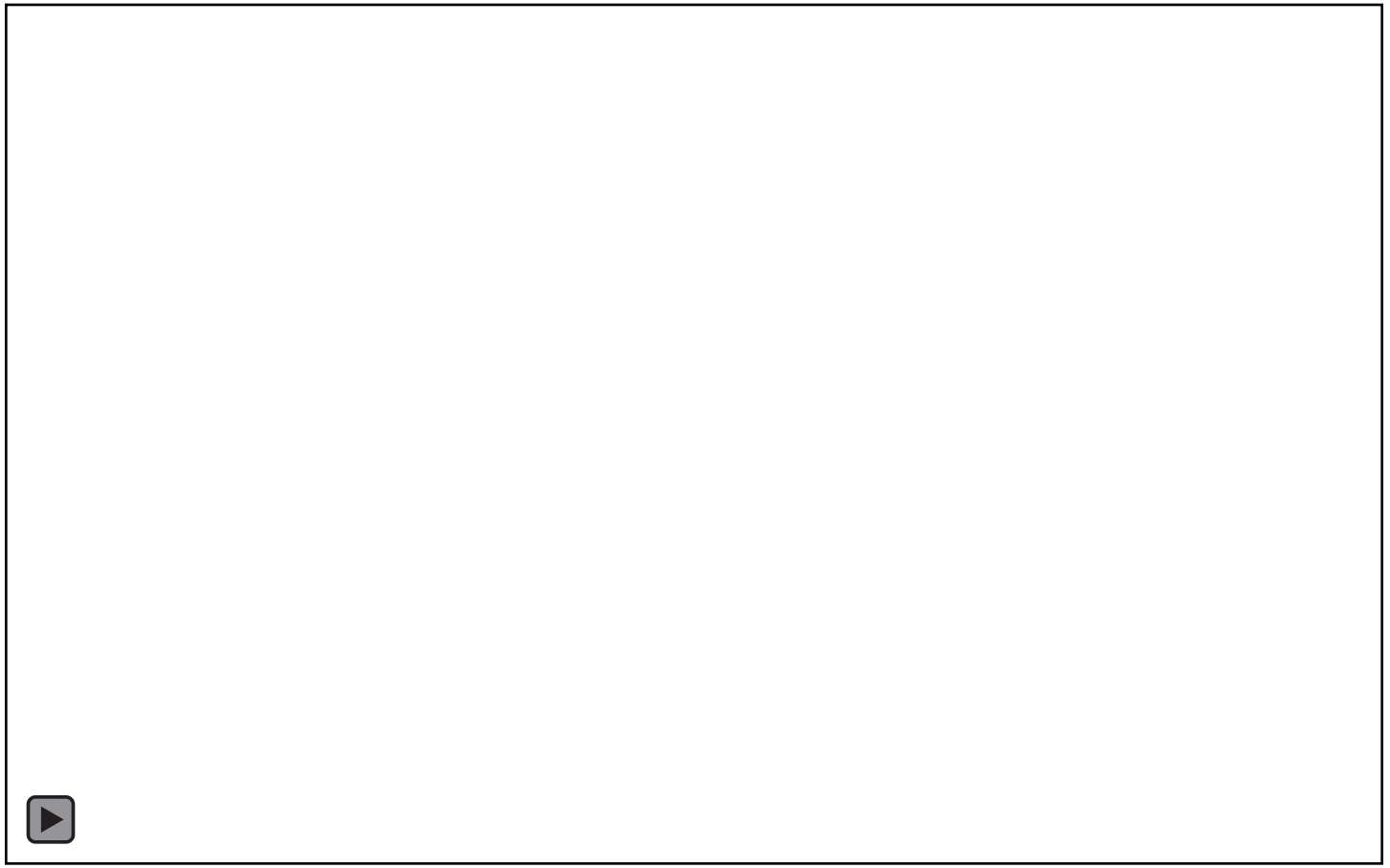
V. Access for periodic updates

- Stream Planning and Operations Committee

  Next meeting is May 12, 2022, please contact mking@valleywater.org to get on the notification list for this committee.

- FAHCE Website: www.valleywater.org/FAHCE

QUESTIONS?



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File No.: 22-0499

Agenda Date: 4/18/2022
Item No.: 4.2.

COMMITTEE AGENDA MEMORANDUM

Environmental and Water Resources Committee

SUBJECT:
Drought Response Plan Update - Benchmark Study.

RECOMMENDATION:
Receive Drought Response Plan Update - Benchmark Study.

SUMMARY:
Santa Clara Valley Water District (Valley Water) is developing a Drought Response Plan (DRP) to improve water supply reliability in Santa Clara County during times of shortage. The DRP will integrate lessons learned from Valley Water's and other water agencies' responses to the 2012-2016 and current droughts. Developing a robust approach for requesting water use reductions and improving Valley Water's ability to start taking actions during the early phases of a drought will improve Valley Water's ability to effectively respond to future droughts.

Valley Water was awarded a US Bureau of Reclamation (USBR) WaterSMART grant for $200,000 to develop the DRP. The grant funds are being used to engage consultant services.

Development of the DRP will be a collaborative process involving Valley Water's retailers, Santa Clara County agricultural and environmental stakeholders, and other interested parties. Valley Water established an external Task Force made up of these stakeholders to assist in the development of the DRP. Over 80 individuals representing about 50 agencies and organizations have been invited to a series of workshops to guide development of the DRP and provide feedback as elements of the DRP are drafted.

Development of the DRP will have four main components:

1) Benchmark Study: gather background information related to Valley Water's and other water supply agencies' approaches for determining when to trigger water shortage responses and how agencies responded to the 2012-2016 and current droughts. The purpose is to identify potential measures and actions for inclusion in the DRP that may improve Valley Water's preparation and response for future droughts.

2) Vulnerability Assessment: examine risks to water resources and infrastructure, and the resulting impacts to water supply, human health and safety, the economy (business, agriculture, recreation, etc.), and the natural environment. The review will be based on existing documents such as Valley Water's Infrastructure Reliability Plan and Local Hazard

Mitigation Plan. Based on risks to water supply reliability identified through the Vulnerability Assessment and the findings of the Benchmark Study, potential drought risk mitigation actions Valley Water can take will be evaluated.

3) Drought Monitoring and Water Shortage Response: evaluate approaches Valley Water could use to determine when to request water use reductions from the community. New water shortage stages and associated water use reductions may be proposed and integrated into Valley Water's Water Shortage Contingency Plan. Developing a refined water shortage approach and prioritized list of response actions will require close coordination with stakeholders.

4) Drought Response Framework: consolidate the results of the first three tasks. The framework will identify:

- The types of data and analyses to determine water shortage conditions
- Existing resources to support drought response actions
- Response triggers, water shortage response actions, potential drought messaging, and reporting requirements that are agreed to by water retailers for integration into Valley Water's Water Shortage Contingency Plan
- Approaches for responding to changes in revenue and expenditures
- Staff support needs, including key subject matter experts and their roles

Benchmark Study

The Benchmark Study (Attachment 1) for the DRP has been completed. The purpose of the study is to highlight strategies, potential measures and actions that have proved effective based on an evaluation of Valley Water's and other water supply agencies' response to the 2012-2016 and current droughts.

Key findings of the benchmark study include the following:

- Some of Valley Water's peer agencies more explicitly incorporate projections and indicators of other supplies into drought triggers. Valley Water's trigger is based on projected end-of-year groundwater levels, which incorporates available storage and imported water allocations. Some peer agencies look at a wider array of factors such as snowpack and soil moisture.

- Agencies and regions with more diverse supply portfolios and/or larger storage reserves were generally able to delay mandatory drought restrictions until later into the drought and tended to rescind drought restrictions earlier.

- Valley Water and its peer agencies generally fared well during the 2012-16 drought. Each agency was able to maintain delivery of safe, clean water to their customers and were able to meet or exceed water use reduction targets set locally and/or by state mandates. Analysis of historical water use data suggests that water supply shortage restrictions were effective in reducing demands.

- Throughout the 2012-2016 drought, communication and collaboration between Valley Water and Santa Clara County retailers and local agencies were critical for achieving targeted water use reductions. However, differences in drought response actions and requested use reductions between state, regional, and local agencies made communication challenging.
- The drought was financially challenging for water suppliers. Agencies that were best able to address financial challenges were able to diligently build reserves during non-drought times, increase the mix of fixed revenue versus variable revenue when possible, and increase the debt service coverage target to better absorb revenue loss.

Next Steps

The Benchmark Study was reviewed by internal stakeholders, the Task Force, and has been presented to the Water Conservation and Demand Management Committee. Staff is incorporating final comments into the Benchmark Study to finalize the report.

- Spring 2022: Vulnerability Assessment - currently underway
- Summer 2022: Drought Monitoring and Water Shortage Response
- Fall 2022: Drought Response Framework
- End of 2022: Completion of draft plan
- Early 2023: Reclamation will have an opportunity to review and comment on the DRP
- Summer 2023: Final document brought to the Board for approval.

Valley Water will provide regular updates on the progress of the DRP development to the Water Conservation and Demand Management Committee, the Environmental and Water Resources Committee, and other interested advisory committees.

ATTACHMENTS:
Attachment 1: Drought Response Plan Benchmark Study
Attachment 2: Powerpoint Presentation

UNCLASSIFIED MANAGER:
Kirsten Struve, 408-630-3138

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March 11, 2021

To: Mike Martin, Valley Water

From: Luke Wang, Hazen and Sawyer
Phoebe Aron, Hazen and Sawyer
Leah Bensching, Hazen and Sawyer
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Drought Response Plan Benchmark Study

DRAFT Technical Memorandum

Executive Summary

Santa Clara Valley Water District (Valley Water) is in the process of developing a new Drought Response Plan (DRP) to improve water supply reliability during drought. The DRP will help Valley Water prepare for, and respond to, droughts by identifying early indicators of drought, refining drought response triggers/actions, and enhancing coordinated messaging in the County.

Prior to developing a new DRP, it is important to document Valley Water's existing approach to drought management by highlighting strategies that work well and areas that can be improved. In support of this goal, a benchmarking analysis was conducted comparing Valley Water's drought triggers, response actions, and effectiveness of past drought response strategies to nine peer agencies. The peer agencies included in this benchmark memo are listed in Table ES-1.

Table ES-1: Peer Agencies Included in Benchmark Memo

Peer Agency	Organizational Structure
Alameda County Water District	Retail and GSA [(a)]
East Bay Municipal Utility District	Retail and GSA
Contra Costa Water District	Wholesale and Retail
San Francisco Public Utilities Commission	Wholesale, Retail and GSA
Sonoma County Water Agency	Wholesale
San Diego County Water Authority	Wholesale
Metropolitan Water District	Wholesale
Denver Water	Wholesale and Retail
Tampa Bay Water	Wholesale
[(a)] GSA (Ground Water Sustainability Agencies) have the authority to restrict groundwater pumping or impose extraction allocations upon owners or operators of groundwater extraction facilities	

Key findings of the benchmark study include the following:

- Recent standardization[1] of the Water Shortage Contingency Plan (WSCP) process in California has made the general procedures for drought response similar between Valley Water and its California peers, particularly after drought conditions are declared. Despite this standardization, agencies have flexibility in choosing indicators and triggers for implementing drought response actions. The flexibility associated with timing of drought response action implementation can result in neighboring agencies requesting different demand reductions and use restrictions, which can cause misalignment of regional communications associated with drought response.

- Valley Water's drought response actions are triggered on projected end-of-year groundwater storage levels, which integrates projections of local supplies and imported water availability. Valley Water's peer agencies with access to multiple supply sources more explicitly incorporate projections and indicators of other supplies into the drought declaration and response process.

- Several wholesale peer agencies implement drought allocation plans, which encourage their retail agencies to purchase less water based on tiered rates corresponding to different supply allocations during drought. The allocation plans provide clear targets for reducing retail water use and often attempt to account for availability of other supply sources but are generally complicated to implement and politically unpopular.

- Valley Water and its peer agencies generally fared well during the 2012-16 drought. Each agency was able to maintain delivery of safe, clean water to their customers. Most agencies were able to meet or exceed water use reduction targets set locally and/or by state mandates. However, the drought was financially challenging for water suppliers. Some peer agencies, including Valley Water and its retailers, adjusted water rates or instituted drought surcharges and/or penalties to mitigate the financial impacts of the drought and to incentivize conservation by their customers.

- Financial lessons learned from the last drought which are being incorporated in current drought response include diligently building reserves during non-drought times and considering increasing debt service coverage target to better absorb future revenue loss.

[1] The WSCP framework allows for suppliers to retain several existing features of their prior plans, including water shortage stages. Valley Water and several of its peers, (i.e., EBMUD and SFPUC) have chosen to keep existing water shortage stages and crosswalk them relative to DWR's standard stages.

- Most agencies, including Valley Water, implemented a diverse range of actions during the 2012-16 drought, such as using local/regional storage, executing water transfers/exchanges, limiting outdoor water use, and promoting enhanced conservation measures. Analysis of historical water use data suggests that water supply shortage restrictions were effective in reducing demands. Throughout the drought, communication and collaboration were critical for achieving targeted water use reductions. However, the differences in drought response actions and requested use reductions between state, regional, and local agencies made communication and consistent response challenging.

Following the 2012-2016 drought, Valley Water, several peer agencies, and the State of California have implemented actions and legislation promoting more aggressive conservation goals, including more permanent reductions in urban water use. Permanent reductions in use following the last drought have in some cases caused outdoor demand to rebound back to demand levels lower than before the drought; together with on-going long-term increases in water efficiency this lower overall use can reduce the chance of future chronic shortages. However, it is possible that further quick, short-term demand reductions during acute shortages may be more challenging or come at a higher economic cost with existing approaches. Additional approaches and policies may be investigated to assess the amount of discretionary water uses, improve water use efficiency, and balance long-term gains in water efficiency with short-term conservation actions.

Table of Contents

1. Introduction and Background

Valley Water manages a diverse water supply portfolio and has made significant investments to enhance water supply reliability and conservation in Santa Clara County. These investments currently enable Valley Water to cope with the natural variability in supply and meet the County's water supply needs in all but critical drought years.[2] However, climate change, regulatory uncertainty surrounding imported and local supplies, and continued growth in the County have the potential to constrain water supply reliability and increase the County's risk from drought. Additionally, recent droughts have identified several challenges and lessons learned that justify reexamination of Valley Water's existing drought response.

In response to these concerns, Valley Water is developing a Drought Response Plan (DRP) to improve water supply reliability in Santa Clara County during times of drought. The DRP will help Valley Water prepare for, and respond to, droughts by identifying early indicators of drought, refining drought response triggers/actions, and enhancing coordination of drought response throughout the County. The DRP will include a drought response framework and an evaluation of new approaches to determine when to request water use reductions from the public and what those requests might entail.

The drought of 2012-2016 and the current drought (2021-present) have shown that establishing a coordinated response that ensures reliable delivery of safe, clean water is a challenging to plan and implement. The DRP will be informed by lessons learned from Valley Water's and other water agencies' previous drought responses; this benchmark study will document the past drought response efforts. In service of this benchmarking objective, this memorandum provides:

- An overview of Valley Water's drought response strategies and evaluation of their effectiveness during the 2012-16 drought;
- A review of drought planning and response strategies of Valley Water's peer agencies, including an evaluation of their effectiveness in the 2012-16 drought; and
- Identification of key differences, lessons learned, strategies and/or insight that may be useful to developing Valley Water's DRP.

This section provides a brief description of the peer agencies included in the benchmarking evaluation, a review of the 2012-2016 drought, and the regulatory context that guides drought response planning. Sections 2 and 3 provide an overview of the Valley Water and the peer agency drought response strategies, Section 4 discusses the effectiveness of drought response actions during the 2012-2016 drought, Section 5 explains 2021 drought response actions, and Section 6 provides conclusions and lessons learned that may help guide Valley Water's updated DRP.

To be included in the benchmark, seven California peer agencies were selected based on their similarities in size, water supply sources, and organizational structure relative to Valley Water. In addition, two non-California agencies, Denver Water and Tampa Bay Water, were selected to broaden the scope of drought

[2] Valley Water's Drought Risk Assessment, in its 2020 Urban Water Management Plan, projected sufficient supply availability to meet 2020-2045 demand during a single year and multi-year drought scenarios while acknowledging that future uncertainty in hydrology and regulations could affect these projections. These factors and other risks will be evaluated in a following memorandum documenting a Vulnerability Assessment of Valley Water's system to drought.

response plans, actions, and experiences reviewed for the DRP. General information describing these nine agencies is included in Table 1-1and Table 1-2.

Table 1-1: Summary of Peer Agencies

Peer Agency	Organizational Structure	Population Served	Annual Water Demand [a] (Acre-Feet)
Valley Water	Wholesale	2,000,000	310,000
Alameda County Water District (ACWD)	Retail	357,000	60,000
Contra Costa Water District (CCWD)	Wholesale and Retail	500,000 wholesale, 205,000 retail	41,000 wholesale, 64,000 retail
Denver Water	Wholesale and Retail	1,500,000	~ 250,000 [b]
East Bay Municipal Utility District (EBMUD)	Retail	1,400,000	~200,000
Metropolitan Water District (MWD)	Wholesale	19,000,000	1,440,000
San Francisco Public Utilities Commission (SFPUC)	Wholesale and Retail	1,860,000 wholesale, 900,000 retail	150,000 wholesale, 78,000 retail
Sonoma County Water Agency (Sonoma Water)	Wholesale	630,000	53,000
San Diego County Water Authority (SDCWA)	Wholesale	3,300,000	463,000
Tampa Bay Water	Wholesale	2,500,000	207,000 [c]

Notes:
[a] For California agencies annual water demands are from the most recent year reported in each agencies UWMP.
[b] Value estimated from 'Denver Water Treated Water Demand and Population' figure on the Denver Water webpage.
[c] Value from Fiscal Year 2021 *Year in Review*

Table 1-2: Peer Agency Supply Sources and Storage Capacity

Peer Agency	Supply Sources (Average %) [a]					Storage Capacity (Acre-Feet)
	Surface Water [b]	Groundwater	Desalination	Reclaimed	Imported [c]	
Valley Water	40	40 [d]		5 (recycled)	15	516,000 [e]
ACWD	9	41			52	157,500 [f]
CCWD Retail	<1			< 5	95	165,000
CCWD Wholesale	<1			< 5	95	
Denver Water	100					692,846
EBMUD	100					771,980
MWD					100	5,193,889 [g]
SFPUC Retail	93	3		2 (imported)		899,406
SFPUC Wholesale	100					
Sonoma Water	>99	<1				367,500
SDCWA			12		88	321,774[h]
Tampa Bay Water	37	57	3			48,181

Notes:
[a] Supply source percentages reflect data in peer agencies WSCPs and sum as close as possible to 100%. In some cases, the reported percentages are approximated.
[b] Includes surface water that is directly managed by the agency. For SFPUC, Hetch Hetchy supplies are considered local since they are directly managed by SFPUC.
[c] Imported water reflects CVP, SWP, and/or Colorado River water for California agencies. For Valley Water, imported supply includes contributions from SFPUC's Hetch Hetchy System (approximately 5% of the imported total).
[d] 15% reflects Valley Water's average natural groundwater supply. Imported (i.e., SWP/CVP) supplies are used to recharge groundwater. Total pumped groundwater in the County (including natural and recharged SWP/CVP) reflects 35-40% of total production.
[e] Valley Water storage capacity includes reservoir storage capacity (166,000 AF in 10 dams and surface water reservoirs), and the out-of-county semitropic groundwater bank (350,000 AF). Surface water reservoirs are currently operating at a reduced capacity of 62,360 AF due to seismic constraints.
[f] ACWD storage capacity includes local reservoir storage capacity of 7,500 AF and out-of-district semitropic groundwater bank of 150,000 AF.
[g] Reflects total local reservoir storage, Lake Mead Interim Guidelines storage, out-of-region groundwater banks, and in-region groundwater storage program capacity.
[h] SDCWA storage capacity includes a reservoir storage capacity of 251,774 AF and out-of-district semitropic groundwater storage bank capacity of 70,000 AF.

1.1 Statewide Overview of the 2012-2016 Drought

While droughts are recurring features of California's variable climate, the 2012-2016 drought was unusual in its severity – including the driest four year stretch in the 120 years on record (Mount et al. 2016). This section provides a general overview of statewide conditions and responses in the 2012-2016 drought. Specifics on Valley Water and peer agency responses are discussed in Section 4 of this memorandum.

The 2012-2016 drought was marked by record high temperatures, which reduced water stored in the Sierra Nevada snowpack and intensified drought conditions. The combination of dry, hot weather made it a harbinger of the types of drought California can expect more of as the climate changes (Diffenbaugh et al. 2015). These conditions, including the spatial extent of the drought, are reflected in Figure 1-1.

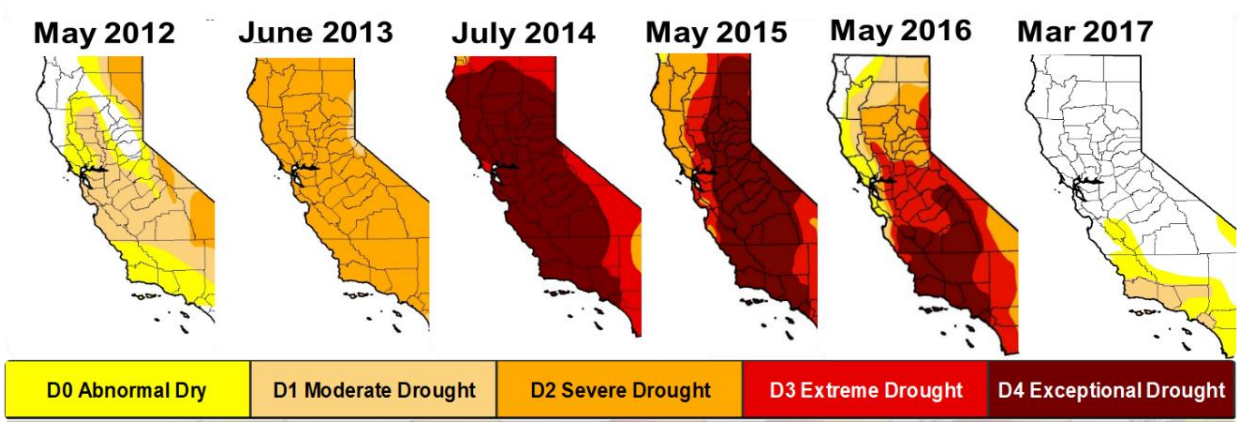


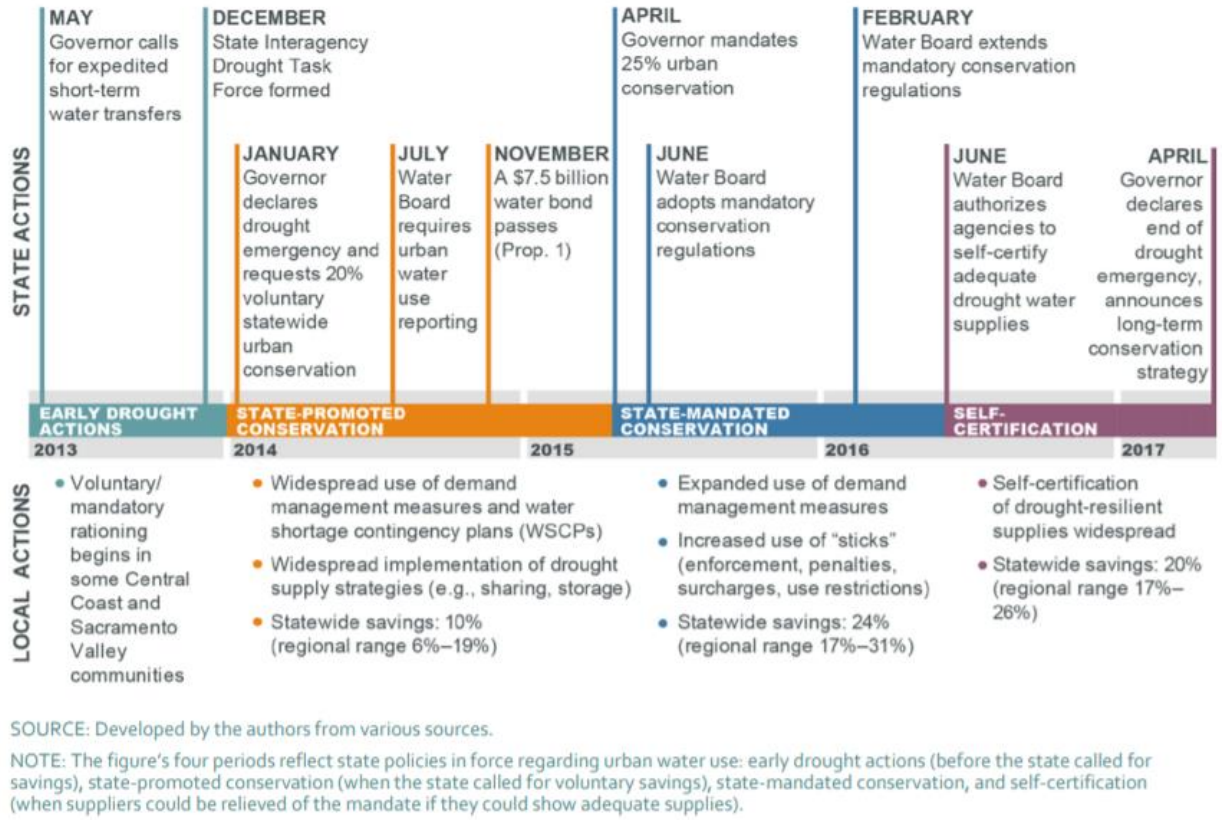
Figure 1-1: US Drought Monitor Between 2012-2017 (NIDIS, 2021)

The 2012-2016 drought was also unusual in the types of policies the state adopted for the urban sector. In prior droughts, the state focused on supporting better local drought planning and increasing water system flexibility, such as through the facilitation of water markets and transfers, rather than setting relative levels of curtailment. In the 2012-2016 drought, however, the state took the unprecedented step of ordering an across-the-board curtailment of urban water use in April 2015, mandating 25% average savings compared to 2013. The State Water Board assigned individual reduction targets ranging from 4-36% to each of the state's 400 urban retail water suppliers and monitored their compliance with these targets monthly.

