



Funding Opportunity Announcement No. R22AS00023

**U.S. Bureau of Reclamation WaterSMART Grants:
Water Energy Efficiency Grant for Fiscal Year 2023**

SANTA CLARA VALLEY WATER DISTRICT

Conservation Savings For All

July 28, 2022

Applicant:

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Abbreviations

AF	Acre-feet
AFY	Acre-feet per year
CA	California
CEQA	California Environmental Quality Act
CPP	Coyote Pumping Plant
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
EPA	Environmental Protection Agency
ESA	Endangered Species Act
gpd	Gallons per day
gpf	Gallons per flush
gpm	Gallons per minute
gpy	Gallons per year
HET	High Efficiency Toilet
IRWM	Integrated Regional Water Management
kWh	Kilowatt-Hour
MFR	Multi-Family Residential
MHI	Median Household Income
NOE	Notice of Exemption
NRCS	Natural Resources Conservation Service
PPP	Pacheco Pumping Plant
Program	Conservation Savings For All Program

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PWRPA	Power and Water Resources Pooling Authority
Savings Model	Valley Water’s Conservation Program’s water conservation tracking model
SOR	System Optimization Review
SWP	State Water Project
USBR	US Bureau of Reclamation
UWMP	Valley Water Urban Water Management Plan
Valley Water	Santa Clara Valley Water District
WC Strategic Plan	Valley Water’s Water Conservation Strategic Plan, July 2021

1.0 TECHNICAL PROPOSAL AND EVALUATION CRITERIA

1.1 EXECUTIVE SUMMARY

Date:	July 28, 2022
Applicant:	Santa Clara Valley Water District
Location:	Santa Clara County, CA
Applicant Type:	Category A

The Santa Clara Valley Water District (Valley Water), located in Santa Clara County of California, will expand one of its water conservation savings programs that is designed to reach disadvantaged communities. Over three years, the \$4 million program will directly install 25,500 efficient indoor plumbing fixtures in multi-family residential units and other commercial properties. The Conservation Savings For All program (Program) is expected to reduce water demand by 495 acre-feet annually. By conserving water, Valley Water is able to reduce the need for future water supply investments and can reduce its reliance on imported water transfer supplies during droughts, including from the Central Valley Project (CVP) and State Water Project (SWP). Both benefits of water conservation will increase Valley Water’s energy efficiency since it will need to acquire and convey less water. The Program is widely supported by Valley Water and its 13 water retail agencies and is of regional significance.

The Program would run from July 1, 2022 to June 30, 2025, and is not located on a Federal facility.

1.2 PROJECT LOCATION

The Program is operated throughout Santa Clara County, California and managed by Valley Water located at 5750 Almaden Expressway, San Jose, CA 95118. The project latitude is 37° 14' 48.876" N and longitude is 121° 52' 28.9272" W.

1.3 TECHNICAL PROJECT DESCRIPTION

Valley Water is the primary water resources agency in Santa Clara County, California and serves 1.9 million residents, primarily through 13 water retailers. Like many water agencies across the State, Valley Water is severely impacted by this year’s extreme

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drought. With its ten reservoirs at historically low levels at a combined 22% of total available storage (Valley Water, 2022), and imported water significantly reduced, Valley Water has limited tools to ensure near-term water supply reliability for residents, businesses, and agriculture in Santa Clara County.

Valley Water has committed \$2 million to their existing Fixture Replacement Program over the next three years, which will directly install roughly 8,900 high efficiency devices including toilets, showerheads, and aerators in multi-family residential (MFR) units, and commercial, industrial, and institutional properties. In light of program popularity and high demand, this grant application requests \$2 million in supplemental funding to double the existing program's capacity so that twice the number of fixtures could be installed within the same time period. The expanded \$4 million program would be called the Conservation Savings For All program, which would have capacity to replace roughly 25,500 fixtures. The Fixture Replacement Program was selected for expansion for three key reasons: (a) it is highly impactful with high demonstrated water savings, (b) it has components targeting disadvantaged communities such as direct install approaches, near-full cost coverage, and eligibility requirements that include multi-family residential units, and (c) it can immediately benefit and expand from supplemental funding. From its inception in 2004 to August 2020, the Fixture Replacement Program has had a total of 1,747 participants in this program and replaced over 35,000 fixtures. Overall, it is estimated that this program has reached roughly 2.1% of eligible customers in the County. The Program is widely supported by Valley Water and its 13 water retail agencies and is of regional significance, as is shown by the Letters of Support in Appendix A.

Amidst the increasing aridification of California, reducing water demand through conservation is the first and most cost-effective measure that water agencies are relying upon to address a water shortage. Yet, conservation programs do not reach all ratepayers. Recent research that has found that low-income families, renters, and people living in multi-family residential units face barriers preventing their participation in water conservation programs across the nation, including the requirement for costs to be paid upfront before they can be reimbursed through a rebate (Pierce et al, 2021). Conservation programs are being redesigned to allow for direct installation of plumbing fixtures, turf, and other water saving devices, as a way to overcome this barrier. For lower-income residents, using less water has a dual benefit of increased water reliability and lower water bills, contributing to a better quality of life. To better support these goals and reduce barriers to entry, Valley Water is seeking to expand one of its well-established and ongoing water conservation programs designed to reach disadvantaged communities in its service area. This grant application requests \$2 million to supplement Valley Water's \$2 million commitment to the Fixture Replacement Program over the next three years.

First launched in 1992, Valley Water's existing suite of water conservation programs have transformed over time and continue to have a record of success. From 2012 to

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2020 alone, Valley Water spent \$47 million on nearly 20 different water conservation programs that use a mix of incentives and rebates, free device installation, one-on-one home visits, site surveys, and education to reduce water use countywide -- saving about 75,000 acre-feet per year (AFY) according to statistical evaluations and long-term modeling, which considers both active and passive savings. Valley Water's Water Supply Master Plan 2040 establishes the target to increase these savings to a total of 99,000 AFY saved annually in 2030 and 110,000 AFY saved annually in 2040. In 2021, Valley Water completed a Water Conservation Strategic Plan (WC Strategic Plan), which strategizes a plan to achieve these conservation goals (Valley Water, 2021a). Excerpts from the WC Strategic Plan are provided in Appendix B.

In developing their WC Strategic Plan, Valley Water found that the conservation programs are not equally accessed by the 1.9 million residents served by Valley Water. A detailed geospatial and demographic analysis (Figure 1) revealed trends in customer demographics among residential water conservation program participants -- specifically, trends related to household income, median age of household members, and whether the home occupants rent or own the property. The analysis showed that the majority of participants in most programs have been located in moderate to high income areas (up to 51%), and the lowest overall participation has been in very low-income households (1.3 to 14%). Consistent with recent research (Pierce et al, 2021), direct-install and free distribution programs have had higher participation rates by low-income households compared to rebates or other types of conservation incentive programs. Lessons from this analysis will be directly applied in the Conservation Savings For All program.

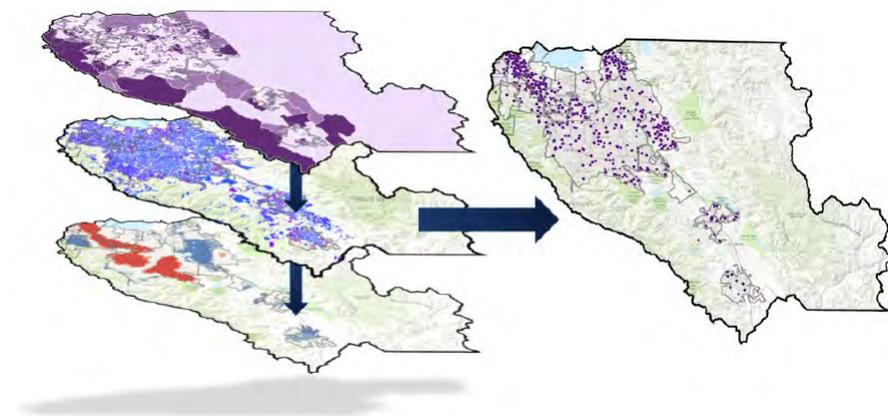


Figure 1-1. Layering Customer Characteristic Data to Understand Participation, source: WC Strategic Plan (Valley Water, 2021a).

Beyond a clear need for this expansion in program offerings, there is also demand from Valley Water's 13 water retail agencies for a program targeting disadvantaged communities. A 2020 survey of Valley Water's retail agencies found a high desire for Valley Water to expand conservation programs to disadvantaged communities. Unfortunately, Valley Water's existing portfolio is already overcommitted and cannot meet this demand. Since Spring 2021, participation across several high-profile

programs has been at historically high rates, including a 260% increase in participation in the popular Landscape Rebate Program. The high demand from the public has put a strain on the \$6.2 million that Valley Water commits annually to its suite of conservation programs, which expand beyond the conservation program included in this application.

With the supplemental funding from this grant, Valley Water can better leverage existing resources to achieve permanent water conservation savings for all residents and, in turn, increase the county's drought resiliency and water supply reliability. Saved water would improve water reliability and may reduce reliance on imported water from the SWP (currently at 5% of contract amount) and the CVP (currently at 0% of contract amount, Valley Water 2022).

1.4 EVALUATION CRITERIA

E.1.1 Evaluation Criterion A – Quantifiable Water Savings (28 points)

1) Describe the amount of estimated water savings

The proposed program is estimated to save 495 AFY by replacing 25,500 indoor plumbing fixtures.

2) Describe current losses

Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Inefficient indoor plumbing fixtures cause excess indoor potable water use. Excess water is collected by sewage infrastructure and flows to one of four wastewater treatment plants in Santa Clara County. Treated water is eventually discharged into the ocean or reused for nonpotable reuse.

If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use? Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?

Potential benefits associated with excess and inefficient household water use is limited. Excess potable water use resulting from inefficient plumbing fixtures is transmitted to one of four wastewater treatment plants within Santa Clara County. This results in higher capacity requirements for the sewage collection infrastructure and treatment infrastructure, as well as increased wear and tear. A portion of wastewater is reused for non-potable purposes such as irrigation and cooling towers, currently at a volume of 18,000 AFY but estimated to increase to 42,000 AFY in 2040, which may include potable reuse, according to a 2021 Countywide Water Reuse Master Plan (Valley Water

2021b). All remaining wastewater is discharged to either the ocean or percolation ponds depending on the location in the County. In North County, effluent is discharged to the San Francisco Bay. In the South County in dry months, effluent is discharged to percolation ponds while in rainy months, it is discharged to the Pajaro River and eventually reaches Monterey Bay (Valley Water, 2021b).

3) Describe the support/ documentation of estimated water savings

Valley Water continually tracks progress towards its water conservation savings targets using a custom, Excel-based model built from a national model, referred to as the Savings Model. The Savings Model quantifies savings using inputs of population, employment, building types, efficient fixture saturation, peer-reviewed study results, and pilot program results. Many of its savings values are sourced from studies by A&N Technical Services, which use robust fixed-effects structural models of water use that control for customer heterogeneity, weather, and changes in water use over time that are unrelated to turf replacement to estimate mean treatment effects. For some savings estimates, including those for lawn conversion and plumbing fixture replacement, Valley Water has confirmed A&N values using pilot studies in their service area. Indoor fixtures that are certified through the U.S. Environmental Protection Agency (EPA) WaterSense program also rely on the savings estimates from the EPA.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

This project includes installment of high-efficiency indoor appliances and fixtures (type #6). The answers to the questions under Type #6 are given below.

Type #6: High-Efficiency Indoor Appliances and Fixtures

6a. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

The existing Fixture Replacement Program directly installs a variety of efficient devices. Annual water savings for these fixtures are provided below and summarized in Table 1-1. The savings values for these were largely based on peer-reviewed studies from California (M.Cubed 2018a, 2018b). To confirm peer-reviewed study data within their service area, Valley Water has conducted two pilot studies. The first was conducted from July 2007 to May 2011 to evaluate the replacement of 5,000 high-volume toilets (3.5 and 5.0 gallons per flush, gpf) with High Efficiency (HE) toilets (1.28 gpf or lower) in multi-family residential and commercial properties in Valley Water's service area (Koeller 2012). The study found an average daily water savings of 40 gallons per day (gpd). Valley Water conducted a second pilot study in February 2020 to evaluate savings from replacing 1.6 gpf toilets with even higher efficiency (0.8 gpf) toilets. The pilot replaced fifty-nine (59) 1.6 gpf toilets with Ultra High Efficiency (Ultra HE, 0.8 gpf) toilets for MidPen Housing's Maryce Freelen Apartments in Mountain View, California.

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The pilot identified a savings of 7,215 gallons per year (gpy) per toilet, or 19.7 gpd. However, in Valley Water’s service area, inefficient 3.5 gpf or greater toilets are likely to co-exist with older 1.6 gpf toilets in the same building. Replacing a 3.5 or 5.0 gpf toilet with a 0.8 gpf toilet could potentially save up to 59.7 gpd (40 gpd + 19.7 gpd) in Valley Water’s service area. Thus, the Savings Model estimates savings of 47 gpd per toilet, which is one standard error above the M.Cubed 2018a and 2018b estimate.

Table 1-1. Water savings from indoor fixtures through the Fixture Replacement Program.

Item Name (Program ID in Savings Model)	Per item savings (gpd)	Justification
Ultra HE Toilet, MFR (Program ID 4)	45	The default value in the AWE Conservation Tracking Tool given average number of multi-family persons per household equal to 2.6, per CUWCC (2005).
HE Toilets, MFR (Program ID 6)	47	Based on M.Cubed (2018a and 2018b) and A&N Technical Services (2013), which evaluated savings from direct installs in multi-family residential units in multiple water districts throughout California. The mean savings estimate from these studies was 39 gpd with a standard error of 7.8 gpd. Valley Water’s service area has higher gpf toilets and thus would be expected to generate somewhat higher savings. The estimate is set one standard error above the M.Cubed 2018a and 2018b estimate.
Residential Low Flow Showerhead, MFR (Program ID 8)	7.4	The EPA WaterSense Guidance uses a savings of 7.4 gpd. M.Cubed (2018a and 2018b) estimated direct installation of showerheads to save 12.6 gpd with a standard error of 2.7 gpd. The lower EPA WaterSense estimate was used in these calculations.
Lavatory faucet aerators (Program ID 23)	1.6	M.Cubed (2018a and 2018b) estimated savings from direct installation of faucet aerators to be 3 gpd with a standard error of 2 gpd. EPA WaterSense estimates savings of 700 gpy or 1.9 gpd from replacing inefficient faucets and aerators. A value of 1.62 gpd was used as a lower estimate, based off the experience of Valley Water staff.
Kitchen faucet aerators (Program ID 23)	1.6	M.Cubed (2018a and 2018b) estimated savings from direct installation of faucet aerators to be 3 gpd with a standard error of 2 gpd. EPA WaterSense estimates savings of 700 gpy or 1.9 gpd from replacing inefficient faucets and aerators. A value of 1.62 gpd was used as a lower estimate, based off the experience of Valley Water staff.
Kitchen pre-rinse sprayers (Program ID 16)	77	Mean savings rate from eight empirical evaluations summarized by California Water Efficiency Partnership (http://toolbox.calwep.org/wiki/Pre-Rinse_Spray_Valves).
Piston Style Ultra- High Efficiency Urinal (Program ID 12)	17	Per Koeller (2005). A plausible range for savings would be (1.5 gpf – 0.5 gpf) x 15-20 flushes per day = 15 to 20 gpd savings.
Urinal Flush-Valve Retrofit (Program ID 12)	17	Per Koeller (2005). A plausible range for savings would be (1.5 gpf – 0.5 gpf) x 15-20 flushes per day = 15 to 20 gpd savings.

Table 1-2 shows the tabulation of total water savings for the program. The program budget was divided proportionally according to program goals, feasibility, and vendor capacity (Column A). Roughly, for every ten toilets installed (either Ultra HE or HE), the

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program can install nine to ten showerheads and lavatory aerators. Budget proportions proportion was multiplied by the total \$4,000,000 budget available to get a per-item budget (Column B). The cost for each item has been identified for the 2022 year, according to Valley Water’s 2022 programming (Column C). The total per-item budget (B) was divided by the cost per item (C) to calculate the quantity of items that would be installed by the program (Column D). Per-item water savings (Column E, justified in Table 1-1 above) was then multiplied by the quantity of items to get the total water savings over the three years of the program, converted to AFY (Column F).

Table 1-2. Tabulation of water savings by item over the three-year program.

Item Name	(A) Portion of total budget	(B) Budget	(C) Cost per item ^[1] (2022)	(D) Quantity of items	(E) Per item savings (gpd) ^[2]	(F) Total savings (AFY)
Ultra HE Toilet, MFR	45%	\$1,800,000	\$455.00	3,956	47	208.3
HE Toilet, MFR	40%	\$1,600,000	\$455.00	3,516	45	177.3
Residential Low Flow Showerhead, MFR	7.5%	\$300,000	\$41.47	7,234	7.4	60.0
Lavatory faucet aerators	3.0%	\$120,000	\$17.44	6,881	1.62	12.5
Kitchen faucet aerators	1.5%	\$60,000	\$17.44	3,440	1.62	6.2
Kitchen pre-rinse sprayers	1.0%	\$40,000	\$125.82	318	77	27.4
Piston Style Ultra-High Efficiency Urinal	1.0%	\$40,000	\$920.33	43	17	0.8
Urinal Flush-Valve Retrofit	1.0%	\$40,000	\$357.16	112	17	2.1
TOTAL	100%	\$4,000,000		25,500		494.6
<p>[1] The unit costs of each fixture include the cost of installation. See Appendix C for cost breakdown. [2] Calculations multiply water savings in gpd by 365 for annual savings, then divides by 325,851 gal/AF.</p>						

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6b. What types (clothes washers, shower heads, etc.) of appliances and fixtures will be installed and what quantity of each?

Item types are provided in Table 1-3. Item quantities were provided above in calculating total water savings but are provided again for ease of viewing.

Table 1-3. Types of indoor fixtures replaced through the Fixture Replacement Program and quantity that will be included in the expanded program under the Conservation Savings For All program.

Fixture Type	Flow Rate/Flush Volume	Make and Model	Quantity
Ultra HE Toilet, MFR	0.8 gpf or lower	SSI-No Clog Point 8 -Bowl-301302W/Tank-301300W	3,956
HE Toilets, MFR	1.1 gpf or lower	SSI-No Clog Point 8 -Bowl-301302W/Tank-301300W	3,516
Residential Low Flow Showerhead	1.8 gallons per minute (gpm) or lower	Niagara Earth Ma–sage - N2915CH	7,234
Lavatory faucet aerators	1.0 gpm or lower	Neoperl - #14-8200	6,881
Kitchen faucet aerators	1.5 gpm unless noted as lower	Neoperl - #10-6200	3,440
Kitchen pre-rinse sprayers	1.15 gpm or lower	Multiple available. WaterSense certified: https://www.epa.gov/watersense/pre-rinse-spray-valves	318
Piston Style Ultra-High Efficiency Urinal	0.125 gpf or lower	Sloan SU-1009/GEM-2 186.0.125XL	43
Urinal Flush-Valve Retrofit	0.5 gpf or lower	Sloan –rown - 186-0.5	112

6c. Have studies been conducted to verify the existence of non-efficient appliances and fixtures? Provide published water savings rates for each of these devices and reference the source for each of the device savings rates.

In 2021, Valley Water analyzed building age, saturation rate of efficient fixtures, and the average replacement rates of fixtures. The results estimated that there are 83,190 customers with outdated fixtures in eligible multi-family residential units in the County, but to date only 1,747 had participated in the program. This means that only 2.1% of eligible customers had participated in the program to-date and that 97.9% remain unreached in the County ((Valley Water, 2021a). By doubling the Fixture Replacement Program budget over the next three years, the Conservation Savings For All program would double the number of these customers that could be reached.

6d. Will the devices be installed through rebate or direct-install programs?

Devices are installed through direct-install programs, meaning there is no upfront cost to the participant. The steps followed to participate in the program are as follows:

1. Vendor conducts a pre-inspection and must test flow rates of at least 10% of the faucets, showerheads, and toilets. Vendor prepares an estimation of number of fixtures to replace and prepares a participation agreement.
2. Participation agreement is reviewed and signed by property manager. Agreement is submitted to Valley Water.
3. Valley Water evaluates site eligibility using three criteria: the site must (a) be located in Santa Clara County; (b) be classified as a multi-family residential unit consisting of 5 or more units, or Commercial, Industrial, or Institutional properties; and (c) have qualifying fixtures above the water use rates stipulated in the contract. In addition, sufficient budget must be available. One quarter of the annual budget is authorized each quarter of the fiscal year to avoid oversubscription.
4. If site meets eligibility criteria and budget is available, the site is accepted, and work is authorized.
5. Vendor conducts work and submits invoice to Valley Water.

6e. How will actual water savings be verified upon completion of the project?

The number of each fixture type installed will be continuously tracked by Valley Water's Water Conservation Program Team through an established system of invoicing and tabulating savings. Savings will be totaled upon completion of the program.

