Valley Water

FY 2022-23

Climate Change Action Plan Annual Implementation Report

Santa Clara Valley Water District

Climate Change Action Plan

Fiscal Year 2022/2023 Update

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Chapter 1. Climate Change Action Plan Annual Implementation Update

In 2021, the Board of Directors adopted Valley Water's first comprehensive Climate Change Action Plan (CCAP). The CCAP includes seven goals, with Goals 1 through 3 focused on climate mitigation, Goals 4 through 6 focused on climate adaptation, and Goal 7 focused on emergency preparedness. Each CCAP goal is achieved through implementation of several broad strategies and specific actions. At the time of CCAP adoption, the Board directed staff to develop a CCAP Implementation Program and provide updates on progress on a regular basis.

Dry conditions throughout the state have caused extensive wildfires, just one aspect of climate change that requires coordination across agencies and regions.

This Climate Change Action Plan (CCAP) annual implementation update is the first progress update and summary of actions since the adoption of CCAP. This update includes progress for fiscal years (FY) 2022 and 2023. Climate adaptation progress is the primary focus of this annual update and is described for 60 priority actions, along with 12 flagship metrics to demonstrate quantitative progress towards achieving climate goals. Progress for climate mitigation is primarily summarized in terms of work to develop a Greenhouse Gas Reduction Plan (GHGRP) with support from staff and consultants, and is generally covered separate from this annual update.

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Chapter 2. Climate Change Action Plan Overview

Valley Water's CCAP outlines goals, strategies, and actions for reducing its contribution to climate change through minimizing greenhouse gas emissions (GHGs), and for adapting to climate impacts. Climate impacts that pose the most significant risk to Valley Water include changes in temperature, precipitation, drought and snowpack, greater wildfire risk, and sea level rise.

2.1. Goals

Goal 1: Reduce Direct Greenhouse Gas Emissions (Scope 1)

Goal 2: Expand Renewable Energy and Improve Energy Efficiency (Scope 2)

Goal 3: Reduce Indirect Greenhouse Gas Emissions (Scope 3)

Goal 4: Water Supply Adaptation

Goal 5: Flood Protection Adaptation in Santa Clara County

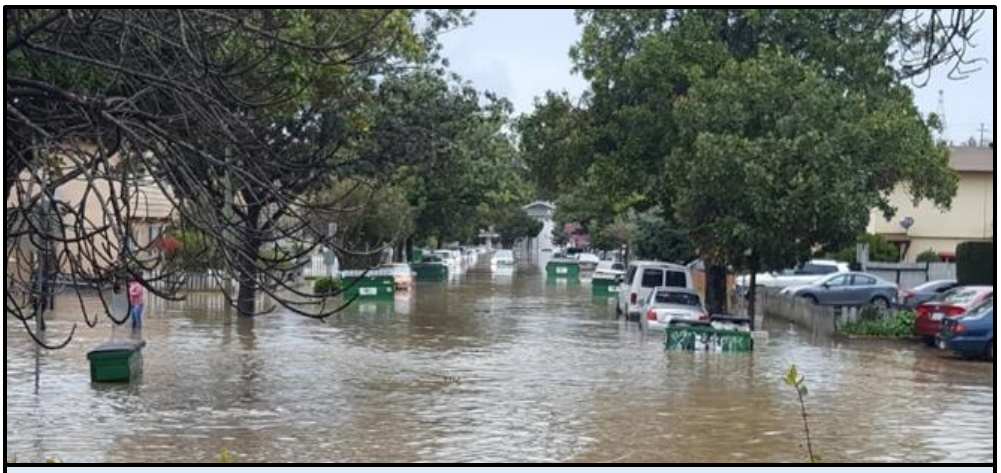
Goal 6: Ecosystem Adaptation in Santa Clara County

Goal 7: Emergency Preparedness

Goals 1 through 3 are focused on climate mitigation and are grouped according to the three scopes included in GHG emissions inventories. This includes scope 1 (direct emissions), scope 2 (purchased electricity), and scope 3 (indirect emissions). Goals 1, 2 and 3 are being addressed through the separate GHGRP. Goals 4 through 7 cover climate adaptation. Goals 4, 5, and 6 align with Valley Water's primary mission areas of water supply, flood protection, and environmental stewardship. Goal 7 focusses on emergency preparedness, recognizing that climate change will enhance the frequency and severity of floods, wildfire, and other natural disasters. Each goal is accompanied by a set of strategies and actions that outline how Valley Water can progress toward the seven goals.

2.2. Strategies

Following the overarching CCAP goals, associated strategies were developed to break down high-level concepts into discernable pieces and to outline approaches to mainstream climate resilience. A single goal can have multiple strategies. Goals 4 through 7 have a total of 16 associated strategies (Table 1), which capture organizational direction and align with Board policy. Strategies should remain consistent over time unless conducting a formal CCAP update with Board approval.



Climate change is likely to increase storm intensity and cause impacts to local communities without additional planning and investments in flood risk reduction.

Table 1. CCAP Strategies (Goals 4-7)

Goal	Strategy	Related Ends Policy[1]
4	S4.1 Diversify local water supplies and expand drought-resistant water supply.	E-2
4	S4.2 Improve demand management and increase water conservation efforts.	E-2
4	S4.3 Increase reliability of imported water.	E-2
4	S4.4 Support efforts to maintain and enhance source water quality.	E-2
4	S4.5 Implement source water improvement and water treatment actions.	E-2
4	S4.6 Increase flexibility and resilience of water utility operations and assets.	E-2
4	S4.7 Support ecological water supply management objectives.	E-2, E-3
5	S5.1 Minimize riverine flooding risks.	E-3
5	S5.2 Minimize flood risk in coastal areas.	E-3
5	S5.3 Improve flood preparedness of people, property, and habitat.	E-3
5	S5.4 Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.	E-3
5	S5.5 Expand the use of flood forecasting and modeling tools in the planning and design of agency projects to maximize protection from flood risks.	E-3
6	S6.1 Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	E-4, E-5
6	S6.2 Develop and expand programs and plans that support more climate-resilient ecosystems.	E-4, E-5
6	S6.3 Expand the availability of data on regional ecosystems in order to avoid detrimental climate change-related ecosystem impacts.	E-4, E-5
7	S7.1 Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	E-5

[1] Ends policies describe what the Board of Directors have directed staff to accomplish. Full text of Ends Policies available at: https://www.valleywater.org/how-we-operate/board-governance-policies

2.3. Flagship Metrics for CCAP Strategies

In addition to high priority actions, a subset of strategies and related actions were designated as key elements to track quantitatively, which have been designated as flagship metrics. This gives Valley Water a means of tracking progress from a determined baseline to a target condition. At least one flagship metric was developed per goal 4 through 7 (see Table 2).

Table 2. Flagship Metrics

Goal	Strategy	Flagship Metric	Target	FY2022/FY2023 Progress
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	Percent of local supply in overall portfolio	10% of supplies from recycled water by 2030. At least 1000 AF of stormwater by 2040.	Supply of recycled water is tracking at 6% compared to a target of 10% of total supplies. Stormwater as a type of supply is tracking at 0 acre feet compared to a target of 1000 acre feet by 2040. This is a new measure and staff are investigating optimal ways to capture stormwater at this stage.
4	S4.2: Improve demand management and increase water conservation efforts.	Average annual water conservation savings	Conserve 109,000 AF annually by 2040 (compared to 1992 baseline).	Final FY22 update: 80,078 AF conserved annually compared to a target of 109,000 AF by 2040. This is an increase over past years. Additional conservation updates include: – Increased lawn conversation rebate for low income households and veterans – Launch of the water conservation online shopping cart program – Fixture replacement program – Cost sharing program for advanced metering infrastructure (AMI) with water retailers
4	S4.6: Increase flexibility and resilience of water utility operations and assets.	Optimize water supply system to maximize Valley Water's ability to store and retrieve dry year supplies during an extended drought.	1. Complete Anderson Reservoir by FY2032. 2. Complete other seismically restricted reservoirs by 2035.	Anderson Dam Seismic Retrofit – Anderson Dam Tunnel Project to be completed by 2024 – Anderson Reservoir will be refilling by 2031 and ADSRP construction completed by 2032. Complete Guadalupe Dam Seismic Retro fit Project by 2031. Complete Calero Dam Seismic Retrofit Project by 2035. Complete Almaden Dam Improvement Project 2035.
4&5	S5.4: Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.	All future asset management plans incorporate climate change impact assessment	100% target starting FY23.	FY22 - 0 asset management plans incorporate climate change. FY23 - 2 asset management plans will include climate change (Stevens Creek and District-wide asset mgmt. plan). FY24 forward - New asset management plans in FY24 and after will incorporate climate change solutions to improve the reliability of aging water supply infrastructure, and to promote adaptation, resilience, and flexibility in flood protection assets.