Although the State's policy led to reductions in water use, the policy generated significant discord between the state and local water suppliers, many of whom objected to the state "second-guessing" their supply conditions and the adequacy of their drought management responses.[3] In particular, many urban water suppliers had been making substantial investments in water supply reliability and believed they were prepared to meet the challenges of a long drought (Mitchell et al. 2017).

In response to these concerns and following an improvement in water supply conditions in 2016, the state allowed water suppliers to opt out of the mandatory curtailment if they could demonstrate their supplies were adequate for at least three more years of drought. Eighty-three percent of suppliers chose this option. Record rainfall in 2017 refilled the state's storage reservoirs and in April 2017 then Governor Brown declared an end to the drought emergency. Figure 1-2 provides a timeline of policy changes and actions at the state and local levels.

[3] The State actions did help foster inter-agency cooperation and alignment, particularly among agencies that oversee groundwater basins.



SOURCE: Developed by the authors from various sources.

NOTE: The figure's four periods reflect state policies in force regarding urban water use: early drought actions (before the state called for savings), state-promoted conservation (when the state called for voluntary savings), state-mandated conservation, and self-certification (when suppliers could be relieved of the mandate if they could show adequate supplies).

Figure 1-2: Timeline of Significant Statewide Actions During the 2012-2016 Drought (Mitchell et al. 2017)

Although the drought began in 2012, its impact was not felt in most urban areas until 2014. A very wet 2011 meant the drought began with most surface reservoirs and local groundwater basins full, which helped mitigate the effects of dry conditions in 2012 and 2013.[4] More widespread state and local responses began in winter 2013-2014, which was extremely dry and warm relative to historical normals.

By 2014, most urban water suppliers had begun to activate their WSCPs and accelerate implementation of short-term demand management programs. Most suppliers reported implementing multiple drought response actions in 2014, with an average of nearly seven actions per supplier (Mitchell et al. 2017). The most common strategies, used by more than 80% of all suppliers, were Best Management Practice (BMP)-based programs addressing indoor and outdoor conservation and messaging. About half reported employing water use restrictions (e.g., restrictions on landscape watering and prohibitions on certain water types of water use). A similar proportion adjusted their water rates to incentivize conservation and a quarter gave their customers water budgets.

Statewide savings in the second half of 2014 were just half of the 20% requested by the state. However, analysis by the Public Policy Institute of California (PPIC) found that water savings during this period were frequently in line with the reductions water suppliers were requesting in accordance with their

[4] Impacts during the first two years were concentrated in the agricultural sector (especially rangeland grazing).

drought response plans (Mitchell et al. 2017). Savings were lower in Southern California because the region's water supplies were more diversified and storage reserves were greater. This allowed suppliers in Southern California to forestall asking customers for significant cutbacks in water use. In essence, Southern California's more drought resilient water supply portfolio insulated its water users from the worst effects of the drought.[5]

Nonetheless, some took the uneven savings realized in 2014 as evidence that local responses were inadequate, suggesting more forceful state regulations on urban water use were needed. In April 2015, following a record-low snowpack survey, then Governor Brown directed the State Water Board to impose a statewide 25% percent reduction in potable water use. It marked the first time that state authorities mandated a statewide reduction in urban water use.[6]

The mandate's effect on urban water use was significant and immediate. The uptick in water savings began in April 2015 – immediately following the governor's executive order and before the emergency water conservation regulations took effect. Aggregate savings were just shy of the 25% sought by the state.[7] Savings rates increased in all regions, and the differences between regions narrowed.

As in prior droughts, most savings came from reducing landscape irrigation. Under the mandate, the usual peak in summer use significantly diminished. Detailed analyses of water savings patterns confirmed the important role of outdoor water savings (Mitchell et al. 2017). Importantly, membership in a wholesale network, such as Valley Water's, was associated with higher savings and compliance, reflecting the benefits of substantial wholesaler assistance in demand management programs and regional messaging.

As in past droughts, the 2012-2016 drought hit water supplier finances hard. In a survey of urban water suppliers, more than 60% reported the drought reduced their revenues and their financial net position (Mitchell et al. 2017). Costs also increased – especially operational costs associated with drought management activities, such as increased customer outreach, enforcement of water use restrictions, and conservation program deployment. Roughly half the survey respondents reported higher water supply costs, and one quarter reported higher water treatment costs despite having lower water sales.

Most suppliers adjusted their water rates or instituted drought surcharges and penalties, both to mitigate the impact the drought was having on their finances and to incentivize conservation by their customers.[8] Those that made these adjustments at the beginning of the drought generally fared better than those that waited till the end of the drought to adjust their rates (Mitchell et al. 2017).[9]

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[5] PPIC researchers have noted a similar response pattern to Governor Newsom's call for a 15 percent reduction in water use in 2021. See, for example, PPIC's December 13, 2021, blog post: Are California's Cities Conserving Enough Water?

[6] The targets did not consider a supplier's current supply conditions or prior investments in drought resilience, such as banking surface and groundwater or expanding recycled water use. This proved to be a major point of contention between the State Water Board and urban water suppliers.

[7] Although statewide savings were close to the requested 25%, there was significant variation at the agency-level. Mitchell et al. (2017) observed that agencies with lower targets tended to exceed their goals while agencies with targets above 24% tended to fall short.

[8] Valley Water utilized emergency reserves and secured Federal and State funding to offset costs associated with drought response. Following the drought, a Drought Contingency Reserve was established by Valley Water's Board.

[9] Suppliers that failed to adjust their rates early on had to rely on their cash reserves and post hoc rate adjustments to restore their balance sheets, which inevitably resulted in the classic "catch-22" of hitting customers with a substantial rate increase after asking them to make sacrifices and curtail water uses.

The drought also caused suppliers to reprioritize planned capital investments. Not surprisingly, capital expenditures that could help with the drought, such as well installation or extension of recycled water distribution networks, were accelerated while investments that would not be immediately beneficial, such as main replacement, were delayed.

1.2 Relevant Drought Planning Regulations

Prior to the 2012-2016 drought, Urban Water Management Plans (UWMPs) were the primary method through which water suppliers communicated their supply reliability and drought management plans. However, at the time of the drought, UWMPs did not provide a good way for the state or the public to track drought preparedness and supply risks in real time. State officials had difficulty assessing what was happening locally, which was a key reason behind implementing the conservation mandate (Mitchell et al. 2017). In response to these concerns, the Legislature passed two bills in 2018 (AB 1667 and SB 606) intended to bolster local drought preparedness and response and provide real time information on local supply conditions to state water resource agencies and the public. Table 1-3 outlines the major rules, regulations, and/or requirements that guide the drought response planning process in California, including their key updates resulting from AB 1667 and SB 606.

Table 1-3: Summary of California Rules, Regulations, and/or Requirements Guiding Drought Planning

Rule, Regulation, and/or Requirement	Year Adopted	Summary
Urban Water Management Plan (UWMP) – *1983 Urban Water Management Planning Act and subsequent revisions to California Water Code (CWC)*	*Adopted* 1983 *Amended* 1995 2001 2005 2009 2015 2018 2019	• Prepared by urban water suppliers (defined as suppliers serving 3,000 customers and/or 3,000 AF/year) every 5-years • Assesses the suppliers' projected demands, use/planned use of recycled water, and overall water supply reliability over a 20-year planning horizon • Summarizes the suppliers current and planned demand management measures • Recently updated to include a more prescriptive WSCP (see below) and drought risk assessments for a single dry year and a 5-consecutive dry year period • Suppliers must factor any planned or expected actions related to the Sustainable Groundwater Management Action (SGMA) compliance that could alter future groundwater pumping and yields into the UWMP
Water Conservation Act of 2009 – *SB X7-7*	*Adopted* 2009	• Required suppliers to meet a 20% reduction in per-capita water use by December 31, 2020 • Baselines and targets for the 20% reduction were reported in the 2015 UWMP, compliance with the rule was reported in the 2020 UWMP
Water Shortage Contingency Plan (WSCP) – *CWC § 0632*	*Adopted* 2018	• Requires suppliers to adopt a WSCP that incorporates a water supply reliability analysis, procedures for Annual Water Supply and Demand Assessments (see below), six standard water shortage stages and water shortage response actions, communication protocols, and compliance/enforcement procedures • The WSCP is meant to be a stand-alone document and is encouraged to be updated as necessary, including outside of the 5-year UWMP cycle
Annual Water Supply and Demand Assessments - *CWC §10632.1 and CWC §10632(a)(2)*	*Adopted* 2018	• Requires suppliers to conduct annual assessments of supply and demand, on a monthly timestep, assuming current year hydrologic conditions followed by a single dry year • Assessments are expected to identify anticipated supply shortages and to define drought response actions that are currently (or will be) implemented to mitigate the shortages • Drought response actions are expected to be consistent with those identified in the WSCP • Assessments are to be submitted annually on July 1, beginning in 2022
New Urban Water Use Standards – *CWC §10609.26*	*Adopted* 2018	• Standards address indoor/outdoor residential water use, outdoor Commercial, Industrial, and Institutional (CII) water use by dedicated irrigation meters, and water supplier distribution system water loss • Suppliers will calculate an overall water use objective based on the standards • State Water Board can require suppliers that exceed their water use objective to enact policies/programs that result in additional water savings and/or levy other enforcement actions • DWR and the State Water Board are in the process of finalizing the standards

2. Overview of Valley Water's Drought Response Strategy

Valley Water has legal authority under CWC Sections 350 and 375 and the Santa Clara Valley Water District Act to declare a water shortage emergency in response to droughts and other conditions and adopt and enforce related conservation measures, including the reduction of delivered treated water.[10] This section summarizes Valley Water's existing drought management strategies as well as strategies applied in previous droughts (specifically 2012-2016). As described in the 2020 UWMP, Valley Water's WSCP drought response is guided by three water shortage management objectives:

- Minimize the economic, social, and environmental hardship caused by water shortages.
- Establish water use reduction targets and meet the targets by working with retailers and cities to develop effective demand reduction measures that first focus on eliminating non-essential water use.
- Safeguard essential water supplies for public health and safety needs.

2.1 Overview of Valley Water's Drought Triggers and Response Actions

Valley Water updated its WSCP as part of the 2020 UWMP (Valley Water, 2021) and is in compliance with the rules, regulations, and requirements outline in Table 1-3. One of the primary goals of the WSCP is to define specific triggers for water use reduction and outline actions that will be taken to meet reduction targets. Valley Water triggers drought conditions based on projected end-of-year groundwater storage as defined by Valley Water's groundwater modeling. Valley Water's other supply sources and storage (e.g., local surface water availability, imported water, storage in regional projects) are implicitly considered in this process though the Annual Water Operations Plan process and input assumptions to the groundwater model. Although this operations plan is formally referred to as the Annual Water Operations Plan (Figure 2-1), in reality it is updated on weekly, monthly, and annual time scales to constantly monitor input into the groundwater models and WSCP drought triggers.

[10] Valley Water's designation as a GSA and its Alternative Groundwater Sustainability Plan (GSP) also provides it the authority restrict groundwater pumping or impose extraction allocations upon owners or operators of groundwater extraction facilities.

Figure 2-1: Summary of Annual Water Operations Plan Inputs and Relationship with Drought Triggers (Valley Water, 2021)

Valley Water's WSCP defines five water shortage stages that correspond to projected end-of-year groundwater storage. Table 2-1 defines Valley Water's water shortage triggers, corresponding shortage stages, and recommended overall water use reduction. Note that Valley Water uses its own shortage stages in lieu of the six standard shortage levels defined by DWR. To be consistent with DWR guidance, these stages are cross-walked to the six standard shortage levels in Valley Water's WSCP. Valley Water's groundwater storage triggers and associated demand reductions have been set to maintain desired storage in the groundwater basin to prevent subsidence in the North County, saltwater intrusion, and wells from going dry, particularly in the South County.

Table 2-1: Shortage Stages and Recommended Use Reduction

Trigger (Projected End-of-Year Groundwater Storage)	Stage	Recommended Short-Term Overall Water Use Reduction
Above 300,000 AF	Stage 1 (Normal)	None
250,000 – 300,000 AF	Stage 2 (Alert)	0 – 10%
200,000 – 250,000 AF	Stage 3 (Severe)	10 – 20%
150,000 – 200,000 AF	Stage 4 (Critical)	20 – 40%
Below 150,000 AF	Stage 5 (Emergency)	>40%

Valley Water's WSCP defines specific actions[11] to meet water use reduction targets in each stage, which are summarized in Table 2-2.

Table 2-2: Drought Response Actions Defined in WSCP

Stage	Requested Water Use Reduction	Actions
Stage 1 (Normal)	None	• Continue ongoing outreach to meet long term conservation targets • Focus on services and rebate programs that facilitate water use efficiency for all customers
Stage 2 (Alert)	0 – 10%	• Begin coordination with County, cities, and retailers in preparation for Stage 3 actions • Additional communication strategies to augment Stage 1 efforts and promote immediate behavioral changes • Develop plans to obtain supplemental funding and secure transfers/ exchanges
Stage 3 (Severe)	10 – 20%	• Close coordination with the County, cities, retailers, large landscapers, and agricultural users to implement ordinances and water use restrictions • Increase intensity of communication efforts including emphasizing the severity of the water shortage • Water supplies augmented with transfers, exchanges, and withdrawals from groundwater banks
Stage 4 (Critical)	20 – 40%	• Stage 3 activities are expanded • Encourage the County, cities and retailers to increase enforcement of WSCPs
Stage 5 (Emergency)	>40%	• Intended for immediate crisis (e.g., major infrastructure failure) • Encourage all water users to significantly reduce water use • Activate Emergency Operations center • Coordinate closely with municipalities and retailers • Provide daily updates on conditions

In addition to the WSCP drought response actions identified in Table 2-2, Valley Water has both statutory and contractual ability to reduce the delivery of water supplies during drought events. Article C, Section 4(c) of Valley Water's standard-form treated water contract permits reductions in treated water deliveries, which are 10 percentage points less than the total Board approved water reduction. For example, if the Board calls for a 30% reduction in water use during a drought, it will reduce treated water deliveries to retailers by 20%.

Under their Groundwater Sustainability Plan (GSP), Valley Water has the statutory authority to regulate groundwater extraction under SGMA. Valley Water Board adopted resolution no. 18-04 that memorializes a transparent process to regulate groundwater extraction, if needed, and includes an implementation framework for Valley Water, in coordination with stakeholders, to address worsening basin conditions.[12]

[11] Valley Water's Board has the flexibility to select and implement appropriate drought response actions defined in Table 2-2.
[12] See Board Resolution 18-04.

2.2 Overview of Valley Water Retailers' Drought Response Actions

Valley Water wholesales water to 13 retail agencies. Table 2-3 lists which retailers rely on each supply source. As identified in its WSCP, Valley Water conducts significant coordination with the County, cities, and retailers to reduce water use during drought. This coordination includes support of local adoption and enforcement of water waste restrictions (e.g., limitations on outdoor potable water use). Valley Water's retail agencies are responsible for the adoption and enforcement of these measures consistent with their own WSCPs.

Table 2-4 identifies example drought response actions by category. Table 2-5 provides a categorical summary of Valley Water retailers' drought response actions based on a review of their WSCPs.[13] A detailed summary of specific drought response actions from retailers' WSCPs are presented in Appendix A.

Table 2-3: Summary of Valley Water Retailers Supply Sources

Supply Source	Groundwater	Treated Water	SFPUC	Non-Valley Water Local Surface Water	Recycled Water
California Water Service	✓	✓			✓
City of Gilroy	✓				✓
City of Milpitas		✓	✓		✓
City of Morgan Hill	✓				
City of Mountain View	✓	✓	✓		✓
City of Palo Alto [(a)]	✓		✓		✓
City of Santa Clara	✓	✓	✓		✓
City of Sunnyvale	✓	✓	✓		✓
Great Oaks Water Company	✓				
Purissima Hills Water District			✓		
San Jose Municipal Water	✓	✓	✓		✓
San Jose Water Company	✓	✓		✓	✓
Stanford			✓	✓	

[(a)] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event

[13] Two retailers (Stanford and Purissima Hills) do not meet the definition of an "urban water supplier" per CWC Section 10617 (i.e., more than 3,000 customers or supplying more than 3,000 acre-feet of water annually) and do not have an UWMP or WSCP.

Table 2-4: Example Drought Response Actions Employed by Valley Water Retailers

Drought Response Category	Example Drought Response Actions
Irrigation Restrictions	• Limits on number of days per week of irrigation • Limits on time of day or length of irrigation • Irrigation restrictions by land use
Leak Repair	• Leak detection and/or mandates on timing for repairing leaks
Residential Restrictions	• Limits on washing outdoor surfaces and vehicles • Limits on filling fountains and pools
Commercial Restrictions	• Restrictions on car washes, commercial laundries, restaurants
Municipal Restrictions	• Decreasing frequency of line and hydrant flushing • Use of potable water only for public health and safety
Construction / Industrial Cooling Restrictions	• Restrictions on single pass-cooling systems • Limits on new water service connections, building permits, and watering for dust control
Conservation Programs	• Offering water use surveys • Rebates for plumbing fixtures and landscape irrigation efficiency
Enhanced Communication	• Media campaigns, water bill inserts, water efficiency workshops
Enforcement	• Water waste reporting, patrols, and fines • Drought rates and/or water budgets • Increased frequency of meter reading

Table 2-5: Summary of Drought Responses Implemented by Valley Water Retailers

Drought Response Category	Number of Unique Response Actions in Category [(a)]	Number of Retailers Implementing	Average Stage Implemented [(b)]
Irrigation Restrictions	10	11	2
Leak Repair	2	11	1
Residential Restrictions	8	11	2
Commercial Restrictions	8	10	1
Municipal Restrictions	6	8	3
Construction / Industrial Cooling Restrictions	10	10	2
Conservation Programs	5	6	1
Enhanced Communication	3	7	1
Enforcement	4	8	3

Notes:

[(a)] The number of unique response actions in each category indicates the number of response action occurrences across all retailer WSCPs. For example, retailer WSCPs contain 10 mentions of irrigation restrictions and 2 mentions of leak repair requirements.

[(b)] Most retailers use the six standard DWR water shortage stages. Column reflects the average water shortage stage implemented across all retailers. Specific water shortage stages at which restrictions and responses are implemented are listed in Appendix A.

In general, most Valley Water retailers implement irrigation restrictions, leak repair, and restrictions on residential, commercial, and industrial uses. Nearly half of Valley Water retailers implement enhanced conservation and communication protocols, which tend to be implemented at the earliest drought stages. Most retailers also implement enforcement actions, which tend to occur at more severe drought stages compared to other actions.

Although there is relative uniformity on the types of drought response measures implemented by Valley Water's retailers, the specific actions and the timing of those actions can vary significantly. As an example, Table 2-6 summarizes the specific actions associated with reducing outdoor irrigation as well as the stage they are implemented. Table 2-6 shows both diversity in the irrigation reduction actions and the timing of implementation.

Table 2-6: Stage at which Valley Water Retail Agencies Implement Irrigation Restrictions

	Cal Water	Gilroy	Great Oaks	Milpitas	Morgan Hill	Mountain View	Palo Alto[(a)]	San Jose Muni	Santa Clara	SJWC	Sunnyvale
Limits on days per week[(b)]	3	1	1	0	1	2	0	2	2	2	3
Limits on time of day	1			0	0	2			0	1	0
Irrigating for more than 15 minutes per day per station						2					0
Use of water in a manner that causes excessive runoff	1	1	1	0	1	1			0	2	0
Irrigating within/during 48 hours of rainfall	1	3		0	3	2	2		0	1	0
Use of broken irrigation				0							
Irrigation of ornamental turf	3	4		5	4	4		6			6
All landscape irrigation	6	4		5	4	4		6			6
Golf course irrigation only for greens/tees				4					3		4
New irrigation connections other than recycled water									2		

Notes:
[(a)] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event
[(b)] Morgan Hill and Gilroy limit irrigation to 1 day per week during Daylight Savings Time (fall/winter).

In addition to diversity in drought response actions, Valley Water's retailers are not always in alignment on requested demand reduction or drought stage. Each retailer is individually responsible for declaring drought conditions and implementing their WSCPs and response actions. Differences in supply sources and WSCP procedures can result in neighboring retailers being in different drought stages. As an example, Valley Water's retailers that rely solely or more heavily on SFPUC supplies (e.g., Stanford, Palo Alto[14], Purissima Hills, Mountain View) may be in different drought stages than nearby retailers who

[14] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event.

have larger proportional use of Valley Water provided supplies. These differences in drought declaration and response actions can be challenging when communicating drought response and establishing consistency at the County-wide level.

3. Review of Peer Agency Drought Response Strategies

This section provides a comparative overview of the WSCPs and drought response strategies of Valley Water's nine peer agencies. The nine agencies selected include Alameda County Water District (ACWD), East Bay Municipal Utility District (EBMUD), Contra Costa Water District (CCWD), San Francisco public Utilities Commission (SFPUC), Sonoma Water Agency (Sonoma Water), San Diego County Water Authority (SDCWA), Metropolitan Water District of Southern California (MWD), Denver Water, and Tampa Bay Water. The peer agencies were selected to be diverse, but each has similar characteristics to Valley Water. ACWD, EBMUD, CCWD, SFPUC and Sonoma Water are all Bay Area water suppliers that have similar climates share some of the same sources and face similar challenges that are unique to the region, however they vary in size. Southern California agencies MWD and SDCWA are similar to Valley Water in that they are both wholesale agencies and have similar water supply portfolios. Denver Water and Tampa Bay Water are included as peer agencies of a similar size as Valley Water, however, being outside of California can provide unique prospective on drought management.

3.1 Overview of Institutional Decision-Making Processes

The operational frameworks and decision-making processes to assess drought conditions and implement appropriate management actions are relatively similar among peer agencies. Much like Valley Water's Annual Water Operations Plan, each peer agency conducts an annual assessment to evaluate drought conditions (based on projected differences in supply and demand), assess if a water supply shortage is anticipated, and identify potential drought response actions. The factors considered in each agencies' assessment process are outlined in Tables 3-1 and 3-2.

Table 3-1: Comparison of Supply Sources/Factors Considered in Projections of Annual Supply Availability

Agency[(*)]	Surface Flow	Ground	Storage	Imported	Recycled or Desal	Retail Supplies	Temp.	Precip.	Snow	Runoff	Soil
Valley Water	✓	✓	✓	✓	✓						
Sonoma Water	✓		✓			✓	✓	✓	✓	✓	✓
SDCWA			✓	✓	✓ (Desal.)	✓					
MWD			✓	✓							
CCWD	✓		✓	✓		✓	✓	✓			
SFPUC	✓	✓	✓	✓			✓	✓	✓	✓	✓
ACWD	✓	✓	✓	✓	✓						
EBMUD	✓		✓							✓	
Denver Water	✓		✓			✓	✓	✓	✓	✓	✓
Tampa Bay Water	✓		✓					✓			

(*)Notes:

(a) Colors distinguish organizational structure of peer agencies: wholesale, retail and wholesale, retail, non-California agencies.

(b) Surface = surface water, Ground = groundwater, Storage = storage, Imported = imported water, Recycled = recycled water, Retail Supplies = retailer water supplies, Temp. = forecasted temperature, Precip. = forecasted precipitation, Snow = observed and forecasted snowpack, Runoff = observed and forecasted surface water runoff, Soil = observed and forecasted soil moisture. Some peer agencies (e.g., SFPUC) use meteorological information to estimate runoff while others (e.g. Sonoma Water) use meteorological information to monitor supply conditions.

Table 3-2: Comparison of Factors Considered in Assessing Short-Term Demands

Agency	Historical Water Use	Weather	Growth/Population	Economics	Conservation/ Water Use Efficiency
Valley Water	✓				✓
Sonoma Water	✓	✓			
SDCWA	✓	✓		✓	✓
MWD	✓	✓			
CCWD	✓	✓	✓	✓	
SFPUC	✓	✓	✓		
ACWD	✓	✓	✓		✓
EBMUD	✓				
Denver Water	✓	✓			✓
Tampa Bay Water	✓	✓	✓	✓	
The colors differentiate the organizational structure of the peer agencies: wholesale, retail and wholesale, retail, non-California agencies.					