E.1.2 Evaluation Criterion B – Renewable Energy (20 points)

Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

The proposed program will not directly establish or utilize a new renewable energy source. Santa Clara Valley Water, however, aims to reduce greenhouse gas emissions from its operations, improve energy efficiency, and expand the use of renewable energy sources. As identified in the Valley Water Climate Change Action Plan, about 95% of Valley Water's purchased energy is provided by the Power and Water Resources Pooling Authority (PWRPA), a Joint Powers Authority that provides energy from utility-scale solar projects and hydroelectricity. Valley water aims to reduce emissions in other aspects of its environmental footprint as well, including during project planning, design, maintenance, conveyance, etc.

Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

Valley Water has a large network of water infrastructure that includes three water treatment plants, an advanced recycled water purification center, three pump stations, recharge facilities, and 142 miles of pipeline. This water infrastructure is used to pump, treat, convey, and deliver water to end users, and energy is consumed at each stage of the water supply process. Energy intensity along each step of the process was characterized in Valley Water's 2020 Urban Water Management Plan (Valley Water, 2020).

The 495 AFY of water conserved with this project would reduce groundwater pumping, use of other potable sources, and potentially reduce reliance from imported sources. Reducing reliance on imported water reduces energy used for water conveyance, treatment, and distribution.

Conveyance includes the pumping of imported water from the State Water Project and the Central Valley Project in addition to the conveyance to the treatment facilities. Valley Water used 26,369,000 Kilowatt-hour (kWh) in 2020 to convey 120,406 AF of water (Valley Water, 2020). The energy intensity for Conveyance is 219 kWh/AF. Energy intensity calculations excluded 20.8% of the total water pumped at Pacheco Pumping Plant which is diverted to San Benito County.

Treatment includes the energy to treat water at Valley Water's three water treatment plants and includes metered utility data for offsite processes (i.e., drying beds) where applicable. Water pumped within each treatment plant to its treated water reservoir or to adjacent retailer reservoir is included in the Treatment process metered energy data and has been omitted from the Distribution process energy approximation. The Treatment water volume data is for water production which is slightly lower than the total raw water delivered to the water treatment plants (filter to waste, etc.). The energy intensity for Treatment is 104 kWh/AF (Valley Water, 2020).

Distribution includes the piping of treated water to taps, which is typically gravity-fed but requires some power for controls, valving, monitoring, etc. Energy data to distribute treated water is not readily available. The distribution process energy data is approximated based on the total utility metered energy data for all Valley Water remote electrical services. The energy intensity for Distribution is 2.1 kWh/AF (Valley Water, 2020).

Table 1-4. Energy intensity of each step of water service delivery in the Valley Water system (Valley Water, 2020).

Step	Energy intensity (kWh/AF)
Conveyance	219
Treatment	104
Distribution	2.1
TOTAL	307.1

The total energy intensity of imported water is 307.1 kWh/AF. With 495 AFY saved from the Conservation Savings For All program, the corresponding reduction in energy would be 151,833 kWh/year or 0.15 MWh/year. The national weighted average carbon dioxide marginal emission rate for delivered electricity in 2019 was 1,562 lbs CO₂ per MWh, which accounts for losses during transmission and distribution (EPA, 2020). At this rate, a corresponding reduction in emissions would be 237 lbs of CO₂ per year.

Valley Water has an Energy Optimization Plan that guides its efforts to promote energy efficiency in all its operations by establishing Energy Optimization Measures (EOMs). EOMs call for replacement of outdated and inefficient equipment, retrofitting of facilities, and reliability improvements to ensure that Valley Water uses energy as efficiently as possible.

E.1.3 Evaluation Criterion C – Sustainability Benefits (20 points)

Enhancing drought resiliency

Does the project seek to improve ecological resiliency to climate change?

Numerous studies on climate and water in California have been conducted to determine the potential impacts of climate change on its water and ecological systems. Based on these studies, climate change is likely to result in various types of impacts on Valley Water’s Water Utility System. Selected impacts include changes in the quantity, timing, intensity, and annual variability of precipitation, increased incidences and intensity of wildfires that could degrade water quality, sea level rise and riverine flooding, increased storm intensity and flooding, and increased temperatures. The foregoing is not an exhaustive list of the potential impact of climate change on Valley Water’s operations.

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Such changes, among others, could affect the Water Utility System's water source reliability as well as water utility assets.

These impacts have ecological implications. Earlier snowmelt and more precipitation falling as rain is anticipated to cause higher temperatures in lakes and reservoirs, leading to increased evaporation rates, potential algae blooms, and harmful conditions for fish and wildlife. Sea level rise may cause saltwater intrusion to vital freshwater supplies and habitats, and a higher frequency of wildfires may cause decreased water quality, impacting aquatic ecosystems.

While this project does not directly address water quality and shifts in precipitation patterns, it does support water efficiency. An efficient water service delivery system can be more resilient as it is able to provide water reliably to its customers in years where water is scarcer, such as in drought years. This helps ease the stress on freshwater sources, preserving the natural conditions and volumes of lakes and reservoirs essential for ecosystem resilience. The Conservation Savings For All program will improve water efficiency and reliability.

[Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits \(e.g., maintaining water temperatures or water levels\).](#)

Valley Water serves local water agencies within Santa Clara County California. The County's water supply comes from a mix of local sources making up about half of the water supply and imported sources making up the other half. Imported sources include contract supplies from the California Department of Water Resources SWP and Reclamation's CVP, as well as retailer's contract supplies delivered by the San Francisco Public Utilities Commission. Local water sources include natural groundwater recharge and surface water supplies, as well as locally generated recycled water supply.

Water reliability has benefits of greater water supply, healthier ecosystems, and greater potential for recreation, reduced need for water storage, and reduced demand. These benefits can also positively impact the broader economy and job creation. The Association of Bay Area Governments anticipates that the County's jobs will increase from 1.1 million in 2015 to 1.3 million in 2040 (ABAG, 2018).

As the water savings achieved by the Program can reduce reliance on imported water, which may include the CVP, this Program has broader impacts beyond the County. The CVP is a complex network of dams, reservoirs, canals, hydroelectric plants, and other facilities that supply water to major urban centers, produce electrical power, provide aquatic ecosystems, and offer recreational opportunities (Water Education Foundation, n.d.). This network stores and distributes about 20 percent of California's developed water and is a great contributing factor in making the Central Valley the richest agricultural region in the nation. Being such a large contributor to the water supply in the

region, the CVP faces challenges. There is disagreement statewide over how to address the needs of agriculture versus the needs of a growing population, which is exacerbated by drought conditions and climate change. The Chinook salmon population has also decreased significantly in the Sacramento and San Joaquin River basins since the late 1980's, prompting the need for a restoration of water flow.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

Within the Sacramento and San Joaquin River basins, populations of Chinook Salmon have declined significantly since the 1980's (Water Education Foundation, n.d.). In 1989, the winter-run of Chinook Salmon was listed under the state and federal ESA, and the spring-run of Chinook Salmon was listed in 1998 (Yoshiyama et al., 1998). Chinook Salmon populations suffer due to various activities within the region, including overfishing, blockage and degradation of streams, and reduction of stream flows and water diversions. Despite mitigation efforts as part of the CVP, including fish screens, diversion canals, and fish-protection projects, these populations remain to be threatened. By conserving water and reducing water reliance from the CVP, this project has the potential to benefit Chinook Salmon and other threatened species that depend on greater water flows.

Please describe any other ecosystem benefits as a direct result of the project.

The water conserved by the proposed program may indirectly provide ecosystem benefits in the area by reducing demand and allowing for greater streamflow.

Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

Climate change may result in increased water demand and overall decreased water supply reliability, meaning that efficient management of water is of utmost importance. Figure 1-2 shows the distribution of urban water use from retailers by customer class. Residential water use makes up a significant portion of this distribution and offers a major area for improvement in efficient water supply management. Reductions in residential water use offers the potential to significantly reduce water consumption in the county overall. This would increase efficient management by reducing groundwater pumping and use of other potable sources and potentially reduce reliance from imported sources, including the CVP.

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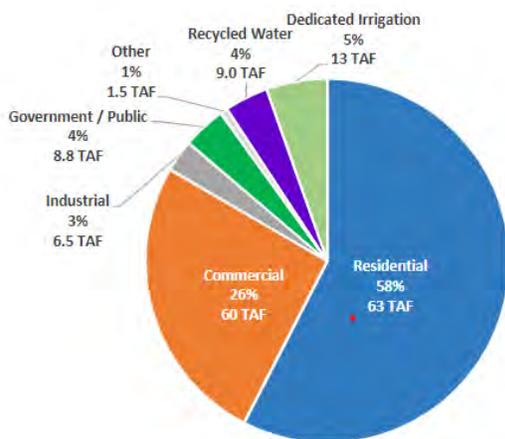


Figure 1-2. Urban water uses in Santa Clara County.

Addressing a specific water and/or energy sustainability concern(s)

Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

Valley Water staff is conducting specific studies into a few of the issues above to look at climate change-related water supply risks and uncertainties into the late 21st century. Staff is evaluating risks and uncertainties related to climate-change impacts on water demand, evaporative losses, volume and timing of reservoir inflow, and imported water reliability. Preliminary results indicate that climate change may result in increased water demand and overall decreased water supply reliability.

Valley Water currently projects demand to be approximately 335,000 AFY by 2040, compared to 310,000 in 2020 (Valley Water, 2020). As a result of Valley Water’s water conservation efforts since 1992, overall water use in the county has decreased 8% over the past 15 years despite a 25% increase in population (Valley Water, 2020). To ensure water supplies continue to remain reliable, Valley Water has a target to conserve 99,000 AFY by 2030 and 109,000 AFY by 2040.

Due to extremely dry conditions, local watershed runoff was substantially limited in the 2020 and 2021 water years. Compounding the situation, the Federal Energy Regulatory Commission has ordered Anderson Reservoir to be drained to deadpool for seismic vulnerability concerns¹ and will not be available as a surface water storage for the next

¹ <https://www.ferc.gov/dam-safety-and-inspections/anderson-dam#:~:text=Further%2C%20we%20directed%20SCVWD%20to,over%20the%20next%207%20months.>

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ten years. Anderson Reservoir is Valley Water's largest surface water reservoir which stores more than all of Valley Water's other nine reservoirs combined. This order significantly limits Valley Water's ability to store water locally for groundwater recharge and water treatment plant supplies for the foreseeable future. As of July 2022, Valley Water's ten reservoirs were at historically low levels of combined 22% of capacity (Valley Water, 2022).

Santa Clara County relies heavily on imported water to supplement local water to supply its drinking water treatment plants, replenish the local groundwater basins, and prevent adverse community impacts, such as the return of historic overdraft and land subsidence in northern Santa Clara County. Imported water accounts for about half of Valley Water's total supply but was at 5% allocation for SWP and 0% allocation for CVP Municipal & Industrial water and 0% percent for Agricultural water as of July 2022 (Valley Water, 2022). Both the State Water Project and U.S. Bureau of Reclamation have allocated Valley Water with emergency public health and safety water supplies (Valley Water, 2022).

If drought conditions and limited imported water supplies continue, and additional water use restrictions are not enacted, in the worst-case scenario, it is possible that groundwater could drop to the "Severe" stage. Prolonged or extreme groundwater overdraft can increase the risk of resumed land subsidence in northern Santa Clara County; wells going dry in areas of the County where groundwater is the sole source of drinking water; and insufficient supplies to meet demands for human consumption, sanitation, and fire protection.

[Explain and provide detail of the specific issue\(s\) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.](#)

Santa Clara County's Sustainability Master Plan details sustainability challenges in the county as well as goals and targets for achieving a sustainable future (Santa Clara County, 2021). As the Bay Area's most populous county, Santa Clara County may face challenges in identifying sources of sustainable energy. With a large population influx, the effective management of energy (alongside other resources like water and food) is beneficial in ensuring a prosperous future (Santa Clara County, 2021).

Beyond Valley Water, Santa Clara County as a whole is making great strides in promoting sustainability and a future with reliable energy. Santa Clara County has helped launch Silicon Valley Clean Energy, which supports renewable energy and electricity cost savings to residential and business customers across thirteen Silicon Valley communities. The County has also completed a countywide climate change vulnerability assessment to ensure that sustainability issues are addressed equitably.

One of the County's central targets in the Sustainability Master Plan is its commitment to carbon neutrality by 2045. A central part of this target is its goal is powering County

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facilities and operations with 100% renewable energy. This goal is particularly relevant to Valley Water’s operations and this project.

Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

Importing, conveying, treating, and distributing water to households all require energy. As identified in the Santa Clara County Sustainability Master Plan, reducing residential water use is an important step in both ensuring sufficient water supplies and in reducing energy consumption and greenhouse gas emissions. Compared to other ways of meeting water demand, such as advanced water reuse, desalination, or importing water from elsewhere, reducing residential water use is far less energy intensive.

By conserving water and reducing the reliance on imported water sources, this project directly contributes to Santa Clara County’s goal of reducing water use by at least 20% relative to a 2013 baseline by 2025 (Santa Clara County, 2021) and Valley Water’s call for 15% savings relative to 2019.

Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

Valley Water’s water supply comes from a range of sources, including local surface and groundwater, recycled water sources, and imported water sources. The distribution of Valley Water’s water sources can be seen in Figure 1-3. The water conserved with this project would reduce groundwater pumping and use of other potable sources and potentially reduce reliance from imported sources, including the CVP.

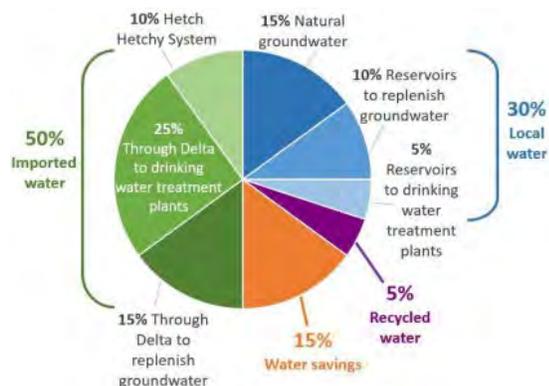


Figure 1-3. Urban water sources in Santa Clara County.

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Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

No action is required to allow the saved water to remain in the CVP and the SWP.

Indicate the quantity of conserved water that will be used for the intended purpose(s).

All the 495 AFY of water saved through the proposed program will be reflected in lower water demand and lower reliance on unimported water.

Other Project Benefits

(1) Combatting the Climate Crisis

Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

Climate change can potentially threaten regions such as Santa Clara County, where water scarcity is a concern. In the San Francisco Bay Area and northern California, average annual maximum temperatures have increased by 1.7 degrees Fahrenheit since 1950, sea level has risen over 8 inches in the last 100 years, and the 2012-2016 drought led to a 1-in-500 year low in Sierra snowpack and \$2.1 billion in economic losses statewide (Valley Water, 2021c). Precipitation is expected to continue to exhibit high year-to-year variability with very wet to very dry years. The average Sierra Nevada snowpack is projected to decline. Future increases in temperature will likely cause longer and deeper droughts (Valley Water, 2021c).

Valley Water anticipates climate change vulnerabilities in the region, including increased agricultural demand for water due to higher temperature; decreased water quality due to wildfires, temperature, and new flow patterns; and increased severity and duration of droughts. Imported water from the SWP and CVP that supports Santa Clara County may become scarcer in the coming decades, as their reservoirs are vulnerable to drought. More precipitation falling as rain and earlier snowmelt may cause an exceedance of reservoir storage and canal conveyance capabilities.

The Conservation Savings For All program intends to address these impacts of climate change by reducing residential water demand.

Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

Yes. As described in the previous answer, Valley Water anticipates climate change vulnerabilities in the region, including increased agricultural demand for water due to higher temperature; decreased water quality due to wildfires, temperature, and new flow patterns; and increased severity and duration of droughts.

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By reducing residential water demand, this Program can potentially reduce the reliance on imported water, particularly from the SWP and CVP. The complex network of the SWP and CVP is highly dependent on reservoirs, which are particularly vulnerable to the impacts of climate change considering the changes in precipitation and snowpack patterns anticipated. By potentially reducing dependence on the CVP and SWP, this project helps Valley Water to be more resilient to climate change.

Will the proposed project establish and utilize a renewable energy source?

The proposed program will not directly establish or utilize a new renewable energy source. Santa Clara Valley Water, however, aims to reduce greenhouse gas emissions from its operations, improve energy efficiency, and expand the use of renewable energy sources. As identified in the 2021 Valley Water Climate Change Action Plan (Valley Water, 2021c), about 95% of Valley Water's purchased energy is provided by PWRPA, a Joint Powers Authority that provides energy from utility-scale solar projects and hydroelectricity. Valley Water aims to reduce emissions in other aspects of its environmental footprint as well, including during infrastructure construction, water conveyance, water storage, and other areas.

Will the project result in lower greenhouse gas emissions?

This project intends to decrease water demand for residential uses. Indirectly, this will contribute to lower greenhouse gas emissions by reducing the need for conveyance, treatment, and distribution of water, all of which are energy-intensive processes. Imported water requires energy use from each of these processes, consuming over 300 kWh/AF (Valley Water, 2020). Conveying, treating, and distributing 495 AFY requires 0.15 MWh annually, as described in Section E.1.2. Reducing water use can reduce 237 lbs of CO₂ per year emissions associated with energy consumption.

(2) Disadvantaged or Underserved Communities

Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

Yes. This Program is designed to directly lower the household water bill and increase water reliability for all, with program rules and components that enable easier access by disadvantaged and underserved communities in Santa Clara County. The Conservation Savings For All program can be directly targeted to benefit disadvantaged and underserved communities by prioritizing funding amounts to be used in those areas of the county.

Cost savings will be the most immediate and direct benefit, lowering the monetary burden and barriers to accessing Valley Water's existing water conservation program.

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For example, cost saving mechanisms for fixture replacements (direct installation) will eliminate the installation cost completely to residents. Once installed, low water-use fixtures will continue to reduce cost burdens by decreasing water usage, and in turn, will lower residents' water bills.

Reducing cost barriers will make conservation programs more accessible to underserved populations—populations who will be disproportionately impacted by climate change. By increasing participation in areas with prominent underserved populations, all residents of Santa Clara County can contribute to lowering urban water demands as a whole and increase water reliability in the area, creating a water system that is more resilient to climate change impacts.

A water system that is more resilient to climate change will be able to provide water reliably to its customers – meaning that every household can turn on their tap and water will come out. Disadvantaged and underserved populations bear the brunt of water issues and are often the first to lose water services or pay more for water services when water becomes scarce. The proposed project will directly benefit these populations by increasing water reliability of Valley Water's water system.

The Conservation Savings For All program will continue to prioritize equity, expanding a program that has fewer barriers to entry than other conservation programs within Valley Water's suite of conservation savings programs. Lessons from the Conservation Savings For All program can be taken into expansion of the broader suite of conservation programs offered by Valley Water but are not included in the application, such as the Landscape Rebate Program, to better allow those programs to reach disadvantaged populations.

Expanding the program to better reach low-income and disadvantaged communities also has broader benefits for water reliability as a whole. As disadvantaged communities have historically participated at lower levels in Valley Water's suite of conservation programs, a program targeting disadvantaged populations has a large market to grow into.

Valley Water analyzed their current Water Conservation Program participation by various demographic characteristics, including household income. As seen in Table 1-5 participation in the landscape conversion program was highly underrepresented within low-income and very-low-income populations.

Across five conservation programs analyzed in 2021 by Valley Water, the Fixture Replacement Program (previously referred to as the High Efficiency Toilet program or "HET program") had higher participation by low- and very low- income populations (Table 1-5) compared to other programs.

Table 1-5. Median Household Income of participating residential customers, evaluated for five conservation programs in 2021. The “HET Program” is a previous version of the program being expanded under the Conservation Savings For All program.

Median Household Income (a)		Percentage of Residential Customers in Santa Clara County (b)	Percentage of Participating Residential Customers (c)				
			HET Program	Graywater Programs	LRP Landscape Conversion and WBIC Rebates	Submeter Rebate Program	Water Wise Survey Program
Very Low Income	<\$59,850	4.0%	10%	5.8%	1.3%	14%	2.9%
Low Income	\$59,850 - \$85,050	11%	18%	13%	6.0%	25%	4.3%
Moderate Income	\$85,050 - \$135,250	38%	51%	26%	29%	44%	30%
High Income	\$135,250 - \$169,050	22%	13%	21%	24%	11%	21%
Very High Income	>\$169,050	25%	8.9%	35%	39%	5.6%	42%

If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

Valley Water serves Santa Clara County, California, which is home to 1.9 million people and a dynamic economy including a mix of highly urbanized area (Silicon Valley) and rural, agricultural land.

The most applicable state criteria for determining disadvantaged status is the California State Water Board’s definition that communities with a median household income (MHI) of less than 80% of the state MHI is considered disadvantaged. According to that definition and Section 1015 of the Cooperative Watershed Act, Santa Clara County is not considered a disadvantaged community. The annual MHI is \$130,890, as compared to the California annual MHI of \$78,672².

² <https://www.census.gov/quickfacts/fact/table/santaclaracountycalifornia,CA/PST045221>

The high median indicators of wealth in the region fail to demonstrate the wealth disparity that exists. As the home of Silicon Valley, this area saw the explosion of the high-wage technology industry, which, combined with a volatile housing market, created a shrunken middle class and a large wealth disparity. The Silicon Valley Pain Index, produced by the San Jose State University Human Rights Institute, quantifies the racial discrimination and income inequality in the region. The 2022 report³ found that **half of children in the region live in households that don't earn enough money to cover basic needs.**

These pockets of disadvantaged communities within the county are in a particularly difficult financial situation given the high housing prices and costs of living that result from such a large gap in wealth disparity. A map of income disparity across the County is provided in Figure 1-4.