Goal	Strategy	Flagship Metric	Target	FY2022/FY2023 Progress
5	S5.5: Expand the use of flood forecasting and modeling tools in the planning and design of agency projects to maximize protection from flood risks.	All flood protection projects are planned and designed with flexibility and according to updated procedures that incorporate future climate change scenarios in flood risk modeling.	100% target	Valley Water is addressing climate related flood impacts for tidal and fluvial/stream projects. Tidal: Most flood protection capital projects with tidal reaches from 2006 and after accommodate a measure of sea level rise, typically up to about 2 to 2.6 ft for a 100 year flow event with coincident 10 year coastal flood event. Fluvial: Valley Water is still in the process of determining how to address climate risk for flooding on streams. Some possible approaches include adaptive projects, such as building wider levee foundations (in levee reaches) or footings (for floodwall reaches), or buying out of land/properties near existing detention ponds so that levees/floodwalls/detention ponds could be expanded more readily to accommodate increased risks.
5&6	S5.3: Improve flood preparedness of people, property, and habitat.	Review of all development projects includes analysis for floodplain preservation/restoration.	100% target	Community Projects Review Unit is informing external developers of the Guidelines and Standards for Land Use Near Streams with each review it carries out.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	Channel length with connected riverine aquatic and riparian habitat	Increase channel length with a riparian width of >10m for the mainstem and tributaries.	Tracking data per watershed for channel length with connected riverine aquatic and riparian habitat. Data now collected for Coyote, Guadalupe and Upper Pajaro Watersheds.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	Total acreage of restored tidal marsh in Santa Clara County	5,355 acres planned for restoration to tidal marsh	490 acres of tidal marsh restoration complete (Ponds A6 and A17). South San Francisco Bay Shoreline Project Phase 1 has broken ground and will continue through FY28. Project will restore 2,895 acres of tidal marsh when complete (Ponds A9-A15, A18). Calabazas San Tomas Aquino Creeks-Marsh Connection Project began planning and pre-project monitoring phase. Project will support eventual restoration of A8 complex and A4. Valley Water exploring partnership opportunities with VTA to include Pond A4 in beneficial reuse of material excavated for downtown San Jose BART extension.

Goal	Strategy	Flagship Metric	Target	FY2022/FY2023 Progress
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	Climate resistant plant palettes are developed in coordination with Valley Habitat Agency.	Increased number of projects utilizing climate smart palettes in planning or implementation phase.	Three projects utilizing climate smart palettes as of FY23. Point Blue Conservation Science has developed a climate smart restoration tool that provides site-specific restoration plant palettes. Valley Habitat Agency (VHA) has used this in one implemented project (Pajaro River Agriculture Preserve, in cooperation with OSA) and two projects in planning stages (Pacheco, Davidson Property). VHA will not be developing specific palettes in the Valley Habitat Plan but will continue to utilize climate smart palettes in planting projects.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	Implement programs to monitor and address aquatic invasive species and harmful algal blooms.	No detections of invasive mussel species in Valley Water reservoirs, and no detections of cyanotoxins in surface waters.	FY22: No detections of invasive mussel species in Valley Water reservoirs, and no detections of cyanotoxins in surface water.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	Complete flood management plans/procedures (e.g.: EAPs and annexes) based on risk priorities.	SCWF2 KPI: Complete 2 flood management plans/procedures per year, selected by risk priority, for the next 15 years.	For FY22 staff is tracking existing flood management plans and procedures (e.g. emergency action plans) plus newly created plans and procedures tracked by the Safe Clean Water Program. Results are as follows: Pre-FY22 (19 EAPs (creeks and reservoirs) complete) + FY22 (2 EAPs complete) = 21 total EAPs to date. This 21 complete is 43% of the target of 49 total when you consider Valley Waters commitment to develop 2 flood management plans/procedures (e.g.: EAPs) per year for the first 15 years of the SCW Program.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	31 forecast points (22 stream + 9 reservoir) SCWF7 (KPI#2): Improve flood forecast accuracy and emergency response time working with the National Weather Service and through research and development.	35 forecast points	Continued ongoing operations for the current 31 forecast points and updated runoff modeling to improve accuracy. Considering an additional 4 forecast points for a total of 35 forecast points. Also included new weather forecasting tools and forecasts: In FY22, Valley Water completed migrating the old ALERT1 webpage to a cloud-hosting service, which should improve performance and reliability. The new surface water monitoring website will replace the old ALERT webpage and consolidate the flood warning and flood watch pages. During the year, Valley Water also began initial work on incorporating forecast data from UC San Diego Scripps Institute – Center for Western Weather and Water Extremes (C3WE). C3WE has become a research leader in atmospheric rivers, the primary rain generator in the western United States, improving on current forecasts from NWS.

2.4. Actions

Actions under the CCAP are defined specific tasks used to implement strategies and their associated goals. Actions can be projects, programs, and/or policies and may require partnerships for successful implementation. Since CCAP builds upon Valley Water's history of successful climate mitigation and adaptation practices, these actions include ongoing work to build resilience and mitigate climate change, along with opportunities to pursue expanded or entirely new actions. For climate adaptation, 117 actions were initially identified. These were prioritized into high, medium and low priority using the following methodology.

2.5. Prioritization Methodology

After adoption of the CCAP, mitigation and adaptation actions were prioritized using six scoring criteria (Table 3). These categories were informed by California Governor's Office of Emergency Services' California Adaptation Guide[2]. Adaptation actions, the focus of this update, were scored based on risk, effectiveness, cost, co-benefits, and survey feedback.

Table 3. Prioritization Categories Summary

Prioritization Category	Adaptation and/or Mitigation	Description
Risk	Adaptation	The likelihood and magnitude of the climate impact that the action is seeking to address, based on the vulnerability assessment.
Effectiveness	Adaptation	The effectiveness of the action in adapting Valley Water and its stakeholders to the climate impact it is seeking to address.
Cost	Adaptation Mitigation	The cost of each action item in small, medium, or large categories, designated with the symbols $, $$, or $$$.
Co-Benefits	Adaptation Mitigation	The co-benefits that result from the climate action. Each action was assessed on its potential to provide one or more of the following co-benefits: cleaner air, cost saving, community benefit (including environmental justice and social justice), and improved collaboration and regulatory synergy.
Survey Feedback	Adaptation Mitigation	The goals that were ranked as most important to external stakeholders.
Emission Reductions	Mitigation	The number of emissions that will be reduced or avoided if the climate action is taken.

2.6. Status Update for High Priority Actions

Utilizing the prioritization categories, 60 high priority adaptation actions were identified from the total 117 actions. These actions (see Table 4) are sorted by Goal, and further by status. Status is demonstrated as ongoing (current project/program/policy with existing climate nexus), expanded (current project/program/policy that needs additional climate focus), or new (new project/program/policy to address climate change).

[2] The California Governor's Office of Emergency Services (CalOES). California Adaptation Planning Guide. June 2020. Available at: https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/CA-Adaptation-Planning-Guide-FINAL-June-2020-Accessible.pdf

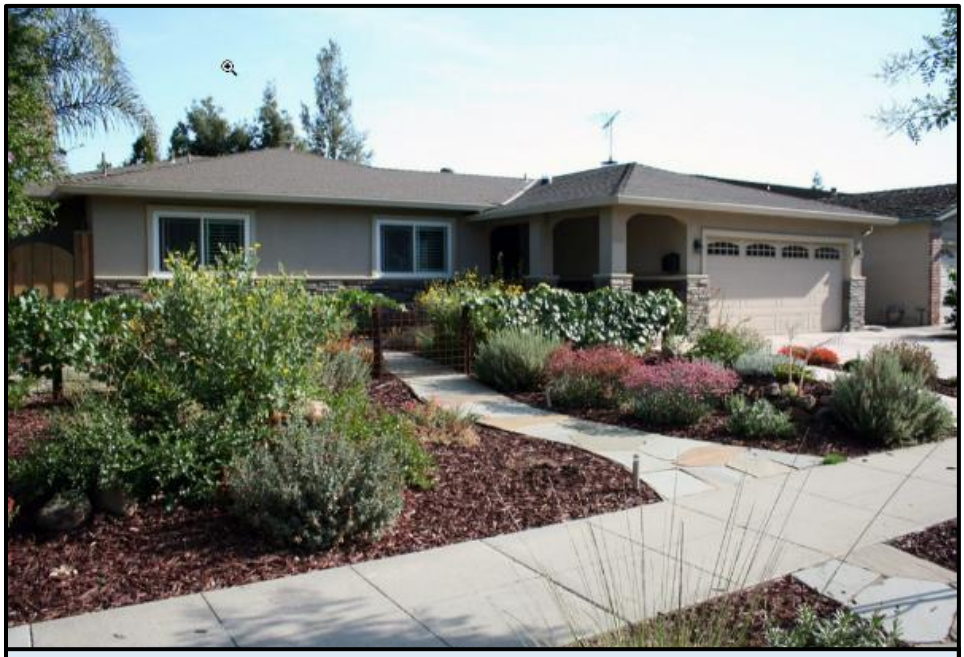
Additional information per action includes related plans, programs, and projects; steps for implementation of that action; and a progress update for FY2022/FY2023. This set of priority actions will be reported on annually until an action is deemed complete. New actions or actions previously designated as low or medium priority may also be added on an annual basis.

2.7. Selected High Priority Action Updates

To highlight progress made in FY2022 and FY2023, the following examples are included to illustrate successes, and include priority actions, implementation steps and progress updates on a per goal basis. Table 4 contains a comprehensive list of progress updates for all high priority actions.

GOAL 4 – Water Supply

Climate change impacts to water supply are varied and require a diversified response as covered by the various Goal 4 strategies. Four of the seven strategies are covered below as they were deemed key elements of Valley Water's work tied to climate resilience. See Table 1 for a full list of CCAP strategies.



Landscape rebates incentivize homeowners to conserve water, helping to reduce demand, especially during droughts.

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Strategy S4.1: Diversify local water supplies and expand drought-resistant water supply.

4.1.7 Increase capture and infiltration of stormwater and floodwater. Implement green stormwater infrastructure projects to maximize runoff retention, including those identified in the Stormwater Resources Plans as having water supply benefits.

IMPLEMENTATION TASKS:

- Identify areas with multiple Green Stormwater Infrastructure (GSI) benefits such as water supply, water quality improvements, and flood risk reduction, while also considering benefits to DACs.
- Complete the FloodMAR planning study.