Table 3-3. Comparison of Institutional Structures for Recommending, Reviewing, and Approving Drought Response Actions

Agency	Organizational Structure	Recommend Drought Response Actions	Review Drought Response Actions	Approve Drought Response Actions
Valley Water	Wholesale	Agency Staff	Board of Directors	Board of Directors
Sonoma Water	Wholesale	Agency Staff	Technical Advisory Committee and Customers	Technical Advisory Committee
SDCWA	Wholesale	Agency Staff	Board of Directors	Board of Directors
MWD	Wholesale	Agency Staff	Board of Directors	Board of Directors
CCWD	Wholesale and Retail	Agency Staff	District's Operations and Engineering Committee	Board of Directors
SFPUC	Wholesale and Retail	Agency Staff	Executive Team	General Manager
ACWD	Retail	Agency Staff	Board of Directors	Board of Directors
EBMUD	Retail	Agency Staff	Board of Directors	Board of Directors
Denver Water	Non-California	Water Shortage Response Committee	Board of Directors	Board of Directors
Tampa Bay Water	Non-California	Agency Staff	Board of Directors	Board of Directors

3.2 WSCP Triggers and Water Shortage Levels

The backbone of each agency's WSCP is a set of triggers that are used to implement drought response actions and reduce water use during a water supply shortage. These triggers reflect overall supply conditions, but they vary among peer agencies because each agency considers a slightly different suite of parameters in their drought evaluation process. Table 3-4 lists the triggers established in each agency WSCP.

WSCP triggers correspond to water shortage stages that are intended to reduce water use and help manage operations during water shortages. The WSCP water shortage stages increase in severity from requests for minor voluntary water use reductions (Stage 1) to emergency conditions that require severe mandatory

water use restrictions (Stage 4, 5 or 6). Table 3-5 shows the targeted water use reductions[15] at each water shortage stage. When the water shortage stages are implemented, it is the goal of each agency to encourage reduced water use to meet these targets. Management actions implemented to achieve these water reductions are discussed in Section 3.3.

Table 3-4: Peer Agency WSCP Water Shortage Level Triggers

Agency	WSCP Water Shortage Level Triggers
Valley Water	• End-of-year projected groundwater storage levels
Sonoma Water	• Supply gap percentage determined by dividing the unmet unconstrained demand (difference between anticipated supply and projected demand) by the total unconstrained demand.
SDCWA	• Compare core supplies and member agency demand.
MWD	• Supply gap determined by the annual supply and demand assessment. • Water shortage percentage is calculated by dividing the difference between core supplies and unconstrained demand by unconstrained demand.
CCWD	• Percent of normally occurring demand that must be reduced to meet available supplies. • Customer response and receptiveness to current WSCP Stage. • Regular updates to demand totals (monthly monitoring during Stages 1 and 2, weekly during Stages 3 and 4, daily during Stages 5 and 6).
SFPUC	• Comparison of supply versus demand. WSCP is triggered if total system demands are anticipated to exceed total system supply.
ACWD	• Combination of groundwater levels and local supply conditions.
EBMUD	• Total reservoir storage.
Denver Water	• Combination of hydrologic, political, social, and economic indicators.
Tampa Bay Water	• Combination of streamflow, rainfall, and reservoir storage thresholds. • Tampa Bay Water's Water Shortage Mitigation Plan also provides triggers for exiting drought conditions.

[15] Water use reductions are relative to a baseline year selected at the beginning of a drought.

Table 3-5: California Peer Agencies Requested Demand Cutbacks by Water Shortage Stage.

Requested Demand Cutbacks by Water Shortage Phase						
Agency	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**	**Stage 6**
Valley Water[(a)]	0-10%	10-20%	20-40%		> 50%	
Sonoma Water	10% Voluntary	20% Voluntary	30% Mandatory	40% Mandatory	50% Mandatory	> 50% Mandatory
SDCWA	10% Voluntary	20% Mandatory	30% Mandatory	40% Mandatory	50% Mandatory	> 50% Mandatory
MWD	10%	20%	30%	40%	50%	> 50%
CCWD	10% Voluntary	20% Voluntary	30% Mandatory	40% Mandatory	50% Mandatory	> 50% Mandatory
SFPUC	5-10%	11-20%	Up to 30%	Up to 40%	Up to 50%	> 50%
ACWD	5% Voluntary	10% Mandatory	20% Mandatory	30% Mandatory	40% Mandatory	> 50% Mandatory
EBMUD	0-10% Voluntary	10-15% Mandatory	15% Mandatory	> 15% Mandatory		
Denver Water	Water Shortage Watch (no reduction)	20% Mandatory		35% Mandatory	50% Mandatory	
Tampa Bay Water [(b)]	Drought Alert	Drought Warning		Regional Supply Shortage	Water Supply Crisis	

[(a)] Valley Water cutbacks are suggested short-term reductions in water use

[(b)] Tampa Bay Water does not define target water use reduction percentages in its water shortage management plan.

3.3 Drought Response Actions

All peer agencies have similar approaches to manage drought, especially during the early stages of a water shortage when the highest priority responses include:

- Prioritizing supply-side actions, such as utilizing water from local and/or regional storage;
- Identifying and executing water transfers or exchanges;
- Increasing customer communication and outreach around conservation; and
- Implementing measures and ordinances to limit outdoor water use.

Additional agency-specific drought response actions are discussed below and listed in Appendix B. In general, the WSCPs of wholesale water supply agencies offer fewer specific drought response actions than the retail agencies because wholesale suppliers delegate specific customer facing actions (e.g., reporting, fines, penalties) to their retailers who may face a different make-up of water uses and mix of customers.

It is important to note that while peer agencies associate some specific management actions with water shortage stages (e.g., ACWD prohibits customers from draining and refilling swimming pools during a Stage 2 or higher drought), most agencies prefer to keep as much flexibility as possible in their management plans. This flexibility requires more judgement, coordination among wholesalers and retailers, and decision-making. However, this flexibility also allows each agency's Board of Directors,

leadership, and/or staff to evaluate the conditions, stressors, and variables that are pertinent to a particular drought and tailor management actions on a case-by-case basis.

3.3.1 Supply Management Actions

Supply management actions are similar across the peer agencies during drought, but vary based on the agencies supply portfolio, available system interconnections, contractual obligations, and existing infrastructure/operational constraints. Agencies typically leverage local surface water storage (including retailer-managed local sources) and pursue water transfers or exchanges (provided availability and access) first. "Takes" from groundwater banks and conjunctive use programs (e.g., SFPUC's Regional Groundwater Storage and Recovery Project) are often utilized simultaneously or shortly thereafter. Depending on the status of state and federal supplies, health and safety increment requests are typically prioritized as soon as possible. Critical groundwater reserves are generally conserved for as long as possible to prevent subsidence, saltwater intrusion, and other undesirable impacts. Other management actions, such as treatment optimization and repairs to conveyance/distribution systems are implemented on an "as-needed" basis dictated by local conditions (e.g., water quality events caused by low reservoir levels or introduction of atypical supply sources). Table 3-6 compares the supply management actions that are defined in peer agencies WSCPs.

Table 3-6: Supply Management Actions Peer Agencies Can Initiate During Drought

Agency	Local Storage	Regional Storage and Ground-water Banks	Water Transfers or Exchange	Encourage Use of Available Retail Supplies	Imported Supply Health and Safety Increment	Managed Ground-water Storage	Leak Detection and Repair	Treatment Optimization
Valley Water	✓	✓	✓	✓	✓	✓	✓	✓
Sonoma Water	✓			✓			✓	✓
SDCWA	✓	✓	✓	✓	✓		✓	✓
MWD	✓	✓	✓	✓	✓		✓	✓
CCWD	✓	✓	✓		✓		✓	✓
SFPUC	✓	✓	✓				✓	✓
ACWD	✓	✓	✓		✓	✓	✓	✓
EBMUD	✓		✓				✓	✓
Denver Water	✓			✓			✓	✓
Tampa Bay Water	✓	✓	✓	✓	✓			✓

The colors differentiate the organizational structure of the peer agencies: wholesale, retail and wholesale, retail, non-California agencies.

3.3.2 Demand Management Actions

The peer agencies reviewed in this benchmark study first focus their demand management on reductions in outdoor water use and customer communication, outreach, and education plans during the initial stages

of drought response. If drought conditions worsen and water shortages continue, agencies expand demand management and reduce indoor residential and/or commercial water use. Agency-specific demand management actions, and the stage at which they are implemented, are listed in Appendix B. Retail agencies can limit specific water uses such as capping the number of days customers are allowed to irrigate lawns, whereas wholesale agencies mostly encourage water reductions through rebate programs, water audits, and changes to delivery and/or payment schedules. Table 3-7 compares key differences in peer agency demand management actions.

Table 3-7. Demand Management Actions Peer Agencies Can Use During Drought.

Agency	Limit Outdoor Water Use	Customer Communication and Outreach	Water Allocation Plan	Limit Water Deliveries	Customer Rebate Programs	Drought Surcharge	Water Audit
Valley Water	✓	✓		✓	✓	✓	
Sonoma Water	✓	✓		✓	✓		
SDCWA	✓	✓	✓	✓	✓		✓
MWD	✓	✓	✓	✓	✓		✓
CCWD	✓	✓		✓	✓		
SFPUC	✓	✓	✓		✓	✓	✓
ACWD	✓	✓			✓		
EBMUD	✓				✓	✓	✓
Denver Water	✓	✓		✓	✓	✓	✓
Tampa Bay Water	✓	✓	✓		✓		✓

The colors differentiate the organizational structure of the peer agencies: wholesale, retail and wholesale, retail, non-California agencies.

One of the primary differences in demand management strategies between Valley Water and its wholesale California peer agencies (e.g., SFPUC, SDCWA, MWD) is the use of a Water Supply Allocation Plan (WSAP).[16] These plans allocate total available supply during drought conditions and impose tiered rates to encourage use below allocated levels. Allocations are typically unique to each retail agency served by the wholesaler. WSAPs can be useful because they provide a structured, formulaic approach to allocate water to member agencies during a supply shortage and are often effective provided retailers and their customers are responsive to changes in the price of water. However, WSAPs require coordination among many stakeholders and can be hard to implement. WSAPs need to take into consideration many different elements (e.g., local water supplies, growth, conservation saving programs, health and safety requirements, etc.) of water supply conditions, some of which is dynamic and difficult to predict and quantify. WSAPs are costly to implement and place a significant financial burden on retail agencies and the general public.[17] Furthermore, in order to remain effective, WSAPs typically require frequent structural updates as conditions change. For example, SFPUC and the Bay Area Water Supply and Conservation Agency (BAWSCA) are currently updating the WSAP for SFPUC's wholesale customers in

[16] Though Valley Water can reduce contract treated water deliveries (see Section 2), it does not allocate total system supply.

[17] Due to the financial burden to the public, MWD only implements its WSAP as a "fallback" option if other drought response actions do not achieve desired reductions.

part to address deficiencies in the existing plan's allocation of shortages greater than 20%.[18] MWD's WSAP has been updated several times since its adoption in 2007.

[18] Per SFPUC's 2020 UWMP, SFPUC's wholesale customers may experience future shortages in excess of 50% under regulatory conditions associated with the Bay Delta Water Quality Control Plan.

4. Drought Response Effectiveness During the 2012-2016 Drought

This section reviews the drought response actions and performance during the 2012-2016 drought for Valley Water and its California peer agencies.

4.1 Valley Water's Drought Response

As discussed in Section 1.11.1, drought conditions were observed statewide starting in 2012, however, Valley Water did not project shortages or critical groundwater storage until 2014. Figure 4-1 provides a timeline of key actions taken by the Valley Water Board during the 2012-2016 drought.

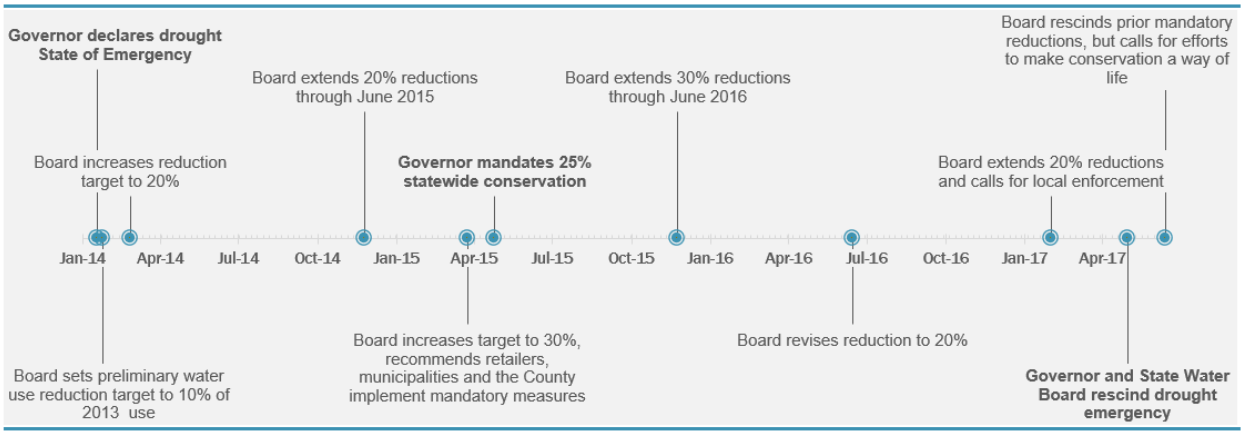

Figure 4-1: Key Valley Water and Statewide Drought Response Actions in 2012-2016 Drought

Over the course of the drought, Valley Water developed and implemented several strategies within four categories: (A) water supply and operations; (B) water use reduction; (C) drought response opportunities; and (D) administrative and financial management (Valley Water, 2017). Table 4-1 provides a summary of these drought response strategies as well as key actions implemented.

Valley Water and its retailers were largely successful in achieving the water use reductions targeted by the state and the Valley Water Board. Figure 4-2 compares total annual water supply production from all of Valley Water supply sources during the 2012-2016 drought against the 2013 baseline. A summary of the reported savings by year is presented in Table 4-2.

Table 4-1: Valley Water's Drought Response Strategies for the 2012-2016 Drought

Management Category	Drought Response Strategy
Water Supply and Operations	• Secured imported water supplies, including emergency transfers, withdraws from the Semitropic Groundwater Bank, and exploration/development of new mechanisms for imported water delivery (e.g., the California Aqueduct Reverse Flow Project) • Optimized operation of surface water and groundwater supplies, including reducing pumping in vulnerable areas and maintaining artificial groundwater recharge • Optimized treated water quality to handle drought related taste and odor events and imported water quality issues through modified chemical addition and blending
Water Use Reduction	• Reduced water use compared to 2013 water use • Ensured that Valley Water-owned facilities set a model for water conservation • Supported customers and key stakeholders to minimize adverse drought impacts • Increased rebate rates and adjusted water conservation program criteria to increase participation
Drought Response Opportunities	• Leveraged community awareness to advance long-term conservation measures • Accelerated recycled water program development and implementation • Leveraged opportunity to maintain uniquely accessible Valley Water facilities, such as inspections and maintenance of drawn down reservoirs and recharge ponds • Leveraged opportunity to further develop Valley Water's workforce, including staff rotations and streamlining the temporary staff hiring process • Advanced community knowledge, awareness, and understanding of the water supply system and services provided by Valley Water
Administrative and Financial Management	• Utilized emergency reserves and secured Federal and State funding to offset costs and accelerated conservation and recycling programs • Following the drought, implemented a Drought Contingency Reserve • Leveraged the Emergency Operations Center (EOC) to assist in supporting drought efforts • Adjusted Valley Water resource allocations necessary to respond to drought • Supported the Board of Directors

Table 4-2: Summary of Valley Water Requested and Achieved Demand Reductions During 2012-2016 Drought[19]

Year	Requested Reductions	Achieved Reductions on Calendar Year Basis
2014	10-20%	13% [(a)]
2015	20-30%	23%
2016	20-30%	25%
2017	20%	20%

Notes:
[(a)] Inclusive of February-December.

[19] Consistent with total production data retrieved from Valley Water's Water Supply Production Database.

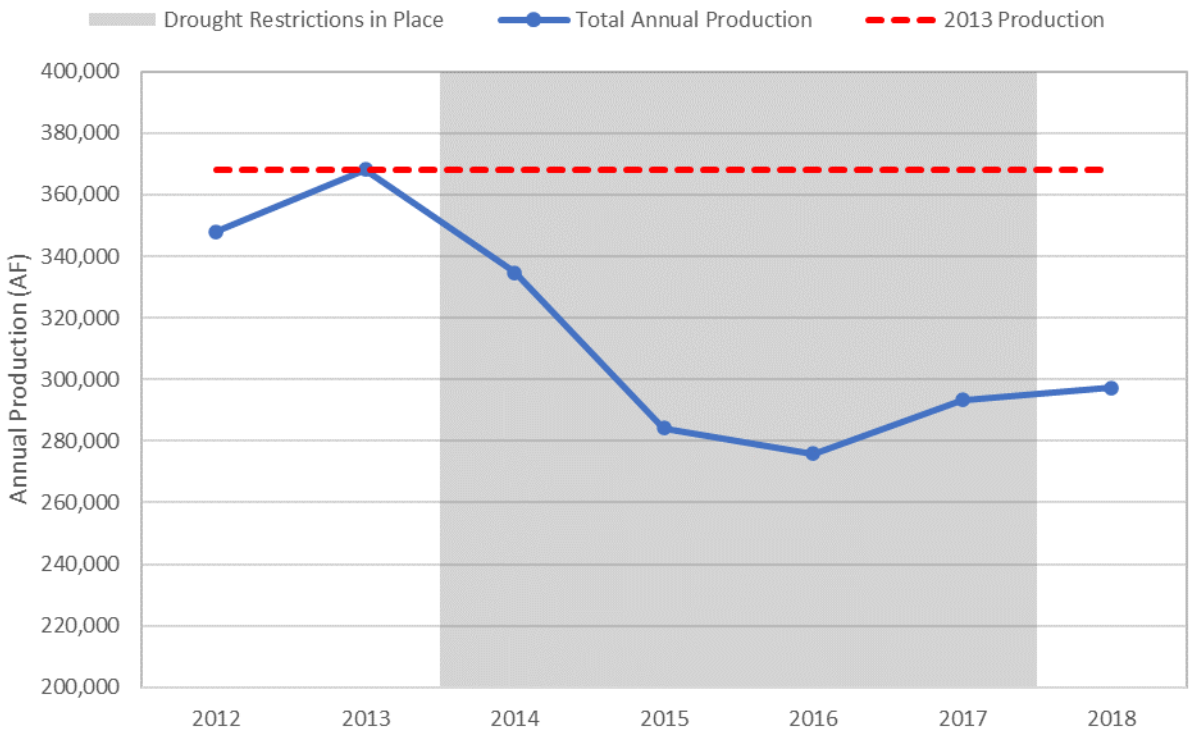

Figure 4-2: Valley Water Observed Production During the 2012-16 Drought Compared to 2013 Production[20]

Recent modeling associated with Valley Water's demand study (Hazen and Sawyer, 2021) indicates that savings during the 2012-2016 drought were even greater when compared to estimates of unconstrained demand.[21] Valley Water's demand model estimated the effects of the Board-requested use reductions on retailer water consumption. Specifically, the model used a linear regression framework to predict water use while controlling for water use sector, weather, the price of water, and other socioeconomic factors. Model results can be used to estimate what demand would have been during the last drought had restrictions not been implemented and infer actual water use reductions. These "counter-factual" estimates are summarized in Table 4-3 and visualized in Figure 4-3.

Table 4-3: Model Estimated Demand Reduction from Modeled Unconstrained Demand

Board Requested Use Reduction	Model Estimated Reduction by Sector			
	Single Family	Multifamily	Commercial, Industrial, Institutional (CII)	Overall
10%	14%	7%	13%	13%
20%	26%	13%	25%	24%
30%	36%	19%	35%	33%

[20] Ibid.

[21] Unconstrained demand is defined as what demands would have been had drought restrictions not been in place.

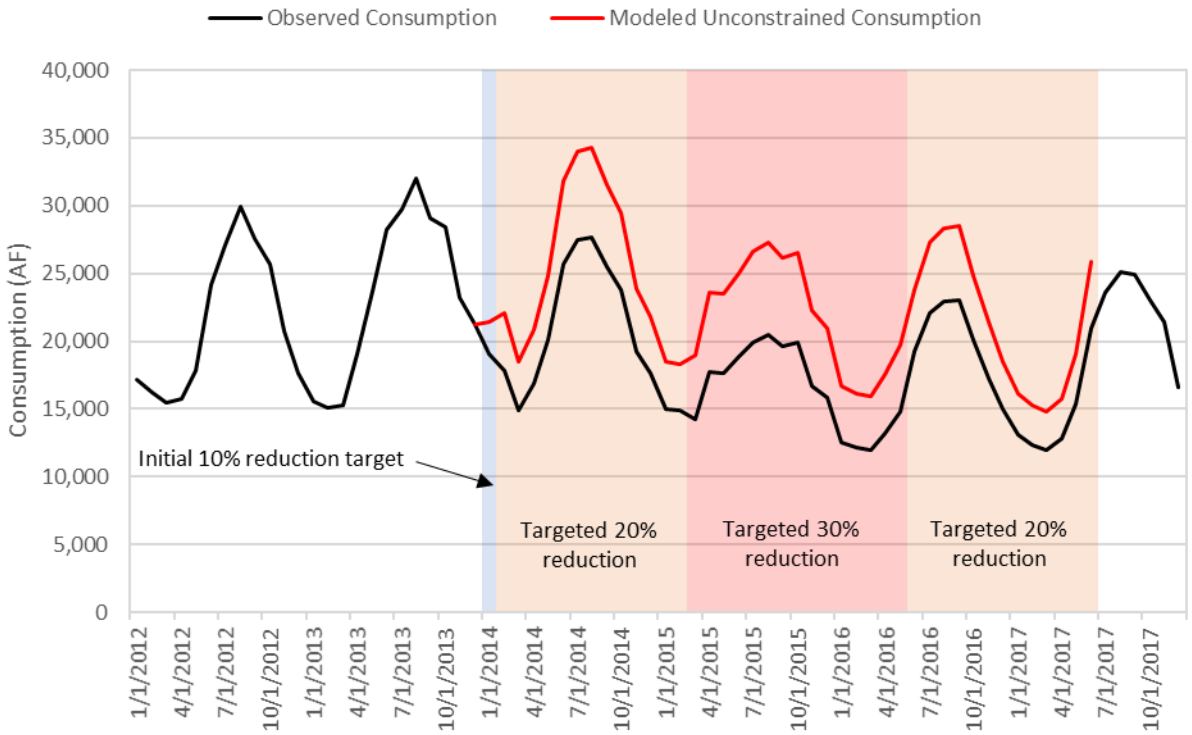

Figure 4-3: Monthly Observed Retail Agency Consumption Compared Against Modeled Unconstrained Consumption[22]

The key takeaways from the water use analyses include:

- Valley Water and its retailers were able to reduce demand in accordance with the use restrictions targeted by the Board and the state.
- Unconstrainted demand in 2014 was predicted to be higher than 2013, making observed 2014 demand reductions potentially greater than estimated.
- Overall demand reductions generally increased proportionately with Board requests.
- The largest volumetric reductions in demand occurred in the summer, indicating that response actions emphasizing reducing outdoor use were effective.
- The single family and CII sectors had a larger response to use reduction requests than the multifamily sector. This is not surprising, since multifamily demand has a generally higher proportion of indoor use than the single family and CII sectors.[23]

Although Valley Water was able to successfully reduce water use during the 2012-2016 drought and maintain delivery of safe, clean water to its customers staff identified several recommendations for

[22] Observed and modeled retailer consumption reflects total single family, multifamily, and CII use.
[23] Indoor use generally has higher economic value than outdoor use and is typically more difficult to reduce.

continually improving drought response (Valley Water, 2017). Two overarching recommendations include the following:

- **Operational flexibility and improvements to water supply strategies should continue to be advanced.** Local strategies, such balancing the use of imported water between managed recharge and treated water distribution were critical to meeting demands and minimizing impacts to the groundwater basin. Likewise, at a regional level, understanding and anticipating the limitations of imported water availability are important in identifying and implementing strategies for securing water transfers.[24] These local and regional strategies need to be continued and tailored to future drought conditions.
- **Coordination, collaboration, and communication should continue to be improved.** Though largely considered successful in the 2012-2016 drought, staff suggested that communication, collaboration, and coordination could be improved in key areas such as water use restrictions. As identified in Section 2.2, Valley Water's retailers WSCPs and drought response actions differ, which can result in inconsistent timing and implementation of drought response.

4.2 Peer Agency Drought Response

Similar to Valley Water, the peer agencies did not immediately anticipate water supply shortages during the 2012-2016 drought and did not implement WSCPs until 2014 or 2015. Most peer agencies implemented mandatory drought reductions between the initial state of emergency declaration in January 2014 and the Executive Order mandating 20% conservation in April 2014 (Figure 4-4). MWD was able to delay formal drought restrictions (i.e., the implementation of their WSAP) until July 2015 based on operation of their regional and local storage reserves.[25] MWD's storage reserves are a major differentiator from the other peer agencies; Table 1-2 shows that MWD's storage capacity is an order of magnitude larger than the other peer agencies.

This section compares the response actions implemented by peer agencies as well as their observed water reductions during the 2012-2016 drought.

[24] For example, at times exchange capacity in the Delta was inadequate during the 2012-2016 drought which limited the ability for Valley Water (and other contractors) from withdrawing water from the Semitropic Groundwater Bank. Valley Water developed the California Aqueduct Reverse Flow Project and worked with DWR to find alternate exchange/delivery pathways to mitigate this.

[25] MWD refined their WSAP formula in December 2014 but did not implement the plan until July 2015.