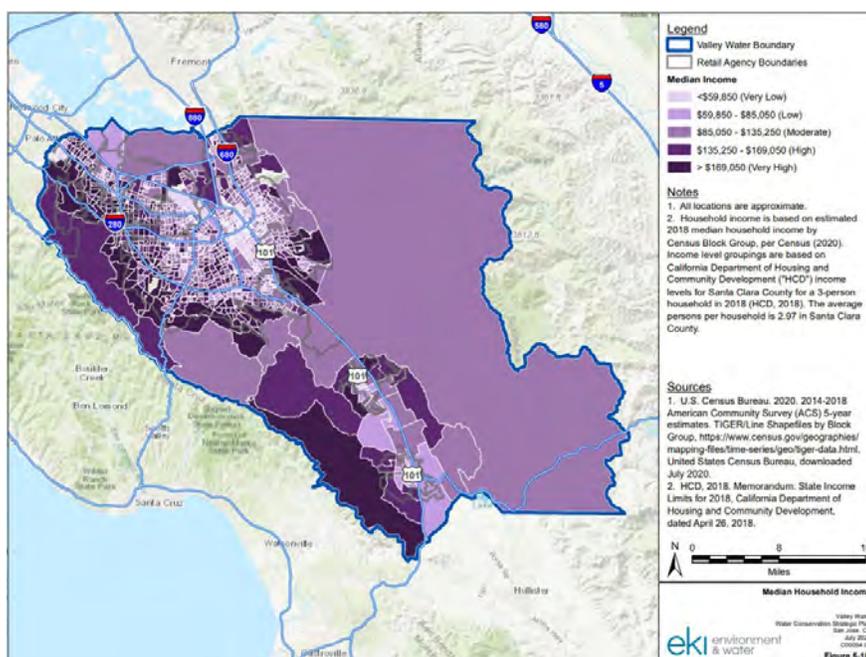


Figure 1-4. Disparity in Median Household Income across Santa Clara County

If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

Although Santa Clara Valley, in its entirety, is not designated as a disadvantaged community under California State Water Board’s MHI definition, Valley Water still serves

³ https://www.sjsu.edu/hri/docs/SJSUHRI_2022SVPI_FINAL_06-21-22.pdf

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pockets of underserved communities. Underserved communities are disproportionately burdened by California’s ongoing drought brought on by increasing climate change impacts—a phenomenon referred to as environmental injustice. Individuals, such as those who identify with the characteristics outlined in Table 1-6, have been systemically overlooked in receiving equitable treatment and opportunities to participate in aspects of economic, social, and civic life.

Gilroy is an example of a city with underserved populations that may easily be overlooked when only assessing the broader statistics of Santa Clara Valley. The City of Gilroy is comprised of a diverse community, with 73.2 percent of the population identifying with backgrounds in racial/ethnic minorities (percentage that does not identify with “White alone, not Hispanic or Latino” U.S. Census category), 47.2 percent of the population speaking a language other than English at home, 24.2 percent of the population, and 6.9 percent of the population falling under the U.S. Census’ defined poverty status.

Table 1-6. U.S. Census Bureau QuickFacts for Gilroy, California, which is served by one of Valley Water’s retailers and would benefit from the proposed program.

Underserved Characteristic	Percentage of the total Population of Gilroy that Shares Underserved Characteristic
Hispanic or Latino	57.6%
Asian alone	10.8%
Black or African American alone	1.6%
American Indian and Alaska Native alone	0.5%
Two or More Races	13.6%
Language Other Than English spoken at home (percent of persons aged 5 years+) 2016-202	47.2%
Foreign born persons, 2016-2020	24.2%
Persons in Poverty	6.9%
With a disability, under age 65, 2016-2020	6.0%
Persons without health insurance, under age 65	6.0%

Populations Estimates Program, July 1, 2021 (V2021). Data accessed 07/07/2022.

CalEnviroScreen is an online mapping tool developed by CalEPA and its Office of Environmental Health Hazard Assessment. CalEnviroScreen scores are widely used across the state to inform decision-making bodies, analyze the cumulative impacts of environmental, public health, and socioeconomic conditions in California, and identify environmental burdens and injustices. The scores are derived by totaling both pollution burden (i.e., exposures and environmental effects) and population characteristics (i.e., sensitive populations and socioeconomic factors) at the census tract level. The higher the score, the more vulnerable and underserved a community is. As shown in Figure

1-5, areas in Santa Clara Valley, such as the cities of Gilroy and San Jose, are more underserved (with a higher CalEnviroScreen 4.0 percentile score) than other surrounding cities in the map area.

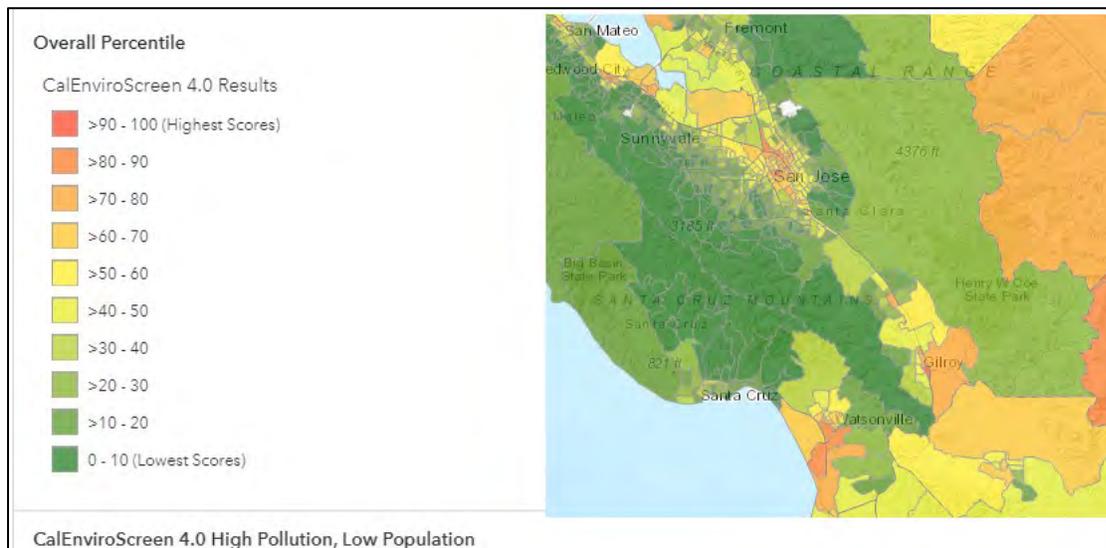


Figure 1-5. CalEnviroScreen results for Santa Clara County, showing environmental injustice and disparities

(3) Tribal Benefits

This Project will not directly serve and/or benefit a Tribe.

(4) Other Benefits

[Will the project assist States and water users in complying with interstate compacts?](#)

This project will not assist directly in complying with interstate compacts. The proposed project will reduce water demand and can potentially reduce reliance on imported sources, but the imported sources of interest are all within the state. If the imported sources, such as CVP and SWP, are able to better comply with interstate compacts due to the decreased demand from Valley Water, then this project has the potential to indirectly help water users comply with interstate compacts.

[Will the project benefit multiple sectors and/or users \(e.g., agriculture, municipal and industrial, environmental, recreation, or others\)?](#)

This project will benefit multiple sectors and users. The Conservation Savings For All program will directly impact municipal users. Water conserved from this project can potentially reduce reliance on imported water from the CVP and SWP, which are a

broad and complex water storage and conveyance systems. Increased water in the CVP and SWP can benefit recreation, stream ecology, and other industries.

Will the project benefit a larger initiative to address sustainability?

County and Regional Sustainability Goals: This project addresses goals that go beyond Valley Water, including the Santa Clara County Sustainability Master Plan. The County’s plan identifies goals for a sustainable future under the four priority areas: climate protection and defense, natural resources and the environment, community health and well-being, and creating a prosperous and just economy. This project helps the county become more climate resilient, ensures more equitable and affordable water costs, and protects natural resources and the environment. For water use and conservation, this County master plan identifies the goal of reducing water use in unincorporated county areas by at least 20% relative to the 2013 baseline by 2025. The proposed program also supports regional planning efforts by the Bay Area Integrated Regional Water Management Plan, the San Francisco Estuary Blueprint, and the Bureau of Reclamation’s Central Valley Project Integrated Resource Plan, as described in more detail in section E.1.5.

Sustainability of Aging Water Infrastructure: In addition to addressing climate change concerns, a sustainable water future for Valley Water depends on reliable water infrastructure. According to the 2021 American Society of Civil Engineers Infrastructure Report Card, the average infrastructure score nationwide is a “C-, Mediocre”⁴. Throughout the country, water infrastructure is showing general signs of deterioration and increasing vulnerability to risk. California’s 2019 report card gives the state a C- as well, emphasizing the need for revitalization⁵. The water conserved through this program can translate to less water conveyed, treated, and distributed, therefore reducing the potential for wear and tear on Valley Water infrastructure systems. Reduced wear and tear both lengthens the useful life of critical water infrastructure and reduces maintenance costs, creating twofold savings for Valley Water ratepayers and allowing Valley Water investments to have a greater impact. As a significant portion of Valley Water’s water budget is imported, benefits of reduced wear and tear may also translate to the SWP and CVP. Easing the burden on California’s aging water infrastructure is a critical element of sustainability.

Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

With high water demands and limited water supply, Valley Water has sought to expand its water storage options, which has caused conflict in the basin. The Conservation

⁴ <https://infrastructurereportcard.org/cat-item/drinking-water-infrastructure/>

⁵ <https://infrastructurereportcard.org/state-item/california/>.

Savings For All program would potentially reduce reliance on external water sources and may reduce some of the storage needs and resulting conflict.

In addition, the movement of water across the state by the SWP and CVP increases tensions between growing urban centers and the agricultural foundations of California's Central Valley. This conflict is exacerbated by drought conditions and climate change. Reducing water demands by urban centers can ease these tensions.

E.1.4 Evaluation Criterion D – Complementing On-Farm Irrigation Improvements (10 points)

Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.

[Provide a detailed description of the on-farm efficiency improvements.](#)

Valley Water operates a well-established Agriculture Mobile Lab savings program. The Agriculture Mobile Lab Program offers the following free services for growers in Santa Clara County: irrigation system evaluations, seasonal irrigation and soil moisture monitoring, seasonal crop canopy monitoring, irrigation system design consultation, and irrigation scheduling decision support. An excerpt from the March 2022 quarterly report showing the type of evaluations that are performed and recommendations that are given is shown in Figure 1-8.

Valley Water Mobile Irrigation Lab DU Evaluations 2022 Q1				
Grower Code	Date of eval	Acres	Irrigation System Type	DU lq
V	3/4/2022	10.2	surface drip	94.0%
W	3/29/2022	3.7	microsprinkler	74.9%

Grower V

Grower V irrigates row crops with a surface drip irrigation system. The overall DUlq for the drip system was 94.0%, which is considered an ‘excellent’ uniformity for drip (Table 3). Recommendations to improve system uniformity included installing a pressure-regulating valve at the submain to maintain adequate system pressure throughout irrigation sets, regularly flushing lateral lines to avoid clogged emitters, and repairing leaks.

Grower W

Grower W irrigates tree crops with a micro- sprinkler system. An irrigation system evaluation was performed in March (Figure 3). The overall nozzle discharge DUlq (lowest quarter) was 74.9% which is considered a ‘poor’ uniformity for sprinklers (Table 3). Operating system pressure varied significantly across the irrigated area, indicating that the submain pipe diameter might be too small for system demand. Multiple mismatched sprinkler nozzles and several partially clogged nozzles were observed, both of which contributed negatively to overall DU. Recommendations for irrigation system improvements include increasing submain pipe diameter size, assuring that all nozzle sizes are uniform, and installing flush valves at the ends of lateral lines to remove debris that could plug nozzles. The grower wants to conduct follow-up irrigation system evaluations after implementing irrigation system recommendations.

Figure 1-6. Excerpt from March 2022 Quarterly Mobile Lab report

After system evaluations are performed, the program connects growers to a network of agency resources to fund system improvements, including the University of California Cooperative Extension, California Department of Food & Agriculture State Water Efficiency and Enhancement grant funds, and Natural Resources Conservation Service (NRCS). More information is available here: <https://www.valleywater.org/mobilelab>.

Over 150 irrigation system evaluations were completed between 2013 and March of 2022. Since its establishment in 1998 to 2019, the Agricultural Mobile Lab program has saved 24,700 AF total. Annual savings from 2019 through 2025 are estimated to be 2,000 AFY (Valley Water, 2021a).

Valley Water is also conducting an Agricultural Water Use Baseline Study that will be completed in Fall 2022. The study aims to better understand current agricultural water use practices and identify opportunities to expand water conservation programs offered to the agricultural community.

Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?

After conducting system evaluations for growers, the Agricultural Mobile Lab program helps growers access NRCS grant funds to make the recommended system upgrades. While a number of participants and water savings are tracked, number of growers that have been referred to the NRCS is not tracked as a part of the program.

If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.

Over 150 irrigation system evaluations were completed between 2013 and March of 2022, according to the March 2022 quarterly report. Additional information is not currently available but should be available after the Agricultural Water Use Baseline Study is completed in Fall 2022. Please contact Ashley Carter at ashannon@valleywater.org for additional information.

Applicants should provide letters of intent from farmers/ranchers in the affected project areas.

This information is not currently available but could be compiled upon request by contacting Ashley Carter at ashannon@valleywater.org.

Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation. OR Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

The Agriculture Mobile Lab program is not included within the proposed program but will be complemented by the broader commitment to conservation savings generated by the proposed program. The proposed program maximizes water efficiency in the County. Additionally, the proposed program will help Valley Water better understand how conservation programs can better reach disadvantaged and underserved communities. These lessons can be immediately spread and taken up by Valley Water's existing Agricultural Mobile Lab program. For example, lessons around direct installation programs using trusted vendors could be used to expand the Agricultural Mobile Lab program in the future to better reach low-income growers.

Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work. Estimate the potential on-farm water

savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.

No direct on-farm work is offered through the proposed program.

Please provide a map of your water service area boundaries. If your project is selected for funding under this NOFO, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.

GIS shapefiles or more detail can be made available upon request.

E.1.5 Evaluation Criterion E – Planning and Implementation (8 points)

Subcriterion E.1—Project Planning

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate. Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

Valley Water has undertaken several separate but intertwined planning efforts to manage and conserve its water resources.

The Bureau of Reclamation requires all CVP contractors that have amended or renewed water contracts after October 1992 to adopt a water conservation plan based on a specific set of reporting criteria developed by Reclamation. The Santa Clara Valley Water District's CVP water service contract was amended in 2007 and therefore it is subject to this requirement. Update of the plan is required every five years, and the last plan was completed in 2017. The Central Valley Project Improvement Act (CVPIA) Water Management Plan contains water conservation measures and reporting requirements that meet Reclamation's criteria. Water conservation programs are the first best management practices identified by the plan.

Separately, every five years, Valley Water updates its Urban Water Management Plan (UWMP) by coordinating with the 13 major water retailers in Santa Clara County, the cities in Santa Clara County, the County of Santa Clara, the San Francisco Public Utilities Commission, the Bay Area Water Supply and Conservation Agency, in addition

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to local nonprofits and the public through a public review hearing. The latest version of the UWMP, released in 2020, identifies water shortage as one of the critical issues facing urban water management and outlines water conservation as the first of four water shortage response actions.

Valley Water is actively responding to its current water shortage through both drought response planning and water conservation planning. In 2020, Valley Water applied for and received a Bureau of Reclamation WaterSMART grant for a Drought Response Plan (currently in progress). In 2021, Valley Water developed Water Conservation Strategic Plan to provide a blueprint for meeting Valley Water's established conservation policy objectives and targets.

The proposed program also supports regional planning efforts by the Bay Area Integrated Regional Water Management Plan, the San Francisco Estuary Blueprint, and the Bureau of Reclamation's Central Valley Project Integrated Resource Plan.

Links to these plans are provided below, in the order in which they were mentioned above.

1. Valley Water's 2017 CVPIA Water Management Plan: Available at <https://www.valleywater.org/your-water/water-supply-planning/cvpia-water-management-plan>
2. Valley Water's Urban Water Management Plan (2020): Available at <https://www.valleywater.org/your-water/water-supply-planning/urban-water-management-plan>
3. Valley Water WaterSMART Drought Response Plan (in progress, awarded in 2020)
4. Valley Water's Water Conservation Strategic Plan (July 2021): Available at <https://s3.us-west-2.amazonaws.com/assets.valleywater.org/Valley%20Water%20WC%20Strategic%20Plan.pdf>
5. Bay Area Integrated Regional Water Management Plan: Available at <http://bayareairwmp.org/>
6. San Francisco Estuary Blueprint 2022: Available at <https://www.sfestuary.org/estuary-blueprint-2022-update/>
7. Bureau of Reclamation's Central Valley Project Integrated Resource Plan: Available at <https://www.usbr.gov/mp/ssibasinstudy/docs/cvp-integrated-resource-plan-summv2.pdf>

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

Valley Water’s CVPIA Water Management Plan (latest plan from 2017, updated every 5 years): Identifies water conservation as the first Best Management Practice for Urban Water Managers.

Valley Water’s Urban Water Management Plan (2020): The plan supports four shortage response actions, the first of which is water conservation.

Valley Water WaterSMART Drought Response Plan (in progress, awarded in 2020): still under development.

Valley Water’s Water Conservation Strategic Plan (July 2021): The plan analyzed five of the key sub-programs offered through Valley Water’s portfolio of water conservation programs, two of which were the sub-programs included in this application. The Strategic Plan recommends increased outreach and expansion of the program to areas of low participation, notably disadvantaged communities.

Bay Area Integrated Regional Water Management (IRWM) Plan: Water conservation programs are supported by the Bay Area IRWM Plan Goal 1: To promote environmental, economic and social sustainability, including objective 1.2 which seeks to encourage implementation of integrated, multi-benefit projects and objective 1.4, seeking to reduce energy use and/or use renewable resources where appropriate, and objective 1.8 to promote community education, involvement and stewardship. The program supports goal 2: to improve water supply reliability and quality, including objective 2.4 to implement water use efficiency to meet or exceed state and federal requirements.

San Francisco Estuary Blueprint 2022: Action 17 and the Water Conservation Task 17-3 aims to increase water conservation of households. The plan prioritizes equity of water conservation savings, including in multi-family residential units and rental units.

Bureau of Reclamation’s Central Valley Project Integrated Resource Plan – discussed in more detail in the following answer.

(3) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes)

The Sacramento-San Joaquin Basin Study centers around the Reclamation-owned CVP in California, which supplies domestic, industrial, and agricultural water across 400 miles of central California (USBR 2014) The Sacramento-San Joaquin WaterSMART

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Basin study calls for municipal conservation as a key action to reduce unmet demand on the CVP. The most aggressive demand reduction model in the study called for water use efficiency measures to achieve a 40-percent reduction in urban demand by 2050 (USBR 2014).

Valley Water currently imports an average of 113,000 AFY of water from the CVP and is aligned with Reclamation's aggressive conservation goals. The Valley Water 2040 Water Supply Master Plan outlines a strategy to conserve 109,000 AFY by 2040, largely targeting imported water reduction via Valley Water's extensive and well-established conservation programs. The proposed Conservation Savings For All program will directly contribute to the reduction of Valley Water's imported water from the CVP.

Subcriterion E.2 – Readiness to Proceed

Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section D.2.2.2. *Application Content*; this section should focus on a summary of the major tasks to be accomplished as part of the project.

Valley Water will be ready to start implementation immediately upon receipt of a financial assistance agreement. The existing fixture replacement program has a history of participation, an established outreach plan, and adequate staffing.

As a free direct install program, plumbing fixtures are replaced at a relatively steady level through the fiscal year. Beyond program administration, over the course of one year, the following additional activities are conducted to ensure the program is operating effectively and stakeholders are informed:

1. July and August: Compile and collate participation for all programs for the fiscal year by month, by property type, and by water retailer.
2. November: Rerun water conservation savings model and update agency's Water Tracker (available online at <https://www.valleywater.org/your-water/water-supply-planning/monthly-water-tracker>)
3. December: Evaluate and implement program adjustments (eligibility criteria, rebate rates). Enter or amend cost-sharing agreements with local cities and water retailers to increase rebate rates or services offered in those areas. Negotiations typically begin in September.
4. Spring: Present updated numbers to Water Conservation and Demand Management Board Committee.
5. June: Evaluate and implement program adjustments (eligibility criteria, rebate rates). Enter or amend cost-sharing agreements with local cities and water

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retailers to increase rebate rates or services offered in those areas. Negotiations typically begin in March.

Amidst rising program participation, Valley Water has ensured that staffing is adequate to meet demand. Last year, Valley Water increased Water Conservation Program staff from 4 permanent full-time staff in early 2021 to 7 in 2022, and temporary and intern staff doubled from 8 in 2021 to 20 in 2022.