FY2022/FY2023 PROGRESS UPDATE:

- Reviewing stormwater resource plans for Santa Clara basin and south county for potential locations.
- VW is currently reviewing the draft FLoodMAR study report from UC Water. Valley Water is interested in whether Flood-MAR can enhance water supply while also providing co-benefits related to watershed stewardship. In addition, special studies and evaluations of brackish water and stormwater capture and treatment opportunities are being explored with San Jose, Santa Clara and Stanford University.

RESPONSIBLE DEPARTMENT(S):
Environmental Planning Unit,
Water Supply Planning & Conservation

COST Medium | **STATUS** Expand | **TIME** Long

PLAN ALIGNMENT: Safe Clean Water B2; Related to Water Supply Master Plan (Groundwater Banking)

Strategy S4.2: Improve demand management and increase water conservation efforts.

4.2.4 Increase water conservation by methods such as encouraging climate appropriate landscapes.

IMPLEMENTATION TASKS:

- Continue expanding Valley Water's conservation program.
- Leverage the findings of the 2021 Water Conservation Strategic Plan to implement targeting marketing strategies to increase participation in disadvantaged communities, as well as multi-family, commercial, industrial, and institutional properties.
- Leverage the Online Shopping Cart and Fixture Replacement Program to increase indoor water-use efficiency.
- Consider developing pilot programs to evaluate the effectiveness of additional water conservation programs.

FY2022/FY2023 PROGRESS

- 80,078 AF conserved annually compared to a target of 109,000 AF by 2040.
- Increased lawn conversation rebate for low income households and veterans
- Launch of the water conservation online shopping cart program
- Fixture replacement program
- Cost sharing program for advanced metering infrastructure (AMI) with water retailers

RESPONSIBLE DEPARTMENT(S):
Water Supply Planning & Conservation

COST Low | **STATUS** Expand | **TIME** Short - Medium

PLAN ALIGNMENT: Water Supply Master Plan (4.1.2; 4.2.1; 4.2.5);
Safe Clean Water;
Related Urban Water Mgmt Plan 9.2.4

Strategy S4.4: Support efforts to maintain and enhance source water quality.

4.4.4 Enhance collaboration with wastewater agencies and publicly owned treatment works (POTWs) on source control and wastewater collection system maintenance to protect recycled water and groundwater

IMPLEMENTATION TASKS:

- Continue planning for the Purified Water Project.

FY2022/FY2023 PROGRESS UPDATE:

- Staff continues to work with the City of Palo Alto for the Purified Water Project to build an Advanced Water Purification Facility to produce 10 MGD of purified water to be conveyed to the Los Gatos Recharge System in the City of Campbell for Indirect Potable Reuse.
- Valley Water is supporting the design and construction of a 1.25 MGD Desalting Facility to be built at Palo Alto Regional Water Quality Control Plant
- Efforts are underway to identify opportunities for expansion of Recycled Water in coordination with the cities of Palo Alto, Mountain View, Sunnyvale, San Jose, Santa Clara, Morgan Hill and Gilroy.

RESPONSIBLE DEPARTMENT(S):
Recycled and Purified Water Unit, Groundwater Unit

COST Low | **STATUS** Expand | **TIME** Short

PLAN ALIGNMENT: Urban Water Mgmt 9.2

Strategy S4.6: Increase flexibility and resilience of water utility operations and assets.

4.6.1. Develop storage, recharge, and conveyance options that support climate change adaptation efforts and are climate resilient.

IMPLEMENTATION TASKS:

- Continue the evaluation of Semitropic diversification approaches.
- Complete a planning study on improving recharge at San Pedro Ponds.
- Evaluate Lexington Pipeline.

FY2022/FY2023 PROGRESS UPDATE:

- Evaluating the out-of-county groundwater banking opportunities
- Tracking Semitropic planning efforts and State reporting
- Received draft San Pedro Ponds study report from consultant.

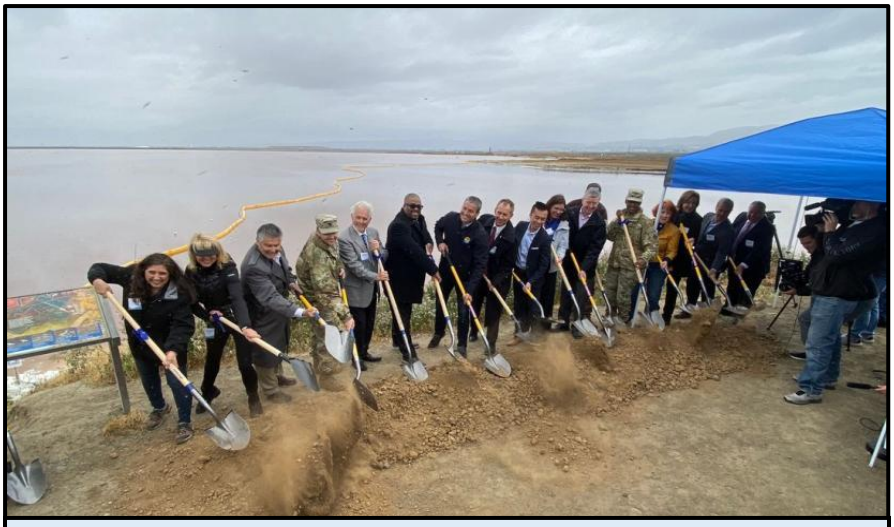
RESPONSIBLE DEPARTMENT(S):
Water Utiity Division

COST Low | **STATUS** Expand | **TIME** Medium - Long

PLAN ALIGNMENT: Water Supply Master Plan 3.1.1; Related to Water Supply Master Plan (Delta Convey)

GOAL 5 – Flood Risk Reduction

Climate Change impacts to the community associated with flooding are typically summarized as tidal or fluvial. Flood risk requires action before, during and after storm events with major elements captured in Goal 5 strategies. Two of the five strategies are demonstrated below as they were deemed key elements of Valley Water's work tied to flood protection. See Table 1 for a full list of CCAP strategies.



Breaking ground on the Shoreline Project, which will help to protect communities from sea level rise.

Strategy S5.2: Minimize flood risk in coastal areas.

5.2.1 Continue to seek partnerships and expand coordination to enhance fluvial and coastal flood protection projects, consistent with the Natural Flood Protection (NFP) procedures.

IMPLEMENTATION TASKS:

- Share information with partners and receive information from partners on approaches to fluvial and coastal flood protection.

FY2022/FY2023 PROGRESS UPDATE:

- Shoreline Phase 1- Reaches 1-3 levee in EIA 11 (Alviso) is under construction. Protects against coastal flooding, sea level rise.
- Shoreline Phase 2 - Continuing coordination with the Army Corps. The economic analysis suggests no near-term federal interest in a project as the area is protected by existing berms, Palo Alto Flood Basin, and concrete freeway barriers along Hwy 101 through 2060. Valley Water is working with the Corps to refine the analysis and potentially identify smaller projects with near-term federal interest.
- Shoreline Phase 3 - Feasibility Study is expected to begin in July 2023, and will evaluate the shoreline areas of Mountain View, Sunnyvale and Santa Clara.

RESPONSIBLE DEPARTMENT(S): Watersheds Design and Construction Unit, Watersheds Stewardship & Planning Division, Office of External Affairs

COST Medium | **STATUS** Ongoing | **TIME** Medium

PLAN ALIGNMENT: Safe Clean Water Priority E (collaborations with cities/state/federal); Local Hazard Mitigation Plan 1.7/1.5

Strategy S5.2: Minimize flood risk in coastal areas.

5.2.7 Ensure regional collaboration in rising sea level efforts by continuing engagement with regional efforts such as Adapting to Rising Tides, CHARG and their One Bay Plan.

IMPLEMENTATION TASKS:

- Document regional efforts Valley Water participates in, including Coastal Hazard Adaptation Resiliency Group (CHARG).

FY2022/FY2023 PROGRESS UPDATE:

- As a partner in CHARG, Valley Water has funded and collaborated on a technical white paper titled "Guidelines and Considerations for Modeling Sea-Level Rise Flood Hazards in San Francisco Bay." This report is currently being reviewed by CHARG members.

RESPONSIBLE DEPARTMENT(S):
Water Resources Planning and Policy Unit, Watersheds Stewardship and Planning

COST Low | **STATUS** Ongoing | **TIME** Short, Continuous

PLAN ALIGNMENT: Capital Improvement Program, One Water Plan

Strategy S5.4: Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.

5.4.2 Develop planning and design procedures that incorporate climate change solutions for climate related flood impacts.

IMPLEMENTATION TASKS:

- Codify guidance on how to incorporate climate-related flooding (fluvial and tidal) into project planning and design.

FY2022/FY2023 PROGRESS UPDATE:

- Coastal flood protection projects are currently designed to accommodate up to 2.6 ft of sea level rise for a 100-year flow event with coincident 10-year coastal flood event (i.e., Shoreline level of flood protection).
- Sea level rise has also been included in planning for facilities located within the coastal floodplain such as the Silicon Valley Advanced Water Purification Center's expansion.
- Approaches to add flexibility to fluvial flood projects are currently under development.