Figure 4-4: Timeline of Initial Implementation of Drought Restrictions by Valley Water and Peer Agencies

4.2.1 Peer Agency Responses to Reduce Water Demand

All of the California peer agencies adopted mandatory water reductions in 2014 and 2015 and reduced water use by approximately 15-30%. During the drought, wholesale peer agencies generally let individual retail agencies determine the specific steps to reduce water use because retail agencies were better positioned to make decisions about local water management and to directly restrict customer's water use. However, most peer wholesale agencies (e.g., SFPUC, MWD, SDCWA) implemented their WSAPs, defining limits on wholesale deliveries specific to each of their retailers. MDW was able to wait until 2015 to implement their WSAP due in part to their large amount of storage. On the other hand, rather than define limits specific to each retail agency, Valley Water defined County-wide reduction targets.

Regardless of operational structure, all the California peer agencies provided funding for conservation, incentive programs to help customers meet the mandated targets, and public outreach and education campaigns to help customers reduce water use. Table 4-4 provides an overview of the drought management actions that each agency used to achieve water reductions during the 2012-2016 drought.

Table 4-4: Comparison of Drought Response Actions Implemented During the 2012-2016 Drought

Agency	Limit Outdoor Water Use	Use Local and Regional Storage	Water Transfers or Exchange	Customer Outreach and Education	Drought Surcharge	Personal Online Water Use Tracker	Rebates and Incentives[a]	Implementation of Water Allocation Plan
Valley Water	✓	✓	✓	✓			✓	
Sonoma Water	✓	✓		✓			✓	
SDCWA	✓	✓		✓			✓	✓
MWD	✓	✓	✓	✓			✓	✓
CCWD	✓	✓	✓	✓	✓		✓	
SFPUC	✓	✓	✓	✓	✓	✓	✓	✓
ACWD	✓	✓	✓	✓		✓	✓	
EBMUD	✓		✓	✓	✓		✓	

[a] Rebate and incentive programs helped customers install water-efficient appliances (e.g., low-flow showers and faucets, quick-stop nozzles for hoses) and convert landscapes to more drought-tolerant designs.
The colors differentiate the organizational structure of the peer agencies: wholesale, retail and wholesale, retail.

Generally, Valley Water's peer agencies identified similar challenges and takeaways from the 2012-2016 drought including:

- Most agencies expressed the importance of storage reserves, transfers, inter-agency interties, and flexible water supply operations in preserving supply reliability. Supply augmentation and operations optimization were generally preferred approaches ahead of implementing demand reduction actions or WSAPs.
- Several agencies recognized that constraints around available water in the Delta affected the ability to secure transfers and exchanges. For example, ACWD encountered similar issues to Valley Water identifying exchange capacity to withdraw from the Semitropic Groundwater Bank.
- SDCWA identified similar challenges to Valley Water around the diversity of drought response actions and requested use reductions. In particular, they identified that simultaneous and different requests in use reductions (e.g., between the State, MWD, and local districts) resulted in confusion among customers.
- Several agencies, particularly those importing from Delta supplies, indicated experiencing water quality challenges.

4.2.2 Requested and Observed Water Demand Reductions

As part of the analysis of peer agency drought responses, peer agencies historical water use was compared to assess how different drought response actions affected water reductions during the 2012-2016 drought. To compare water reductions among these agencies, annual water use data was compiled from 2020

UWMPs and the percent change from 2013 was calculated (see Figure 4-5).[26] Note that Sonoma Water is missing from this analysis because the Sonoma Water UMWP does not include historical water use data. Note also that timeseries may be offset from each other by a few months because some agencies (ACWD, CCWD, SDCWA, MWD, and Valley Water) report historical water use per calendar year whereas other agencies (SFPUC and EBMUD) report historical water use per fiscal year.

Results of this analysis highlight three important points:

- All of the peer agencies in California reduced water use during the 2012-2016 drought.
- Valley Water achieved a larger percent reduction than any of the peer agencies.
- Water use has not rebounded to pre-drought levels and water use in 2020 was 10-20% lower than in 2013. This muted drought response is potentially related to long-term conservation efforts and permanent changes in customers' water use behaviors.

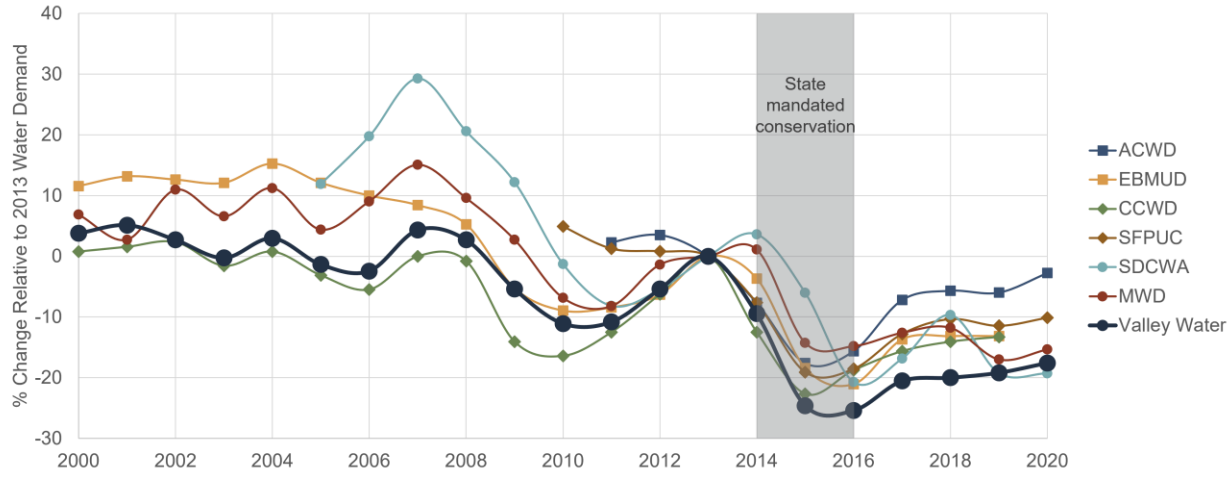

Figure 4-5: Peer Agency Historical Water Use Relative to 2013

[26] UWMPs do not report historical water use data consistently. MWD, SCDWA, and Valley Water report total wholesale water use, ACWD and EBMUD report total retail water use, CCWD reports retail and wholesale water use, and SFPUC reports retail water use in San Francisco. SFPUC wholesale water use data were accessed from the BAWSCA annual survey. Wholesale and retail water use data from SFPUC were summed to make the SFPUC data consistent with other peer agencies. The 2020 EBMUD UWMP did not include water use data from 2020.

5. 2021 Drought Response

California is entering a third consecutive dry year in 2022 and is experiencing historically dry conditions. As a result, in July 2021 Governor Newsom requested that all Californians voluntarily reduce water use by 15% relative to 2020 levels. In October 2021, Governor Newsom declared a Statewide Drought Emergency, called on residents to step up water conservation efforts, and encouraged water suppliers to execute their WSCPs. On December 1, 2021, DWR announced that 2022 SWP allocations will focus only on health and safety needs. After heavy rain in October and December 2021, DWR increased state water project allocations to 15%. However, almost all of California is still in moderate or severe drought conditions and experienced a historically dry January. Given these pressures and the uncertainties of near-term water needs, water agencies are currently encouraging customers to conserve water. This section provides a summary of ongoing drought response actions by Valley Water and its peer agencies.

5.1 Ongoing Valley Water Response

In addition to the statewide dry conditions, Valley Water is currently operating without Anderson Reservoir and limited storage capacity in Almaden, Calero, Coyote, and Guadalupe Reservoirs.[27] In April 2021 Valley Water's Board of Directors instituted an initial voluntary call for a 25% water use reduction as compared to 2013 water use. In June of 2021, Valley Water's Board of Directors declared a water shortage emergency and called for water use reduction of 15% compared to 2019 (33% of 2013 use) and reduced scheduled treated water deliveries. The County followed suit and proclaimed a local emergency later that month. In July 2021, Governor Newsom expanded a previous proclamation of local drought emergency for nine counties to include Santa Clara County.

Coinciding with these declarations, Valley Water's retailers have instituted their own drought response actions corresponding to local drought declarations, social media campaigns, and advertisements of Valley Water's conservation rebate programs. Most retailers have also activated their own WSCPs. Table 5-1 summarizes actions Valley Water has taken to meet the 15% reduction target.

Valley Water and its retailers continue to meet regularly to provide drought updates, track progress towards drought response efforts, and ensure consistent messaging. The community has continued to increase its drought-related conservation from June 2021, with November 2021 water use approximately 20% less than November 2019 water use. Cumulative water use reduction since the Board action in June 2021 until December 2021 is approximately 8%.

Although Valley Water was swift in declaring drought conditions and implementing response actions, the existing triggers (projected end-of-year groundwater storage) may not have fully captured the risks associated with limited local storage and imported water availability. For example, more acute, sub-annual shortage risks associated with severely diminished surface water supplies may not be well represented with an annual metric. Risks and vulnerabilities associated with these triggers will be further explored in the next memorandum in the DRP.

[27] Anderson currently drained to accommodate a seismic retrofit and Almaden, Calero, Coyote and Guadalupe storage is limited due to DWR Division of Dam Safety restrictions.

Table 5-1: Current Valley Water Actions Taken to Reduce Water Use

Response Category	Actions
Conservation Programs	• Provide free water saving devices for residential customers and direct installation services for replacing inefficient plumbing fixtures in high density residential, commercial, and institutional properties • Doubled rebate rates for the landscape rebate program for replacing high water use land scaping and improving irrigation efficiency. • Water waste reporting which allows callers to confidentially report water waste and leaks. Valley Water addresses them by providing education to the owner.
Outreach	• Promote water conservation as way of life through multilingual TV, radio, online, social media and print campaigns. • Response to increased news media requests for drought reporting to generate water conservation awareness and additional media outreach. • Directed messaging to address significant rains received in October and December. • Ongoing Ambassador Programs for both youth and adults to promote conservation
Education	• Increased drought-specific education outreach events with local schools, community, and youth groups. • Provide speakers at community and private events through the Speakers Bureau Program which aims to educate customers about current water issues and Valley Water's history.
Supply Optimization	• Secured 28.5 TAF of public health and safety supplies, allowing some implementation of managed groundwater recharge • Recovered 35 TAF of stored water in the Semitropic Groundwater Storage Bank • Executed 58 TAF of emergency transfers • Enhanced coordination with retailers to optimize supply use specifically aimed at avoiding groundwater use when surface water is available

5.2 Summary of Peer Agency Responses

Valley Water's peer agencies also began to implement significant drought responses in 2021. A summary of drought response stages and target water use reductions (as of December 2021) for the seven peer agencies in California are listed in Table 5-2.

Table 5-2

Table 5-2: Drought Response Stage and Water Reduction Goals as of December 2021

Agency	Drought Response Stage	Target Water Use Reduction [(a)]
Valley Water	Stage 3	15% water use reduction.
Sonoma Water	Drought Emergency	Reduce diversions from the Russian River by 20%. Require retail agencies to implement their WSCPs to a level consistent with an emergency drought.
SDCWA	Stage 1	Have not set a target or implemented WSAP but have called on member agencies to voluntarily reduce water use.
MWD	Drought Emergency	Have not set a target or implemented WSAP but have called on member agencies to maximize conservation, enhance local supply production, and reduce use of SWP supplies.
CCWD	Stage 1	Voluntary 10% water use reduction.
SFPUC	Stage 1	10% water use reduction and implementation of WSAP.
ACWD	Stage 2	Mandatory 15% water use reduction.
EBMUD	Stage 1	Voluntary 10% water use reduction.

[a] Most water use reduction targets consider 2020 as the base year.

To meet the target water use reductions in

Table 5-2, Valley Water's peer agencies have implemented both supply- and demand-side response actions. On the supply-side, peers have been utilizing storage reserves (including regional groundwater banks), securing water transfers, and requesting/clarifying health and safety increments from the CVP and SWP. On the demand-side, all peer agencies have been encouraging increased conservation from their customers and retail agencies. Certain wholesale peers (i.e., SFPUC) have instituted water shortage allocations to their retail agencies along with financial penalties for exceeding the allocations. A detailed summary of current peer agency responses is summarized in Appendix C.

6. Conclusions

This Benchmark Study provides a comparative review of Valley Water's current drought response strategies against several peer agencies, including the relative performance of these approaches in reducing overall water use during the 2012-2016 drought. Lessons learned from the 2012-2016 drought as well as key differentiators in its peer agencies' drought response strategies will be important to consider as Valley Water develops its DRP.

6.1 Takeaways from 2012-2016 Drought

As with prior droughts, the 2012-2016 drought provides opportunities to draw lessons for better managing the next one. Key lessons learned include the following:

- **Importance of water supply diversity and storage** – Agencies and regions with more diverse supply portfolios and larger storage reserves (e.g., MWD) were generally able to delay mandatory drought restrictions until later into the drought and tended to rescind drought restrictions earlier.
- **Importance of integration, coordination, and flexible operations** – Valley Water and several peer agencies called upon water transfers, exchanges, and regional investments to augment normal supplies. These regional efforts, often spearheaded by large wholesale utilities like Valley Water, were key for smaller urban suppliers that lack the capacity to diversify supplies on their own.
- **Understanding and preparing for infrastructure and policy limitations** – For agencies relying on SWP and CVP supplies, the ability to transfer/exchange water can be limited by the transfer window, availability of water in the Delta to exchange, and pumping capacity. As an example, both Valley Water and ACWD experienced difficulties withdrawing from the Semitropic Groundwater Bank resulting from limited exchange capacity in the Delta. Understanding these limitations is critical to maximizing delivery of transferred supplies.
- **Coordination and consistency in drought responses are critical** – Valley Water and its peer agencies benefited from communication plans emphasizing frequent coordination with internal decision-makers, retailers, neighboring water supply agencies, and the public. UWMPs make it clear that direct communication to customers through diverse media was critical to communicating drought reduction actions. However, coordination strategies can be improved; Valley Water and some of its wholesale agency peers (e.g., SDCWA) identified that customers expressed confusion in the diversity of drought restrictions and requested use reductions simultaneously being provided by the state and other local wholesalers/water districts. The differences in drought restrictions and actions make public communications challenging.
- **Water quality impacts can occur** – Water quality challenges (e.g., taste and odor, algal blooms, disinfection-by products) can be exacerbated under drought conditions but can be addressed through proactive source water quality monitoring and/or treatment optimization. Associated increases in labor and chemical costs should be planned for and anticipated.

- **Improving water supplier fiscal resilience** – PPIC (Mitchell et al, 2017) reported that fiscal vulnerability to the drought was widespread, especially among publicly owned water utilities. Valley Water utilized emergency reserves and secured Federal and State funding to offset costs associated with the drought and has since implemented a Drought Contingency Reserve to ease the financial burden of future droughts. PPIC suggested that fiscal resilience can be improved by adopting rate structures that build in preapproved rate adjustment mechanisms for droughts. Some of Valley Water's retail peer agencies (e.g., CCWD, EBMUD) implemented this through drought surcharges. While direct surcharges to customers cannot be implemented by wholesale agencies, wholesalers can implement tiered billing for their retail agencies based on water supply allocations (i.e., implementation of WSAPs).
- **Synergies with long-term conservation goals** – During the 2012-2016 drought, significant savings were realized by reducing use in urban settings for both indoor and outdoor use. For Valley Water and its peer agencies, water use has not fully rebounded to pre-drought levels. Recent legislation (i.e., SB 606 and AB 1414) aims to further reduce urban use. The muted rebound from the 2012-2016 drought, plus new conservation goals, may lower the overall risk for water supply shortages in future droughts.

6.2 Differentiating Peer Agency Drought Response Strategies

In general, Valley Water and its peer agencies have similar approaches to drought response. Recent updates to the required structure of California water agencies WSCPs, in particular the standard water shortage response stages and implementation of the Annual Water Supply and Demand Assessments, have largely standardized general procedures for identifying, and responding to droughts. Despite these standardizations, there are still several key differentiators in the peer agency drought response strategies, which are summarized in Table 6-1 .

Table 6-1: Summary of Differentiating Peer Agency Drought Strategies, Potential Benefits, and Challenges

Drought Response Strategy	Example Peer Agencies	Potential Benefits	Challenges
Consideration of additional drought triggers (e.g., regional / local hydrologic indicators, surface water storage) in addition to groundwater storage	• ACWD • MWD • SDCWA • Denver Water • Tampa Bay Water	• Greater flexibility in declaring and confirming drought conditions that warrant demand reductions • Potential advance warning for conditions that may result in local water shortages • Evaluation of sub-annual drought conditions that could result in shortages	• Potentially more complex to implement and communicate to stakeholders
Water Supply Allocation Plan (WSAP)	• SFPUC • MWD • SDCWA • Tampa Bay Water	• Allows for more detailed consideration of retail agencies' other supply sources and local conditions • Potential for more explicit definition of target reductions / expectations at the retail agency-level	• Allocation formulas are complex, require frequent updates, and are often unpopular • Institutionally challenging; Valley Water already reduces treated water contracts under drought conditions but would require application of SGMA regulations to enforce similar reductions on groundwater supplies

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Appendix A: Summary of Retail Agency Drought Response Actions

A detailed summary of specific drought response actions from Valley Water retailers' WSCPs is presented on the following pages.

Table A-1. Drought Response Actions of Valley Water's Retail Agencies.

Stage that Water Use Prohibitions Are Triggered	SJWC	Great Oaks[28]	Cal Water	Gilroy[29]	Milpitas	Morgan Hill	Mountain View	Palo Alto [(a)]	San Jose Muni	Santa Clara	Sunnyvale
LEAKS (Stage/Days)											
Number of business days in which leaks must be fixed	1/5 2/3 4/2	5	1/Timely 5	1/3 3/2 4/1	2/5 3/4 4/3 5/2 6/1	1/3 3/2 4/1	1/Timely		1/5 5/2	0/Timely	0/Timely
IRRIGATION (Stage/Days)											
Limits on days per week	2/3 3/2 4/1	1/4	3/3	1/3 2/2	0/4 2/3 3/2 4/1	1/3 2/2	2/3	3 Days	2/4	2/3	3/2
Limits on time of day	1		1		0	0	2			0	0
Irrigating for more than 15 minutes per day per station							2				0
Use of water in a manner that causes excessive runoff	2	1	1	1	0	1	1			0	0
Irrigating within/during 48 hours of rainfall	1		1	3	0	3	2	2		0	0
Use of broken irrigation					0						
Irrigation of ornamental turf			3	4	0	4		5		0	0
All landscape irrigation			6	4	5	4	4		6		6
Golf course irrigation only for greens/tees					4					3	4
New irrigation connections other than recycled water										2	

[(a)] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event.

[28] Great Oaks WSCP only has one stage.
[29] Gilroy data based on draft WSCP.

Stage that Water Use Prohibitions Are Triggered	SJWC	Great Oaks	Cal Water	Gilroy	Milpitas	Morgan Hill	Mountain View	Palo Alto [a]	San Jose Muni	Santa Clara	Sunnyvale
RESIDENTIAL											
Washing outdoor surfaces	4	1	1	1	0	1	2	2	3	0	0
Water features that are not recirculating	1		2		0	1				0	0
Filling decorative water features	3	1	3	3	2	3	2		3	2	4
Filling swimming pools	4	1	5	1	4	1	3		4	6	4
Washing vehicles without a shut-off nozzle	1	1		1	0	1	1			0	0
All residential vehicle washing	3	1			3	1	3		3		3
Require pool covers			5	0	0	1				0	
All water features											
New pools					4					2	4
RESIDENTIAL											
Encourage re-circulating car wash				0		0					
Encourage re-circulating comm laundry				0		0					
Commercial car washes without re-circulation	1		2	1	0	1	2		3	0	
Restaurants serving water unless requested	1	1	2	0	0	1	1			0	0
Kitchens required to use pre-rinse spray valves				0		1	2				
Offer option to not launder linens daily	1		1	0		1	2			0	0
Non-circulating commercial laundry			2	1		1	2				
Prohibit vehicle washing except with recycled water			4								

[a] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event.

Stage that Water Use Prohibitions Are Triggered	SJWC	Great Oaks	Cal Water	Gilroy	Milpitas	Morgan Hill	Mountain View	Palo Alto [(a)]	San Jose Muni	Santa Clara	Sunnyvale
CONSTRUCTION/COOLING											
Discourage single pass cooling systems				0		0					
Prohibit single pass cooling systems in new connections			2	1	0	1				0	0
Prohibit single-pass cooling systems			5		3		1				
Required recycled water available for construction water				0		0				2	
Limit watering of landscape of newly constructed		1	2	4	0	4				0	
Prohibit potable water for dust control	3	1	4		3		2				
Prohibit potable water for street washing		1	4								
Limit on new water service connections			6	5		5		5			
Require net zero increase on new connections			5								5
Limit or withhold building permits				5							

[(a)] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event.

Stage that Water Use Prohibitions Are Triggered	SJWC	Great Oaks	Cal Water	Gilroy	Milpitas	Morgan Hill	Mountain View	Palo Alto [a]	San Jose Muni	Santa Clara	Sunnyvale
MUNICIPAL ACTIONS											
Decrease frequency and length of line flushing			3		2					2	1
Reduce system water loss			3		1					2	2
Promote recycled water			4								
Use of potable water to flush hydrants									1		
Suspend annexations				6		6					
Potable water for health and safety only					6			6			
WATER CONSERVATION											
Public media campaign			1		1		1	2	1	1	1
Water bill inserts			1								
Online water waste reporting			1								
Rebates for plumbing fixtures			1		1		1	1		0	1
Rebates for landscape irrigation efficiency			1		1		1			0	1
Expand water use surveys			1								
Increase leak detection					2						
Water efficiency workshops, public events			2								
Offer water use surveys			2				1			0	
Home or mobile water use reports			3								
Increase water waste patrols/enforcement			3		1					1	
Drought rate structure / water budgets			3	3		3		3	6	3	3
Increase frequency of meter reading										3	3

[a] Palo Alto does not purchase treated water from Valley Water. Palo Alto's groundwater wells are currently only used to provide water during an emergency event.

Appendix B: Peer Agency WSCP Response Actions by Stage

Table B-1. Peer Agency WSCP Demand Reduction Actions.

Stage at which response is implemented	Sonoma Water	SDCWA	MWD	CCWD	SFPUC	ACWD	EBMUD
COMMUNICATION							
Implement Communication Plan	1	1	1	1	1	1	1
Request demand reductions and water use efficiency	1	1	1	1	1	1	1
Encourage enhanced voluntary water use reductions	2	2					
Notification of potential water shortage	1						
Member agency M&I allocation		2					
WATER ALLOCATION PLAN							
Implement water allocation plan	3		1				
Adopt Base Consumption Allowance for each customer class						3	
DEMAND REDUCTION ACTIONS							
Petition for relief from instream flow requirements	4						
Limit water deliveries	4	as needed	as needed	as needed			
Offer water use surveys				1	as needed	2	1
Increase water waste patrols				3	as needed	1	1
Provide rebates for landscape irrigation efficiency				1		2	1
Provide rebates for turf replacement				1	as needed	2	1
Provide rebates on plumbing fixtures and devices				1	as needed	2	1
Restrict water use for decorative water features, such as fountains				1	permanent	2	1
Turn off all water features						3	
Prohibit use of potable water for construction,				1		2	1

dust control, and street sweeping							
Limit landscape irrigation to specific days				3		2	1
Prohibit certain types of landscape irrigation				3	as needed	2	1
Prohibit all landscape irrigation				6		5	
Prohibit filling new pools, spas, and hot tubs, or draining and refilling pools					as needed	2	
Cover all pools						3	
Use of potable water on golf courses outside irrigation of putting greens					as needed		
Use of supplies other than groundwater and/or recycled water for irrigation of golf courses, median strips, and similar turf areas					as needed		
Limit water use for new or retrofitted landscaping or expansion of existing facilities					as needed		
Watering outdoor landscapes with potable water during and within 48 hours after a rain event					permanent		1
Using hoses for any purpose without a positive shut-off valve					permanent	2	1
Eliminate water waste, including but not limited to, any flooding or runoff into the street, sidewalk or gutter					permanent	2	1
Use of single-pass cooling systems, fountains, and commercial car washes					permanent		
Implement the use of water recapture/rain catchment systems, if feasible						2	
Encourage the use of a drought budget (based on ET) for landscape watering						2	
Decrease line flushing				3	as needed		1
Implement or modify drought rate structure or surcharge				3	as needed	3	3

Moratorium or net zero demand Increase on new connections				5		4	
Initiate leak alert program					as needed		
Require that leaks are fixed as soon as practicable						2	permanent
Improve customer billing and water use information					as needed	1	
Develop an online Drought Resource Center						1	1
Use AMI to monitor water use						1	
Lodging establishment must offer opt out of linen service				2	permanent	3	
Restaurants may only serve water upon request				2	permanent	3	

Appendix C: Peer Agency Drought Responses in 2021

Table C-1. Peer Agency Drought Response Actions in 2021.