Describe any permits that will be required, along with the process for obtaining such permits.

No major disturbance to the environment is anticipated by replacing indoor plumbing fixtures. The proposed activities are within the scope of the notices of exemptions (NOEs) and complies with Sections 15301 and 15304 of CEQA.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

No engineering or design work will be required to support the Conservation Savings For All program.

Describe any new policies or administrative actions required to implement the project.

As the sub-program under the Conservation Savings For All program is already established and operational, no new policies or administrative actions will be required to implement the project.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?

Implementation of the proposed program will unfold according to the schedule provided in Table 1-7. Number of fixtures installed and budget used is provided quarterly, as well as other tasks that are performed annually by the program team.

On July 14, 2022, the proposed program was discussed with the Region 10 Reclamation Office representatives Anna Sutton and Michael Deitl, who saw no foreseeable timeline delays or issues from the proposed program. According to the representatives, this is because indoor fixture replacements are inside, are in buildings on previously disturbed ground, and are performed by the vendors not the utility themselves.

Table 1-7. Schedule and scope of work.

Fiscal Quarter	Period of Performance	Indoor fixtures installed	Budget used	Other tasks
FY23 Q1	7/1 – 9/30	3,187	\$500,000	Evaluate savings and participation
FY23 Q2	10/1 – 12/31	3,187	\$500,000	
FY23 Q3	1/1 – 3/31	3,188	\$500,000	Present to stakeholders
FY23 Q4	4/1 – 6/30	3,188	\$500,000	Adjust program as needed
FY2023 subtotal		12,750	\$2,000,000	
FY24 Q1	7/1 – 9/30	1,593	\$250,000	Evaluate savings and participation
FY24 Q2	10/1 – 12/31	1,594	\$250,000	
FY24 Q3	1/1 – 3/31	1,594	\$250,000	Present to stakeholders
FY24 Q4	4/1 – 6/30	1,594	\$250,000	Adjust program as needed
FY2024 subtotal		6,375	\$1,000,000	
FY25 Q1	7/1 – 9/30	1,593	\$250,000	Evaluate savings and participation
FY25 Q2	10/1 – 12/31	1,594	\$250,000	
FY25 Q3	1/1 – 3/31	1,594	\$250,000	Present to stakeholders
FY25 Q4	4/1 – 6/30	1,594	\$250,000	Adjust program as needed
FY2025 subtotal		6,375	\$1,000,000	
FY23 – FY25 Total		25,500	\$4,000,000	

E.1.6 Evaluation Criterion F – Collaboration (6 points)

Please describe how the project promotes and encourages collaboration. Consider the following:

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

Relations with the media, elected officials, the public, key stakeholders, and water retailers are seen as essential to meeting water use reduction goals.

As such, Valley Water has a history of close coordination and collaboration with the thirteen water retailers supplied by Valley Water and other stakeholders to conserve water -- especially during drought years – by holding regular meetings on water supply conditions, operations, and actions/messaging to achieve water use reduction. In the last drought, all retailers took actions to implement water use reduction requirements and many adopted a coordinated maximum two day per week watering schedule.

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Together these actions achieved a 28% demand reduction in 2015 over 2013 levels. In 2015, Valley Water held two summits, one with retailers and another with elected officials, to facilitate increased water use reductions and increase coordination to meet the 30% reduction target. A common theme of the summits was that messaging and policy development should be consistent and coordinated throughout the County to reduce confusion among residents, increase ease of implementation, and make compliance and enforcement easier (Valley Water, 2020). Beginning in the last drought, Valley Water began offering an annual Landscape Summit to bring together landscape professionals to learn from one another and from Valley Water how to leverage water conservation programs to further conserve throughout the county.

With the latest drought coexisting with the COVID-19 pandemic, in August 2020, Valley Water took a new approach to keeping its finger on the pulse of water conservation efforts. A survey of all 13 of Valley Water's retail agencies was conducted to better understand: (1) what water conservation programs agencies and customers are utilizing, (2) what drives the agencies' and customers' needs to increase water conservation, and (3) what additional programs the agencies and customers may benefit from. This helped Valley Water identify programs and services that would be most valuable and responsive to the various water conservation drivers within its service area. Results from the survey indicated favorable views of the way Valley Water has been administering rebates, strong support for Valley Water's conservation programs and efforts, and a broad interest in continuing existing or similar programs. Retailers expressed high interest in having Valley Water lead the expansion of programs to better serve disadvantaged communities or households (Valley Water, 2021a).

Letters of support from relevant stakeholders are included in Appendix A to demonstrate the widespread support for Valley Water's conservation programs and the targeted expansion of select programs to disadvantaged communities.

What is the significance of the collaboration/support?

Executing an effective conservation program requires the closely coordinated efforts of multiple entities. While Valley Water administers the water conservation program, it is the retailers and partner organizations that stimulate awareness and participation in the programs. For some conservation goals beyond the scope of the Conservation Savings For All program, such as limitations on turf watering, retail agencies directly enforce water use reductions. As a demonstration of this support, Appendix D includes an overview of regional efforts to enforce water conservation measures.

Collaboration can encourage a culture of conservation that is greater than the sum of its individual parts. Valley Water partners with water retailers and cities to increase rebate amounts and to leverage other partnership opportunities in respective service areas.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Valley Water, itself a supplier for thirteen water agencies, can provide a blueprint and model for its retail agencies to update future water conservation improvements.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Letters of support are attached in Appendix A.

E.1.7 Evaluation Criterion G – Additional Non-Federal Funding (4 points)

No additional federal funding has been secured for the proposed project. The percentage of non-Federal funding was determined using the following calculation:

$$\frac{\text{Non – Federal Funding}}{\text{Total Project Cost}} = \frac{\$2,000,000}{\$4,000,000} = 50\%$$

E.1.8 Evaluation Criterion H – Nexus to Reclamation (4 points)

Does the applicant have a water service, repayment, or O&M contract with Reclamation?

Yes. In 1977, Valley Water entered into a contract with the United States Bureau of Reclamation for a maximum of 152,500 acre-feet per year from the San Felipe Division of the CVP. The first deliveries occurred in 1987. During the period between 1987 and 1991, drought conditions and regulatory restrictions impacted deliveries of CVP water. During this period, deliveries averaged 72,000 acre-feet per year, and were as low as 48,375 acre-feet per year in 1991. After the drought, Reclamation established an Interim M&I Water Shortage Policy which provided some protection to CVP M&I contractors. In addition, a Water Reallocation Agreement was executed in 1997 by the District, Reclamation, and certain agricultural Districts who are members of the San Luis & Delta-Mendota Water Authority, which provided additional protections to the District's M&I water supplies from the CVP. As a result, the District's long-term average CVP water allocation for M&I and agricultural purposes is about 113,000 acre-feet per year.

Pumping Plants: Two of the pumping plants operated by Valley Water (Pacheco Pumping Plant (PPP) and Coyote Pumping Plant (CPP)) are owned by the U.S. Bureau of Reclamation to provide CVP water deliveries to Santa Clara County.

Beyond these contracts, Valley Water intends to continue to strengthen its relationship with Reclamation and partner more in the future to jointly pursue water management

and conservation goals. Valley Water was awarded a WaterSMART drought response planning grant in 2020.

If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

Valley Water holds a water service contract with Reclamation, as described in the previous question.

Will the proposed work benefit a Reclamation project area or activity?

Yes. Water conserved through the Conservation Savings For All program will directly reduce Valley Water's imported water from the CVP and require lower pumping from Reclamation-owned pumping plants. The conservation efforts will support conservation goals outlined in Valley Water's 2017 CVPIA Water Management Plan.

Is the applicant a Tribe?

The applicant is not a Tribe, nor does this project impact any of Reclamation's trust responsibilities with tribes.

1.5 PERFORMANCE MEASURES

To track and monitor the effectiveness of its suite of Conservation Savings programs, Valley Water has developed its water conservation tracking model (Savings Model). The Savings Model tracks 43 of Valley Water's conservation programs, many of which began in the 1990s and are still in use today. Using historical and pilot data on per-unit savings, participation, and decay in savings over time, the Savings Model calculates both passive and active water savings, adjusted for free ridership⁶ (CUWCC 2002). These functions allow the model to serve as the primary method for tracking performance of the proposed program.

At project completion, Reclamation will be provided with a report summarizing:

1. number of plumbing fixtures installed,
2. acre-feet per year saved,
3. and other relevant program information.

⁶ Free ridership refers to customers who participate in a conservation program, but who would have taken the water saving action (e.g., replace a toilet) regardless of whether the conservation program incentive was available.

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As data is available, information on the number of plumbing fixtures installed in disadvantaged areas may be provided; otherwise, participation data will be summarized at a county-wide level.

2.0 PROJECT BUDGET

2.1 FUNDING PLAN AND LETTERS OF COMMITMENT

The entire \$2,000,000 of non-federal funding will be contributed by Valley Water, sourced either from its operating fund, and potentially supplemented by additional funding through state drought response grant program, or from other non-federal sources. The first year will include \$2,000,000 in total funding, while the second and third year will include \$1,000,000 in funding.

2.2 BUDGET PROPOSAL AND FUNDING PLAN

Three tables are provided below. The first summarizes the non-federal and federal funding sources (Table 2-1). The second summarizes costs to be reimbursed with the requested Federal funding compared to costs to be paid by the applicant, including third-party contributions (Table 2-2). A breakdown of project costs is provided in Table 2-3.

Table 2-1. Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount (\$M)
Non-Federal Entities	
1. Valley Water	\$2,000,000.00
Non-Federal Subtotal	\$2,000,000.00
Requested Reclamation Funding	\$2,000,000.00

Table 2-2. Total Project Cost Table

Source	Amount (\$M)
Costs to be reimbursed with the requested Federal funding	\$2,000,000.00
Costs to be paid by the applicant	\$2,000,000.00
Value of third-party contributions	\$0
Total Project Cost	\$4,000,000.00

Table 2-3. Budget Proposal

Budget Item Description	Computation		Total Cost
	\$/fixture ¹	Quantity	
Ultra HE Toilet, MFR	\$455.00	3,956	\$1,800,000
HE Toilets, MFR	\$455.00	3,516	\$1,600,000
Residential Low Flow Showerhead, MFR	\$41.47	7,234	\$300,000
Lavatory faucet aerators	\$17.44	6,881	\$120,000
Kitchen faucet aerators	\$17.44	3,440	\$60,000
Kitchen pre-rinse sprayers	\$125.82	318	\$40,000
Piston Style Ultra-High Efficiency Urinal	\$920.33	43	\$40,000
Urinal Flush-Valve Retrofit	\$357.16	112	\$40,000
		Total	\$4,000,000

1. The unit costs of each fixture include the cost of installation. See Appendix C for cost breakdown.

2.3 BUDGET NARRATIVE

Salaries and Wages

Not included

Fringe Benefits

Not included

Travel

Not included

Equipment

Not included

Materials and Supplies

Included within contractual costs below.

Contractual

All program costs are contractual. Valley Water reimburses its vendor for each fixture replaced for FY22. Costs are listed according to latest vendor contracts, as provided on a per-item basis by Valley Water. The unit costs include the costs of Labor (including labor, logistics, installation, admin, and overhead) and the Fixture Cost (including supplies, recycling, and taxes). The two toilets included in the program were increased by \$30 in April 2022 at the request of the vendor to account for inflation. See Appendix C for details.

Construction

Not included

Third-Party In-Kind Contributions

Not included

Environmental and Regulatory Compliance Costs

Not included

Other Expenses

Not included

Indirect Costs

Not included

3.0 PRE-AWARD COSTS

Pre-award costs are included in this proposal, starting July 1, 2022. For the below pre-award budget, the award date was assumed to be January 1, 2023. Two Fiscal Year Quarters of pre-award costs will be tracked under the project number #91061008. The expected project expenditure amount, date of cost incurrence, and benefits of the expenditure are provided in Table 3-1.

Table 3-1. Pre-award costs in first two quarters of FY23

	Quarter 1 July 1 – Sept 30, 2022	Quarter 2 Oct 1 – Dec 31, 2022
Expenditure name	Year 1 Quarter 1 Implementation	Year 1 Quarter 2 Implementation
Expenditure amount	\$500,000	\$500,000
Date of incurrence	Sept 30, 2022	December 31, 2022
Benefits to project	Installs 3,187 fixtures to provide water savings targeting disadvantaged areas	Installs 3,187 fixtures to provide water savings targeting disadvantaged areas

A breakdown by fixtures, totaling the \$500,000 and 3,187 fixtures per quarter, for the first two quarters of the program, is provided in Table 3-2. All costs are contractual. On a quarterly basis, these costs will be invoiced by the vendor and provided to Reclamation to review upon request.

Table 3-2. Breakdown of pre-award expenditures.

Item	Cost per fixture	Year 1 Quarter 1		Year 1 Quarter 2	
		# Fixtures	Budget	# Fixtures	Budget
Ultra HE Toilet, MFR	\$455.00	495	\$225,000	495	\$225,000
HE Toilets, MFR	\$455.00	440	\$200,000	440	\$200,000
Residential Low Flow Showerhead, MFR	\$41.47	904	\$37,500	904	\$37,500
Lavatory faucet aerators	\$17.44	860	\$15,000	860	\$15,000
Kitchen faucet aerators	\$17.44	430	\$7,500	430	\$7,500
Kitchen pre-rinse sprayers	\$125.82	40	\$5,000	40	\$5,000
Piston Style Ultra-High Efficiency Urinal	\$920.33	5	\$5,000	5	\$5,000
Urinal Flush-Valve Retrofit	\$357.16	14	\$5,000	14	\$5,000
Total		3,188	\$500,000	3,188	\$500,000

4.0 ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

A CEQA exemption has been filed for the Fixture Replacement Program and is included in Appendix E.

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants should consider the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

No. The proposed project installs plumbing fixtures indoors and does not disturb earth.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No. The proposed project installs plumbing fixtures indoors and does affect species habitat.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No, the proposed project installs plumbing fixtures indoors and does affect wetlands or surface water.

When was the water delivery system constructed?

Valley Water’s water service delivery system dates back to the 1930s when the agency built six surface water reservoirs to capture stormwater (four additional reservoirs were constructed in the 1950s). In the 1960s and 70s Valley Water built two drinking water treatment plants to treat local and imported surface water, which helped reduce groundwater pumping and relieve pressure from aquifers. Over the course of 50 years,

Valley Water built a reliable and sustainable system with diverse sources and major valley pipelines that could convey surface water from reservoirs to treatment plants and percolation ponds. For more information see <https://www.valleywater.org/news-events/news-releases/90-years-nourishing-valley#:~:text=The%20Santa%20Clara%20Valley%20Water,central%20water%20management%20and%20conservation.>

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No, the proposed project installs plumbing fixtures indoors and does not include irrigation system modifications.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

No, there are no known sites that are listed on the National Register of Historic Places in the proposed project area.

Are there any known archeological sites in the proposed project area?

No, there are no known archeological sites in the proposed project area.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

This project will allow any eligible resident to participate. Non-participation will not have any consequences.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No Indian sacred sites or tribal lands will be impacted by this project.

5.0 REQUIRED PERMITS OR APPROVALS

Valley Water does not anticipate that permits will be required for the proposed Program. This is due to the fact that all fixtures will be installed indoors. A CEQA exemption has been secured for the Fixture Replacement Program and is included in Appendix E.

6.0 OVERLAP OR DUPLICATION OF EFFORT STATEMENT

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. The proposal submitted for consideration under this program does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source—whether it be Federal or non-Federal.

7.0 CONFLICT OF INTEREST DISCLOSURE STATEMENT

No actual or potential conflict of interest exists at the time of submission.

8.0 UNIFORM AUDIT REPORTING STATEMENT

Valley Water will prepare a Single Audit if the award exceeds the \$750,000 limit. Valley Water was not required to submit a Single Audit report for the most recently closed fiscal year.

9.0 LETTERS OF SUPPORT AND LETTERS OF PARTNERSHIP

Valley Water has included letters of support in Appendix A.

10.0 OFFICIAL RESOLUTION

The official resolution will be voted by the board of the Santa Clara Valley Water District on August 9, 2022, and will be submitted within 30 days of the application deadline.

11.0 REFERENCES

- Association of Bay Area Governments (ABAG, 2018). Projections 2040. November. Available at: https://mtc.ca.gov/sites/default/files/Projections_2040-ABAG-MTC-web.pdf
- A&N Technical Services (2013), “Statistical Analysis of Multifamily Residence Bathroom Retrofit Water Savings,” Report prepared for California Water Service.
- California Urban Water Conservation Council (CUWCC 2002), “Freeriders in ULFT Programs,” December.
- California Urban Water Conservation Council (CUWCC 2005), “BMP Costs and Savings Study: A Guide to the Data and Methods for Cost Effectiveness Analysis of Urban Water Conservation Best Management Practices,” Draft Revision.
- Koeller, J. (2005), “High Efficiency Plumbing Fixtures – Toilets and Urinals.” Prepared analysis of Potential Best Management Practices for the California Urban Water Conservation Council.
- Koeller, J. (2012), “High-Efficiency Plumbing Fixture Direct Install Water Savings Analysis,” report to Santa Clara Valley Water District and California Urban Water Conservation Council.
- M.Cubed (2018a), “Statistical Analysis of Bathroom Retrofit Water and Energy Savings, California Water Service Bakersfield District,” DWR Grant Agreement No. 46000111092.
- M.Cubed (2018b), “Statistical Analysis of Bathroom Retrofit Water and Energy Savings, California Water Service Dominguez and East Los Angeles Districts,” DWR Grant Agreement No. 46000111093.
- Santa Clara County (2021) “County of Santa Clara Sustainability Master Plan”. Available at https://www.sccsustainabilityplan.org/files/ugd/e3bef4_e4d3346ef28c4afc8af2c5a07748b02b.pdf
- U.S. Bureau of Reclamation (USBR 2014). “Central Valley Project Integrated Resource Plan”. November. Available at <https://www.usbr.gov/mp/ssjbasinstudy/docs/01-cover-abbrev.pdf>

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APPENDIX A

Letters of Support

Note: Letters of Support are uploaded as separate files.

APPENDIX B

Water Conservation Strategic Plan Excerpts

The following pages were excerpted for inclusion in
FY23 WEEG Grant.

Highlights in light blue.



Water Conservation Strategic Plan Valley Water

July 2021
(EKI C00054.00)

Water Conservation Strategic Plan Valley Water

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Executive Summary

Key Findings and Recommendations

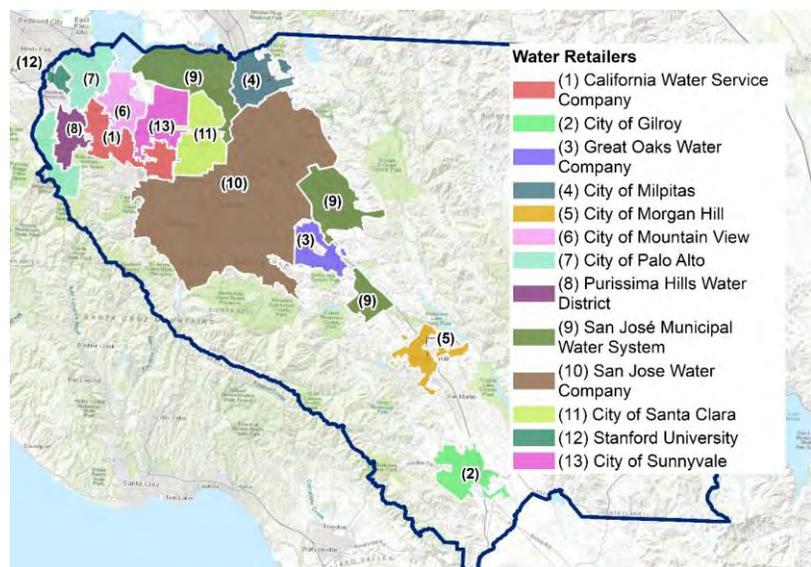
The Strategic Plan finds that Valley Water will be able to meet its long-term conservation targets with continued implementation of its current broad set of conservation programs, but doing so will require increased customer participation and a commensurate increase in staff resources and funding. The Strategic plan also recommends that Valley Water explore additional opportunities to augment and adapt its current programs, including by: (1) evaluating model ordinance options related to further water demand offset policies for new developments, (2) using geospatial-based participation trend analyses as a tool to adaptively manage and increase participation in key programs, (3) considering expanding program offerings to those that provide conservation savings related to water loss, such as a pressure-regulating valve (PRV-) based program, and (4) increasing outreach to commercial customers with smaller landscapes to boost participation rates and program efficiency for the Large Landscape Program.

Introduction (Section 1)

Valley Water is the primary water resources agency in Santa Clara County, California and serves 1.9 million residents, primarily through 13 water retailers¹ (Valley Water, 2019b) (**Figure ES-1**). Valley Water has made significant investments to manage water demands and to develop water supplies and infrastructure to meet the water needs within the County and comply with the Valley Water Board's Ends Policies for water supply reliability, water conservation, and water recycling (Valley Water, 2012).