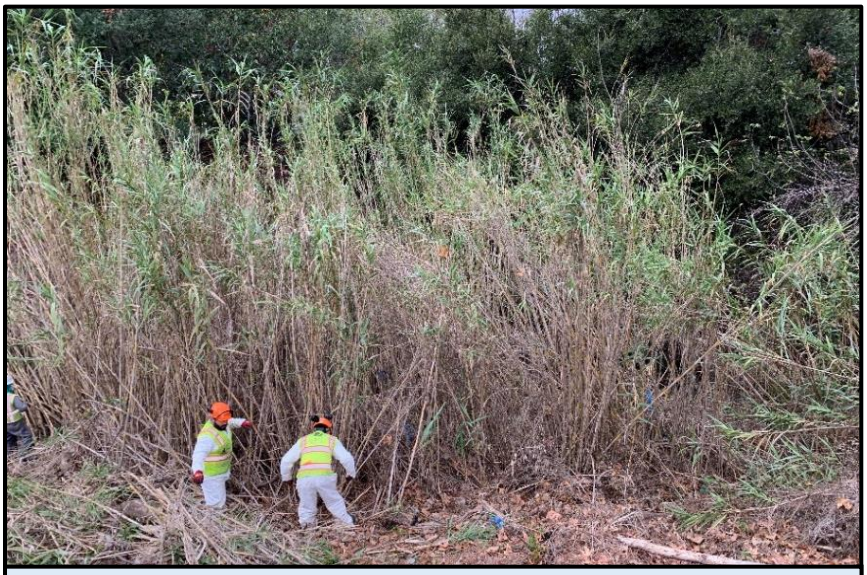
RESPONSIBLE DEPARTMENT(S):
Water Resources Planning and Policy Unit, Watersheds Stewardship and Planning

COST Low | **STATUS** New | **TIME** Short - Medium

PLAN ALIGNMENT: One Water Plan; Safe Clean Water Priority E

GOAL 6 – Environmental Stewardship

Climate Change impacts to the natural environment are often associated with habitat and the ability to increase resilience for natural communities and their species. Two of the three strategies under Goal 6 are demonstrated below as they were deemed key elements of Valley Water's work tied to environmental stewardship. See Table 1 for a full list of CCAP strategies.



Removing invasive plant species, which have the potential to thrive over native species in a changing climate.

Strategy S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.

5.2.3 Identify and pursue projects that increase the connectivity of coastal habitats and preserve the transition zone between the Bay's shoreline and streams' tidal zones, including wetland restoration and ecotone levees.

IMPLEMENTATION TASKS:

- Implement projects in CIP
- Look for grant funding opportunities

FY2022/FY2023 PROGRESS UPDATE:

- Calabazas/San Tomas Aquino Creek-Marsh Connection Project. The project submitted an application to the EPA SFWQIF Grant in 2022 and was awarded $3.8M; details of awards are subject to the grant agreement which is yet to be finalized.

RESPONSIBLE DEPARTMENT(S): Watersheds Stewardship & Planning Division

COST Medium | **STATUS** New | **TIME** Medium

PLAN ALIGNMENT: One Water Plan

Strategy S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.

6.2.9 Promote climate-smart planting by developing climate-smart planting palettes.

IMPLEMENTATION TASKS:

- Develop one palette for residential and/or commercial use
- Develop one palette for natural landscape use (e.g. restoration projects)
- Coordinate with VHA

FY2022/FY2023 PROGRESS UPDATE:

- Point Blue Conservation Science has developed a climate smart restoration tool that provides site-specific restoration plant palettes.
- VHA has used this in one implemented project (Pajaro River Agriculture Preserve, in cooperation with OSA) and two projects in planning stages (Pacheco, Davidson Property).
- VHA will not be including explicit specific palettes in the VHP but will continue to utilize climate smart palettes in planting projects.

RESPONSIBLE DEPARTMENT(S):
Environmental Mitigation and Monitoring Unit, Vegetation Management Unit

COST Low | **STATUS** Expand | **TIME** Medium

PLAN ALIGNMENT: Invasive Plant Management Program, Safe Clean Water

Strategy S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.

6.2.10 Avoid the spread of invasive species through prevention and removal efforts.

IMPLEMENTATION TASKS:

- Look for grant funding opportunity
- Install signage at Valley Water's reservoir related to "don't move mussel" and "no wet live bait".
- Expand public education and outreach

FY2022/FY2023 PROGRESS UPDATE:

- Quagga zebra mussel monitoring was conducted in all Valley Water reservoirs, BIF, and San Luis Reservoir per mussel prevention plan, with no detections
- Valley Water and County Parks received $1 million in funding from the California Department of Boating and Waterways for a mussel prevention program.
- Worked with Santa Clara County Parks and CDFW to develop signage related to "Don't move mussel."
- A consultant team has been retained to develop the Integrated Invasive Plant Management Program and the Early Detection and Rapid Response programs.

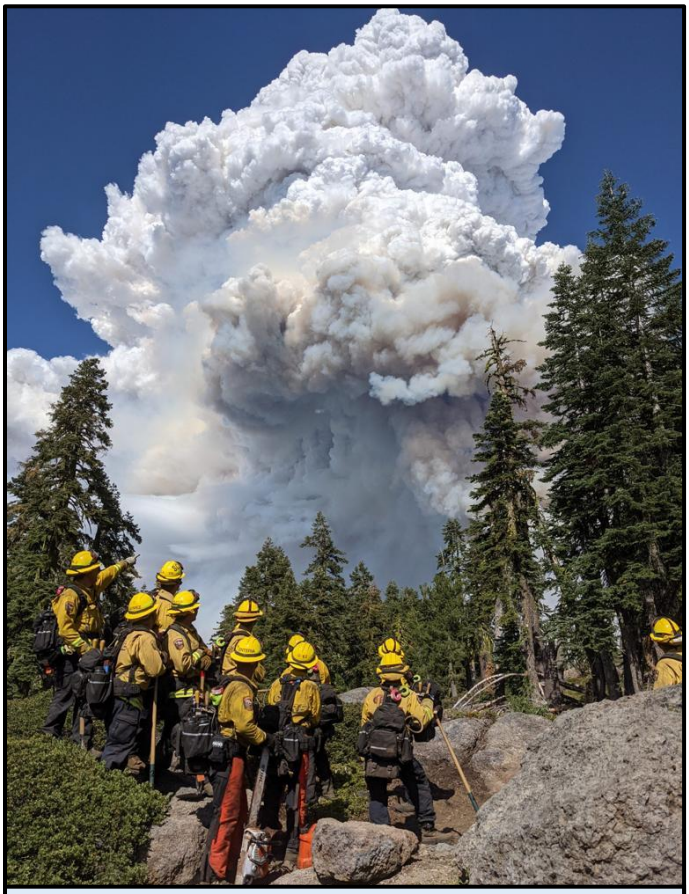
RESPONSIBLE DEPARTMENT(S):
Environmental Planning Unit, Environmental Mitigation and Monitoring Unit

COST Low | **STATUS** Expand | **TIME** Medium

PLAN ALIGNMENT: Invasive Plant Management Program, Safe Clean Water

GOAL 7 – Emergency Preparedness

Climate Change impacts to the community associated with emergency preparedness generally related to risks such as earthquakes, droughts, wildfires and floods in this region. Major elements of emergency preparedness are captured in Goal 7 strategies with key elements demonstrated below. See Table 1 for a full list of CCAP strategies.



Wildfire risk in California continues to grow with more extreme heat and extended drought conditions.

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Strategy S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).

6.2 .11. Coordinate with cities and the County of Santa Clara in development of a multi-jurisdiction hazard mitigation plan that addresses wildfire risk and other climate related impacts.

IMPLEMENTATION TASKS:

- Build on risk assessment accomplished for the 2017 Valley Water Local Hazard Mitigation Plan.
- Coordinate with cities and county.

FY2022/FY2023 PROGRESS UPDATE:

- In 2023, Valley Water is now partnering with the County of Santa Clara to determine what the county's jurisdiction methodology is in order to assist with risk assessing and overall management of hazard impacts on operations.

RESPONSIBLE DEPARTMENT(S):
Office of Emergency Services,
Office of Community Benefits,
Watersheds Stewardship & Planning

COST Low - Medium | **STATUS** New | **TIME** Short - Medium

PLAN ALIGNMENT: Related to discontinued action 10.2 of Local Hazard Mitigation Plan

Strategy S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).

7.1.2 Create, maintain and update Emergency Action Plans (EAPs) that include vulnerable areas and populations and anticipates higher severity and frequency of climate change impacts.

IMPLEMENTATION TASKS:

- Complete flood management plans/procedures (e.g. EAPs and annexes) based on risk priorities.

FY2022/FY2023 PROGRESS UPDATE:

- 2 new EAPs complete in FY2022, the Lower Peninsula Watershed EAP and the Palo Alto Flood Basin procedure.
- in addition to an existing 19 EAPs. These plans are developed for creeks and reservoirs in Santa Clara County to help coordinate with other agencies and proactively plan for disasters such as floods and earthquakes.
- Started in FY2023, the development of plans for Berryessa Creek and Lower Penitencia Creek is now taking place.

RESPONSIBLE DEPARTMENT(S):
Office of Emergency Services,
Office of Communications

COST Low | **STATUS** Expand | **TIME** Short

PLAN ALIGNMENT: Related to Local Hazard Mitigation Plan, Safe Clean Water F2

Chapter 3. Conclusion

This FY2022/FY2023 annual report for implementation of the CCAP captures key climate resilience milestones crossed since adoption of the CCAP in 2021. The updates demonstrate climate adaptation progress and documents achievements in a comprehensive and transparent manner. The extensive coordination across the agency, and willingness of staff to consider climate impacts and benefits of their work, clearly validate the agency's commitment to addressing present and future climate challenges.

A combination of green and grey infrastructure is needed in South San Francisco Bay to help protect shoreline communities against sea level rise and provide critical habitat for species.