Agency	Drought Response Action
ACWD	• Limit the number of days per week that customers can use sprinklers. Prohibited water use includes: • Runoff from irrigation or watering • Leaks and breaks within the customers' plumbing that are not fixed within 72 hours after the leak is discovered • Draining and subsequent refilling of swimming pools • Use of decorative water fountains • Using hoses without quick-acting positive shutoff nozzles • Hosing off sidewalks, driveways, or other hard surfaces • Irrigation while it's raining and within 48 hours of measurable rainfall • Irrigation that results in ponding or flooding
EBMUD	• Acquiring additional supply sources. • Finding and fixing leaks in the water supply system. • Investing in conservation programs such as holding monthly office hours so customers can ask questions about landscape rebate programs. • Encourage customers to repair leaks immediately, eliminate runoff from watering, and use recirculating water for fountains. • Provide customers with educational material on timing for outdoor watering, how to look for leaks, and information on programs to improve residential water efficiency and make landscapes drought-ready.
CCWD	• Provide water efficiency tips to conserve indoor and outdoor water use. • Provide residential, multi-family, and commercial rebate programs. Prohibited water uses include: • Failing to repair a leak. • Excessive watering of outdoor landscapes and hard surfaces (e.g., driveways, sidewalks, parking lots, etc.). • Watering outdoor landscapes during and within 48 hours of rainfall. • Watering outdoor landscapes between 9:00 am and 5:00 pm. • Using potable water for non-circulating fountains or other decorative water features. • Using potable water to irrigate ornamental turf in public street medians.
SFPUC	• Implement a temporary 5% drought surcharge for retail and wastewater customers beginning in April 2022. The surcharge will end when the water shortage emergency ends. • Encourage customers to fix leaks promptly and avoid water waste. • Launched a public awareness campaign to provide tips on replacing leaky toilets, installing low-flow appliances, reducing outdoor irrigation, and information so customers can receive a water use audit. • Provide personal water use data through customers' online portal.
Sonoma Water	• Encourage customers to conserve water. • Provide conservation tips, rebate programs, and water-saving tools through the Sonoma Marin Water Saving Partnership. Information includes design templates for drought tolerant gardens, a water savings calculator, and instructions to check water meters for leaks.

Agency	Drought Response Action
SDCWA	• Provide residential rebates to encourage customers to install water-efficient appliances, rain barrels, and irrigation nozzles on hoses. • Provide commercial rebates to encourage customers to convert industrial water systems to recycled water services. • Encourage customers to conduct a WaterSmart Checkup to get recommendations for site-specific water saving tips. • Offer classes for residential and professional landscapers to encourage water-efficient landscaping. • Developing a program to increase the installation of low-flow toilets in low income communities.
MWD	• Encourage customers to work collaboratively to conserve water supplies. • Offer and online portal (www.bewaterwise.com) with information about water-saving grants and rebates, landscape classes, water-efficient gardening ideas, and educational materials (videos, fact sheets, water use calculators) to help customers decrease water use.

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Valley Water Drought Response Plan

Presented by: **Michael Martin, Water Supply Planning and Conservation Unit**
April 18, 2022

Goal

Allow Valley Water to be more proactive regarding droughts

1. Update Water Shortage Contingency Plan
    - Refine drought response triggers
    - Determine early indicators of drought
2. Establish a toolbox of actions to prepare for a drought and to take during a drought
3. Establish consistent drought actions for Valley Water, retailers, and municipalities

Valley Water WSCP:			
Stage	Title	Projected End-of-Year GW Storage (AF)	Short-term reduction in water use
1	Normal	> 300,000	None
2	Alert	< 300,000	0-10%
3	Severe	< 250,000	10-20%
4	Critical	< 200,000	20-40%
5	Emergency	< 150,000	Over 40%

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DRP Components

Benchmark Study

- Background Information
- Lessons Learned

Vulnerability Assessment

- Risks to water sources & infrastructure
- Drought risk mitigation actions

Water Shortage Response

- Monitoring for drought
- Triggers for drought
- Response actions during drought

Drought Response Framework

- Refine drought response triggers
- Determine early indicators of drought
- Establish a toolbox of actions during drought
- Ensure consistency with master planning efforts
- Communications Plan
- Budget and staff support needs for drought

Outreach

Internal Working Group

External Task Force

- Retailers
- Local government
- Agricultural
- Environmental
- Other interested parties

Retailer Working Group

Committees:

- Water Conservation and Demand Management Committee
- Agricultural Water Advisory Committee
- Environmental and Water Resources Committee
- Retailer committees

Benchmark Study

Goal: Collect background information to support the development of the Drought Response Plan

- Compare peer agencies' drought response strategies
- Review Valley Water and peer agencies' response to the 2012 – 2016 drought
- Inform areas to explore in next phases of DRP

Peer Agencies in the Benchmark

Selected based on similarities in size, water supply sources, and organizational structure

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

ACWD
Alameda County Water District

The Metropolitan Water District of Southern California

Contra Costa Water District

EBMUD

San Diego County Water Authority

Sonoma Water

Denver Water

Tampa Bay Water
Supplying Water To The Region

Components of Peer Agency Drought Response

Red items overlap with Valley Water drought response

Triggers

- **Groundwater storage** (**projected** and obs.)
- Surface water flow
- Surface water storage
- Imported water availability
- Retail agency supplies
- Weather
- Watershed (e.g., snowpack, soil moisture)

Supply Actions

- **Draw on local storage reserves**
- **Draw on regional storage and groundwater banks**
- **Transfers / exchanges**
- **Leak detection and repair**
- **Optimize treatment and other operations**

Demand Actions

- **Increased communication and outreach**
- **Promote conservation programs**
- Customer water audits
- **Restrictions on outdoor use**
- **Limits on water deliveries**
- Water supply allocation plans (WSAPs)
- **Financial tools**

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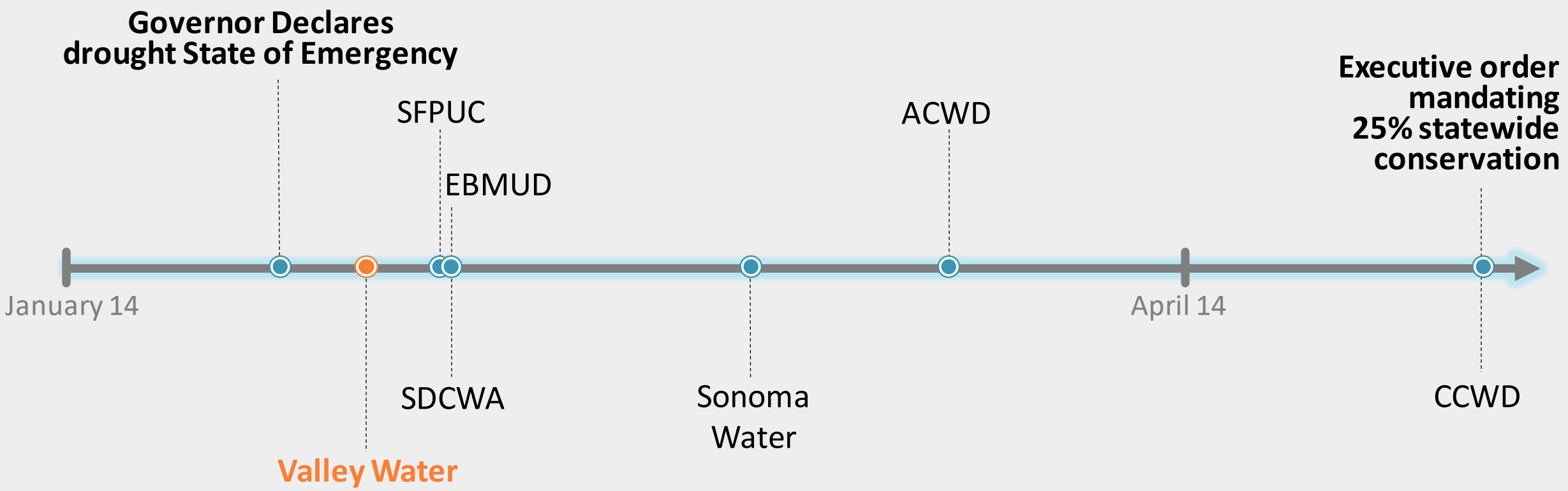
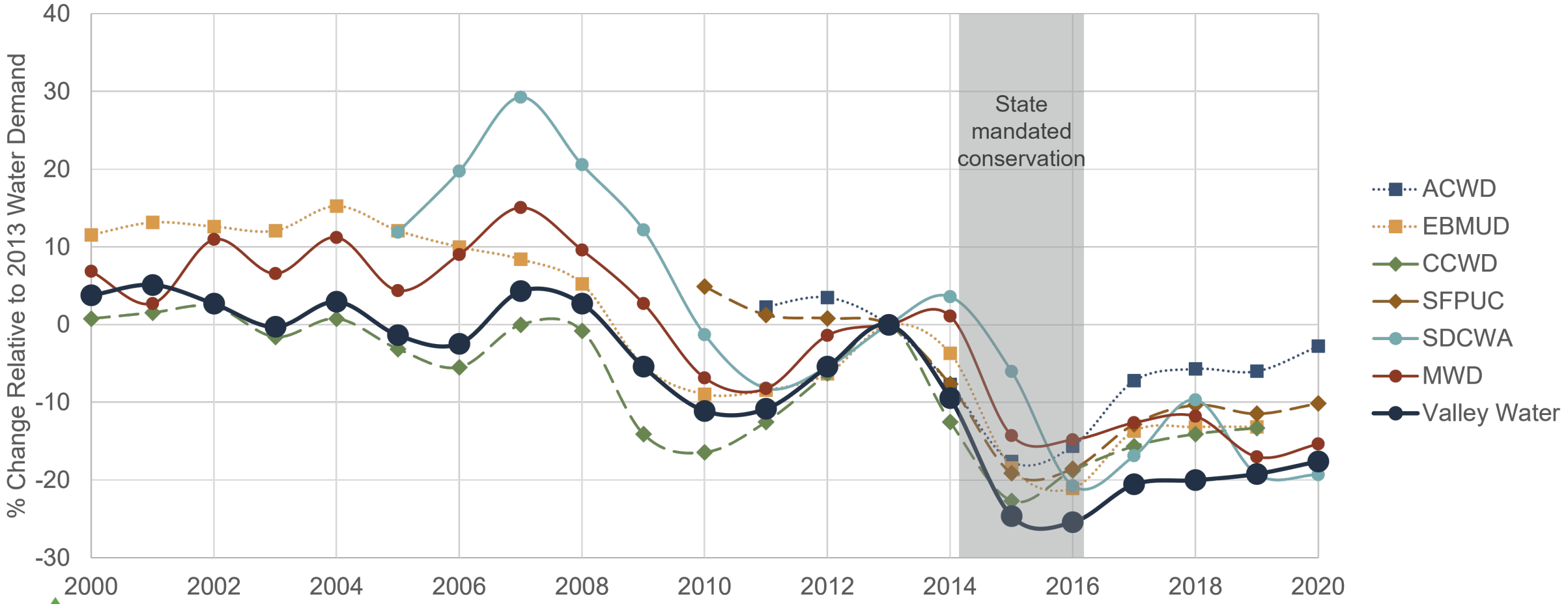
When Did Valley Water and Peers Implement Actions?

Timeline of Initial Implementation of Drought Restrictions by Valley Water and Peer Agencies



How Did Valley Water and its Peers Perform?

Peer Agency Historical Water Use Relative to 2013

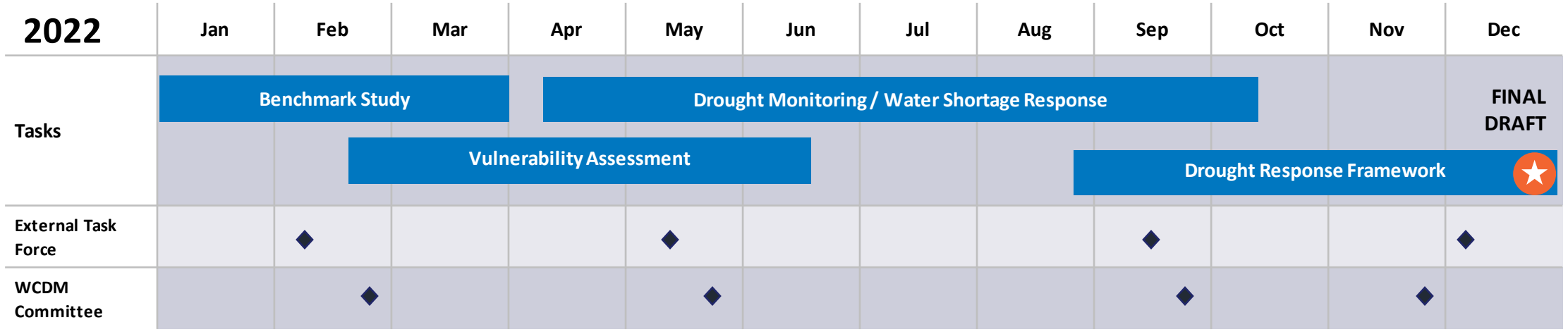


Key Takeaways

- Most peer agencies consider a wider array of indicators triggering drought
- Importance of supply diversity, storage, and flexible water supply operations
- Differences in response actions at various levels made communication challenging
- Financial challenge of droughts
- Agencies were able to meet water use reduction targets and maintain water deliveries

San Luis Reservoir in the 2012-2016 Drought

Schedule



2023

Spring – Respond to Reclamation comments and finalize plan

Summer – Bring Final Drought Contingency Plan for Board approval

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Next Steps

- Vulnerability assessment underway
- Provide draft Vulnerability Assessment in late spring
- Update WCDM Committee in late spring/early summer 2022
- Update EWRC and Agricultural Water Advisory Committee in summer 2022

File No.: 22-0500

Agenda Date: 4/18/2022
Item No.: 4.3.

COMMITTEE AGENDA MEMORANDUM
Environmental and Water Resources Committee

SUBJECT:
One Water Plan - General Update and Upper Pajaro River Watershed Planning.

RECOMMENDATION:
A. Receive information on the One Water Plan's Santa Clara Countywide Framework and Coyote Creek Watershed Plan, and
B. Provide feedback on Upper Pajaro River Watershed Challenges and Opportunities.

SUMMARY:
One Water, Santa Clara Valley Water District's (Valley Water) comprehensive, long-range planning process for watershed management, comprises the One Water Countywide Framework (Framework, Attachment 2) and five watershed plans. The vision, goals, and measurable objectives of the Framework provide key guidance to be applied at the watershed-scale, beginning with the Coyote Creek Watershed Plan (Attachment 3).

On March 22, 2022, the Valley Water Board of Directors adopted the One Water Plan's Countywide Framework and the Coyote Creek Watershed Plan. The next step is to develop watershed plans for Upper Pajaro River Watershed and Guadalupe River Watershed in 2022, and West Valley and Lower Peninsula watershed areas in 2023.

Staff is beginning broad stakeholder outreach to ensure each watershed's community views and expertise are represented in One Water master planning. At this time, staff would like to gather input from the Environmental Water Resources Committee (EWRC) on Upper Pajaro River Watershed. Future EWRC working group meetings present an opportunity for further engagement on this watershed as well as Guadalupe River Watershed over the next several months.

Upper Pajaro River Watershed Plan
The Upper Pajaro River Watershed, the portion of the Pajaro River Watershed with in Santa Clara County, occupies approximately 360 square miles. The watershed is home to approximately 120,000 people, with most of the population clustered around south San José, Morgan Hill, Gilroy, and the community of San Martin. Major land use categories in this area include 58% rural land (agricultural

lands and ranchlands), 34% open space and parks (state and regional parks, conservation lands, and tribal lands), and 8% urban landscapes between south San Jose and Gilroy.

The Upper Pajaro River Watershed can be divided into four subwatersheds that include Pajaro River, Uvas Creek, Llagas Creek, and Pacheco Creek. The major source of water supply within the watershed is groundwater, followed by imported water. The Llagas groundwater subbasin, managed by Valley Water, is located within the boundary of the watershed.

Due to the variety of land uses and activities within the Upper Pajaro River Watershed, 101 external stakeholder groups have initially been identified and contacted to collaborate and provide input to the master planning effort. These stakeholders have been categorized into 10 different cohorts that include subject matter experts, municipal and land use agencies, educational institutions, residents and community-based organizations, water resource agencies and special districts, special joint organizations and coalitions, governing bodies and regulatory agencies, open space conservation and recreation, environmental organizations and agencies, and agricultural organizations.

Key challenges and opportunities identified early on in this watershed include focusing on: continued groundwater sustainability despite drought and the onset of climate change; protection of groundwater from contamination; sustainability of urban expansion and growth, flood risk reduction, protection and conservation of cultural and sacred sites; agricultural and ecosystem resource protection; endangered species recovery; open space preservation, natural landscape restoration; and meaningful inclusion of disadvantaged communities into decision making processes.

ATTACHMENTS:
Attachment 1: PowerPoint
Attachment 2: One Water Plan - Countywide Framework Executive Summary
Attachment 3: One Water Plan - Coyote Watershed Plan Executive Summary

UNCLASSIFIED MANAGER:
Lisa Bankosh 408-630-2618

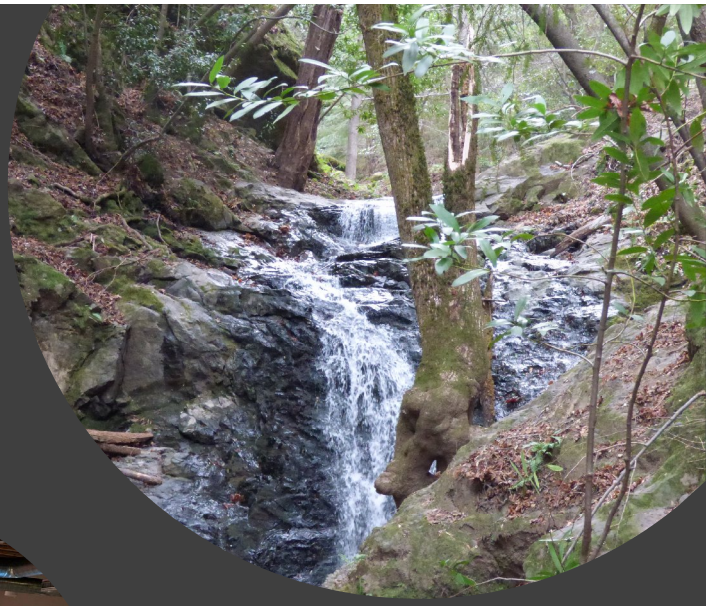
One Water Plan: General Update and Upper Pajaro River Watershed Planning

Brian Mendenhall and Damaris Villalobos-Galindo, Valley Water

April 18, 2022

Topics

- Planning Framework
- Benefits of Watershed Approach
- Coyote Watershed Projects
- Upper Pajaro River Watershed Planning



Valley Water

Clean Water • Healthy Environment • Flood Protection

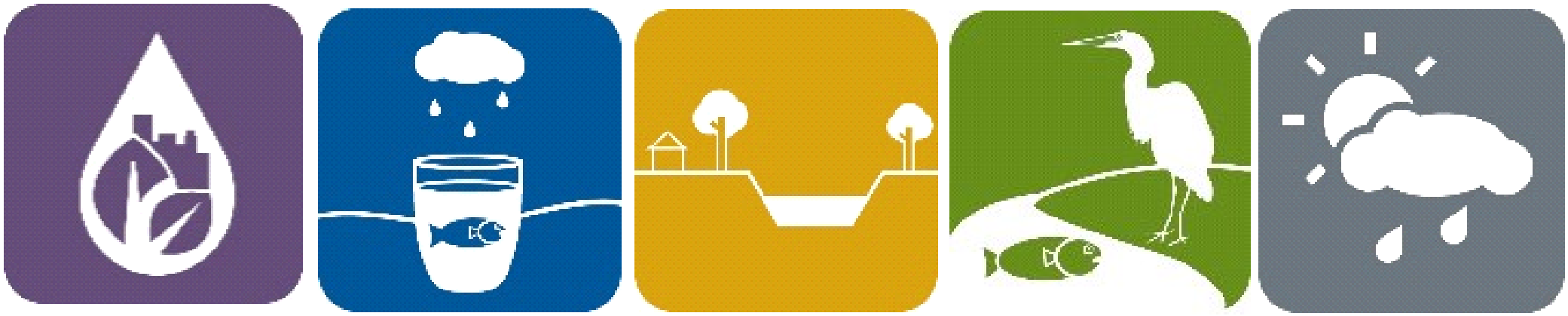
One Water Framework: Integrated Long-term Planning

Manage Santa Clara County water resources holistically and sustainably to benefit people and the environment in a way that is informed by community values.

Reliable Water Supply

Improved Flood Protection

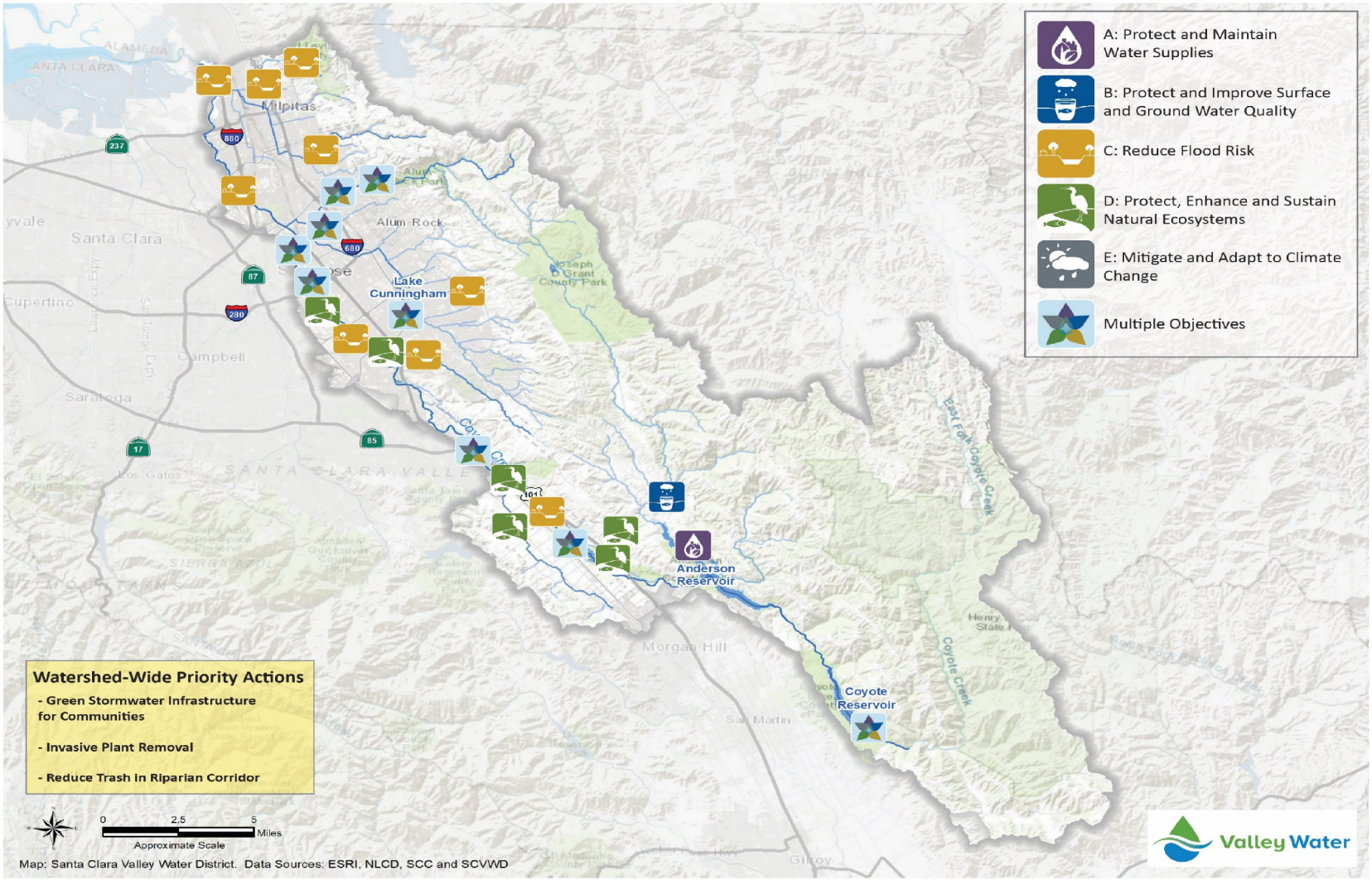
Healthy and Resilient Ecosystems



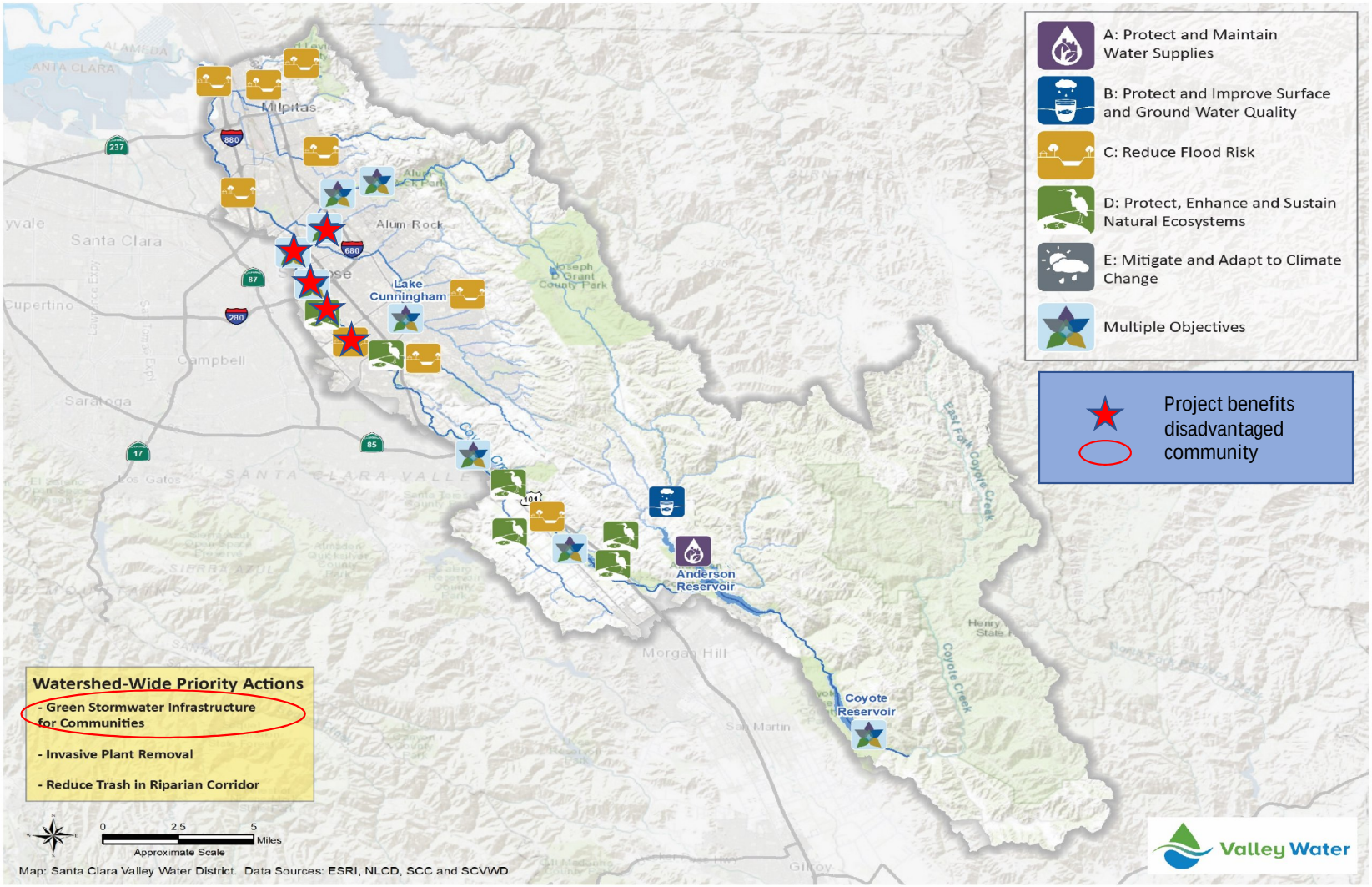
Watershed Approach

- Integrated planning for watershed management
- Regulatory Benefits
- Equity and Environmental Justice
- Stakeholder involvement