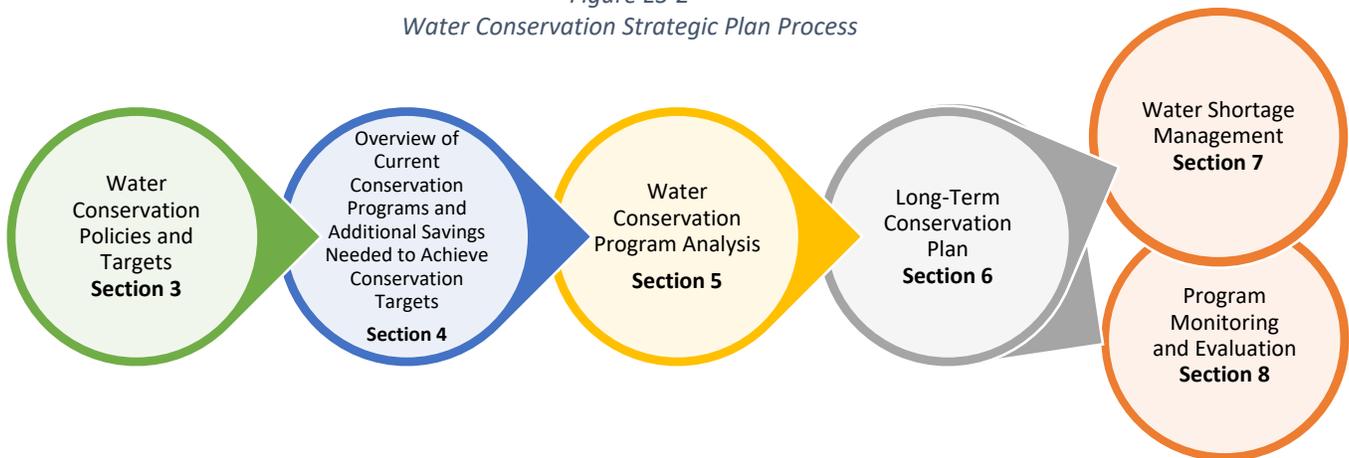
This Strategic Plan provides a blueprint for meeting Valley Water's established conservation policy objectives and targets and serves as a tool and reference document to inform and support Valley Water's future conservation program marketing and design. **Figure ES-2** outlines the process documented in this Strategic Plan to target and achieve additional water conservation savings.

Figure ES-1
Valley Water Service Area Boundary



¹ Some residents operate their own groundwater wells and are not served by water retail agencies; however, Valley Water manages the utilized groundwater system.

Figure ES-2
Water Conservation Strategic Plan Process



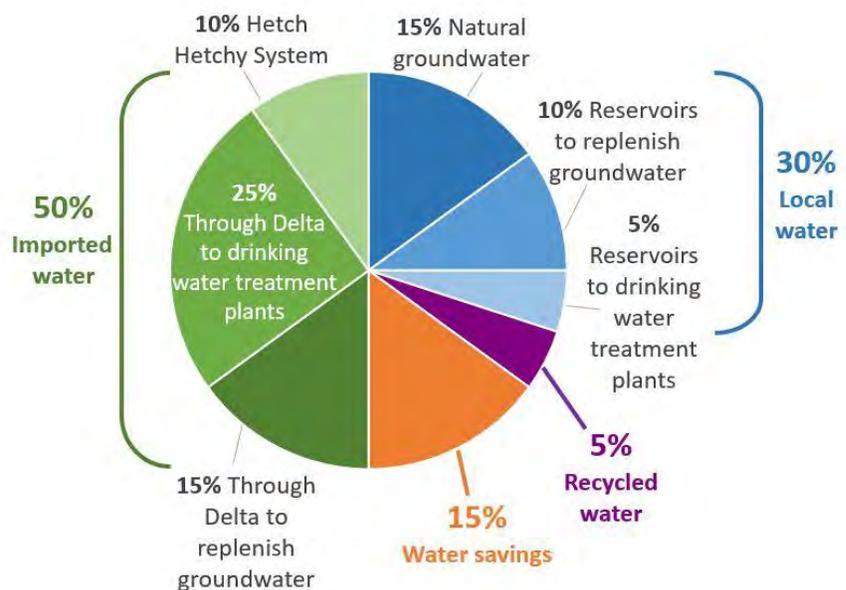
Valley Water Service Area, Demands, and Water Supplies (Section 2)

Valley Water offers water conservation programs and serves water to 13 local retail water agencies located within Santa Clara County (**Figure ES-1**). About half of the County’s water supply currently comes from local surface water, groundwater and recycled water sources (**Figure ES-3**). The remainder comes from imported water sources (i.e., from California Department of Water Resources’ [DWR’s] State Water Project [SWP] and United States Bureau of Reclamation’s [USBR’s] Central Valley Project [CVP] supplies and supplies delivered by the San Francisco Public Utilities Commission [SFPUC] to cities in northern Santa Clara County)

Water demand within Valley Water is projected to be approximately 335,000 acre-feet per year (AFY) by 2040. While water use varies considerably among Valley Water’s retailers, overall use is primarily comprised of residential and commercial uses, but also includes government/public use, irrigation, and recycled water, with distinct seasonal patterns of higher water use in June through October and lower water use in January through March. Water use for all retail agencies has remained lower than pre-drought (2013) usage. Proportions of indoor and outdoor water use is, on average, approximately 58% indoor and 42% outdoor, but varies substantially by retail agency (**Figure ES-4**).

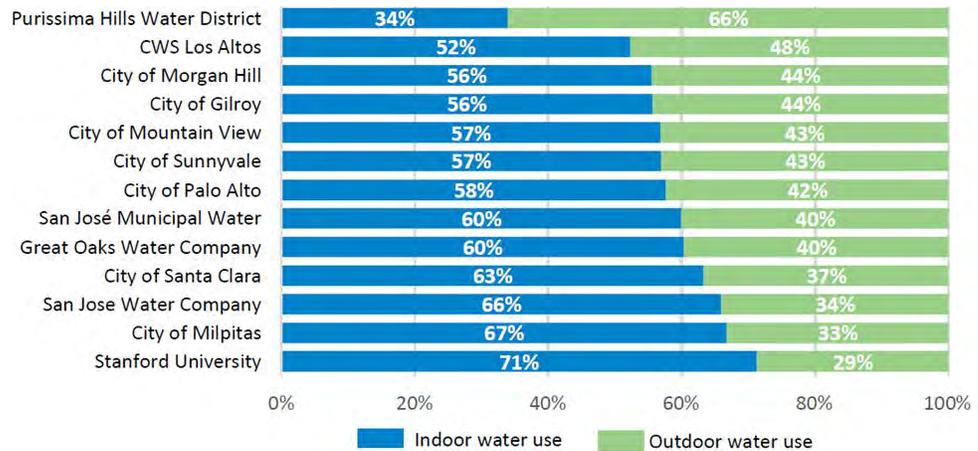
Valley Water faces various challenges related to its future water supply reliability. Potential climate change impacts include: (1) uncertainties in the quantity and timing of imported and local water supplies, (2) increased irrigation and cooling water demands, (3) decreases in surface reservoir water quality, and (4) an increased severity and duration of

Figure ES-3 Water Use by Source



droughts. Other supply reliability challenges include regulatory and permit requirements impacting instream groundwater recharge operations, and imported water supply availability, among others. Valley Water’s *Water Supply Master Plan 2040* addresses some of these supply reliability challenges and outlines a strategy to provide a reliable supply of water to meet Valley Water’s needs through 2040, including a water conservation target of approximately 99,000 AFY of savings by 2030 and about 109,000 AFY of savings by 2040 (Figure ES-5).

Figure ES-4
Estimated Average Indoor and Outdoor Water Use



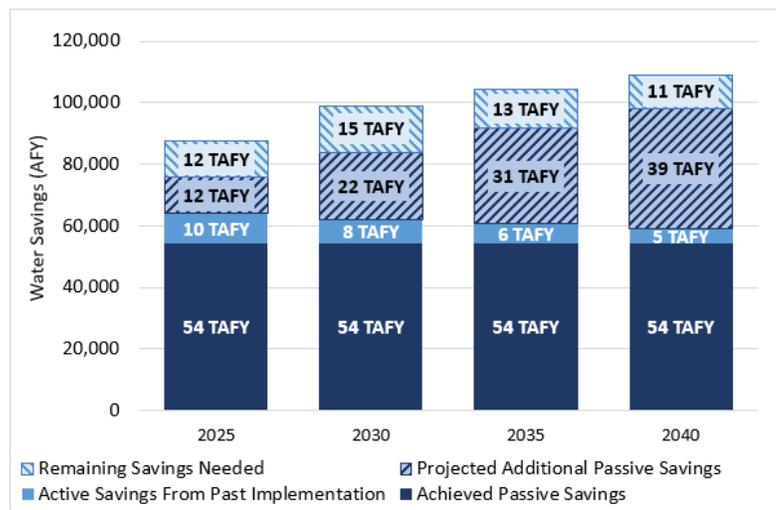
Water Conservation Policies and Targets (Section 3)

Valley Water and its Board of Directors have set specific water conservation policies. Besides Valley Water’s water conservation target (Figure ES-5), in June 2021, the Board of Directors voted to call for water use reductions of 15% compared to 2019 (pre-drought) water use in order to help meet short-term demands during critical dry periods.

In response to the 2012-2016 historic drought in California, Governor Brown issued an executive order titled “Making Water Conservation A California Way of Life.” In 2018, Senate Bill (SB) 606 and Assembly Bill (AB) 1668 passed and state-wide implementation will follow in the next decade. The legislation requires the California Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) to establish standards for: (1) indoor residential use; (2) outdoor residential use; (3) outdoor commercial, industrial, and institutional (CII) use with dedicated irrigation meters; and (4) distribution system water losses. The methodologies for calculating the urban water use objectives are still under development, and thus the degree of savings that Valley Water’s retail agencies will need to achieve is not currently known.

Valley Water’s current water shortage management policy is defined by their Water Shortage Contingency Plan (WSCP), which is included as part of their

Figure ES-5
Projected Water Savings to Reach Targets



2020 Urban Water Management Plan (UWMP). The prior WSCP was enacted during the 2012-2016 drought and helped Valley Water meet its water use reduction targets of 20% in 2014 and 30% in 2015.

A survey of all 13 of Valley Water’s retail agencies was conducted in August 2020 to better quantify and understand: (1) which water conservation programs agencies and customers are utilizing; (2) what drives the agencies’ and customers’ needs to increase water conservation; and (3) what additional programs may be beneficial to the agencies and customers.

Results from the survey indicated strong support for Valley Water’s conservation programs and efforts, and a broad interest in continuing existing or similar programs. In addition, the retail agencies expressed openness to implementing new and different water conservation programs, and provided key insight on opportunities for Valley Water to enhance or expand its support to its retail agencies with respect to water conservation.

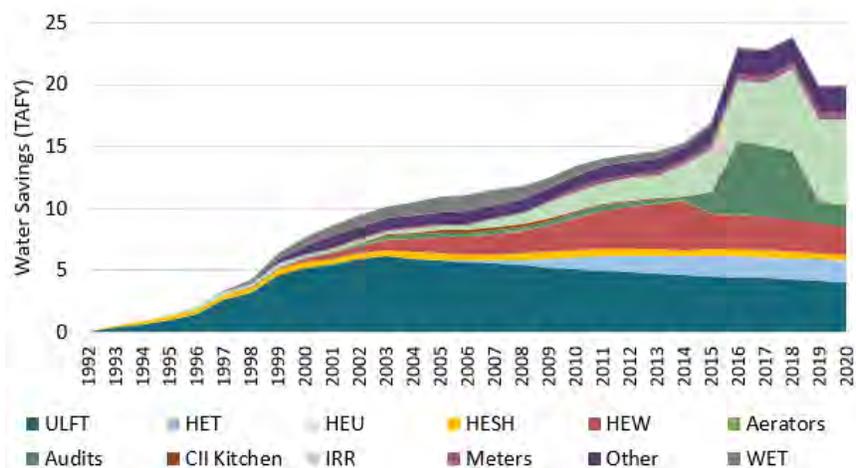
Current Conservation Programs and (Section 4)

Section 4 summarizes the: (1) passive savings achieved to date within the Valley Water service area (**Figure ES-6**), (2) the active savings anticipated to persist based on program implementation to date (**Figure ES-6**), (3) additional passive savings estimated to occur in the future, and (4) the remaining active savings from new program implementation that would be required to achieve Valley Water’s water conservation targets.

Based on this analysis, it appears that Valley Water will need to achieve a total of 37,000 AFY of additional savings by 2030 and a total of 50,000 AFY by 2040.

Based on the projections of passive savings and assuming that public education and outreach programs are continued to maintain passive savings at these levels, active conservation programs will need to achieve 15,000 AFY of savings by 2030 and 11,000 AFY by 2040.

Figure ES-6
Historical Water Savings from Water Conservation Programs



Water Conservation Program Analysis (Section 5)

Participation in select water conservation programs was analyzed to help inform Valley Water as to which customers have been participating in which conservation programs, as well as to help inform the strategic design, selection, and marketing of future conservation programs and services.

The conservation programs selected for analysis included the: (1) Commercial and Multi-Family Dwelling High Efficiency Toilet Direct Installation Program (HET Program), (2) Graywater Laundry-to-Landscape Rebate and Direct Installation Programs (Graywater Programs) (3) two elements of the Landscape

Rebate Program (LRP): Landscape Conversion Rebate and Weather-Based Irrigation Controller (WBIC) Rebate, (4) Submeter Rebate Program (Submeter Program), and (5) Water Wise Indoor Survey Do-It-Yourself Kit and Outdoor Survey (Water Wise Survey Program).

This section summarizes the results of the: (1) temporal and spatial trends analysis that was used to identify areas with statistically higher or lower rates of participation (see the example “hot spot” analysis shown on **Figure ES-7**), (2) building stock characteristics analysis (i.e., an assessment of program participation rates relative to the age of housing stock), and (3) demographic characteristics analysis for each selected conservation program (i.e., an assessment of program participation rates relative to factors such as income, age, and rentership).

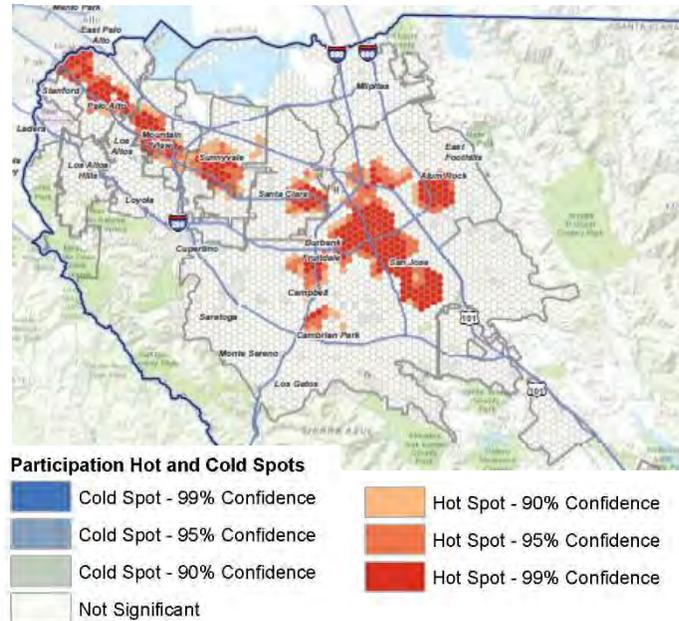
Based on these results, two approaches were identified that Valley Water can use for potential conservation program marketing and targeting: (1) For programs with a good amount of participation to date, Valley Water can expand to new customer groups by targeting future outreach to customers that appear to be underrepresented with respect to program participation; and (2) For programs that have had more limited participation to date, Valley Water can build on current success by identifying customers that share common characteristics (e.g., location, income level, or other demographic characteristics) with those that are currently participating at higher rates and target future outreach to these customers.

Long-Term Conservation Plan (Section 6)

This section first identifies the future water savings associated with conservation program implementation that will be needed to meet the water conservation targets presented in Valley Water’s *Water Supply Master Plan 2040* (**Table ES-1**). Then, based on application of the Conservation Tracking Model, this section presents and evaluates a range of potential conservation programming scenarios with a varying suite of program offerings and implementation levels.

Each scenario is evaluated in terms of its efficacy to meet the water conservation targets, incorporating the potential range of benefits from the Model Water Efficient New Development Ordinance (MWENDO) implementation, as well as evaluating the anticipated budget expenditures to achieve each scenario, and an evaluation of the unit costs of savings associated with each scenario. Based on the scenario analyses, this section also includes an evaluation and discussion of additional considerations for Valley Water’s future conservation program planning, including: (1) a review of the changes in program participation observed during the recent drought period in response to Valley Water’s increased conservation funding and focus, (2) a review of conservation program staffing levels, (3) a discussion of potential regional

Figure ES-7
Participation Density Hot Spot Analysis for High Efficiency Toilet Program



model ordinance considerations, and (4) a discussion of potential new approaches to augment and adapt Valley Water’s conservation programs in the future.

Table ES-1 Valley Water Conservation Targets and Water Savings Requirements

Year	Target Water Savings (AFY)	Savings from Plumbing Codes and Appliance Standards (AFY)	Residual Savings from Pre-2021 Program Participation (AFY)	Required Additional Savings from Programs and Initiatives (AFY)
2020	NA	54,000	NA	NA
2030	99,000	76,000	8,000	15,000
2040	109,000	94,000	5,000	11,000

Savings rounded to nearest thousand AFY and values in rows may not sum exactly due to rounding.

Key findings and considerations for the design and implementation of Valley Water’s conservation programs going forward are summarized below.

- If Valley Water continues its current conservation program at recent levels of implementation and participation going forward, it is not likely to meet its 2030 water conservation target.
- The particular program offerings in Valley Water’s current broad and comprehensive mix of conservation programs are sufficient and appropriate to allow it to meet its 2030 and 2040 water conservation targets, if program implementation rates are increased and shifted towards the highest saving programs (e.g., those that target outdoor landscaping water use). The current program mix remains beneficial because it offers a broad suite of programs to all customers and sectors.
- In order to meet its 2030 and 2040 water conservation targets, Valley Water will need to increase implementation and participation rates in its programs, which will require a commensurate increase in expenditures. Through its experiences responding to the recent, historic drought, Valley Water demonstrated the ability to significantly increase participation in its programs, including ten-fold participation increases for specifically targeted programs, which was enabled by the increased funding allocated to these programs and outreach as part of the drought response efforts.
- Valley Water’s current conservation staffing levels are much lower than that of other similarly sized agencies. With limited staff resources, Valley Water’s ability to deploy and manage programs is limited and even with additional funding, Valley Water may not be able to achieve the levels of implementation identified in the preferred program scenario. Specifically, based on review of the Valley Water’s staffing levels, the current staffing level may not be adequate to continue to expand the programs needed to achieve the water conservation targets.
- It is recommended that Valley Water continue to pursue a broad mix of conservation programs that target all aspects of customer water use. This analysis was based on the already comprehensive and diverse set of program offerings provided by Valley Water. Valley Water’s conservation programs have been so successful in the past in part due to Valley Water’s ability

to adopt new technologies and approaches to conservation as they evolve and in response to the needs within its service area. Three additional opportunities to continue to augment and adapt Valley Water’s conservation programs into the future include: (1) evaluating model ordinance options related to further water demand offset policies, (2) using geospatial-based participation trend analyses as a tool to identify customers to target with marketing and outreach to adaptively manage and increase participation in key programs, (3) considering expanding program offerings to those that provide conservation savings related to water loss, such as a pressure regulating valve or pressure reducing valve (PRV) program, and (4) increasing outreach to small site landscape customers to boost program participation rates and program efficiency.

Water Shortage Management (Section 7)

Drought and other supply interruption risks are real and significant. A variety of planning documents (**Figure ES-8**) are available for Valley Water and their water retailers to employ, including WSCPs, Infrastructure Reliability Plan (IRP), local hazard mitigation plans (LHMPs), and Emergency Response Plans (ERPs), all of which identify actions and responses to address water shortages and droughts.

For example, by employing their WSCP and reacting swiftly to observed and projected water shortage conditions, Valley Water was able to effectively enact water use reduction targets at various stages of the recent historic drought to reduce water use and to mitigate the effects of water shortages. Some effective actions taken by Valley Water to improve water conservation and meet the drought savings targets included: (1) creating avenues for public involvement to report water waste and submit ideas for new conservation programs, (2) active coordination with and amongst water retailers to improve internal and external communication, and (3) increasing rebates for certain conservation programs. These and other actions can serve to support Valley Water’s future drought response planning and actions.

Looking forward, DWR is requiring more stringent and proactive drought response planning through updates to WSCP requirements and annual Supply and Demand Assessment (SDA) reporting. These new regulations will allow Valley Water to incorporate lessons learned from the recent drought and further improve its response and preparedness to future water shortage conditions. As stated in Valley Water’s 2020 WSCP, Valley Water monitors its water supply reliability by using projected end-of-year groundwater storage to provide an early warning signal of potential water shortages and will prepare an annual SDA to quantify any potential supply shortages. As the frequency and severity of droughts in California continues to increase, proactive planning efforts will be more important than ever.