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Table 4. High Priority Adaptation Actions

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	4.1.3 Collaborate on water reuse research projects.	Ongoing	Water Supply Planning (desal) Recycled Water Program	3. Perform a feasibility study of a desalination project located in Santa Clara County. 4. Expand use of recycled water.	1. Desalination feasibility study drafted. Staff is working with consultant to finalize the feasibility study. Once finalized staff will take to the Recycled Water Committee and potentially the BOD if directed. Feasibility study is focused on environmental issues related to the construction of a desal facility in the South Bay only. Planning level studies would follow if the BOD directs staff to do so. 2. Valley Water has continued efforts to expand water reuse by: collaborating with the City of Palo Alto to develop and construct purification facilities in Palo Alto to advance treat wastewater for indirect potable reuse at the Los Gatos Recharge System; working with the City of Sunnyvale to evaluate the applicability and timing of future non-potable and potable reuse opportunities in their city; partnering with San Jose to evaluate options to maximize wastewater reuse for non-potable reuse through South Bay Water Recycling and options for wastewater purification and future reuse through direct and indirect potable reuse opportunities in North County; and coordination with our South County partner agencies to maximize non-potable reuse in Gilroy and evaluate future water purification opportunities in the Cities of Gilroy and Morgan Hill.
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	4.1.4 Expand on-site reuse.	Expand	Water Conservation Programs (including landscape and graywater rebates)	1. Implement Safe Clean Water activities such as fire station water reuse. 2. Broaden participation in Valley Water's graywater program.	Engaged with fire stations in San Jose and Palo Alto to procure water-recycling trucks for training purposes known as "Pump Pods" through leveraging the Water Efficient Technology Rebate that offers up to $100,000 for qualifying project. No participation in FY22. Created a new Getting Started with Graywater Frequently Asked Questions document, and 11 successful graywater projects installed.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	4.1.5. Resolve regulatory challenges to innovative local water solutions and increase coordination on alternative water uses.	Expand	Direct Potable Reuse (DPR)	1. Continue to work on adoption of Model Water Efficient New Development Ordinance (MWENDO). 2. Continue to actively engage in state DPR regulation development.	1. Valley Water is updating the Ordinance in preparation for the upcoming 2025 building code adoption cycle. It is anticipated that revisions will include a supplemental provision to encourage cities and the County to prohibit irrigation of decorative, non-functional turf with potable water on CII sites within their jurisdictions. 2. Valley Water continues to work with State regulatory staff and interested stakeholders to further develop and refine direct potable reuse regulations to implement and expand water reuse in California. Draft regulations are expected Summer 2023, followed by continued regulatory development and public comment periods extending into next year, with state approved regulations anticipated in 2024.
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	4.1.7 Increase capture and infiltration of stormwater and floodwater. Implement green stormwater infrastructure projects to maximize runoff retention, including those identified in the Stormwater Resources Plans as having water supply benefits.	Expand	Stormwater Resource Plans Municipal Regional Stormwater Permit Annual Reports Flood Managed Aquifer Recharge (FloodMAR)	1. Identify areas with multiple Green Stormwater Infrastructure (GSI) benefits such as water supply, water quality improvements, and flood risk reduction, while also considering benefits to DACs. 2. Complete the FloodMAR planning study.	1. Reviewing stormwater resource plans for Santa Clara basin and South County for potential locations. 2. Valley Water is currently reviewing the draft FloodMAR study report from UC Water.
4	S4.1: Diversify local water supplies and expand drought-resistant water supply.	4.1.8 Expand collaboration with stormwater agencies and South County stormwater permittees on green infrastructure and stormwater infiltration to ensure groundwater quality is protected.	Expand	Stormwater Resource Plans Land use-water coordination Groundwater Management Plan	1. Review stormwater resource plans. 2. Carry out land use-water resource coordination with cities. 3. Monitor groundwater quality for any areas of concern.	1. Reviewing stormwater resource plans for Santa Clara basin and South County for potential project locations. 2. Water Supply Planning and Watershed Stewardship and Planning units met with 11 cities to discuss coordination of land use-water resources topics. Several cities interested in regular meetings to continue collaboration. 3. Annual groundwater monitoring indicates groundwater quality remained generally good in the principal aquifer.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
4	S4.2: Improve demand management and increase water conservation efforts.	4.2.4 Increase water conservation by methods such as encouraging climate appropriate landscapes.	Expand	Water Supply Planning and Conservation Agricultural Water Use Baseline Study Water Conservation Strategic Plan	Continue expanding Valley Water's conservation program. Additional tasks: Leverage the findings of the 2021 Water Conservation Strategic Plan to implement targeting marketing strategies to increase participation in disadvantaged communities, as well as multi-family, commercial, industrial, and institutional properties. Leverage the Online Shopping Cart and Fixture Replacement Program to increase indoor water-use efficiency. Consider developing pilot programs to evaluate the effectiveness of additional water conservation programs.	Final FY22 update: 80,078 AF conserved annually compared to a target of 109,000 AF by 2040. This is an increase over past years. Additional conservation updates include: – Increased lawn conversation rebate for low income households and veterans – Launch of the water conservation online shopping cart program – Fixture replacement program – Cost sharing program for advanced metering infrastructure (AMI) with water retailers
4	S4.4: Support efforts to maintain and enhance source water quality.	4.4.4 Enhance collaboration with wastewater agencies and publicly owned treatment works (POTWs) on source control and wastewater collection system maintenance to protect recycled water and groundwater.	Expand	Recycled Water Program/Purified Water (P3) – Palo Alto/Mtn View – San Jose	Continue planning for the Purified Water Project.	Staff continues to work with the City Palo Alto for the Purified Water Project to build an Advanced Water Purification Facility to produce 10 MGD of purified water and send it to the Los Gatos Recharge System in the City of Campbell. Staff is currently working with the City to draft and execute a lease agreement and O&M agreement and take these to the BOD in Q3 of CY2023.
4	S4.4: Support efforts to maintain and enhance source water quality.	4.4.5 Conduct outreach to the public on water reuse and source water quality.	Expand	Communications Community Engagement Water Supply Master Plan	Carry out communication campaigns.	Spring and Summer conservation campaigns Say Yes drought campaign
4	S4.6: Increase flexibility and resilience of water utility operations and assets.	4.6.1 Develop storage, recharge, and conveyance options that support climate change adaptation efforts and are climate resilient.	Expand	Water Conservation and Planning Imported Water	1. Continue the evaluation of Semitropic diversification approaches. 2. Complete a planning study on improving recharge at San Pedro Ponds. 3. Evaluate Lexington Pipeline.	1. Evaluating the out-of-county groundwater banking opportunities. 2. Tracking Semitropic planning efforts and State reporting. 3. Received draft San Pedro Ponds study report from consultant.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
4	S4.6: Increase flexibility and resilience of water utility operations and assets.	4.6.2 Develop asset management plans that incorporate climate change solutions and improve the reliability of aging water supply infrastructure.	Expand	Asset Management Operations & Maintenance Program	1. Develop climate change goals for water utility master plans. 2. In annual maintenance work planning, evaluate climate change needs for upcoming asset replacement and rehab projects.	FY22 - 0 asset management plans incorporate climate change. FY23 - 1 asset management plans will include climate change - Stevens Creek FY24 - 1-2 asset management plans will include climate change (District Wide Watershed Asset Management Plan and potentially one more creek) FY25 forward - New asset management plans in FY25 and after will incorporate climate change solutions to improve the reliability of aging water supply infrastructure, and to promote adaptation, resilience, and flexibility in flood protection assets.
4	S4.6: Increase flexibility and resilience of water utility operations and assets.	4.6.4 Increase resiliency to climate change impacts that create risks for operations and water utility assets, such as including small-scale mitigation and adaptation efforts in projects' O&M cycles.	Expand	Business Support and Asset Management	1. Consider goals for resilience in existing master plans. 2. Look for actions to increase resilience.	Tracking goals in existing master plans and looking for opportunities to increase resilience.
4	S4.6: Increase flexibility and resilience of water utility operations and assets.	4.6.5 Ensure that people, vehicles, and equipment can continue to access pipelines and other assets.	Ongoing	WU Maintenance	Inspections of structures that provide access are performed frequently and preventative maintenance repairs are conducted to ensure safe access is available.	Work is tracked in Maximo as needed.
4	S4.7: Support ecological water supply management objectives	4.7.2 Implement the Fisheries and Aquatic Habitat Collective Effort (FAHCE) operations and adaptive management to support fisheries' environmental conditions.	Ongoing	FAHCE	1. FAHCE Planning/Permitting. 2. FAHCE flow and nonflow measures implementation.	Regular updates provided through Stewardship Planning and Operations Committee.
4	S4.7: Support ecological water supply management objectives	4.7.3 Continue to participate in statewide environmental flows discussions.	Ongoing	FAHCE program	1. FAHCE Planning/Permitting. 2. FAHCE flow and nonflow measures.	Regular updates provided through Stewardship Planning and Operations Committee.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
4	S4.7: Support ecological water supply management objectives	4.7.4 Participate in joint efforts with our partner water agencies and other state and federal agencies to support ecosystem restoration, research, and science-based water management for the SWP and CVP.	Ongoing	Imported Water	1. Participate in state and federal workgroups for ecological adaptations to water supply operations. 2. Analyze and provide feedback on proposed state and federal actions.	Regular meetings discussing the feasibility of proposed state and federal actions.
5	S5.1: Minimize riverine flooding risks	5.1.4 Create natural floodplain areas, stream-upland transition areas, and upland buffers around streams locally.	Ongoing	NFP Partnerships such as VW-OSA partnership in Coyote Valley	1. Document climate benefits as a part of these efforts. 2. Document opportunities (coordination between One Water and CCAP).	The Guadalupe and Pajaro One Water Watershed Plans are in development, and will incorporate opportunities to coordinate with the CCAP.
5	S5.1: Minimize riverine flooding risks	5.1.5 Expand procedures to plan and design capital projects for long-term stream resilience, including defining lifetime costs, ensuring maintenance needs are defined and budgeted, ensuring documentation of mitigation and regulatory requirements and training.	Ongoing	Business Planning and Analysis Asset Management Watersheds O&M	Use SCW F8 workflow as a mechanism to ensure maintenance needs are met or larger issues are forwarded to Watershed Asset Rehabilitation Program or Capital Improvement Program so that infrastructure remains resilient.	SCW F8 has analyzed and prioritized over 85 creeks based on current conditions. A draft list of potential asset renewal projects and comprehensive asset management plans. A handful of projects may go into WARP and the others to be submitted into the CIP. Based on this analysis, F8 team prioritized Stevens Creek to be the first Asset Management Plan to be developed with a holistic and geomorphic approach in order to address multiple issues related to flooding and aging infrastructure. This AMP is to be completed by July of 2023.