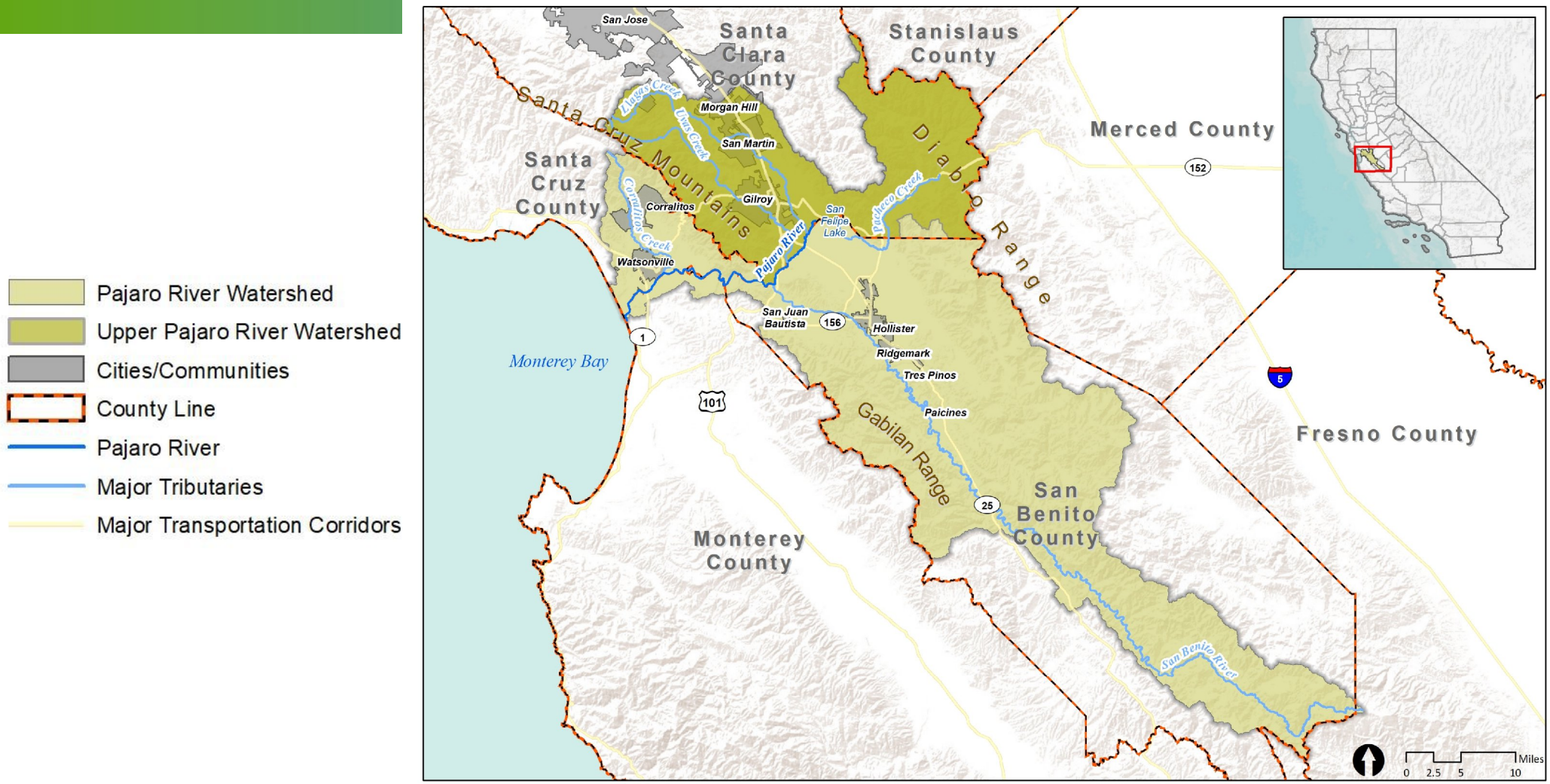
Coyote Watershed Plan : Priority Actions



Coyote Watershed Plan: Environmental Justice



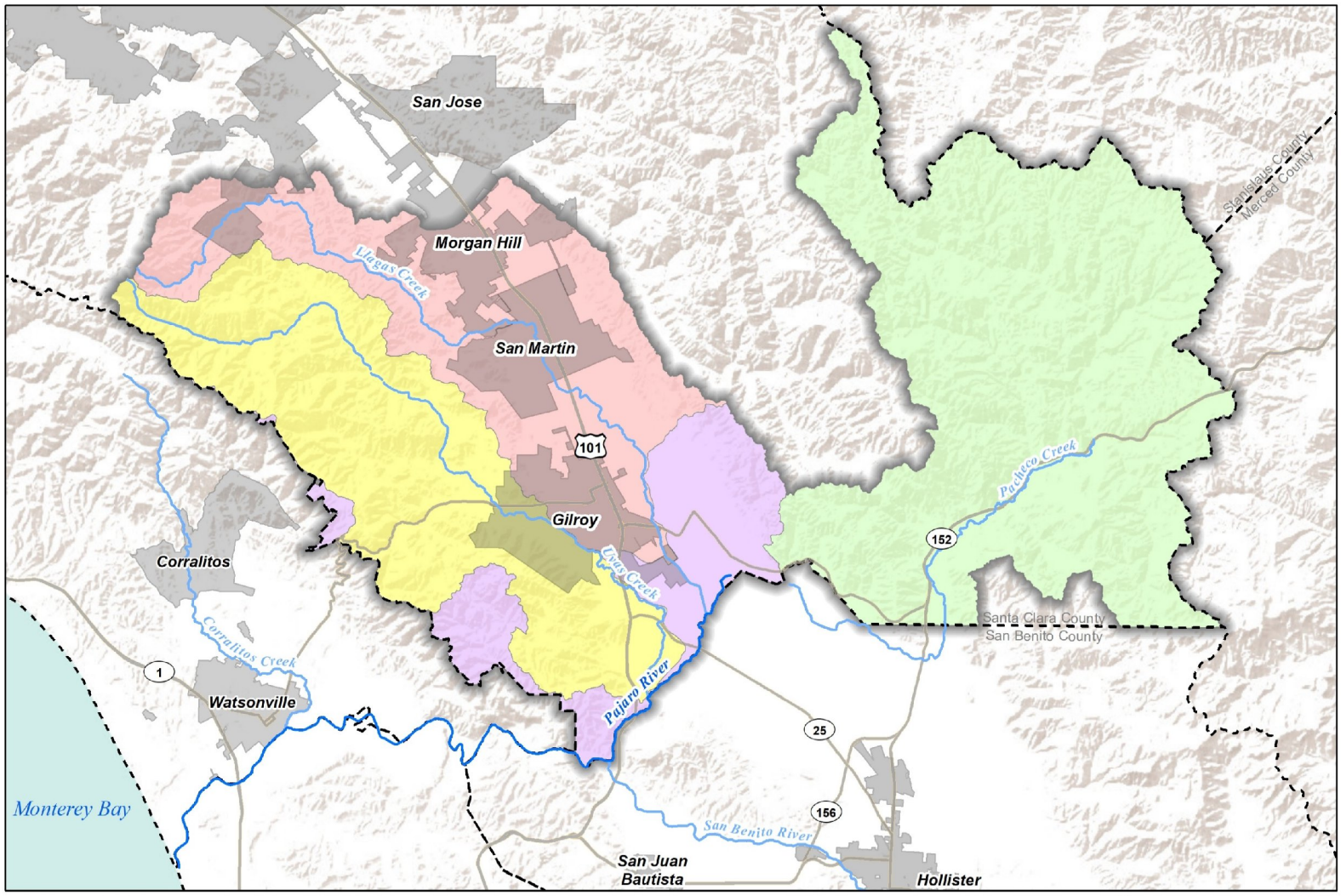
Pajaro River Watershed



Upper Pajaro River Watershed in Santa Clara County

Subwatersheds

- Pajaro River
- Uvas Creek
- Llagas Creek
- Pacheco Creek
- Upper Pajaro River Watershed
- Cities/Communities
- County Line
- Major Tributaries
- Pajaro River
- Major Transportation Corridors



Upper Pajaro River Watershed - Stakeholder Engagement

Stakeholder Approach: Broad community engagement to seek specific interest and knowledge of water resource challenges and opportunities

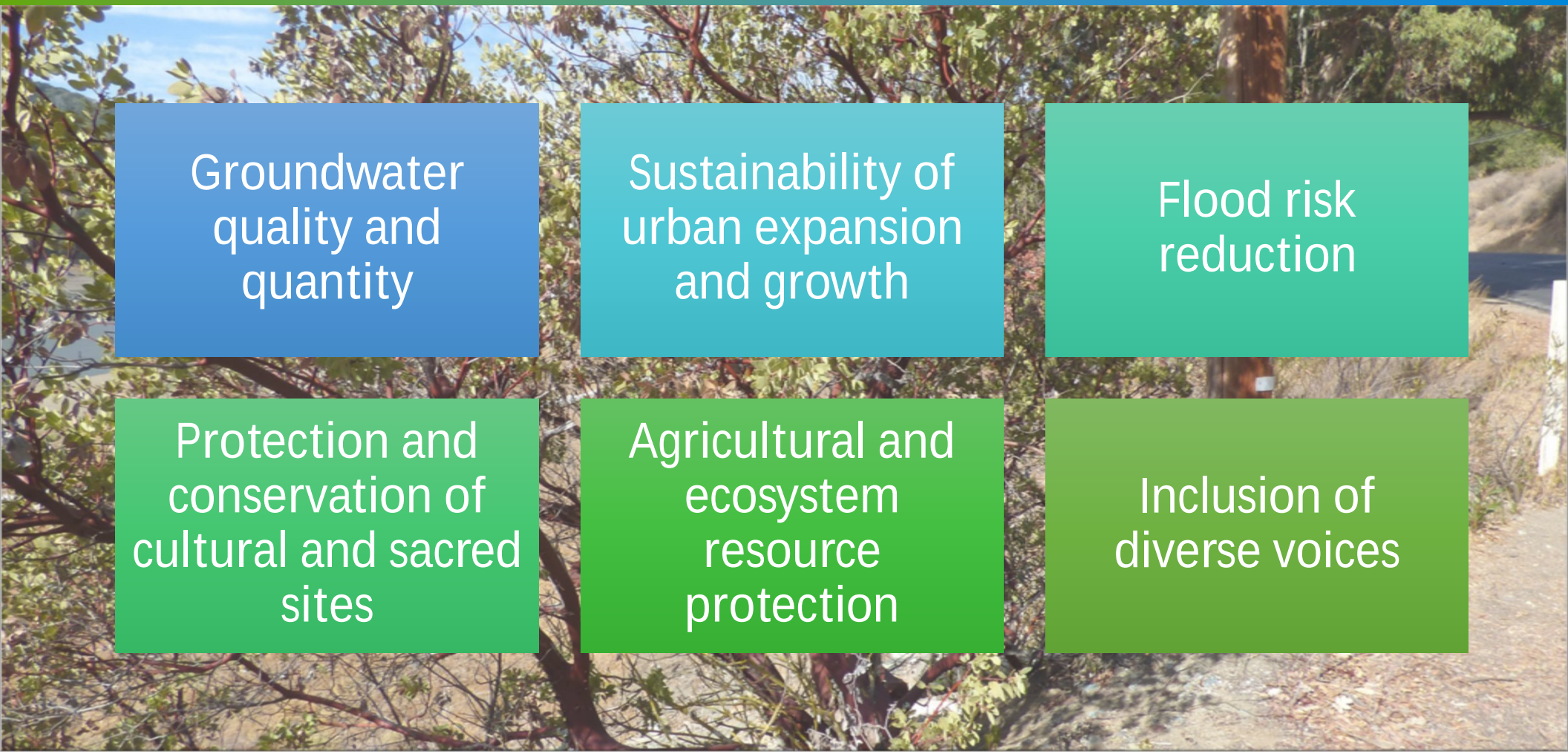
Survey

Focused Meetings with Cohorts, Committees, and Community Groups

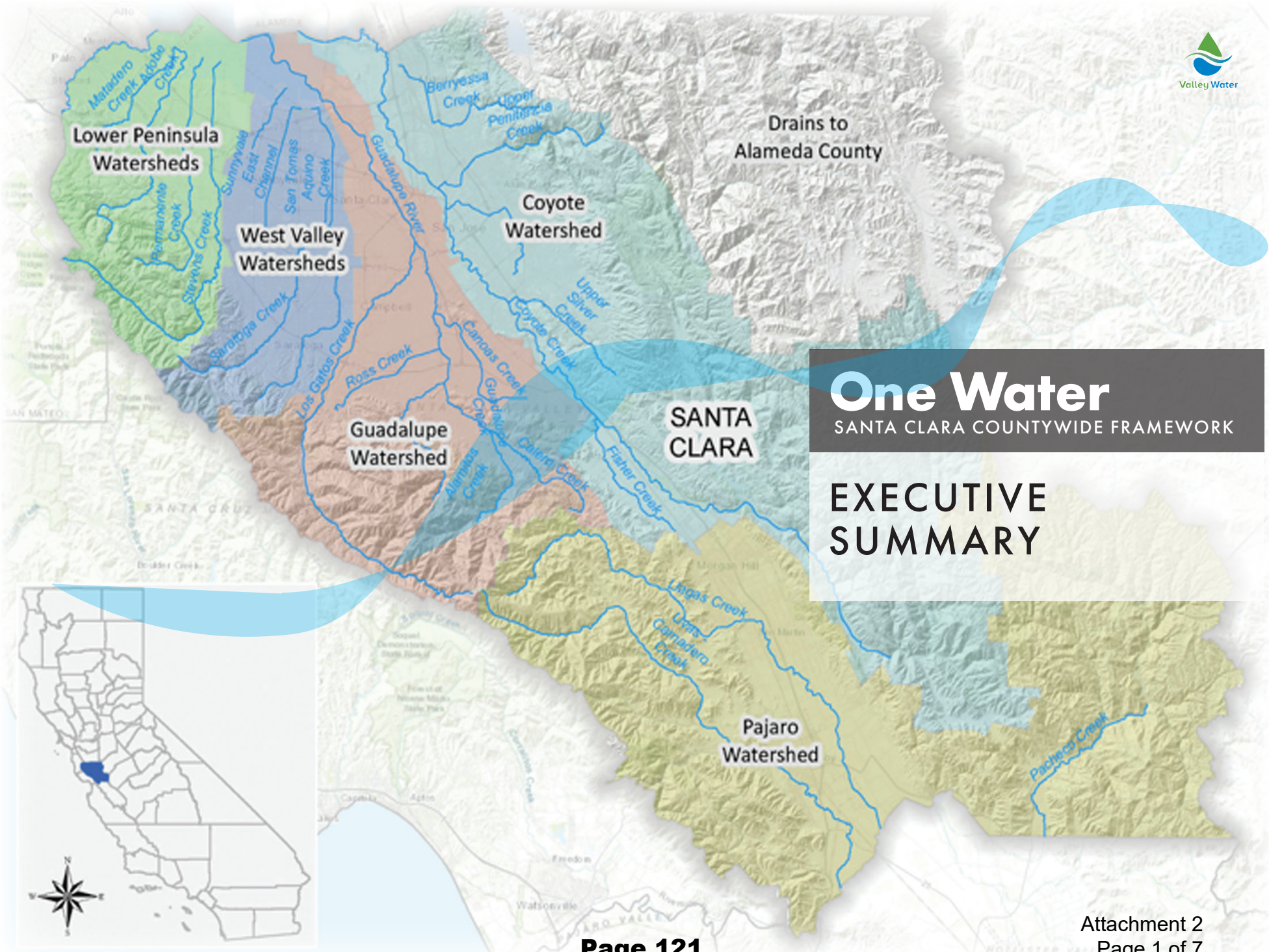
Valley Water One Water Web Page
https://www.valleywater.org/project-updates/one-water-plan

Stakeholder Engagement

Watershed Challenges and Opportunities



Questions?



One Water

SANTA CLARA COUNTYWIDE FRAMEWORK

EXECUTIVE SUMMARY

ONE WATER

Integrated Watershed Master Planning

Water is an essential resource, serving multiple critical purposes for the community. As droughts, floods, population growth, and other changing conditions all place increasing demands on California's water resources, Valley Water recognizes the importance of an integrated and equitable approach to water resources management. This approach will enable the organization to efficiently fulfill its mission and Board policies.

Valley Water's central challenges in the years ahead are to deliver reliable water supply, maintain and improve flood risk reduction, and preserve and enhance natural resources. To do this well, Valley Water needs a decision-making process that enables it to strategically allocate limited resources to those actions that achieve its mission and service to the community most efficiently. The One Water planning effort described in this report meets this need and provides an important new roadmap for integrated resource planning on a watershed scale.

Development of the One Water Countywide Framework engaged stakeholders at all levels and stages of a multi-year planning process. Stakeholders included local cities and county agencies; regional, state and federal resource management and regulatory agencies; scientists and academia; representatives of cultural and ethnic interests; as well as environmental advocacy groups, chambers of commerce, water retailers, and neighborhood and volunteer organizations.

Valley Water's One Water planning effort consists of a Countywide Framework (this report) and individual watershed plans for the Coyote, Guadalupe, Pajaro, West Valley, and Lower Peninsula watersheds, which Valley Water hopes to complete as early as 2023. The framework will guide development of the watershed plans as it sets out goals, measurable objectives, and strategies for prioritizing actions that will improve watershed health. Improvements to watershed health will be based on the extent to which watershed objective metrics measure up against achievable targets.

VISION

One Water's vision and goals were developed to support both Valley Water's mission and Board governance policies, which in part call for integrated water resources services for the community. The vision is supported by integrated goals and measurable objectives to optimize Valley Water's management of water resources for Santa Clara County.

One Water Vision

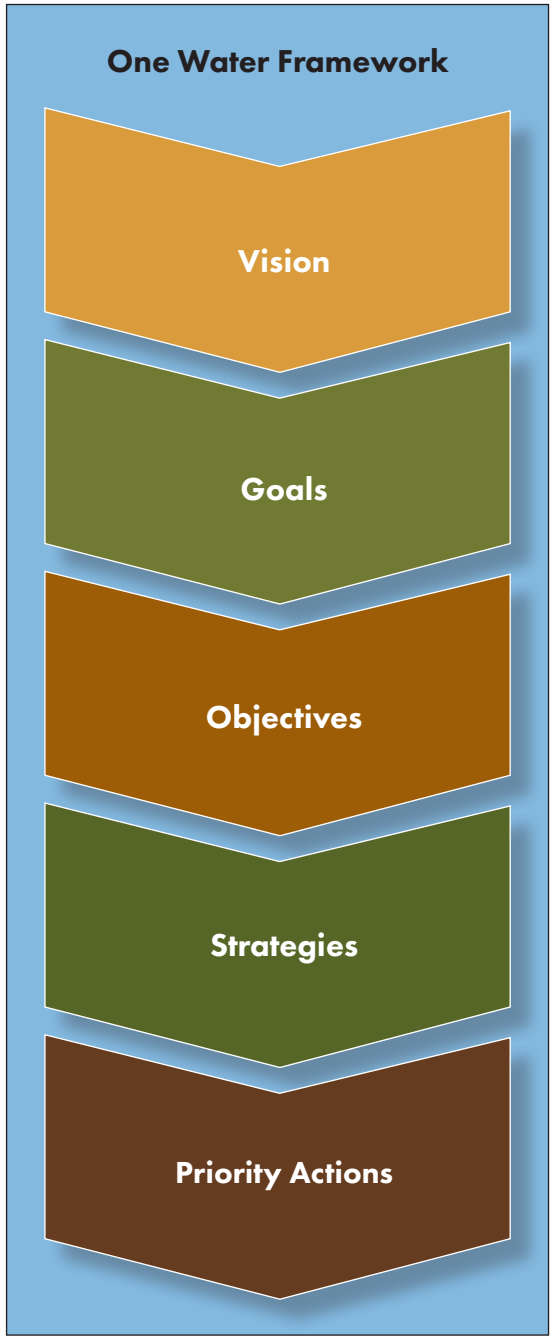
Manage Santa Clara County water resources holistically and sustainably to benefit people and the environment in a way that is informed by community values.

GOALS

To reach the long term One Water vision, Valley Water developed goals that go beyond individual management disciplines. The resulting goals address and integrate all aspects of water resources management:

1. RELIABLE WATER SUPPLY

This One Water reliable water supply goal aims to provide enough clean water for both people and the environment. Under this goal, Valley Water seeks to ensure that its supplies for people and the environment are reliable under uncertain conditions such as climate change, drought and changing laws. For Valley Water this means to efficiently manage the diverse supplies and substantial infrastructure already in place and continuing to aggressively implement and promote its water conservation program with the community to manage demand.



2. IMPROVED FLOOD PROTECTION

This One Water flood protection goal aims to reduce flood risk and protect the community from flooding by working with nature to the greatest extent possible. For Valley Water, this means enhancing stream corridors to support the conveyance of flood flows while at the same time providing benefits for natural communities and ecosystems. The goal of improving flood protection includes maintaining existing facilities, improving facilities that require additional risk reduction, and keeping the community prepared and informed of potential flood risks.

3. HEALTHY AND RESILIENT ECOSYSTEMS

This One Water goal underscores the importance of healthy and resilient watershed, riparian and tidal ecosystems, and the species that rely on these habitats to thrive. Making ecosystem health more relevant to every management decision is a key concept in One Water planning. For Valley Water to effectively manage ecosystems, it will be important to protect, enhance and sustain these important natural resources.

OBJECTIVES and METRICS

The One Water planning framework comprises five objectives, each with individual metrics and targets. Valley Water designed these objectives to meet the framework's three goals and achieve the One Water vision.

In developing the five One Water objectives, Valley Water provided meaningful opportunities for diverse Santa Clara County communities to engage in the planning process. Valley Water's commitment to community engagement is woven throughout the five One Water objectives. As such, it is not represented as an end in itself but rather as a means to gathering community support for future priorities that protect, enhance and sustain water resources.

Each of the five objectives includes specific attributes, which are the defining characteristics that describe the objective (see Chapter 3). Each attribute in turn contains a series of metrics, which are parameters that can be measured to track the status of the attributes. To assess progress, each metric will be assigned a target, which is an achievable end result to maintain or strive for within each metric.