As customer water use becomes more efficient, responses to future droughts may require more effort to achieve the same levels of drought savings achieved in previous droughts, a phenomenon known as “demand hardening.” Depending on the water savings needed in the current or future droughts or water shortages, Valley Water may need to increase outreach and other efforts to achieve the same savings

Figure ES-8
Selected Drought and Risk Planning Documents



results as were achieved during the 2012-2016 drought period, and should assess the degree of demand hardening as part of future drought response planning and efforts.

Program Monitoring and Evaluation (Section 8)

The section identifies recommendations for methods of program monitoring and evaluation to support the continued adaptive management of Valley Water’s conservation program to ensure that its water conservation targets and the needs within its service area are met. The recommendations include: (1) continue utilizing the Conservation Tracking Model to estimate both passive and active conservation savings, (2) periodically update and track percentage and total water use by sector (total residential vs. non-residential) and changes in per capita water use (see the example shown on

Figure ES-9
Example Water Use Characteristic Summary

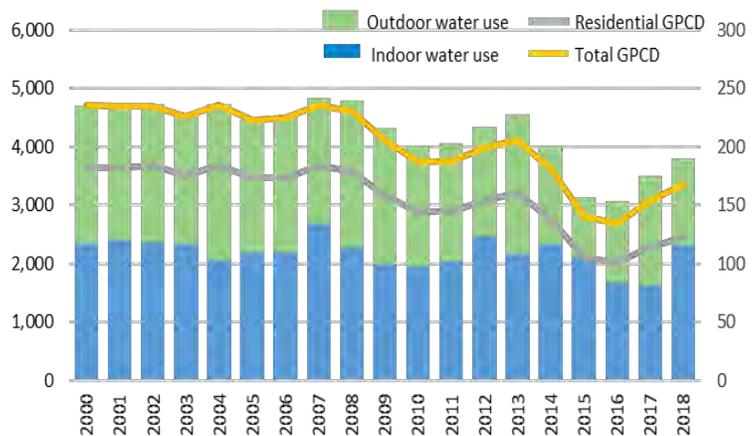


Figure ES-9) to identify trends in water use that may impact program design or effectiveness, and (3) continue to coordinate with its retailers on the annual SDA. These actions will allow Valley Water to be proactively assessing its water demand characteristics and be on track to achieve its water conservation targets.

In order to assess program participation density for conservation programs across the County, a geostatistical spatial analysis was then performed.³³ This analysis identifies participation “hot spots,” which are areas where a higher density of participation is observed than would be expected by randomly distributed participation. Similarly, “cold spots,” or areas of lower than expected participation, are identified. The analyses are limited to areas of the County with parcels of the eligible sector(s) for each program. High density participation areas are identified in red and low density participation areas are identified in blue on **Figure 5-1** through **Figure 5-9**. The size of the cluster analysis hexagonal cells is a function of the amount of participation data included in the analysis; therefore, larger grid cells are shown in the attached figures for programs with lower overall participation.

5.2.1 Commercial and Multi-Family Dwelling High Efficiency Toilet Direct Installation Program

Table 5-1 presents a summary of participation in the Commercial and Multi-Family Dwelling HET Direct Installation Program (HET Program), which began in October 2004. Overall the program has had 1,747 participants through August 2020, and has replaced over 35,000+ toilets and urinal flush valves. Total participation represents approximately 2.1% of the CII and MFR parcels in the service area.³⁴ The highest levels of participation occurred in the first three years of the program (i.e., from 2004 to 2007). Following 2015, there has been a notable decrease in number of participants per year. However, as shown in **Table 5-2**, the number of toilets and urinals replaced through this program has remained fairly consistent, indicating that a large number of units are being replaced per customer. The agencies with the highest participation rates have been the Cities of Palo Alto, Sunnyvale, and Santa Clara, and the lowest participation rates have been in the Great Oaks Water Company, San José Municipal Water System, California Water Service (CWS) Los Altos, and Stanford service areas.

³³ The ESRI ArcGIS 10.8 Optimized Hot Spot Analysis tool was used for spatial hot spot analysis of program participation. The hot spot analysis calculates a Getis Ord G_i^* statistic for each cell. This statistical z-score evaluates how the event (in this case, participation in the program) clusters spatially, by looking at the cell in the context of the neighboring cells. For the purposes of this study, hot and cold spots are identified as cells with a 90% or greater level of statistical confidence.

³⁴ Multi-family customers in buildings with four or more dwelling units are eligible for the program. However, the County Assessor’s data groups parcels with three and four unit buildings together into a single category. Therefore, for purposes of this analysis, participation is estimated relative to all three and four unit parcels. This high level analysis compares the number of participants to the number of parcels, although it is noted that multiple participants may reside on one parcel.

Table 5-1 Summary of Participation in HET Program

Retail Agency	Year														Total	Percentage of CII and MFR Parcels
	Pre-2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Jan - Aug 2020		
CWS - Los Altos	10	2	2	3	6	0	1	3	4	0	0	1	1	0	33	0.80%
City of Gilroy	17	4	7	0	12	0	3	0	1	0	0	0	0	0	44	2.6%
City of Milpitas	40	1	2	3	6	3	2	3	2	0	0	0	0	0	62	1.2%
City of Morgan Hill	5	4	2	4	3	5	3	3	0	0	3	2	0	0	34	1.5%
City of Mountain View	3	14	19	8	43	7	9	4	1	0	4	2	2	1	117	2.0%
City of Palo Alto	33	28	17	10	19	7	23	6	0	0	1	1	1	0	146	4.7%
City of Santa Clara	62	18	9	5	28	23	11	11	5	2	2	4	0	0	180	2.9%
City of Sunnyvale	61	17	19	11	18	14	2	13	23	2	7	0	3	0	190	3.0%
Great Oaks Water Company	5	1	1	1	1	2	0	0	1	1	0	0	0	0	13	0.50%
Purissima Hills Water District	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	2.8%
San José Municipal Water System	7	0	6	1	1	1	0	3	0	0	1	1	0	0	21	0.70%
San Jose Water Company	459	63	79	31	35	29	41	78	39	11	9	8	9	0	891	2.4%
Stanford University	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Retail Agency	3	2	0	2	1	1	0	3	0	1	0	0	0	0	13	0.30%
Total	705	154	163	79	173	92	95	129	76	18	27	19	16	1	1,747	2.1%

Table 5-2 Summary of Toilets and Urinals Distributed Through HET Program

Retail Agency	Year														Total
	Pre-2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Jan - Aug 2020	
CWS - Los Altos	154	13	7	224	11	0	3	45	34	0	0	24	43	0	558
City of Gilroy	113	91	146	0	102	0	5	0	57	0	0	0	0	0	514
City of Milpitas	1,063	2	4	132	403	71	4	15	216	0	0	0	0	0	1,910
City of Morgan Hill	73	13	4	45	36	36	93	33	0	0	9	61	0	0	403
City of Mountain View	5	710	603	510	571	132	40	218	6	0	33	4	3	43	2,878
City of Palo Alto	389	502	214	201	127	16	138	63	0	0	24	767	52	0	2,493
City of Santa Clara	1,296	369	21	160	653	472	123	142	70	518	106	20	0	0	3,950
City of Sunnyvale	944	1,434	958	1,776	744	61	6	76	127	27	491	0	817	0	7,461
Great Oaks Water Company	162	21	2	9	9	11	0	0	20	105	0	0	0	0	339
Purissima Hills Water District	0	0	0	0	0	0	0	75	0	96	0	0	0	0	171
San José Municipal Water System	95	0	45	10	13	12	0	287	0	0	29	1,381	0	0	1,872
San Jose Water Company	2,332	1,655	880	1,046	312	227	641	2,512	1,607	477	390	859	459	0	13,397
Stanford University	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No Retail Agency	126	50	0	14	23	4	0	7	0	0	0	0	0	0	224
Total	6,752	4,860	2,884	4,127	3,004	1,042	1,053	3,473	2,137	1,223	1,082	3,116	1,374	43	36,170

Figure 5-1 shows the results of the participation density analysis for the HET Program. The program shows areas of high participation in the corridor generally between Highway 101 and El Camino Real, as well as areas of San José. Based on this, significant opportunities to increase participation in this program appear to remain in areas that have had a historically lower rate of participation, such as customers located outside of the Highway 101 and El Camino corridor, and in the California Water Service (Cal Water or CWS) Los Altos District, Great Oaks Water Company, and San José Municipal Water System areas.

Valley Water’s Water Conservation Tracking Model also provides an estimate of efficient fixture saturation within the County. This includes estimates of fixtures replaced through conservation programs and as a result of natural change out of fixtures (i.e., passive savings). As shown in Table 5-3 below, it is estimated that only 15% of MFR and 18% of CII toilets and 56% of CII urinals in the County remain inefficient (i.e., 3.5 gpf and greater for toilets, greater than 1 gpf for urinals). Therefore, based on this estimate, less opportunity remains for toilet and urinal change-outs than suggested by the program participation levels identified in Table 5-1, and it may be more challenging to reach these remaining customers.

Table 5-3 Estimated Water Efficient Fixture Saturation Through 2020

Fixture (a)	Single Family Residential (b)	Multi-Family Residential	Commercial, Industrial, Institutional
Efficient Toilets	72%	85%	82%
3.5+ gpf	28%	15%	18%
ULFT	51%	53%	48%
HET	21%	32%	34%
Efficient Showerheads	95%	96%	--
Efficient Washers (c)	66%	51%	92%
Efficient Urinals	--	--	44%
>=1 gpf	--	--	56%
0.5 gpf	--	--	17%
0.25 gpf	--	--	0%
0.125 gpf	--	--	24%
0 gpf	--	--	2.5%

Abbreviations

- gpf = gallons per flush
- gpl = gallons per load
- gpm = gallons per minute

Notes

(a) Fixtures are considered efficient if they meet the following criteria:

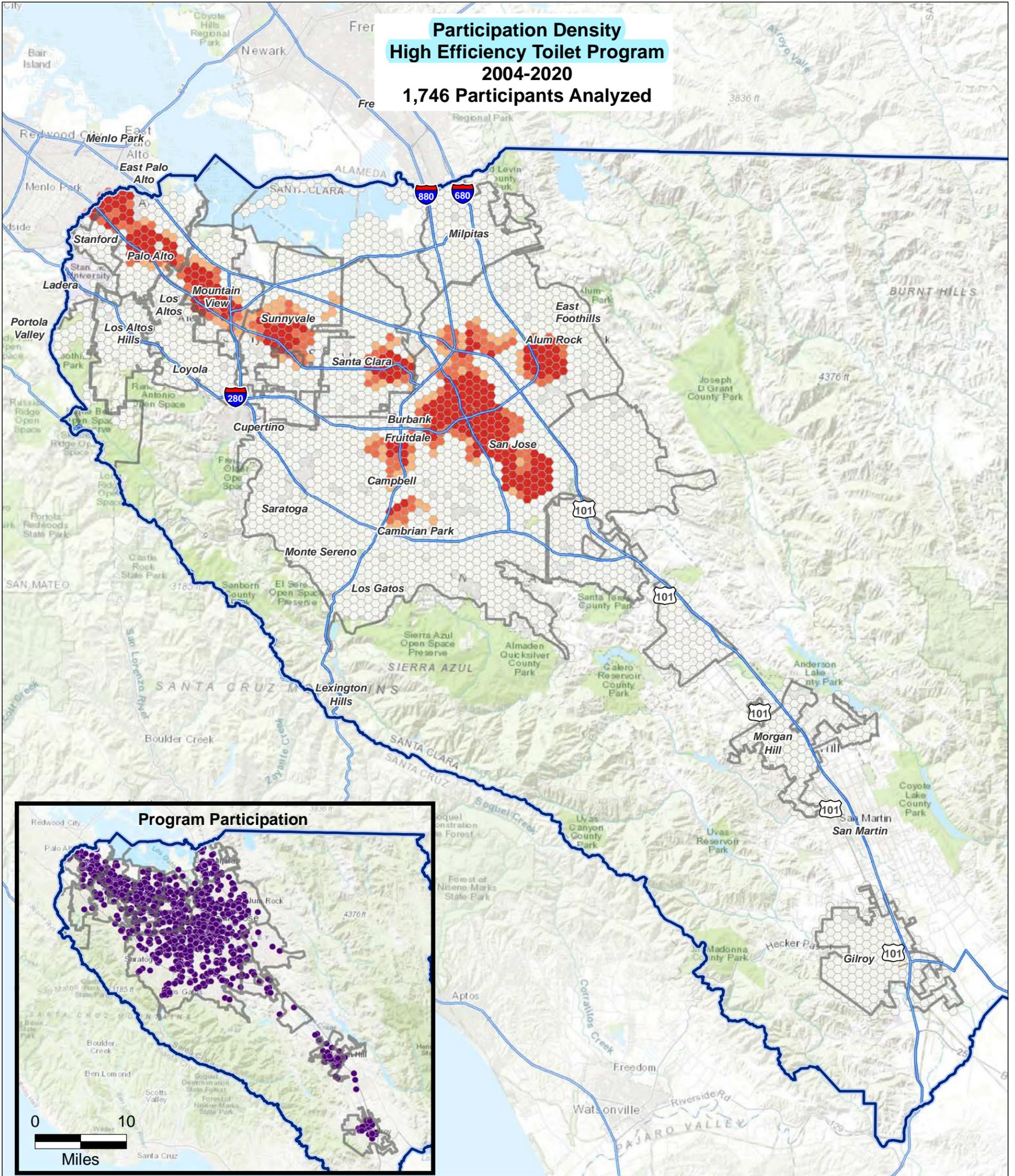
- Toilet gpf <= 1.6 gallons
- Urinal gpf <= 0.5 gallons
- Showerhead gpm <= 2.2 gallons
- Washer gpl <= 30 gallons

An estimated breakdown of efficiency for toilets and urinals (including those not considered efficient) is also provided.

(b) Single Family residential includes mobile home parks.

(c) Multi-Family residential washers includes in-unit and common washers. Commercial, industrial, and institutional washers includes laundromat washers only.

**Participation Density
High Efficiency Toilet Program
2004-2020
1,746 Participants Analyzed**



- Legend**
- Valley Water Boundary
 - Retail Agency
 - High Efficiency Toilet Program Participation
- Participation Hot and Cold Spots**
- Cold Spot - 99% Confidence
 - Cold Spot - 95% Confidence
 - Cold Spot - 90% Confidence
 - Not Significant
 - Hot Spot - 90% Confidence
 - Hot Spot - 95% Confidence
 - Hot Spot - 99% Confidence

- Notes**
1. All locations are approximate.
 2. Program participation hot and cold spots were evaluated using the Esri ArcGIS 10.8.0 Optimized Hot Spot Analysis tool, which calculates a Getis-Ord G_i^* statistic. This statistic is a measure of the spatial distribution of incidents (participation) relative to a random, equally-spaced distribution.
 3. Participants included in this analysis are limited to those for which detailed participation records and location data are available.

- Sources**
1. Conservation program data provided by Valley Water, September 2020.
 2. Basemaps provided by ESRI and Stamen Design, under CC BY 3.0. Data by OpenStreetMap, under ODbL.



Participation Density: High Efficiency Toilet Program

5.4 Demographic Characteristics of Residential Water Conservation Program Participation

The residential water conservation programs are broadly offered to all residents in the Valley Water service area.⁴⁵ Although the programs are available to all residents, those with certain demographic characteristics can tend to participate at higher or lower rates in certain programs. The analyses described in the following sections were performed in order to better understand trends in customer demographics among residential water conservation program participants in the Valley Water service area—specifically, trends related to household income, median age of household members, and whether the home occupants rent or own the property.

5.4.1 Methodology

The following sections describe the data used to analyze demographic characteristic trends in program participation. It should be noted that several of the programs analyzed, in particular the Graywater and Submeter Programs had low levels of participation (i.e., 125 and 44 participants, respectively) relative to other programs and the overall size of the County. These programs are included in the analyses described below, but it should be noted that the results associated with these programs should be considered less robust, and while based on the best available information, due to the small sample sizes may not reflect actual demographic trends in program participation.

Household Income

Household income data were based on the estimated 2018 median household income by Census Block Group (Census, 2020). The average median persons per household for Santa Clara County is 2.97 (Census, 2020). The estimated 2018 median household income by Census Block Group was compared to 2020 California Department of Housing and Community Development (HCD) income levels for a three-person household in Santa Clara County (HCD, 2018). These income levels are defined as follows: very low income (<\$59,850/year), low income (\$59,850 to \$85,050/year), moderate income (\$85,050 to \$135,250/year), high income (\$135,250 to \$169,050/year), and very high income (>\$169,050). For purposes of this analysis, very high income is considered to be 150% of the median income of \$112,700. The following sections discuss the breakdown of participation in the five conservation programs by income classification. Given that these classifications reflect the median of all households in a given Census Block Group, this reflects the predominant income for that area, but does not mean that every participant or household in that area falls within the same income group.

Median Age of Household Members

Median age of household members was similarly based on the estimated 2018 median household age by Census Block Group (Census, 2020). This reflects the median of all household members including children. Thus, a Census Block Group with a median household age of <25 reflects an area with a number of households with children, while a median household age of >55 reflects an area with fewer children and more retirement-age households.

Rentership vs. Home Ownership Status

Rentership status was based on 2018 Census estimates of the number of people living within a Census Block Group that rent the home they occupy (Census, 2020). Thus, a Census Block Group

⁴⁵ The Water Wise Outdoor Survey is not offered in the San Jose Water Company service area.

with a rentership population of less than 25% indicates that the area consists primarily of owner-occupied homes, while a rentership population of greater than 75% indicates that the area is predominantly made up of those who rent their homes.

Program participation was compared to the demographic composition of the Valley Water service area by parcel based on the above characteristics. In terms of interpreting the results, a 0% difference occurs when the distribution of program participation matches the distribution of the demographic characteristics within the service area. A positive relative difference (measured in %) indicates a higher program participation than would be expected if all demographic groups had equal levels of participation. Likewise, a negative relative difference (measured in %) indicates lower program participation than would be expected if all demographic groups had equal levels of participation.

5.4.2 Household Income Trends

The proportion of residential customers in each median household income classification varies within each retail agency area. **Figure 5-17** below shows the proportion of residential parcels within each income group (based on Census data) for each retail agency and **Figure 5-18** shows the distribution of median household income by Census Block Group across the Valley Water service area.

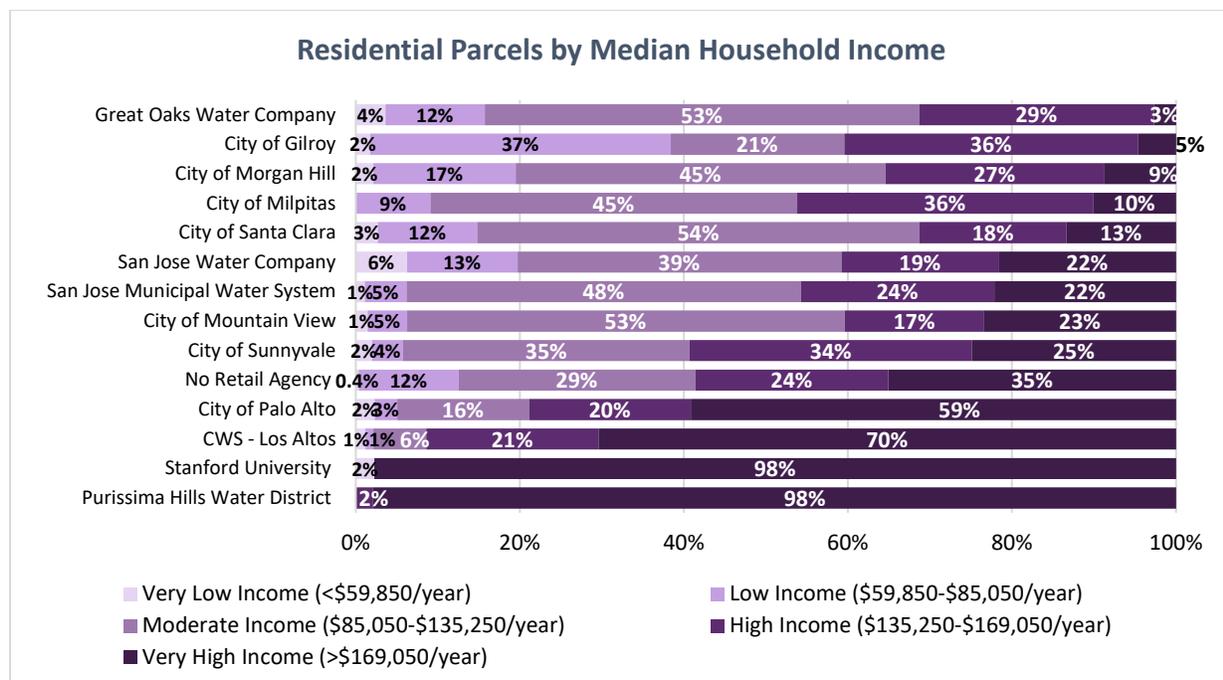


Figure 5-17 Residential Parcels by Median Household Income

Table 5-13 shows the distribution of residential water conservation program participants by income level.⁴⁶ The first chart in **Table 5-13** shows the percentage of participants in each program that live in areas of each income level grouping. The majority of participants in most programs

⁴⁶ Participants are limited to residential customers only, as income and other Census demographic data are not applicable to CII customers.

have been located in moderate to high income areas (up to 51%), and the lowest overall participation has been in very low income households (1.3 to 14%).