5	S5.2: Minimize flood risk in coastal areas	5.2.1 Continue to seek partnerships and expand coordination to enhance fluvial and coastal flood protection projects, consistent with the Natural Flood Protection (NFP) procedures, such as the South San Francisco Bay Shoreline Study, SFEI's Resilient by Design, and the South Bay Salt Pond Project.	Expand	Shoreline Study South Bay Salt Pond Project (SBSP)	Share information with partners and receive information from partners on approaches to fluvial and coastal flood protection.	Shoreline Phase 1 - Reaches 1-3 levee in EIA 11 (Alviso) is under construction. Protects against coastal flooding, sea level rise. Shoreline Phase 2 - Continuing coordination with the Army Corps. The economic analysis suggests no near-term federal interest in a project as the area is protected by existing berms, Palo Alto Flood Basin, and concrete freeway barriers along Hwy 101 through 2060. Valley Water is working with the Corps to refine the analysis and potentially identify smaller projects with near-term federal interest. Shoreline Phase 3 - Feasibility Study is expected to begin in July 2023, and will evaluate the shoreline areas of Mountain View, Sunnyvale and Santa Clara.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
5	S5.2: Minimize flood risk in coastal areas	5.2.2 Continue work on capital projects and coordination with cities to address sea level rise related flooding risks.	Ongoing	Capital projects OTHER than Shoreline Study	Implement CIP projects and ensure they consider climate change impacts.	Capital flood protection projects after 2006 are incorporating measures of protection against sea level rise (up to 2 to 2.6 feet). Example projects include Shoreline Project, and flood protection projects on Permanente Creek, Lower Penitencia Creek, Berryessa Creek, Sunnyvale East Channel and Sunnyvale West Channel.
5	S5.2: Minimize flood risk in coastal areas	5.2.4 Design coastal and Baylands flood protection projects that respond to sea level rise (e.g.: restoring coastal/Baylands habitat, improving channel design and management as encouraged by SFEI Flood Control 2.0, etc.).	Ongoing	Calabazas and San Tomas Aquino Marsh Connection Project	Share information with partners and receive information from partners on approaches to fluvial and coastal flood protection.	Calabazas and San Tomas Aquino Marsh Connection Project has completed conceptual alternatives selection. By restoring the Pond A8 complex to tidal marsh, this project will provide a long-lasting, natural barrier between urbanized uplands and the bay, as well as provide wave damping during future coastal flood events. As long as there is enough sediment supply, this design will be resilient into the future. This project is moving forward along with the Shoreline project to provide protection against the high bay water levels from coastal events, however.
5	S5.2: Minimize flood risk in coastal areas	5.2.6 Install tidal gages to monitor and communicate rising sea levels.	Expand	HDMM Project	Track existing gauges, determine need for new gauges, install new gauges, and identify process for monitoring gauges.	New gauge was added on Sunnyvale East Channel at the location just south of Pond A4 where the channel makes an abrupt right turn. Stage only.
5	S5.2: Minimize flood risk in coastal areas	5.2.7 Ensure regional collaboration in rising sea level efforts by continuing engagement with regional efforts such as Adapting to Rising Tides, CHARG and their One Bay Plan.	Ongoing	Coastal Hazard Adaptation Resiliency Group (CHARG)	Document regional efforts Valley Water participates in, including Coastal Hazard Adaptation Resiliency Group (CHARG).	As a partner in CHARG, Valley Water has funded and collaborated on a technical white paper titled "Guidelines and Considerations for Modeling Sea-Level Rise Flood Hazards in San Francisco Bay". This report is currently being reviewed by CHARG members. VW also represented CHARG in BCDC's Bay Adapt process in the development of a joint platform for regional consensus-based strategies around rising sea levels (https://www.bayadapt.org/jointplatform/).
5	S5.3: Improve flood preparedness of people, property, and habitat.	5.3.3 Work with land use agencies to reduce vulnerability to flooding by minimizing development and prioritizing natural space in floodplains, such as through installing vegetated buffers along creeks and obtaining easements in priority areas for flood protection.	Expand	CPRU	1. Remind cities of guidelines and standards/encourage adoption. 2. Develop training/education. 3. Check in with cities through Land use-water meetings.	1. Community Projects Review Unit is informing external developers of the Guidelines and Standards for Land Use Near Streams with each review it carries out. 2. Presented a refresher on guidelines and standards at the Santa Clara County Association of Planning Officials. 3. FY2023 - In progress and coordinating with various cities.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
5	S5.3: Improve flood preparedness of people, property, and habitat.	5.3.4 Continue to enhance monitoring and/or maintenance programs for levees and flood walls, such as through collaboration with local agencies and training EOC staff about flooding risk areas.	Ongoing	Asset Management Emergency Action Plans HH&G Unit	Convey problem areas (locations not meeting level of service) from asset management review to emergency response teams for EAPs/external coordination.	Valley Water maintains a “hot spots” list of locations where flooding has repeatedly occurred and/or flooding risk is higher, which is updated periodically. This is used in our emergency operations during storm events. HH&G is working with our O&M group to refine vegetation maintenance practices, based on recent hydraulic model calibrations to high flow events (e.g., leveed reach of San Tomas Aquino Creek).
5	S5.4: Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.	5.4.2 Develop planning and design procedures that incorporate climate change solutions for climate related flood impacts.	New		Codify guidance on how to incorporate climate-related flooding (fluvial and tidal) into project planning and design.	Valley Water is considering two primary aspects for flooding and climate change: increased intensity flows and sea level rise. For SLR, capital flood protection projects (2006 and after) with tidal reaches accommodate a measure of sea level rise, typically up to about 2 to 2.6 ft for a 100 year flow event with coinciding 10 year coastal flood event. This includes the Shoreline Project and other assets near the Bay including the Silicon Valley Advanced Water Purification Center's expansion. For increased intensity flows Valley Water is investigating options to increase resilience and flexibility, including options such as building wider levee foundations (in levee reaches) or footings (for floodwall reaches).
5	S5.4: Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.	5.4.3 Develop asset management plans for flood protection assets that incorporate climate change solutions and promote adaptation, resilience, and flexibility.	Expand	Asset Management	Add section to asset management plans that discusses climate change.	FY22 - 0 asset management plans incorporate climate change. FY23 - 1 asset management plans will include climate change - Stevens Creek FY24 - 1-2 asset management plans will include climate change (District Wide Watershed Asset Management Plan and potentially one more creek) FY25 forward - New asset management plans in FY25 and after will incorporate climate change solutions to improve the reliability of aging water supply infrastructure, and to promote adaptation, resilience, and flexibility in flood protection assets.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
5	S5.4: Implement projects and plans to increase the flexibility and resilience of flood protection operations and assets.	5.4.8 Collaborate with local municipalities to incentivize green storm water infrastructure with benefits for flood attenuation.	New	Stormwater Resource Plans	1. Check in with cities through Land use water meetings. 2. Encourage cities to carry out green stormwater infrastructure (GSI) including in disadvantaged communities. 3. Plan in conjunction with FloodMAR.	1. Water Supply Planning and Watershed Stewardship and Planning units met with 11 cities to discuss coordination of land use-water resources topics. Several cities interested in regular meetings to continue collaboration. 2. Environmental Planning Unit coordinated with regional partners to evaluate mechanisms to promote and facilitate development of GSI "regional projects." 3. FloodMAR study with UC Water received and under review.
5	S5.5: Expand the use of flood forecasting and modeling tools in the planning and design of agency projects to maximize protection from flood risks.	4.6.3 Improve hydrologic forecasting to better adapt to changing hydrology and extremes.	New	H&H, Flood forecasting. Safe Clean Water F7	Reach a total of 35 operational forecast points.	Continued ongoing operations for the current forecast points and updated runoff modeling to improve accuracy. Also included new weather forecasting tools and forecasts.
5	S5.5: Expand the use of flood forecasting and modeling tools in the planning and design of agency projects to maximize protection from flood risks.	5.5.5 Continue coordination with stakeholders to enhance monitoring and/or maintenance programs for Valley Water assets, such as through expanding the use of rain and stream gauges to help identify areas at risk of overtopping or flooding during large storm events.	Expand	H&H	Perform outreach with external stakeholders who have flood knowledge, collaborate with internal stakeholders, upkeep and validate existing information and data.	Used flooding in 2022/2023 to validate and determine areas of existing and new risk. When new risks are identified, to memorialize and record.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
5	S5.5: Expand the use of flood forecasting and modeling tools in the planning and design of agency projects to maximize protection from flood risks.	5.5.6 Update and expand the implementation of Flood Risk Reduction Studies, which include hydrology, hydraulics, geotechnical and remapping work of floodplain.	Expand	H&H One Water	Hydraulic Modeling Updates: could include incorporating recent survey data into models, calibrating to recent storm high water marks/flooding footprints, creating floodplains for different sized storms to improve our understanding of risk, etc. Hydrology Modeling Updates: could include updating land use to recent or future conditions, performing new studies based on best, recent knowledge for urban hydrology, etc.	Updates include: 1D Steady Hec Ras models created that are based on all-new survey data: North and South Morey Creeks, Lions Creek, and Princeville drain. Progress on 2D Hec Ras modeling of floodplains: – Llagas watershed (Llagas Ck, Madrone Channel, Tennant Creek, West Little Llagas Creek & Bypass, East Little Llagas Creek). Completed – Upper Penitencia Creek Floodplain model- old model is being updated with new survey data & calibrated to 2023 high water marks. – Uvas Creek Floodplain Model - updated with 2020 county lidar and calibrated to 2023 high water marks.
6	S4.5: Implement source water improvement and water treatment actions.	4.5.4. Design and develop invasive species control strategies for Valley Water's facilities and conveyance structures that are specific to the target organism (e.g.: quagga and zebra mussels).	Expand	Valley Water's Dreissenid Mussel Prevention Plan Valley Water's quagga and zebra mussels monitoring program DWR's quagga and zebra mussels monitoring program Santa Clara County Parks and Valley Water Vessel Inspection Program Bay Area Regional Consortium Quagga and Zebra Mussels Coordinated Prevention Plan	1. Look for grant funding opportunity. 2. Install signage at Valley Water's reservoir related to "don't move mussel" and "no wet live bait". 3. Expand public education and outreach.	1. Conducted quagga zebra mussel monitoring in all Valley Water's reservoirs, BIF, and San Luis Reservoir per mussel prevention plan and no mussel was detected. 2. Completed annual quagga zebra mussel compliance report for CDFW. 3. Valley Water and County Parks received 1M funding from the California Department of Boating and Waterways for mussel prevention program. 4. Worked with Santa Clara County Parks and CDFW to develop signage related to "no move mussels". 5. In collaboration with County Parks, conducted public education and outreach (billboards, buss tail, Calero Water and Wags Festival).
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	5.2.3 Identify and pursue projects that increase the connectivity of coastal habitats and preserve the transition zone between the Bay's shoreline and streams' tidal zones, including wetland restoration and ecotone levees.	Expand	Calabazas/San Tomas Creek-Marsh Connection Project Pond A4 Resilient Habitat Restoration Project	1. Implement projects in CIP. 2. Look for grant funding opportunities.	1. Pond A4 was added to the Creek-Marsh Connection Project in Aug 2022 and currently conceptual alternatives that potentially connect Calabazas and STA to A8 Ponds, and Sunnyvale East/West Channels to Pond A4, are being explored. 2. The project submitted an application to the EPA SFWQIF Grant in 2022 and was awarded $3.8M but details of awards are subject to the grant agreement which is yet to be finalized.