One Water Plan Objectives

A: Protect and Maintain Water Supplies

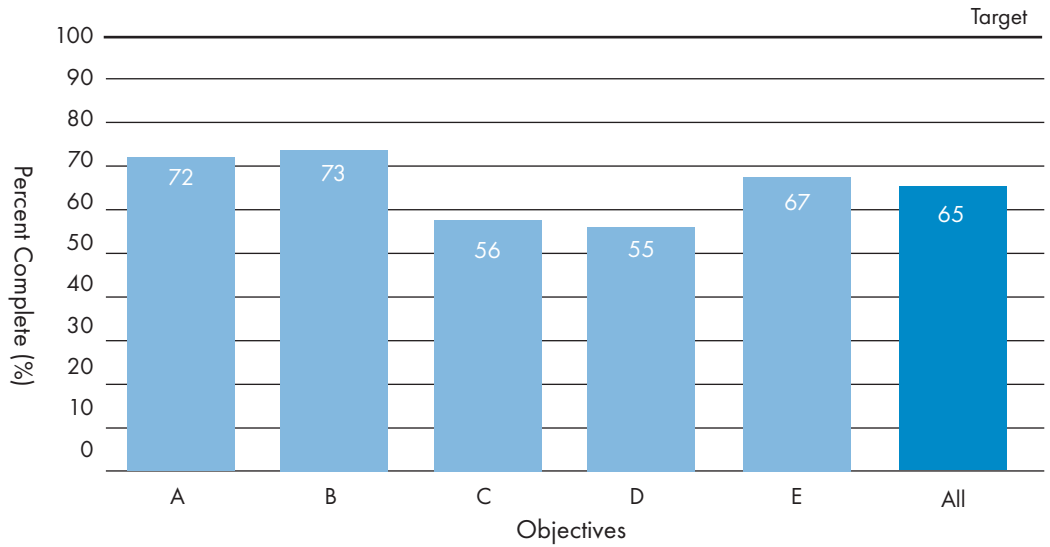
B: Protect and Improve Surface and Ground Water Quality

C: Reduce Flood Risk

D: Protect, Enhance and Sustain Natural Ecosystems

E: Mitigate and Adapt to Climate Change

One Water Objective Results



Draft Data for One Water Objectives (Countywide and Coyote Watershed). Note: Some metrics are still being evaluated and are not included in the results. A (Water Supply), B (Water Quality), C (Flood Risk Reduction), D (Habitat), E (Climate Change)

METRIC EXAMPLES FOR FRAMEWORK	
Objective A	Metric A.1.1 - Operational capacity at Valley Water reservoirs
Objective B	Metric B.3.1 - Trends in concentrations of nitrate, chloride and total dissolved solids in index wells
Objective C	Metric C.2.1 - Number of parcels subject to frequent flooding (25-year flood event)
Objective D	Metric D.2.4 - Number of human-made in-channel barriers that hinder steelhead trout movement
Objective E	Metric E.2.2 – Volume of water supply treated by green Infrastructure projects

Complete metrics table in Chapter 4

APPROACHING MANAGEMENT CHALLENGES IN A MORE INTEGRATED WAY

The One Water approach identifies challenges to successful water resources management ranging from drought and pollution to the destruction of riparian habitats. Meeting the water resources needs of the community through management of these challenges and constraints is often considered by planning area (see table). For Valley Water, these have included water supply, water quality, flood protection, and ecological and landscape resources.

The One Water approach offers a decision-making process that helps address management challenges through multi-benefit projects or portfolios of coordinated activities. This approach offers a few key strengths in addition to meeting the outlined goals and objectives as it defines the process and prioritizes activities.

One strength of Valley Water's One Water approach is the opportunity to revisit how data is collected and utilized to prioritize activities. For flood risk, as an example, the new approach updates the Waterways Management Model criteria used in the past to include additional important factors that characterize the true risks of flooding for the community. Some of these factors are health and safety issues like flood depth and velocity, the varied social vulnerability of the flood prone communities, actual flood history, and business risk exposure.

Another strength of the One Water approach is a more comprehensive perspective on ecological resources. Efforts to protect threatened and endangered species have long created a management focus on specific species of flora and fauna. One Water expands from this focus to address habitats and natural communities, and to support the approach taken by the Santa Clara Valley Habitat Plan, which covers much of the county landscape. This broader area of management interest allows for improvements to overall habitat that will reduce invasive species and support threatened and endangered species, as well as other native species.

A third strength of One Water's coordinated planning framework is the strong guidance on integrated water management it will provide to each of its five supporting watershed plans. These more detailed action plans will then serve as Valley Water's flood management and stewardship plans at a watershed scale.

Taken as a whole, One Water planning provides an opportunity to address multiple management challenges in parallel, and within an integrated, watershed-based framework. That framework, with its vision, goals and objectives will therefore provide the guidance for future prioritized work.

DIVERSE CHALLENGES CALL FOR COORDINATED ACTION

PLANNING AREA	CHALLENGES
Water Supply 	Multi-year droughts Hydrologic variability Declining imported water reliability Increasing demand Complex operating environment Aging infrastructure Invasive species impacts
Water Quality 	Impervious surfaces Urban and agricultural runoff Homeless encampments Legacy mercury Climate change impacts
Flood Protection 	Continued risk of flooding Expense of future projects Aging infrastructure Changing climate Increasing development, decreasing buffer zones Impervious surfaces Erosion and sediment management for capacity Rising sea levels and permit acquisition
Ecological & Landscape Resources 	Limited and costly land for trails and open space Recreational impacts on habitat and water quality Maintenance impediments and costs Planning for future flood protection Ongoing land use changes Altered drainage network and hydrologic regime Destruction and disconnection of riparian habitats Non-native species Loss of sediment and woody debris Habitat fragmentation Ecological adaptation to climate change
Baylands 	Rising sea levels Weak and aging levees Sediment deficit Mercury mobilization Under-insured businesses

SETTING PRIORITIES AND TAKING ACTION

The One Water Framework provides overarching countywide guidance for five subsequent watershed plans in Coyote, Guadalupe, Pajaro, West Valley, and Lower Peninsula Watershed areas. The process for applying the framework includes the following steps (see diagram):

- Describe the landscape and its water resources history (Step 1).
- Establish the current baseline conditions for One Water objectives (Step 2).
- Identify which are the most challenging objectives to meet in terms of targets, and thus potential areas of improvement (Steps 3 and 4).
- Prioritize those actions that most efficiently and effectively improve conditions and meet the highest needs (Step 5).
- Select actions for programming and implementation through funding plans, grants, partnerships, and other means. Follow up with appropriate construction, maintenance, and management actions (Step 6).
- Carry out monitoring and reporting on progress of actions toward meeting targets (Step 7).

One Water watershed plans are not designed to be static, one time documents; rather, they are anticipated to be updated every 5 years. This important follow-up should include updates of metrics and targets information supporting each One Water objective. This will be done in part through the use of the San Francisco Estuary Institute data tool EcoAtlas, which now has a module designed to track One Water metrics and targets. Such updates would in turn help to demonstrate progress being made in improving watershed health, reducing flood risk, and ensuring reliable water supply.

Both the Framework and the individual plans will not only guide Valley Water but also serve as a resource for local government, NGOs, community groups, and other partner organizations.

Beyond the individual watershed plans, the Framework itself provides a list of potential projects, programs, policies and partnerships which are appropriate at a countywide scale. Examples include: Continue Coordinated Effort on the Shorline Study, Expand Invasive Plant Removal Program, Implement Stormwater Resources Plan, and Proactive Right of Way Identification and Acquisition. These actions may be addressed countywide or implemented piece-by-piece at a watershed-scale.

WATERSHED PLANS SCHEDULE

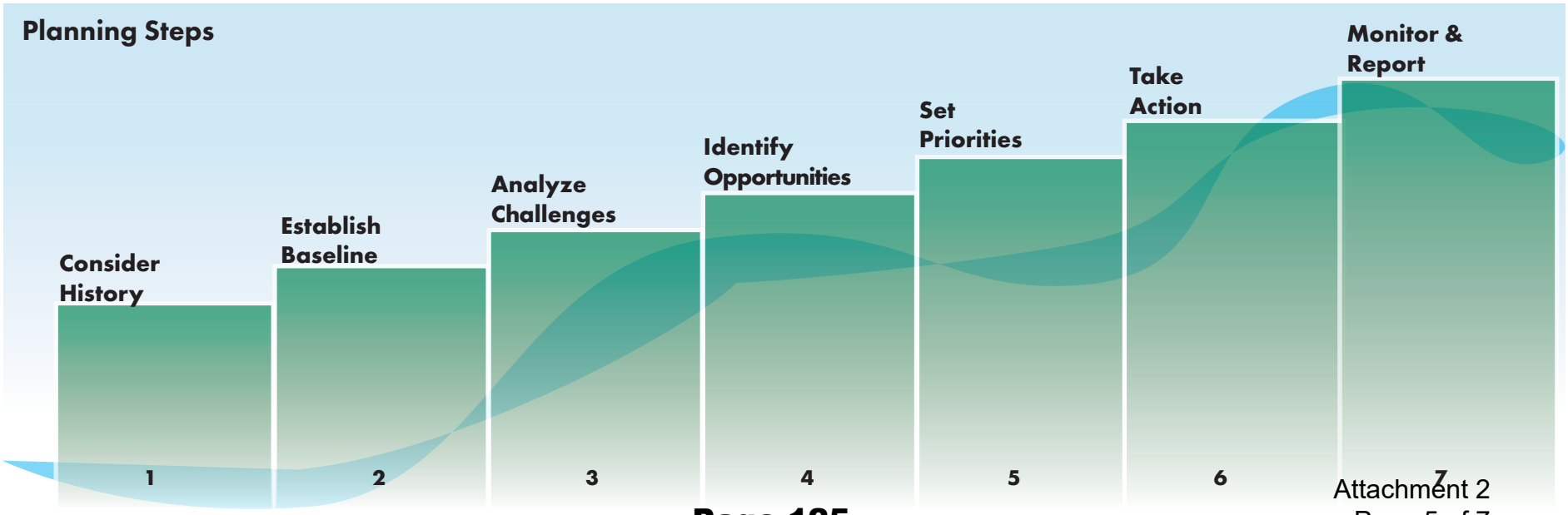
2021
COYOTE

2022
GUADALUPE

2022
PAJARO

2023
WEST VALLEY

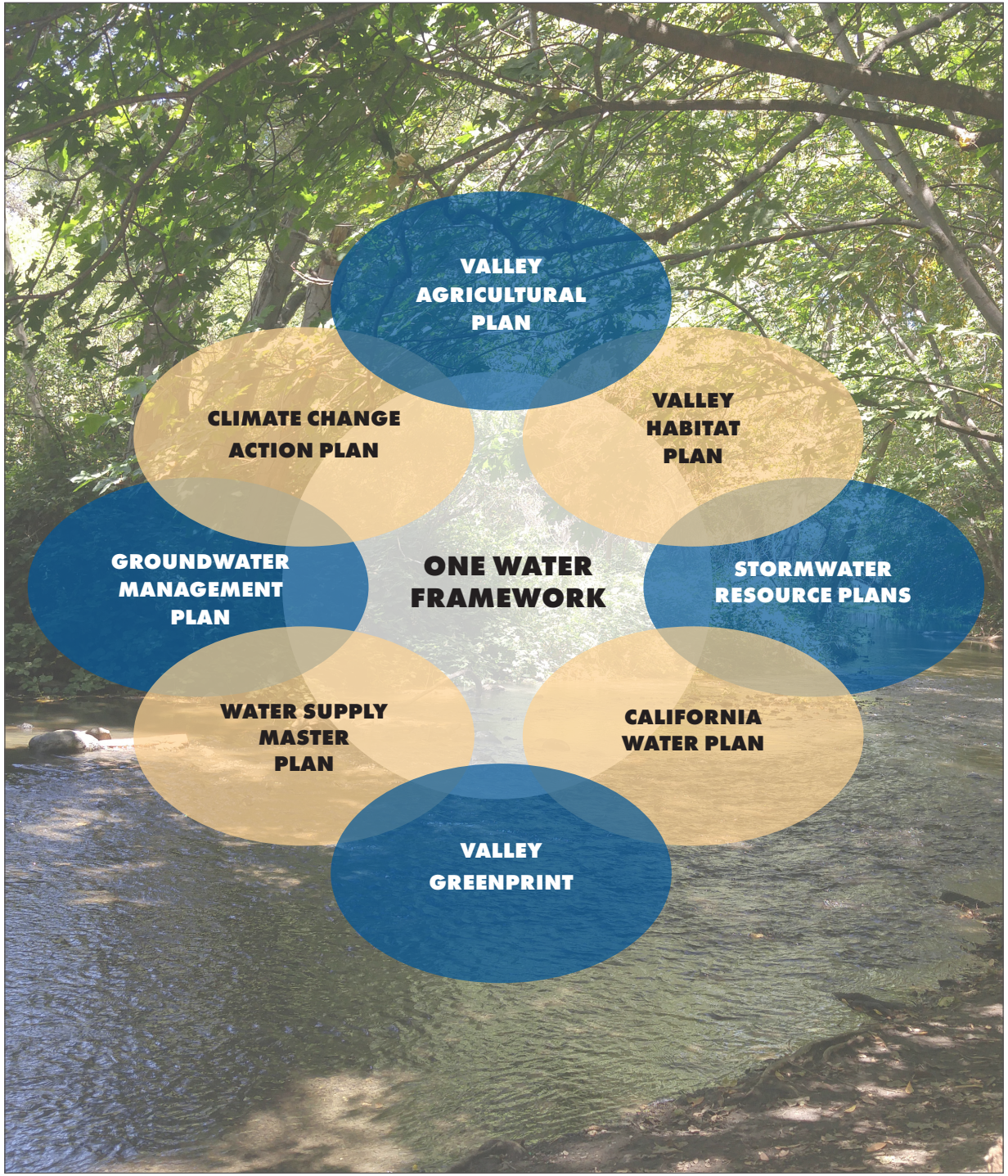
2023
LOWER PENINSULA



PLANNING THROUGH PARTNERSHIPS

The One Water Framework can be most successful through robust participation of Valley Water staff, as well as partner agencies and organizations. Close coordination with existing plans and programs allows One Water to build on successful endeavors and incorporate relevant expertise, and it also allows for One Water and its vision to become integrated into corresponding planning and implementation efforts.

Long range planning at the local, regional, and state level covers many of the same topics as One Water and gives Valley Water a path to addressing larger regional and statewide challenges at the local level, including climate resilience, reliable water supply, and stormwater resource management. As Valley Water rolls out the One Water Framework and subsequent watershed plans, it will strive to gain support for improved water resources management and watershed conditions.



WEAVING COMMUNITY AND EQUITY INTO WATERSHED PLANNING

Valley Water has remained committed to providing meaningful opportunities for community engagement in watershed planning throughout the development of the One Water Countywide Framework. This commitment will be further reflected and refined as watershed plans seek to address both one water objectives but also make them locally relevant to the people living in each watershed. By engaging stakeholders throughout the community, Valley Water can build on their strengths and expertise to create a plan that speaks to all of our water resource needs.

Equitable access to clean water and management of our shared water resources will be an ongoing challenge that One Water can help address. As new challenges such as climate change and income inequity mount in the years ahead, Valley Water will continue to deliver clean water, reduced flood risk, and resilient healthy landscapes to all the people of Santa Clara County.

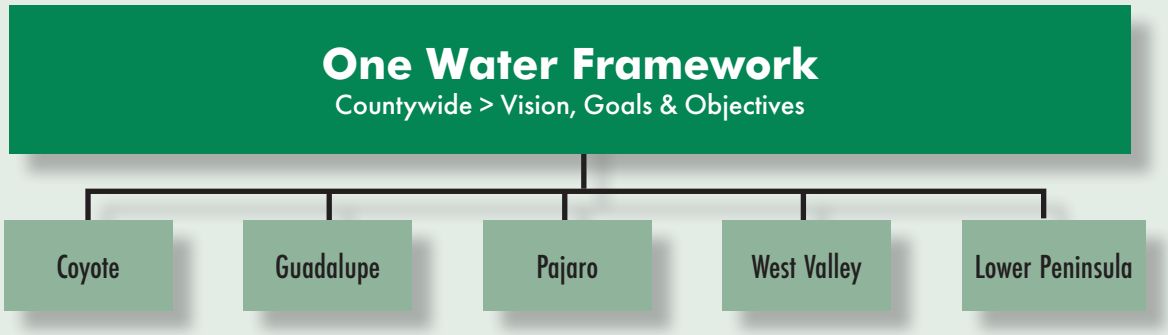
One Water brings together Valley Water's mission, its policies, its priorities, and provides a long-term management plan to meet the needs of our community. Through this endeavor, Valley Water seeks to balance the management of all water and those that depend on it now and into the future.

Community meeting presenting proposed interim flood protection improvements along Coyote Creek. Photo: Valley Water

What's included in the One Water Framework?

- Overviews of past and present conditions including detailed maps of water supply infrastructure, flood control channels, descriptions of sensitive habitats and species, and discussion of management impacts on local communities, agriculture, groundwater, trails, conservation efforts, and other current topics.
- Framework goals, objectives and metrics spelled out.
- Examples of integrated projects already occurring on a countywide scale including the restoration of the South Bay salt ponds, the Shoreline Study for coastal flood protection levee on the bayshore, a plan to capture more stormwater as a resource, efforts to clean up homeless encampments, near-water recreation and hazardous tree abatement programs, and more.
- Clear guidance for more detailed watershed plans. By way of example, appropriate One Water actions may include projects such as expanded riparian habitat, offstream flood detention, and improved fish habitat and passage.
- Reference appendices on special status plant, animal and fish species, as well how One Water relates to other Valley Water and partner plans, regulations, and policies.

Watershed-Based Planning Structure



Executive Summary: One Water, Santa Clara Countywide Framework, Valley Water (186 pages)

Version 8.2, February 2022

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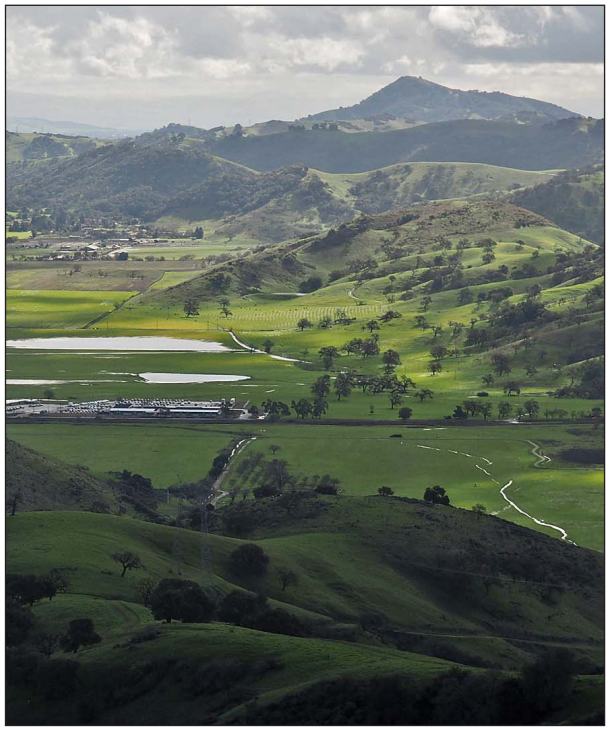
One Water
COYOTE CREEK WATERSHED PLAN

EXECUTIVE SUMMARY

INTRODUCTION

The One Water Countywide Framework is the foundation of the decision-making process that can strategically allocate limited resources to actions to achieve Valley Water's mission. As Valley Water faces the challenges of providing reliable water supply, minimizing flood risk, and conserving and improving environmental stewardship a framework of this magnitude was needed.

The One Water Coyote Creek Watershed Plan applies this new framework to manage the challenges within the watershed. The plan analyzes the watershed's water supply, flooding, and ecosystem management; identifies areas needing improvement; and prioritizes actions for the future. In the process, it brings together several divisions and jurisdictions, under One Water, and refines Valley Water's planning focus on multibenefit projects.



1.1 WHERE IS THE COYOTE CREEK WATERSHED?

The Coyote Creek Watershed is the largest of the five major watershed in Santa Clara County's covering 350 square miles. It is located at the eastern edge of the county, encompassing the entire city of Milpitas, portions of San José and Morgan Hill, and unincorporated lands of Santa Clara County.

The Coyote Creek, the longest creek in the county that extends from Morgan Hill to the San Francisco Bay. The watershed lands drain into Coyote Creek through 29 tributaries, and comprises multiple facilities such as Anderson Dam, percolation ponds and lakes. For the purposes of this report, the watershed has been divided into six subwatershed Anderson and Coyote Reservoirs, Lower Coyote Creek, Lower Silver/Thompson Creek, Middle Coyote Creek, Upper Coyote Creek, and Upper Penitencia Creek each with unique characteristics that are further discussed in Chapter 4.

The terrain of the watershed varies from flat valley floor portions in the north and west of the county to hilly, rural, and undeveloped areas in the east and south. Despite the fact that the watershed's valley floor area is densely populated, with 850,000 people living and working there, it still provides riparian, aquatic, and baylands habitat for a diverse range of plants and animals, some of which are threatened or endangered.

WHY ONE WATER?

National Context

The US Water Alliance's One Water Council, a diverse group of water leaders nationwide, completed a roadmap in 2016. The roadmap reflects many key ideas and approaches relevant to Valley Water's One Water planning.

According to the roadmap, the hallmarks of One Water are:

1. The mindset that all water has value
2. A focus on achieving multiple benefits
3. Approaching decisions with a systems mindset
4. Utilizing watershed-scale thinking and action
5. Relying heavily on partnerships and inclusion

The One Water approach recognizes that water must be managed in ways that respect and respond to the natural flows of watersheds and the natural ecosystem, geology, and hydrology of an area. It is within the context of a watershed that communities either have too much water, too little water, or poor quality water. It is within the watershed context that communities must reconcile their water demands with the imperative to sustain the resource for future generations. Watershed-level management brings together regional partners from within and beyond the water sector in joint planning and collaborative action to protect the shared natural resource that is essential for health, agriculture, industry, aquatic species, forests, wildlife, recreation, and life itself.

Valley Water is committed to working with diverse communities to improve watershed health and water resources now and for future generations.

1.2 HOW IS THE PLAN ORGANIZED?

The One Water Coyote Creek Watershed Plan is designed around the concept of past, present and future conditions. Only by learning the past, measuring the present, and recognizing needs for the future we can manage water resources in a more resilient way. The diagram below illustrates the process for realizing the watershed vision.

Chapter 1 of this plan introduces the Coyote Creek watershed and why a watershed plan is ideal for the watershed and its resources. It also outlines Valley Water's One Water planning framework including a vision, three integrated goals, and five objectives. Finally, it offers a brief overview of the stakeholder engagement process.

Chapter 2 describes past & present conditions in the Coyote Creek Watershed. The description of past conditions focuses on historical hydrology, ecology and human influences on the watershed. The description of present conditions includes both general geology, hydrology and land use, as well as more specific district management of ecological resources, flooding, recreation and trails, water quality, and water supply. At the end of this discussion, the chapter explores challenges and describes analytical tools in moving from present to future conditions.

Chapter 3 details Valley Water's framework of One Water objectives, metrics and targets for the watershed.

Chapter 4 describes sub-watershed-scale opportunities with recommendations for water resources management.

Chapter 5 offers several examples of more fine-grained One Water management in the watershed. Case studies focus on Upper Penitencia Creek, the Coyote Valley area and Coyote Creek Native Ecosystem Enhancement Tool (CCNEET)

Chapter 6 details Valley Water's process for identifying, evaluating and prioritizing potential One Water actions and identifies priority actions in the short and long term.

Chapter 7 describes the high priority actions for implementation within the Coyote Creek Watershed.

Develop Vision	Consider History	Establish Baseline	Analyze Challenges	Identify Opportunities	Set Priorities	Take Action	One Water Plan
CHAPTER 1 One Water, One Watershed	CHAPTER 2.1 Past Conditions	CHAPTER 2.2 Present Conditions	CHAPTER 3 Objectives, Metrics, Targets	CHAPTER 4 & 5 Conditions, Challenges, & Priority Actions Case Studies	CHAPTER 6 Prioritization Process	CHAPTER 7 Implementation Plan	Review & Update every 5 years

Coyote Creek Watershed

Integrated Goals, Objectives & Metrics

The One Water Framework established direction for the five watershed plans that cover the majority of Santa Clara County, including the Coyote Creek Watershed, the subject of this plan. Framework guidance included a vision, three goals, and five objectives, all aligned with Valley Water's governance policies set by its Board of Directors.

***Vision**: Manage water resources holistically and sustainably to benefit people and the environment in a way that is informed by community values.*

The resulting goals address and align with Valley Water's three mission areas.:

1) Reliable water supply

2) Improved flood protection.

3) Healthy and resilient ecosystem.

The five objectives (see table below) were developed to be science-based and transparent, or SMART (specific, measurable, achievable, relevant, time-based) wherever possible. For the Coyote Creek Watershed, Valley Water used the objectives, and the measurable attributes and metrics associated with them, to identify watershed resource needs, and then to highlight priorities for action. Additionally, to assess progress, each metric will be assigned a target, to maintain or strive for within each metric.

Identifying Areas Needing Attention

Through the process of identifying needs and developing priority actions to address these needs, the following challenges (see table) arose as primary areas of concern for watershed health and water resources management in Coyote Creek Watershed.

Priority actions in this plan help to address these topics but also highlight the need for a collaborative approach to problem-solving with Valley Water and partner agencies and organizations contributing to develop sustainable solutions.