The second chart on **Table 5-13** shows participation rates controlled for the number of parcels within the Valley Water service area within each income group. When the relative proportion of number of parcels within each income group is controlled for, customer participation by income level are more variable for each program:

- HET Program (MFR customers) – the highest participation has been by customers in very low to moderate income areas, with the highest participation among these groups by customers in moderate income areas (14% higher). Customers in high and very high income areas have had lower levels of participation (by 9.5% and 16% respectively).
- Graywater Programs (SFR customers) – customers in very high income areas have had the highest rate of participation (by 10%), and customers in moderate income areas appear to be underrepresented by 12%.⁴⁷
- LRP (SFR and MFR customers) – customers in very high income areas have had the highest rate of participation (by 15%), and customers in very low, low, and moderate income areas appear to be underrepresented by 1.7%, 5.5%, and 8.3%, respectively.
- Submeter Program (MFR customers) – customers in very low to moderate income areas have had the highest rate of participation (by 6.8% to 14%), and customers in high and very high income areas show an underrepresentation of 11% and 19% respectively.⁴⁷
- Water Wise Survey Program (primarily SFR customers) – customers in very high income areas have had the highest level of participation, by 17%. Customer in low and moderate income areas appear to be underrepresented by 7.1% and 7.8% respectively.

Based on the above, there appear to be opportunities to increase participation in the Graywater programs in moderate income areas, and in the LRP and Water Wise Survey Programs in low and moderate income areas.

Further analysis of program participation by customer income demographics for customers within each retail agency is provided in **Appendix C**.

⁴⁷ It is noted that the results associated with the Graywater and Submeter Programs should be considered less robust, and while based on the best available information, due to the small sample sizes may not reflect actual trends in program participation.

Table 5-13
Residential Customer Program Participation by Median Household Income
 Valley Water, Water Conservation Strategic Plan

Median Household Income (a)		Percentage of Residential Customers in Santa Clara County (b)	Percentage of Participating Residential Customers (c)				
			HET Program	Graywater Programs	LRP Landscape Conversion and WBIC Rebates	Submeter Rebate Program	Water Wise Survey Program
Very Low Income	<\$59,850	4.0%	10%	5.8%	1.3%	14%	2.9%
Low Income	\$59,850 - \$85,050	11%	18%	13%	6.0%	25%	4.3%
Moderate Income	\$85,050 - \$135,250	38%	51%	26%	29%	44%	30%
High Income	\$135,250 - \$169,050	22%	13%	21%	24%	11%	21%
Very High Income	>\$169,050	25%	8.9%	35%	39%	5.6%	42%

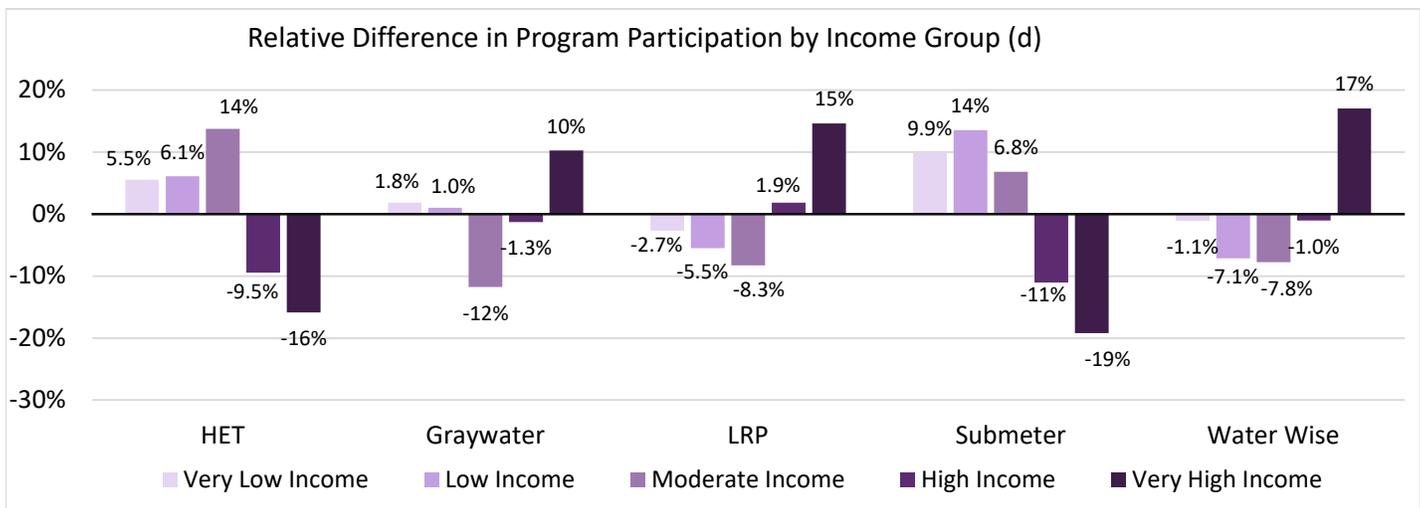
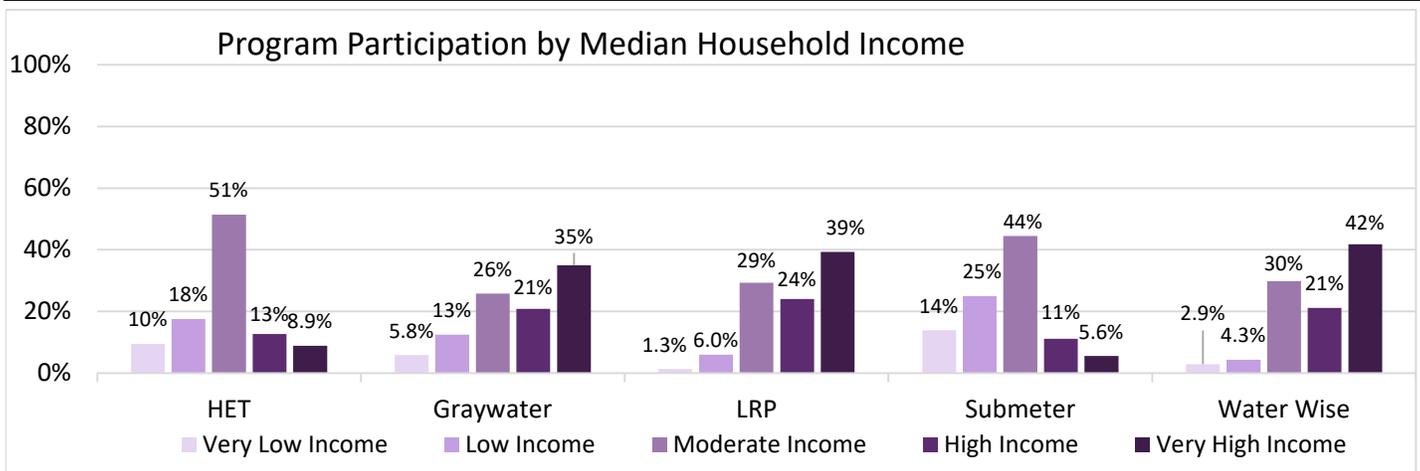


Table 5-13
Residential Customer Program Participation by Median Household Income
 Valley Water, Water Conservation Strategic Plan

Abbreviations:

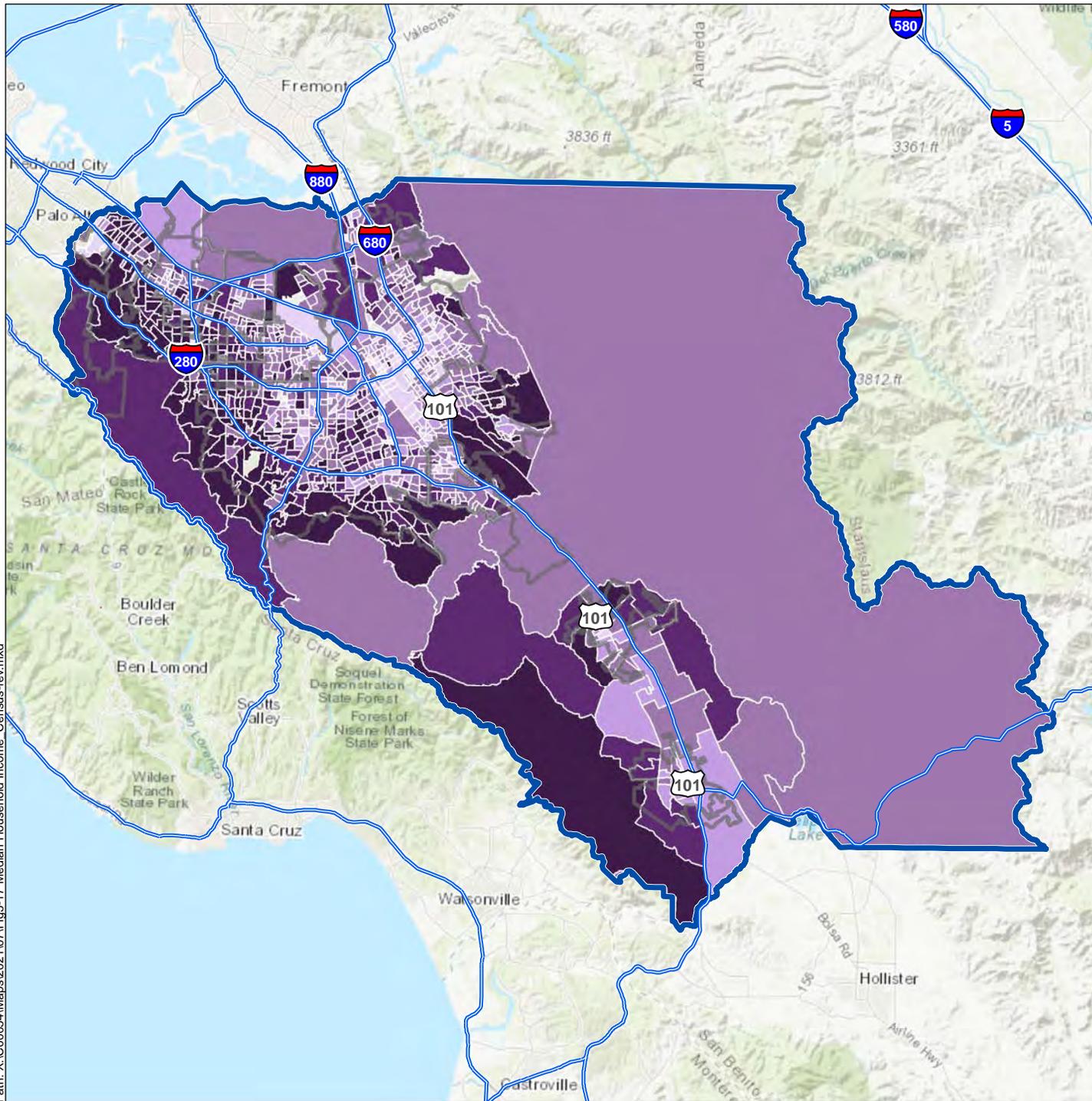
DIY = do it yourself	LRP = Landscape Rebate Program
HET = high efficiency toilets	MFD = multi-family dwelling
HCD = California Department of Housing and Community Development	WBIC = weather-based irrigation controller

Notes:

- (a) Household income is based on estimated 2018 median household income by Census Block Group, per Census (2020). Income level groupings are based on California Department of Housing and Community Development ("HCD") income levels for Santa Clara County for a 3-person household in 2018 (HCD, 2018). Low income includes extremely low and very low groupings. The average persons per household is 2.97 for Santa Clara County.
- (b) Residential customers include both single-family and multi-family customers. Participants included in this analysis are limited to those for which location data are available.
- (c) Several programs have had limited participation. The small sample size should be considered when evaluating these results. Specifically, the Graywater Rebate and Direct Installation Program had 126 residential participants and the Submeter Rebate Program had 45 residential participants.
- (d) Relative difference is calculated as the percentage of program participation by income group minus the overall percentage of residential customers by income group within the service area.

References:

1. Census, 2020. 2014-2018 American Community Survey (ACS) 5-year estimates. TIGER/Line Shapefiles by Block Group, <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>, United States Census Bureau, downloaded July 2020.
2. HCD, 2018. Memorandum: State Income Limits for 2018, California Department of Housing and Community Development, dated 26 April 2018.



Legend

- Valley Water Boundary
- Retail Agency Boundaries

Median Income

- <\$59,850 (Very Low)
- \$59,850 - \$85,050 (Low)
- \$85,050 - \$135,250 (Moderate)
- \$135,250 - \$169,050 (High)
- > \$169,050 (Very High)

Notes

1. All locations are approximate.
2. Household income is based on estimated 2018 median household income by Census Block Group, per Census (2020). Income level groupings are based on California Department of Housing and Community Development ("HCD") income levels for Santa Clara County for a 3-person household in 2018 (HCD, 2018). The average persons per household is 2.97 in Santa Clara County.

Sources

1. U.S. Census Bureau. 2020. 2014-2018 American Community Survey (ACS) 5-year estimates. TIGER/Line Shapefiles by Block Group, <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>, United States Census Bureau, downloaded July 2020.
2. HCD, 2018. Memorandum: State Income Limits for 2018, California Department of Housing and Community Development, dated April 26, 2018.

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Median Household Income

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Water Conservation Strategic Plan
San Jose, CA
July 2021
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Figure 5-18

5.4.3 Household Member Age Trends

The proportion of residential customers in each median household member age classification varies within each retail agency. **Figure 5-19** below shows the proportion of residential parcels within each household member age range (based on Census data) for each retail agency and **Figure 5-20** shows the distribution of median household member age by Census Block Group across the Valley Water service area.

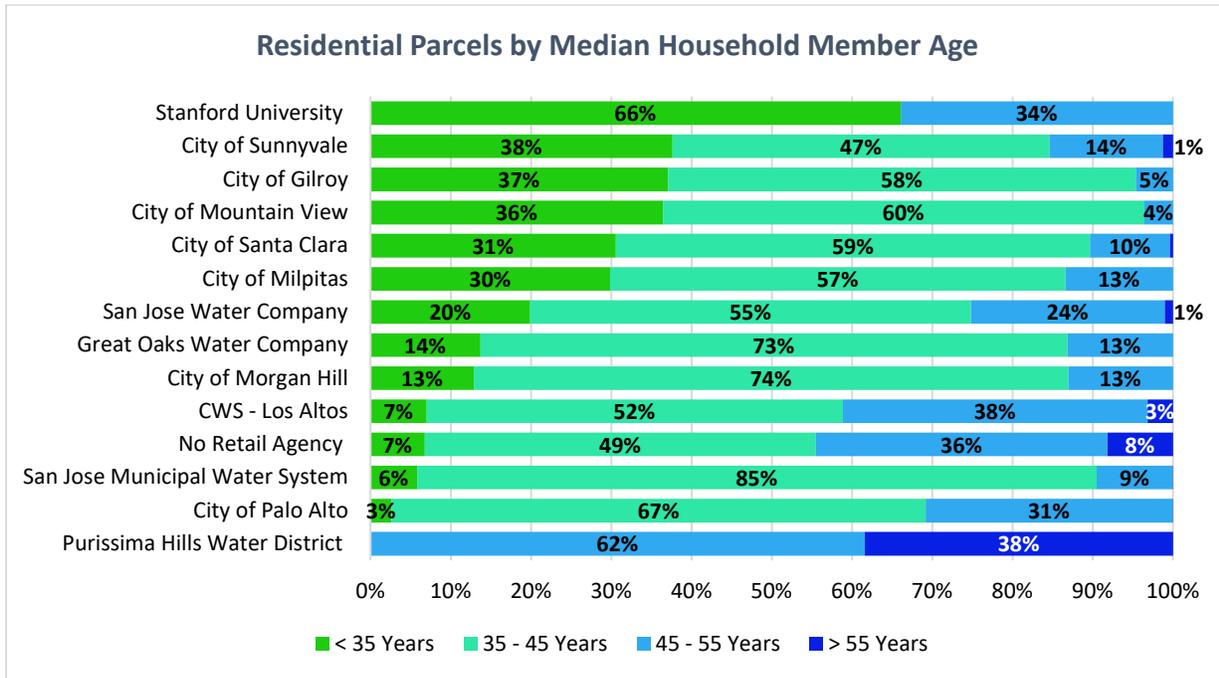


Figure 5-19 Residential Parcels by Median Household Member Age

Table 5-14 shows the distribution of residential water conservation program participants by median household member age range.⁴⁸ The first chart in **Table 5-14** shows the percentage of participants in each program that live in areas of each household member age range. The majority of participants (55% to 65%) for all programs except for the HET Program live in areas with a median household member age of 35 to 45 years old.

The second chart on **Table 5-14** shows participation rates controlled for the number of parcels within the Valley Water service area within each median household member age range. When the relative proportion of number of parcels within each income range is controlled for, customer participation by median household age indicate the following trends:

- HET Program (MFR customers) – customers in areas with a median household age ranges less than 35 years old showed a much higher level of participation (32%), while those in areas of predominantly 35-45 and 45-55 years old appear to be underrepresented by 18% and 13%, respectively.

⁴⁸ Participants are limited to residential customers only, as household member age and other Census demographic data are not applicable to CII customers.

- Graywater Programs (SFR customers) – participation by median household member age was generally consistent, with customers in areas of predominantly 45-55 year old household members having a somewhat higher rate of participation (by 6.7%).⁴⁹
- LRP (SFR and MFR customers) – participation by median household member age was generally consistent, with customers in areas of predominantly 45-55 year old household members having a somewhat higher rate of participation (by 8.8%), and those in areas of predominantly less than 35 year old household members being somewhat underrepresented (by 9.9%).
- Submeter Rebate Program (MFR customers) – customers in areas of predominantly less than 35 and 35-45 year old household members had a somewhat higher rates of participation (7.4% and 7.2%, respectively), and those in areas of predominantly 45-55 year old household members are underrepresented (by 16%).⁴⁹
- Water Wise Survey Program (primarily SFR customers) – customers in areas of predominantly 34-45 year old household members had a higher rate of participation (7.1%), and those in areas of predominantly less than 35 year old household members are underrepresented (by 6.6%).

Based on the above, there may be opportunities to increase participation in the HET Program for households where the median age is over 35, and in the Graywater and LRP Programs where household members are less than 45 years old.

Further analysis of program participation by customer age demographics for customers in each retail agency is provided in **Appendix C**.

⁴⁹ It is noted that the results associated with the Graywater and Submeter Programs should be considered less robust, and while based on the best available information, due to the small sample sizes may not reflect actual trends in program participation.