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.11 Collaborate with land use agencies and municipalities to improve watershed and flood plain management and related goals and activities that increase climate change adaptability.	Expand	Community Projects Review Unit development review Land use-water meetings with cities	1. Check in with cities through Land use-water meetings. 2. Encourage cities to include protected areas in their General Plans.	New measure to be implemented in FY23/FY24. Held presentation for Santa Clara County Association of Planning Officials and emphasized how they can support water resource protection and stream stewardship n their general plans and policies.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.12 Improve operations to improve water quality for ecosystems, including by collaboration with land use agencies and municipalities.	Expand	Guadalupe Mercury TMDL Program	1. Collaborate with experts on studies to inform management actions to reduce mercury contamination in fish.	1. Collaborative agreement with UC Davis to study greenhouse gas emissions from reservoirs. Work in progress. 2. Collaborative agreement with UC Merced to study sorbents for Hg Control in Reservoirs. Work in progress. 3. Collaborative agreement with UC Santa Cruz to study atmospheric mercury deposition to reservoirs in approval process. 4. Collaborative agreement with UC Davis to study methylmercury production in Guadalupe Reservoir. Contract drafting in process.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.2 Continue to complete Integrated Water Resources Master Plans for each watershed as part of the One Water program.	Expand	One Water Plan	1. Incorporate climate change considerations and resilience via Objective E (climate change) in the One Water watershed plans. 2. Align One Water with CCAP.	1. Finalizing Objective E metrics for One Water and aligning with CCAP flagship metrics where feasible. 2. Draft list of watershed actions for Guadalupe and Upper Pajaro River Watersheds, with consideration of climate resilience.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.4 Develop asset management plans for ecosystem assets that incorporate climate change solutions such as adaptation, resilience, and flexibility.	Expand	Safe Clean Water Project F8 Sustainable Creek Infrastructure	1. Stevens Creek AMP – in progress 2. District-wide Watershed AMP update 3. Individual creek AMP's to be developed in future for creeks with systemic issues.	1. Stevens Creek AMP is in progress. At a high level, we have incorporated alternative management strategies to address current flood concerns, aging infrastructure, and channel instability. The plan will describe how sea level rise should be incorporated in future planning studies if creek were to be improved. Lastly, will also describe any channel work will be considerate of adequate fish passage/habitat. Therefore, we also incorporated an alternative strategy that considers using the reservoir for flood flow storage to reduce the amount of construction/impacts in the channel. 2. District-wide watershed AMP update to begin in July 2023 (FY24)

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.5 Monitor algal blooms in Valley Water's reservoirs and manage effectively using nutrient source reduction and/or in-reservoir treatment.	Expand		Consider development of a Harmful Algal Bloom (HAB) monitoring and response program for reservoirs.	1. Monthly water quality profiles including algal pigments (chlorophyll and phycocyanin) from Almaden, Calero, Guadalupe, and Stevens Creek Reservoirs. 2. Water quality profiles (Temp, pH, Turbidity, Fluorescence, DO, Conductivity) and cyanotoxin (Microcystin, Cylindrospermopsin, Anatoxin-A, Saxitoxin): year-round monthly at Calero and monthly between May and October at San Luis Reservoir.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.6 Implement habitat conservation and restoration activities, informed by climate-smart and climate-resilient best practices, throughout the watersheds Valley Water operates in.	Expand	Valley Habitat Plan Santa Cruz Mountain Stewardship Network Coyote Valley Conservation Master Plan One Water plans SCW Project D4 SCW Project D6 SCW Project D7	Prepare and submit business cases for habitat conservation and restoration activities that are identified in One Water and other relevant plans. Add restoration activities to CIP projects. Develop contracting pathways for restoration activities.	Implemented projects: – Hale Creek Pilot Enhancement Project – Singleton Road bridge replacement – Lower Penitencia creek wetland bench – Calera Creek inset floodplains – Evelyn and Bolsa fish passage remediation progress
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.7 Continue to utilize excavated sediment to create and rehabilitate habitat, including ecotone levees in coastal areas.	Ongoing	Stream Maintenance Program, South Bay Salt Pond Project D3	Determine ways to increase % of sediment reuse, including partnership with SFEI for EPA WQIF grant funds.	No reuse for FY22 at A8 Ponds as it didn't meet USFWS QAPP. Staff received Board approval to add Pond A4 Resilient Habitat Restoration Project to use A4 as alternate sediment reuse location. This project will expand sediment reuse opportunities to create more costal habitats and allow SMP sediment to be used to create habitat in Valley Water's own Pond.
6	S6.1: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.	6.1.8. Continue to protect the climate resiliency of open spaces with regional partners, such as through collaboration with the Valley Habitat Agency, the Santa Clara County Open Space Authority, and the Mid-Peninsula Regional Open Space District.	Ongoing	Valley Habitat Plan, Santa Cruz Mountain Stewardship Network	Maintain active collaboration, provide technical expertise, and provide funding to support climate adaptation in watershed lands	Board confirmation of Valley Habitat Plan Amendment process and cost allocation to include coverage of the Stream Maintenance Program (improves mitigation effectiveness). Provided funding and technical review for a countywide fine-scale vegetation map, completed March 2023. As a Steering Committee and founding member of the Santa Clara County Wildlife Corridor Technical Working Group, Valley Water collaborates with public agencies and nonprofit organizations to improve habitat connectivity. Partnering with the Valley Transportation Authority, Caltrans, and the Santa Clara Valley Habitat Agency, Valley Water will soon build a wildlife jump-out along US-101 in Coyote Valley, which will be the first in the Bay Area (estimated to be completed in summer 2023).

Goal	Strategy	Action	Status	Program/Plan/ Project Linkage	Implementation Actions	FY2022/FY2023 Progress
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.1 Establish political and legal mechanisms for mutually beneficial inter-agency programs, plans, and projects that restore regional ecosystems.	Expand	San Francisco Bay Restoration Regulatory Integration Team (BRRIT)	Participate in regional efforts and local partnerships to protect and restore ecosystems.	VW staff is engaged with the BRRIT on our Bay projects such as the Calabazas/San Tomas Creek Marsh Connection Project, as well as staying engaged with the Policy Management Committee on regional regulatory issues. Successful engagement with the RWQCB through our MOU process has continued this year and helped to resolve potential project issues.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.10 Avoid the spread of invasive species through prevention and removal efforts.	Expand	Valley Water Invasive Plant Management Program (IPMP)	1. IPMP (Invasive Plant Management Program). 2. EDRR (Early Detection Rapid Response).	A consultant team has been retained to develop the IIPMP (Integrated Invasive Plant Management Program) and EDRR programs. Program development began in FY22/23 with internal stakeholder engagement meetings, gap analysis, and gathering of background and technical information. Next steps include manual outline development and initiation of the CEQA process.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.13 Update Valley Water's Water Resource Protection Ordinance and Manual	Expand	CPRU	Expanding on work that the ROWUPP Capstone started by updating the WRPM protections for all Valley Water facilities.	FY23 - CPRU has compiled a list of current relevant criteria for uses of Valley Water right of way for each facility type. Preparing to send to SMEs for confirmation or update of existing criteria to be used.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.2 Continue to support and expand funding partnerships with regional land conservation and management agencies to promote landscape-scale habitat linkages and preserve conservation values.	Ongoing	SCW Project D7	Engage with conservation partners to discuss conservation planning opportunities on a regular basis.	Staff regularly met with conservation partners to identify opportunities to support acquisition of habitat lands and provide meaningful mitigation for project impacts, and initiated development of a MOU to disperse funds through Safe Clean Water Project D7.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.4 Implement actions related to ecosystem connectivity and resilience that are included in existing plans and programs	Expand	Valley Habitat Plan Regional Conservation Investment Strategy One Water Safe Clean Water Priority D FAHCE SGMA Groundwater dependent ecosystem (GDE) monitoring Stewardship and mitigation site monitoring	1. Track actions from plans and programs and propose for CIP, small capital projects, mitigation, and/or partner project as appropriate. 2. Continue to develop and/or update plans and programs to identify priorities for actions that can contribute to ecosystem connectivity and resilience.	Tracking connectivity through One Water - Coyote Creek Watershed Plan. Collecting data on habitat connectivity for Guadalupe and Upper Pajaro River Watershed Plans.