Challenge	Objective	Example Metric to Measure Success in Meeting the Challenge
Water supply storage	A: Protect and Maintain Water Supplies	Operational capacity at Valley Water reservoirs (Metric A.1.1)
Surface water quality conditions	B: Protect and Improve Surface and Ground Water Quality	Surface Water Physical integrity (e.g. temperature, turbidity, trash) (Metric B.2.3)
Flood risk reduction; Stream erosion and sediment deposition	C: Reduce Flood Risk	Flood protection facilities are maintained to defined levels of protection (Metric C.1.2)
Aquatic habitat and riparian corridor protection and enhancement	D: Protect, Enhance and Sustain Natural Ecosystems	Channel length with continuous riparian forest, measured by a) mainstream creek and b) tributaries (Metric D.2.1)
Climate change resilience / stormwater: green and grey infrastructure	E: Mitigate and Adapt to Climate Change	Volume of water supply treated by green infrastructure projects (Metric E.2.2)

Note: See Chapter 3 for a complete Objectives and Metrics description.

One Water Challenges for Coyote Creek

FLOOD RISK REDUCTION

Areas of the Coyote Creek watershed are prone to flooding due a number of interacting factors including the steep short drainages characteristic of the local topography (where rainfall flows very fast downstream with little time to percolate), high groundwater aquifers, tidal intrusion, and urbanization (with its impervious surfaces and infrastructure). Flooding mainly happens due to urbanization within the historical floodplain. Basically, the flood prone areas are part of the historical floodplain, which is why they flood to begin with. Problems begin when you build in the risk of flooding areas. The increased precipitation over shorter periods projected for the area's future, due to climate change, may exacerbate flooding and exceed current flood control capacity. The flooding that inundated the neighborhoods of Rock Springs and Williams Street along Coyote Creek in the very wet winter of 2017 offers an example of how rapidly water can move through the watershed. Addressing flood risk in a more holistic and natural way exemplifies One Water management.

SURFACE WATER QUALITY CONDITIONS

Coyote Creek's large and diverse watershed supports a variety of land uses with direct impacts on surface water quality. Grazing, farming, and landscaping add eroded sediment, manure, fertilizers, and pesticides to surface waters via runoff. Farther downstream in urban areas, trash, litter and illegal dumping are a major problem. The creek is impaired by trash under the Clean Water Act's 303(d) list. Urban activities add a range of contaminants to the creek. In addition, homeless encampments along the mainstream and tributaries represent a major water quality management challenge for Valley Water and its municipal and regional partners. Finding ways to manage surface water quality both at the source, and along significant pathways through the watershed, is a one water priority.

AQUATIC HABITAT AND RIPARIAN CORRIDOR PROTECTION AND ENHANCEMENT

While many reaches of Coyote Creek and its tributaries are urbanized or heavily developed, others flow through more natural settings or protected open space or contain remnant aquatic and riparian habitats for migrating steelhead trout, resident native fish, and associated bird, mammal and amphibian species. Maintaining, improving and restoring aquatic habitats — especially in the context of continued sedimentation, low dissolved oxygen, and urbanization impacts on creek quality — is a priority for Valley Water in certain reaches of the creek, as well as a continuing challenge in others. The upper reaches above the reservoirs, for example, contain some extraordinary intermittent pools of natural diversity, and the middle-to-upper reaches in Coyote Valley have significant open space, while the lower reaches must be defended from the daily disturbance and impacts of highly urbanized surroundings. One Water is something shared by humans and fish alike, and offers an opportunity for multi-benefit planning.

STORMWATER: GREEN AND GREY INFRASTRUCTURE:

Urban development within the Coyote Creek Watershed and along highway corridors continues to increase the paved, non-porous area of the watershed. This kind of development increases pollution to the creek from urban runoff and flooding because runoff cannot percolate into the ground. Replacing grey surfaces with green, through the addition of pervious and planted surfaces and green infrastructure, is a priority for Valley Water and local partners and exemplifies One Water planning.

STREAM EROSION AND SEDIMENT DEPOSITION

Many of the challenges and activities described above contribute to continued erosion of creek banks and surrounding watershed lands, and the resulting movement or deposition of sediment within Coyote Creek. The dynamic equilibrium of sediment and peak flows, which serve to move or scour out excess sediment under natural conditions, is disrupted by the variety of water storage, flood protection facilities, and channel alterations along the creek. As a result, there can be too much sediment in some parts of the creek and too little, or the wrong kind, in others. Sedimentation presents a considerable challenge for Valley Water in terms of maintaining both flood capacity and the quality of endangered fish habitat. The sediment imbalance can only be addressed through the kind of watershed wide planning and coordinated action that characterize a One Water approach.

PRIORITIZATION PROCESS

Step 1: Identify watershed needs based on the five One Water objectives. Water supply, water quality, flood protection, stewardship and climate change.

Step 2: Identify watershed actions that meet the needs identified for each objective. Staff and stakeholders detail for each One Water objective.

Step 3: Evaluate actions identified above. Combine similar actions, look for multi-benefit actions, and condense action list.

Step 4: Prioritize actions identified above. Organize and prioritize the action list based on additional criteria like readiness, existing commitment and funding, as well on implementation timing. Implementation may be categorized as current, short term or long term.

Step 5: Recommend priority actions for implementation.

Priority Actions for the Coyote Creek Watershed

	Priority Action	Objective(s)	Implementation Timeframe*
A	Anderson Dam Seismic Retrofit Project	A, C, D	CURRENT
B	Coyote Creek Flood Protection Project	C	CURRENT
C	Singleton Road improvements for fish passage and trail connectivity (Completed 2021)	D	CURRENT
D	Lower Penitencia Flood Protection Project	C	CURRENT
E	Lower Calera Creek portion of the Lower Berryessa Creek Flood Protection Project Phase 2	C	CURRENT
F	Upper Penitencia Flood Protection Project – Coyote Confluence up to Hwy 680	C, D	CURRENT
G	Separate Ogier Ponds from Coyote Creek to improve fish passage and water quality	B, D	SHORT TERM
H	Metcalf Ponds Fish Passage Improvement Study	A, D	SHORT TERM
I	Invasive plant removal	C, D	SHORT TERM
J	Enhance Riparian and Aquatic Habitat along Middle Coyote Creek	B, D	SHORT TERM
K	Upper Penitencia Creek Flood Protection Project - Hwy 680 to Dorel Drive (+options for areas upstream of Alum Rock Park)	C, D	SHORT TERM
L	Reduce trash in riparian corridor	B, D	SHORT TERM
M	Enhance riparian and aquatic habitat along Upper Coyote Creek	B, D	SHORT TERM
N	Coyote Valley protection, enhancement and restoration	A, B, C, D, E	SHORT TERM
O	Coyote Watershed rangeland management	B,C,D	SHORT TERM
P	Manage Sediment at Lower Silver-Coyote Creek Confluence	B,D	SHORT TERM
Q	Thompson Creek creek stabilization	B,C	SHORT TERM
R	Rehabilitate flood reaches - Lower Silver/Thompson Creek subwatershed	C	SHORT TERM
S	Rehabilitate flood reaches: Lower Coyote Creek subwatershed	C	SHORT TERM
T	Rehabilitate flood reaches: Upper Silver Creek	C	SHORT TERM
U	Green stormwater infrastructure for communities	A, B, C, D, E	SHORT TERM
V	Serpentine and watershed protection and enhancement	D	LONG TERM
W	Wildlife corridor improvements	D	LONG TERM
X	Lower Berryessa Creek flood protection phase 3+ Tularcitos Creek and Upper Calera Creek	C	LONG TERM
Y	Coyote Meadows	B, D	LONG TERM
Z	Upper Berryessa Creek flood protection (680 to Old Piedmont)	C	LONG TERM
AA	Upper Coyote Flood Protection (u/s Fisher-Coyote Confluence)	C	LONG TERM
BB	Noble diversion removal	A,D	LONG TERM
CC	Coyote Reservoir sediment harvesting	B,C,D	LONG TERM

*Implementation Timeframe (Current -funded, in design or construction); Short term (ST) (0 to 15 yrs); Long term (LT) (15 to 50 years)

NEXT STEPS

As the first of five watershed plans supporting long-range watershed management for Valley Water, the One Water Coyote Creek Watershed Plan will now be considered for a variety of purposes. First, this list of priority actions will be consulted for future capital and operations and maintenance activities, including incorporation into Valley Water's existing Capital Improvement Program process as appropriate. Second, priorities will be considered for future grant funding opportunities from the state and federal government. Third, priorities will be considered for both enhancement and mitigation actions when working with regulatory agencies. And finally, priorities will be shared with grantees and partners seeking to work with Valley Water.

Though completed in 2021, the One Water Coyote Creek Watershed Plan is a living document. Valley Water anticipates updating the Plan approximately every five years. The timing of updates will be carefully planned to coincide with periodic updates of asset management plans, operations and maintenance plans, Safe, Clean Water implementation plans, water supply master plans, and capital improvement plans. Through collaboration with these various project teams, watershed plan updates will be able to incorporate the best available data and provide the latest recommendations to the Board and Valley Water's partner agencies. Once implemented, Valley Water will follow up on One Water actions to monitor and measure success.

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File No.: 22-0501

Agenda Date: 4/18/2022
Item No.: 4.4.

COMMITTEE AGENDA MEMORANDUM

Environmental and Water Resources Committee

SUBJECT:
Review and Receive Updates on the Environmental and Water Resources Committee's Working Groups.

RECOMMENDATION:

A. Review and receive updates on the Environmental and Water Resources Committee's Working Groups, and

B. Provide comments to the Board on implementation of Valley Water's mission applicable to working groups' recommendations.

SUMMARY:
At the Committee's January 2019 meeting, the Committee would like to see the working groups more aligned with the issues and policies that the Board of Directors has on their work plan and calendar for this year.

The Board approved the Committee's request to keep the Committee informed of the working groups' activities and results.

This will be a standing agenda item.

BACKGROUND:

The District Act provides for the creation of advisory boards, committees, or commissions by resolution to serve at the pleasure of the Board.

Accordingly, the Board has established Board Committees, which bring respective expertise and community interest, to advise the Board, when requested, in a capacity as defined: prepare Board policy alternatives and provide comment on activities in the implementation of the District's mission for Board consideration. In keeping with the Board's broader focus, Board Committees will not direct the implementation of District programs and projects, other than to receive information and provide comment.

Further, in accordance with Governance Process Policy-3, when requested by the Board, the Board's

Committees may help the Board produce the link between the District and the public through information sharing to the communities they represent.

ATTACHMENTS:
Attachment 1: FY2022 EWRC Working Groups Spreadsheet

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

FY 2022 EWRC Working Groups

PLEASE SIGN UP TODAY!

Working Group Number/Title	Member Name	Lead	Total Members
EWRC Oversight Manager: John Bourgeois, jbourgeois@valleywater.org, 1-408-630-2990			
1 INTEGRATED WATER RESOURCES MANAGEMENT:			
Valley Water Staff Liaison: Brian Mendenhall, bmendenhall@valleywater.org, 1-408-630-3093	Tess Byler Charles Ice Loren Lewis Elizabeth Sarmiento	Elizabeth ?	4
2 WATER SUPPLY:			
Valley Water Staff Liaison: Jing Wu, jwu@valleywater.org, 1-408-630-2330	Hon. Steve Jordan Arthur M. Keller, Ph. D. Hon. Patrick S. Kwok Mike Michitaka Jim Piazza	Arthur	5
3 NATURAL FLOOD PROTECTION:			
Valley Water Staff Liaison: Afshin Rouhani, arouhani@valleywater.org, 1-408-630-2616	Bonnie Bambug Arthur M. Keller, Ph.D. Mike Michitaka Charles Taylor	Arthur	4
4 ENVIRONMENTAL STEWARDSHIP:			
Valley Water Staff Liaison: Lisa Porcella, lporcella@valleywater.org, 1-408-630-2741	Susan Blake Bob Levy Jim Piazza	Bob	3

FY 2022 EWRC Working Groups

PLEASE SIGN UP TODAY!

Working Group Number/Title	Member Name	Lead	Total Members
5 CLIMATE CHANGE:			
Valley Water Staff Liaison: Brian Mendenhall, bmendenhall@valleywater.org, 1-408-630-3093	Bob Levy Hon. Tara Martin-Milius Elizabeth Sarmiento Charles Taylor	Elizabeth ?	4
Lead Member			

SPECIAL NOTES:

See 2021 EWRC Working Group Restructure Guidelines.

Members should limit the number of working groups they participate in because of possible Brown Act Violations (2-3 groups only).

Please Note: You will be sharing your phone number and email address with the other members when signing up for a working group.

When planning meetings, the Group Chair (Lead) should contact Glenna via email (gbrambill@valleywater.org) and John Bourgeois (jbourgeois@valleywater.org) with meeting date/time and location and how many members are expected to attend.

File No.: 22-0502

Agenda Date: 4/18/2022
Item No.: 4.5.

COMMITTEE AGENDA MEMORANDUM

Environmental and Water Resources Committee

SUBJECT:
Review Environmental and Water Resources Committee Work Plan, the Outcomes of Board Action of Committee Requests; and the Committee's Next Meeting Agenda.

RECOMMENDATION:
Review the Committee work plan to guide the committee's discussions regarding policy alternatives and implications for Board deliberation.

SUMMARY:
The attached Work Plan outlines the topics for discussion to be able to prepare policy alternatives and implications for Board deliberation. The work plan is agendized at each meeting as accomplishments are updated and to review any work plan assignments by the Board.

BACKGROUND:

Governance Process Policy-8:

The District Act provides for the creation of advisory boards, committees, or commissions by resolution to serve at the pleasure of the Board.

Accordingly, the Board has established Advisory Committees, which bring respective expertise and community interest, to advise the Board, when requested, in a capacity as defined: prepare Board policy alternatives and provide comment on activities in the implementation of the District's mission for Board consideration. In keeping with the Board's broader focus, Advisory Committees will not direct the implementation of District programs and projects, other than to receive information and provide comment.

Further, in accordance with Governance Process Policy-3, when requested by the Board, the Advisory Committees may help the Board produce the link between the District and the public through information sharing to the communities they represent.

ATTACHMENTS:
Attachment 1: EWRC 2022 Work Plan

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

2022 Work Plan: Environmental and Water Resources Committee

Update: March 2022

The annual work plan establishes a framework for committee discussion and action during the annual meeting schedule. The committee work plan is a dynamic document, subject to change as external and internal issues impacting the District occur and are recommended for committee discussion. Subsequently, an annual committee accomplishments report is developed based on the work plan and presented to the District Board of Directors.

ITEM	WORK PLAN ITEM BOARD POLICY	MEETING DATE	INTENDED OUTCOME(S) (Action or Information Only)	ACCOMPLISHMENT DATE AND OUTCOME
1	**Election of Chair and Vice Chair for 2022.**	January 24	• Committee Elects Chair and Vice Chair for 2022 **(Action)**	**Accomplished January 24, 2022:** The Committee unanimously approved Mr. Bob Levy as the 2022 Environmental and Water Resources Committee Chair and Dr. Arthur M. Keller as the 2022 Environmental and Water Resources Committee Chair.
2	**Annual Accomplishments Report.**	January 24	• Review and approve 2021 Accomplishments Report for presentation to the Board. **(Action)** • Submit requests to the Board, as appropriate.	**Accomplished January 24, 2022:** The Committee unanimously approved the 2021 Annual Accomplishments Report. *The Board received the Committee's presentation at its March 8, 2022, meeting.*
3	**Drought Update.**	January 24 April 18	• **Receive information on the Drought Update. (Information)**	**Accomplished January 24, 2022:** The Committee received an update on the Drought Response and took no action.
4	**Status of Working Groups.**	January 24 April 18 July 18 October 17	• Receive updates on the status of the working groups. ***(Action)*** • Submit requests to the Board, as appropriate.	**Accomplished January 24, 2022:** The Committee received updates on Working Groups: Water Supply, Natural Flood Protection, Environmental Stewardship and Climate Change and took no action:

Yellow = Update Since Last Meeting

Blue = Action taken by the Board of Directors

2022 Work Plan: Environmental and Water Resources Committee

Update: March 2022

ITEM	WORK PLAN ITEM BOARD POLICY	MEETING DATE	INTENDED OUTCOME(S) (Action or Information Only)	ACCOMPLISHMENT DATE AND OUTCOME
5	**Review of Environmental and Water Resources Committee Work Plan, the Outcomes of Board Action of Committee Requests and the Committee's Next Meeting Agenda.**	January 24 April 18 July 18 October 17	• Receive and review the 2022 Board-approved Committee work plan**. (Action)** • Submit requests to the Board, as appropriate.	**Accomplished January 24, 2022:** The Committee received updates and reviewed the 2022 Board-approved Committee work plan and took no action.
6	**Standing Items Reports Fiscal Year 2022:**	January 24	• Receive quarterly reports on standing items. **(Information)**	**Accomplished January 24, 2022:** The Committee received updates and took no action.

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
INTEGRATED WATER RESOURCES MANAGEMENT	*Strategy #1* Protect and maintain existing assets and infrastructure and advance new infrastructure projects.	• Be strategic in managing existing flood protection assets consistent with the Safe Clean Water Program. • Advance new infrastructure projects identified in the Asset Management Plan and Operations & Maintenance Plan. • Increase engagement with cities on flood plain management, Community Rating System (CRS) program, and emergency action plans.	Board Policy and Planning Committee (BPPC)
	Strategy #2 Pursue opportunities to improve internal capacity to acquire regulatory permits.	• Continue to provide for agency-wide regulatory planning and permitting effort and pursue other efforts at the state and federal level to expedite permit review. • Continue to foster better relationships with regulatory agencies and open dialogue with environmental, environmental justice and other stakeholders. • Implement memorandum of understanding (MOU) with Regional Water Quality Control Board.	BPPC
	Strategy #3 Engage and educate the community, elected officials and staff on our management of water resources in Santa Clara County	• Continue to apply strategies for effective outreach, engagement, and education. • Continue to develop and refine metrics to understand and improve the return on • investment (ROI) of outreach strategies. • Continue increasing efforts to educate the public about the mix of different types of water in Valley Water's portfolio, as well as our flood protection and environmental stewardship efforts. • Engage directly with local government jurisdictions through joint meetings.	Board of Directors

Yellow = Update Since Last Meeting

Blue = Action taken by the Board of Directors

2022 Work Plan: Environmental and Water Resources Committee

Update: March 2022

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
WATER SUPPLY	***Strategy #1*** Actively Pursue New Water Supply and Storage Opportunities.	• Explore opportunities to develop new surface and groundwater storage projects that align with Valley Water's mission. • Determine level of participation for projects and decisions about partnerships in accordance with the Water Supply Master Plan andwater affordability. • Make decisions on the Pacheco Reservoir Expansion Project following review ofthe project's Environmental Impact Report (EIR).	Water Storage Exploratory Committee (WSEC)
	Strategy #2 Actively Participate in decisions regarding the CA Delta Conveyance.	• As a voice for Northern California, continue to engage and negotiate, throughserving on the Delta Conveyance Design and Construction Authority and Finance Authority and Stakeholder Engagement Committee in adherence to Board approved Guiding Principles, to protect Santa Clara County's interests.	Board of Directors
	Strategy #3 Lead Recycled and Purified Water Efforts with committed partners.	• Advance the Expedited Purified Water Program by releasing a Request for Proposal (RFP) for at least one Locally Sponsored Project. • Implement the Countywide Water Reuse Master Plan. • Continue to monitor Direct Potable Reuse (DPR) guidance and implement actions as needed. • Finalize negotiations on term sheet for South County recycled water and agreement on governance.	Recycled Water Committee (RWC)
	Strategy #4 Advance Anderson Dam Seismic Retrofit Project.	• Continue construction on the Anderson Dam Tunnel Project (ADTP). • Continue to work with appropriate regulatory agencies to advance theADSRP. • Release for review the Draft Environmental Report for the ADSRP. • Continue to educate and engage the public, key stakeholders, decision makers, and elected officials of the project progress and construction timeline. • Coordinate long term ADSRP operations with the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE).	Capital Improvement Program (CIP) Stream Planning and Operations Committee (SPOC)
	Strategy #5 Promote Making Water Conservation a California Way of Life in Santa Clara County.	• Increase communication and education outreach to promote Valley Water's water conservation programs to customers. • Increase collaboration with retailers to promote Valley Water's water conservation programs. • Implement new water conservation programs and engagement strategies identified within the Water Conservation Strategic Plan. • Engage and support private-sector stakeholders, local, state, and federal agencies that promote water conservation.	Water Conservation and Demand Management Committee (WCaDMC)

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Blue = Action taken by the Board of Directors

2022 Work Plan: Environmental and Water Resources Committee

Update: March 2022

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
NATURAL FLOOD PROTECTION	***Strategy #1*** Plan, design and maintain flood protection projects with multiple benefits, including protecting ecosystem functions and enhancing habitat.	• Continue to advance Shoreline EIA 11 levee construction. • Finalize the One Water Coyote Creek Watershed plan and make significant progress on the Guadalupe and Pajaro watershed plans. • Use a holistic approach to maintaining streams for flow conveyance and habitat enhancement. • Complete construction of Phase I of the Upper Llagas Flood Protection Project, a multi-benefit project providing flood protection while restoring habitat and benefiting the environmental ecosystem.	CIP BPPC
	Strategy #2 Provide flood protection equitably in all regions of the County, prioritizing disadvantaged communities.	• Advance One Water Countywide Framework in a comprehensive manner that includes diverse community-wide stakeholders and the incorporation of environmental justice policies in all planning efforts. • Continue progress on flood protection capital projects consistent with Valley Water's commitment to the Safe, Clean Water Program and equitably in all regions.	CIP BPPC

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
ENVIRONMENTAL STEWARDSHIP	***Strategy #1*** Attain net positive impact on the environment when implementing flood protection and water supply projects.	• As part of the One Water Countywide Framework planning process, continue to develop an integrated water resource plan for each watershed, including appropriate metrics to monitor Valley Water's impacts on and benefit to the environment. • Ensure that stewardship efforts are integrated and not focused primarily on mitigation.	BPPC
		•	
	Strategy #2 Promote the protection of creeks, bay, and other aquatic ecosystems from threats of pollution and degradation.	• Continue efforts to protect the ecosystem and water quality of our water bodies and the integrity of our infrastructure. Such efforts include preventing stormwater pollution, increased implementation of green stormwater infrastructure, addressing mercury pollution, and homeless encampment clean ups. • Continue partnerships and investments on a regional scale such as the South Bay Salt Pond Restoration and Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).	Homeless Encampment Committee (HEC) SPOC
	Strategy #3 Continue the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE).	• Continue implementation of feasibility studies, monitoring activities, and planning and construction of various fish passage improvements. • Advance the Guadalupe River and Stevens Creek Environmental Impact Report (EIR) consistent with all stakeholder agreements. Develop a programmatic approach to implementing FAHCE settlement. • Advance Adaptive Management Plan to encompass all three creeks.	SPOC

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2022 Work Plan: Environmental and Water Resources Committee

Update: March 2022

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
BUSINESS MANAGEMENT	***Strategy #1*** Advance racial equity, diversity, and inclusion.	• Begin implementation of best practices to address internal and external disparities and build an organizational culture consistent with the Board's Resolution addressing racial equity, diversity, and inclusion. • Remain committed to environmental justice and the fair treatment and meaningful engagement of all people regardless of race, color, gender identity, disability status, national origin, tribe, culture, income, immigration status, or English language proficiency, with respect to the planning, projects, policies, services, and operations of Valley Water.	Diversity and Inclusion Ad Hoc Committee (D&I)
	Strategy #2 Maintain appropriate staffing levels and expertise and ensure the safety of our staff.	• Develop and finalize a long-term staffing strategy that aligns with future capital and operational needs. • Develop classification career ladders to provide understanding of requirements for professional growth. • Advance the development of a skilled trades apprenticeship program. • Maximize the safety of staff working in creeks, homeless encampments and Valley Water facilities and continue to promote health & safety guidance to protect staff from public health emergencies and environmental impacts.	D&I
	Strategy #3 Provide affordable and cost- effective level of services.	• Continue to establish benchmarking with other agencies, particularly water agencies, in order to understand areas for improvement. • Research and identify best practices from other agencies around water affordability, particularly with disadvantaged communities. • Establish Valley Water as a statewide leader in conversations around water affordability.	Financial Sustainability Working Group (FSWG) Board Audit Committee (BAC)
GOAL	**STRATEGY**	**FY22 FOCUS AREAS**	**MONITORING COMMITTEE**
CLIMATE CHANGE	***Strategy #1*** Address future impacts of climate change to Valley Water's mission and operations.	Begin implementation of Climate Change Action Plan.	BPPC

GOAL	STRATEGY	FY22 FOCUS AREAS	MONITORING COMMITTEE
INTEGRATED WATER RESOURCES MANAGEMENT			
WATER SUPPLY			
NATURAL FLOOD PROTECTION			
ENVIRONMENTAL STEWARDSHIP			
CLIMATE CHANGE			

Yellow = Update Since Last Meeting

Blue = Action taken by the Board of Directors

7	**One Water Plan - General Update and Upper Pajaro River Watershed Planning.**	April 18	• Receive a presentation on the One Water Plan - General Update and Upper Pajaro River Watershed Planning. **(Action)**	
8	**Review FY2023 Board Work Plan.**	July 18	• Review FY2023 Board Work Plan	
9	**Standing Items Reports Fiscal Year 2023.**	July 18	• Receive quarterly reports on standing items. **(Information)**	
10	**FAHCE Update.**	TBD	• Receive update on FAHCE. **(Action)**	
11	**Homeless Encampments Update**	TBD	• Receive an update on the **Homeless Encampments (Information0**	

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