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6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.6 Improve aquatic habitat connectivity through the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) and other programs and projects.	Expand	Water rights	1. FAHCE Planning/Permitting. 2. FAHCE flow and nonflow measures implementation. 3. FAHCE adaptive management program (including monitoring program).	Regular updates provided through Stewardship Planning and Operations Committee.
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.7 Continue to move towards a geomorphic watershed approach when designing streams.	Expand	H&H Watershed Stewardship and Planning	1. Conduct studies to consider priority locations for gravel augmentation and large woody debris. 2. Conduct studies to consider priority locations for fish migration improvements.	Geomorphologic principles are being applied to many Valley Water projects. By considering these principles during the design phase, the hope is to build projects that are more resilient into the future. There are two county-wide studies underway to address the larger picture: 1. Phase 1 and Phase 2 (Phase 2 is being finalized) Countywide Studies of Major Streams to Identity Priority Locations for Gravel Augmentation and Large Woody Debris Placement. 2. Countywide Studies of Major Streams to Identify priority locations for fish migration impediments removal and installation of large woody debris and gravel as appropriate (study of Alamitos, Guadalupe and Arroyo Calero to be completed by FY26, Stevens Creek done in March of 2022) In addition, there are a number of projects in progress which incorporate geomorphic principles. For example: – Upper Penitencia Creek Study – Stevens Creek Asset Management Plan – Lower Llagas Flood Capacity Restoration – Evelyn Fish Passage Project
6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.8 Participate in statewide coordination on managing functional environmental flows in a climate-responsive manner.	Ongoing	Steelhead Regional Temperature Study	1. Implement Regional Temperature Study Work Plan.	Valley Water, in collaboration with the San Francisco Bay Regional Water Quality Control Board, is conducting a Regional Temperature Study to analyze available data, identify data gaps, and develop scientific studies that can be used to refine protective temperature evaluation guidelines to support cold freshwater, migration, fish spawning, and related beneficial uses of Central California Coast (CCC) steelhead. Phase 1 of study is underway, with Phase 2 to follow.

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6	S6.2: Develop and expand programs and plans that support more climate-resilient ecosystems.	6.2.9 Promote climate-smart planting, such as by coordinating with the Valley Habitat Agency to include climate-smart planting palettes in the Valley Habitat Plan.	Expand	Plant palettes developed for Safe Clean Water program Valley Habitat Plan	1. Develop one palette for residential and/or commercial use. 2. Develop one palette for natural landscape use (e.g.: restoration projects). 3. Coordinate with Valley Habitat Agency (VHA).	Point Blue Conservation Science has developed a climate smart restoration tool that provides site specific restoration plant palettes. VHA has used this in one implemented project (Pajaro River Agriculture Preserve, in cooperation with OSA) and two projects in planning stages (Pacheco, Davidson Property). VHA will not be developing specific palettes in the Valley Habitat Plan but will continue to utilize climate smart palettes in planting projects.
6	S6.3: Expand the availability of data in regional ecosystems in order to avoid detrimental climate change-related ecosystem impacts.	6.3.1 Continue and improve monitoring and land management activities to ensure preservation of conservation values throughout the county.	Expand	SCW D5 monitoring SCW D2 (future - early detection rapid response for invasives) Stewardship and mitigation site monitoring FAHCE aquatic habitat and temperature monitoring Partner organization monitoring and management programs	1. Continue and expand sharing of data that is required as part of permitting or Safe Clean Water KPIs, or already provided to the public (such as flow data). 2. Continue and expand monitoring of stream temperature. 3. Periodically analyze and report on compilation of monitoring data to present and understand trends and relationships to climate change.	Project D5 reference vegetation study database available to public. Project D5 watershed assessment reports available to the public. Flow data compiled and provided online. Water temperature and other biological monitoring data on EM-IMS.
6	S6.3: Expand the availability of data in regional ecosystems in order to avoid detrimental climate change-related ecosystem impacts.	6.3.6 Add depressional wetlands (ponds), lacustrine wetlands (vegetated margins of lakes and reservoirs), and tidal Baylands to ambient condition surveys conducted for the Safe, Clean Water Program's Project D5 (Ecological Data Collection and analysis.)	New	One Water D5 SGMA groundwater dependent ecosystem (GDE) monitoring	Assess ecological conditions and consider new assessments for depressional and estuarine habitats (including impacts from climate change).	No progress at this time. These assessments still need to be built into the long-term budget forecast for Project D5 if determined necessary.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	5.3.1 Use flood forecasts to collaborate on flood protection efforts such as watershed level Emergency Action Plans and flood warning systems, for vulnerable areas and populations (e.g.: homeless persons and disadvantaged communities).	Ongoing	Emergency Response Upgrades (SCW F7)	Convey forecasting info to emergency response teams for EAPs/external coordination.	Continued to improve on forecasting capabilities.

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7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.2 Create, maintain and update Emergency Action Plans (EAPs) that include vulnerable areas and populations and anticipates higher severity and frequency of climate change impacts.	Expand	Emergency Action Plans Safe Clean Water Program	Complete flood management plans/procedures (e.g.: EAPs and annexes) based on risk priorities.	2 EAPs complete: Added Upper Penitencia Creek (July 2022) to the Joint Emergency Action Plan. Completed the Lower Peninsula Watershed Emergency Action Plan (LPEAP) and added Palo Alto Flood Basin (July 2022).
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	6.2.11 Coordinate with cities and the County of Santa Clara in development of a multi-jurisdiction hazard mitigation plan that addresses wildfire risk and other climate related impacts.	New	Local Hazard Mitigation Plan	Risk assessment accomplished for the 2017 Valley Water LHMP.	In 2023, Valley Water is now partnering with the County of Santa Clara to determine what the county's jurisdiction methodology is in order to assist with risk assessing and overall management of hazard impacts on operations.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.1 Develop a centralized approach for data and projections (e.g.: preferred general circulation models (GCMs), representative concentration pathways (RCPs), downscaling methods, etc.) for use throughout Valley Water to assess, predict, and respond to climate change impacts.	Expand	CCAP	Review climate data and modeling methods incorporated into CCAP Vulnerability Analysis. Determine necessary updates and create a centralized source for relevant information.	Data review to occur in FY24.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.3 Improve staff training about responding to and addressing climate-related disasters.	Expand	Office of Emergency Services	Within the Office of Emergency Services, formal classes for cross functional teams, that support the EOC, are held periodically. In addition, training exercises are also periodically held which include local jurisdictions (e.g.: City of San Jose, City of Palo Alto, Morgan Hill, Gilroy).	In FY23 OES hosted 3 training courses offered by the California Specialized Training Institute (CSTI). • (G-775) EOC Mgmt. & Operations • (G-626E) Essentials in Action Planning • (G-191) ICS/EOC Interface These courses were offered March 13-17, 2023. Training exercises include Anderson Dam DENS drill/Action Plans for all reservoirs; Anderson Dam table top and full exercise (FERC). Lastly, a training workshop for the Guadalupe Flood Barrier was held with the City of San Jose and its multiple departments.

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7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.4 Improve communication to the public about climate-related disasters.	Expand	Office of Communications	1. Develop messaging to public focused on climate change impacts. 2. Develop messaging specific to DAC/underserved areas focused on climate change.	Valley Water's annual flood awareness campaign includes messaging on climate change impacts. Additionally, having endured consecutive years of being in a drought, Valley Water's annual water conservation campaign was expanded to further emphasize drier conditions and extreme weather related to climate change.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.6 Ensure assets are equipped to handle climate related emergencies such as increased heat.	Expand	Asset Management Program	1. Add section to asset management plans that discusses climate change.	FY22 - 0 asset management plans incorporate climate change. FY23 - 1 asset management plans will include climate change - Stevens Creek. FY24 - 1-2 asset management plans will include climate change (District Wide Watershed Asset Management Plan and potentially one more creek). FY25 forward - New asset management plans in FY25 and after will incorporate climate change solutions to improve the reliability of aging water supply infrastructure, and to promote adaptation, resilience, and flexibility in flood protection assets.
7	S7.1: Maximize Valley Water's emergency preparedness for climate related impacts (e.g.: from flooding, extreme heat events, fire, severe storms).	7.1.7 Continue engagement with the Santa Clara County Emergency Managers Association (SCCEMA).	Ongoing	Office of Emergency Services	1. Participate in meetings with SCCEMA.	Valley Water OES staff continues to participate in the monthly EMA meetings where inclement weather storms are discussed during season and information is shared from Valley Water's Hydrology Team as well as information on reservoir capacity status from Water Supply operations. In addition, the information sharing from the many other jurisdictions assists with planning and preparation and recovery as needed.

Valley Water

Clean Water • Healthy Environment • Flood Protection

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