Table 5-14
Residential Customer Program Participation by Median Household Age
 Valley Water, Water Conservation Strategic Plan

Median Household Age (a)	Percentage of Residential Customers in Santa Clara County (b)	Percentage of Participating Residential Customers (c)				
		HET Program	Graywater Programs	LRP Landscape Conversion and WBIC Rebates	Submeter Rebate Program	Water Wise Survey Program
< 35 Years	20%	51%	17%	10%	27%	13%
35 - 45 Years	58%	39%	55%	58%	65%	65%
45- 55 Years	21%	8.8%	28%	30%	5.4%	22%
> 55 Years	1.3%	0.63%	0.83%	1.6%	2.7%	0.62%

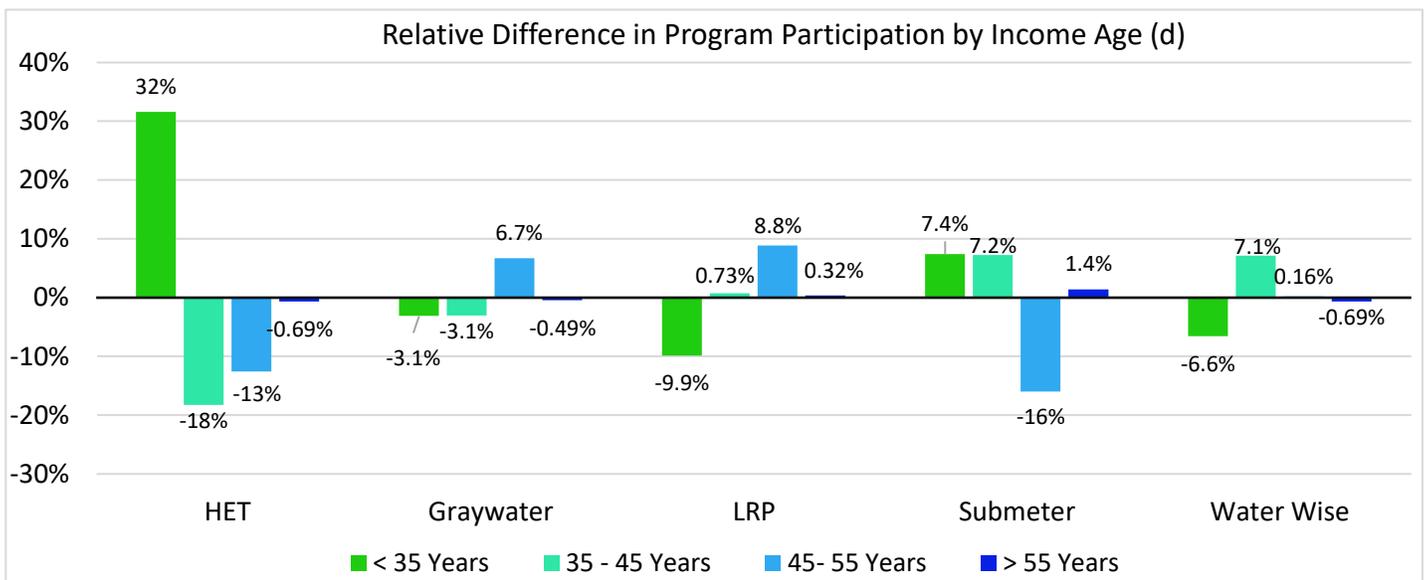
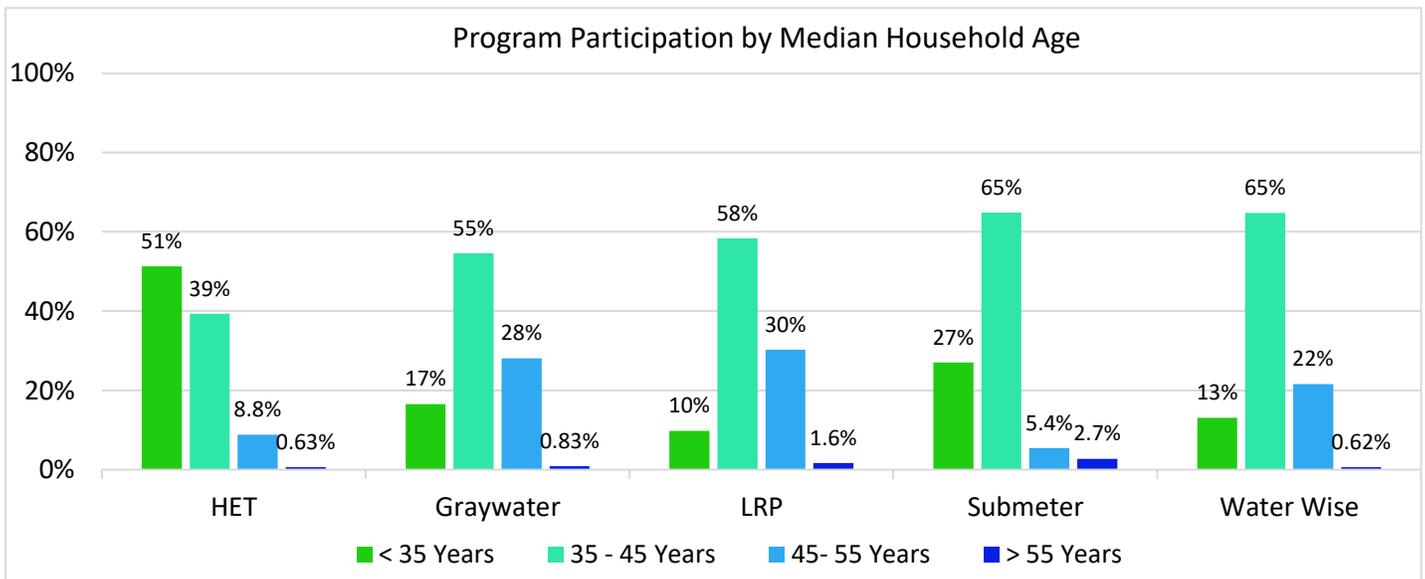


Table 5-14
Residential Customer Program Participation by Median Household Age
 Valley Water, Water Conservation Strategic Plan

Abbreviations:

DIY = do it yourself

HET = high efficiency toilets

LRP = Landscape Rebate Program

MFD = multi-family dwelling

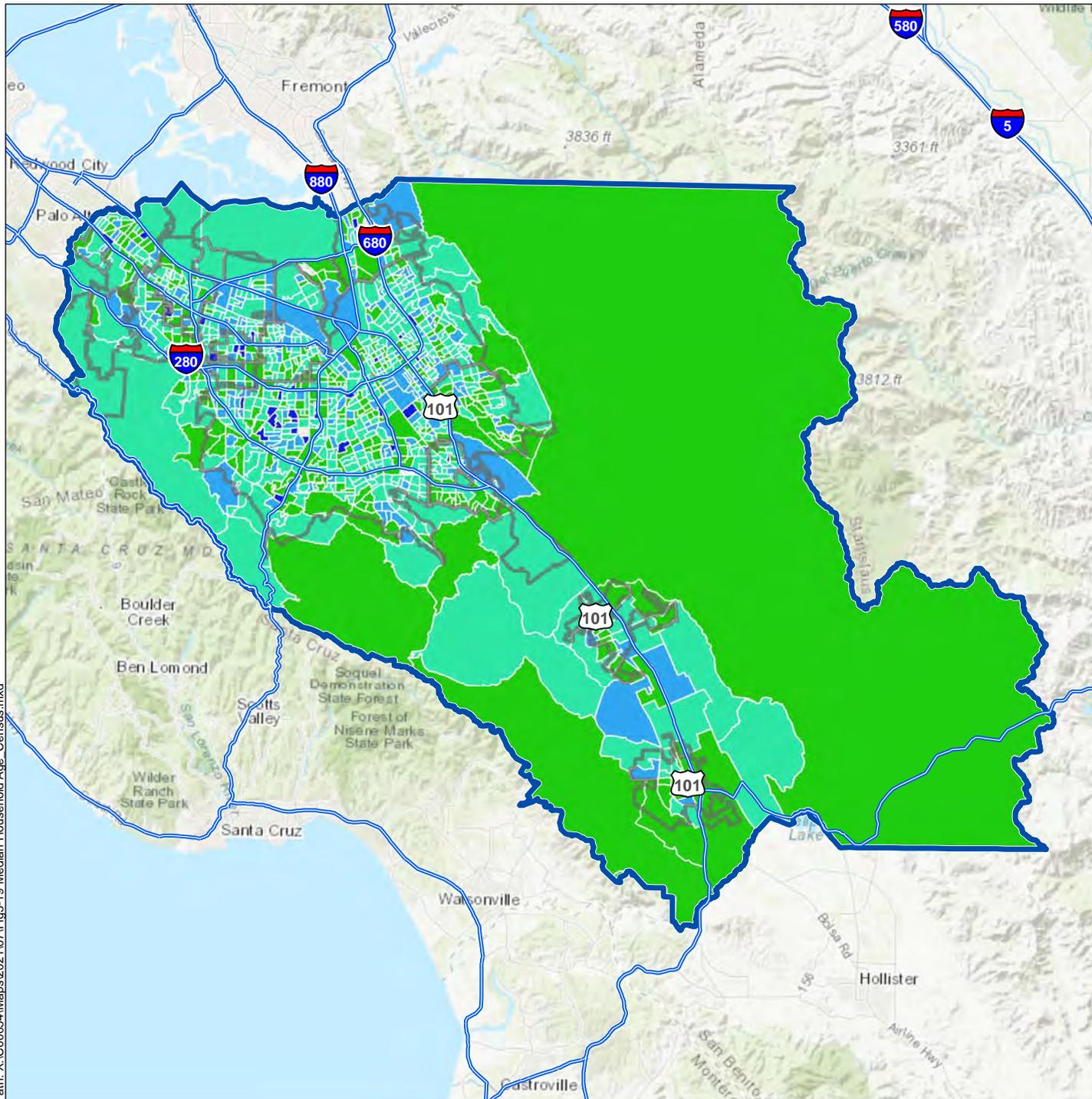
WBIC = weather-based irrigation controller

Notes:

- (a) Median household age is based on the estimated median age of household members by Census Block Group, per Census (2020).
- (b) Residential customers include both single-family and multi-family customers. Participants included in this analysis are limited to those for which location data are available.
- (c) Several programs have had limited participation. The small sample size should be considered when evaluating these results. Specifically, the Graywater Rebate and Direct Installation Program had 126 residential participants and the Submeter Rebate Program had 45 residential participants.
- (d) Relative difference is calculated as the percentage of program participation by income group minus the overall percentage of residential customers by income group within the service area.

References:

1. Census, 2020. 2014-2018 American Community Survey (ACS) 5-year estimates. TIGER/Line Shapefiles by Block Group, <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>, United States Census Bureau, downloaded July 2020.



Legend

- Valley Water Boundary
- Retail Agency Boundaries

Median Population Age

- < 35
- 35 - 45
- 45 - 55
- > 55

Notes

1. All locations are approximate.
2. Household age is based on estimated 2018 median age of household members by Census Block Group, per Census (2020).

Sources

1. U.S. Census Bureau. 2020. 2014-2018 American Community Survey (ACS) 5-year estimates. TIGER/Line Shapefiles by Block Group, <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.html>, United States Census Bureau, downloaded July 2020.



Median Household Member Age

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 Water Conservation Strategic Plan
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Figure 5-20

5.4.4 Percentage of Rentership Trends

The proportion of residential customers that rent versus own their homes varies within each retail agency. **Figure 5-21** below shows the proportion of residential parcels within each “percentage of rentership” range (based on Census data) for each retail agency and **Figure 5-22** shows the distribution percentage of rentership by Census Block Group across the Valley Water service area.

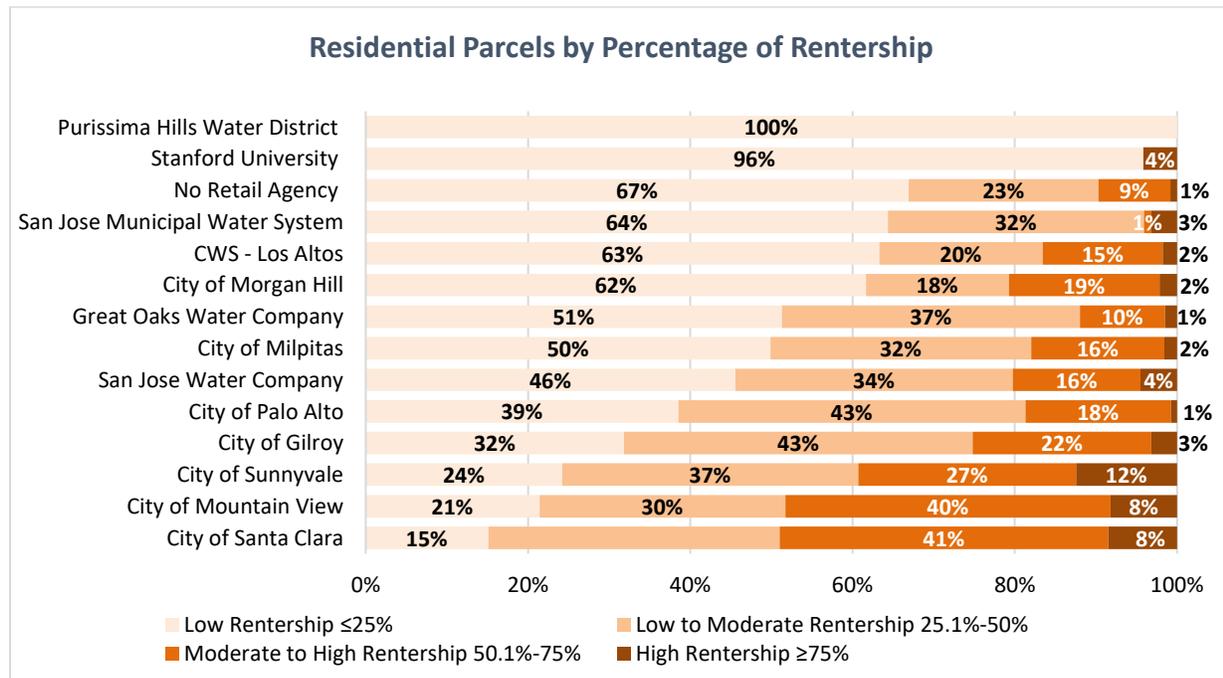


Figure 5-21 Residential Parcels by Percentage of Rentership

Table 5-15 shows the distribution of residential water conservation program participants by percentage of rentership.⁵⁰ The first chart in **Table 5-15** shows the percentage of participants in each program that live in areas of each rentership range. The distribution of participation by rentership ranges varies, with at least half of all participants in the Graywater, LRP, and Water Wise Programs living in low rentership areas, and fewer participants observed as frequency of rentership increases. Participants in the HET and Submeter programs show generally more even distributions.⁵¹

The second chart on **Table 5-15** shows participation rates controlled for the number of parcels within the Valley Water service area within each rentership range. When the relative proportion of parcels within each rentership range is controlled for, customer participation rates by rentership level are more variable for each program:

⁵⁰ Participants are limited to residential customers only, as rentership and other Census demographic data are not applicable to CII customers.

⁵¹ It should be noted that this program began as a pilot program targeting mobile home parks and was then expanded to include all MFR buildings, both of which can include high rates of homeownership through a condominium ownership structure.

- HET Program (MFR customers) – customers in moderate and high rentership areas participated at the greatest rates (by 26% and 25%), with customers in low rentership areas showing underrepresentation by 12% to 39%, which would be expected given that this program targets MFR buildings.
- Graywater Programs (SFR customers) – customers in low rentership areas have shown a higher tendency to participate (by 5.1%), than those in low to moderate rentership areas (by 5.6%).⁵²
- LRP (SFR and MFR customers) – customers in low rentership areas have shown a higher tendency to participate (by 12%) than those in areas of higher rentership.
- Submeter Rebate Program (MFR customers) – customers in moderate and high rentership areas showed higher levels of participation (by 6.5% to 15%), while those in low rentership areas show an underrepresentation of 29%. It should be noted that this program began as a pilot program targeting mobile home parks and was then expanded to include all MFR buildings, both of which can include high rates of homeownership through a condominium ownership structure.⁵²
- Water Wise Survey Program (primarily SFR customers) – customers in low rentership areas showed higher levels of participation (by 7.9%), while those in moderate and high rentership areas appear to be underrepresented by 1.2% to 3.8%.

Based on the above, there may be opportunities to increase participation in the Large Landscape Program and Water Wise Survey Program in areas with higher rates of rentership.

Further analysis of program participation by customer age demographics for customers within each retail agency is provided in **Appendix C**.

⁵² It is noted that the results associated with the Graywater and Submeter Programs should be considered less robust, and while based on the best available information, due to the small sample sizes may not reflect actual trends in program participation.

5.5 Summary of Key Findings for Program Participation Analyses

Sections 5.2 through 5.4 above evaluate past customer participation in five selected conservation programs, including participation trends based on customer demographics, property characteristics, and geography within the Valley Water service area. Based on these analyses, opportunities to increase customer participation in each of the programs are identified throughout the chapter and are summarized as key findings in **Table 5-16**.

On the basis of these key findings, **Table 5-16** also provides recommendations for potential conservation program marketing/targeting scenarios that could be implemented by Valley Water in the future to encourage increases in program participation, as discussed further in Section 6.2.3 as part of the Long-Term Conservation Plan. In general, two approaches are identified:

- (1) **Build on Current Successes** - For programs that have had more limited participation to date, identify customers with characteristics that appear to be currently participating at higher rates, and target future outreach to these customers. That is, build on the successes of the program to date and appeal to those who may be most likely to participate.
- (2) **Expand to New Customer Groups** - For programs that have had a good amount of participation so far, identify customers with characteristics that appear to be underrepresented in the current participant population, and target future program outreach to these customers. That is, provide targeted outreach to the customers with characteristics that as a whole have not historically participated at high rates and appear not to have been as effectively reached by past outreach efforts.

Because these customer characteristics are available in geospatial data, the results of the above analyses can be layered spatially in order to identify and locate the specific subsets of customers meeting these criteria, as illustrated conceptually in **Figure 5-23**, below.

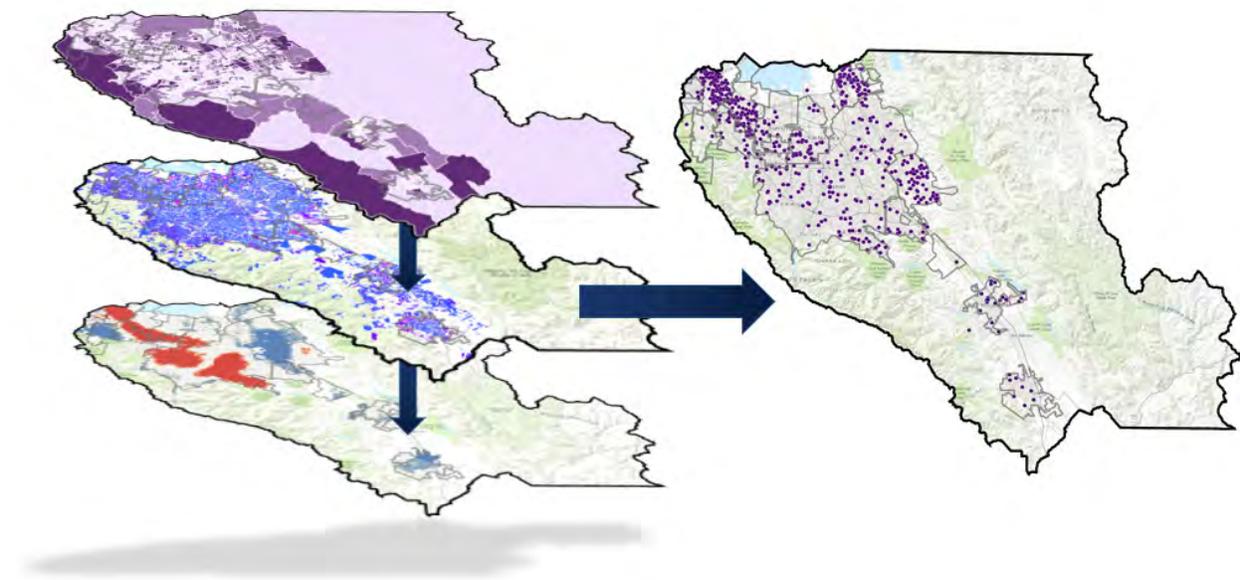


Figure 5-23 Layering Customer Characteristic Data to Identify Potential Outreach Targeting

Table 5-16 Summary of Key Findings and Program Evaluation Recommendations

Program	Key Findings by Analysis			Summary and Recommendations
	Temporal/Spatial	Building Stock Characteristics	Demographics ⁵³ (Residential Customers Only)	
Commercial and Multi-Family Dwelling High Efficiency Toilet (HET) Direct Installation Program (HET Program)	<p>Since its inception through August 2020, there have been a total of 1,747 participants in this program and has replaced over 35,000+ toilets and urinal flush valves. The highest levels of participation occurred in the first three years of the program, from 2004 to 2007. Following 2015, there has been a notable decrease in number of participants per year; however, the number of toilets and urinals replaced through this program has remained fairly consistent, indicating that a large number of units are being replaced per customer. Overall, it is estimated that this program has reached roughly 2.1% of eligible customers. Based on modeling of efficient fixture saturation in the County, it is estimated that only 15% of MFR toilets, 18% of CII toilets, and 56% of CII urinals in the County remain inefficient (i.e., 3.5 gpf and greater for toilets, greater than 0.5 gpf for urinals).</p> <p>Significant opportunities to increase participation in this program appear to remain in areas that have had a historically lower rate of participation, such as customers located outside of the Highway 101 and El Camino corridor, and in the Cal Water Los Altos District, Great Oaks Water Company, and San José Municipal Water System areas.</p>	<p>Residential - The HET Program appears to have been effective at reaching those customers who, given the building age, are expected to receive the highest benefit from this program, and as would be expected given the program eligibility requirements.</p> <p>Commercial Industrial and Institutional (CII) - Customers in older buildings participated in the program at the highest rates, as would be expected given the program eligibility requirements. This indicates that this program has been effective at reaching its target customers.</p>	<p>Income - the highest participation has been by customers in very low to moderate income areas, with the highest participation among these groups by customers in moderate income areas (14% higher). Customers in high and very high income areas have had lower levels of participation (by 9.5% and 16% respectively).</p> <p>Household Member Age - customers in areas with a median household age ranges less than 35 years old showed a much higher level of participation (32%), while those in areas of predominantly 35-45 and 45-55 years old appear to be underrepresented by 18% and 13%, respectively.</p> <p>Rentership - customers in moderate and high rentership areas participated at the greatest rates (by 26% and 25%), with customers in low rentership areas showing underrepresentation by 12% to 39%, which would be expected given that this program targets MFR buildings.</p>	<p>Expand to New Customer Groups</p> <ul style="list-style-type: none"> Identify potential residential customers/multi-family residential (MFR) developments: <ul style="list-style-type: none"> Located in low and very low income areas, and Where the buildings were constructed before 1994. <p>Evaluate the savings potential and cost-benefit associated with targeting these areas with program outreach materials and through other outreach mechanisms.</p> <ul style="list-style-type: none"> Identify potential residential and CII customers: <ul style="list-style-type: none"> Where the buildings were constructed before 1994, and Located outside of the identified high participation density areas. <p>Evaluate the savings potential and cost-benefit associated with target these areas with program outreach materials and through other outreach mechanisms.</p> <ul style="list-style-type: none"> Highlight the disproportionate rate of participation by customers in some retailer agency service areas, and work with retailers to increase customer awareness of, and incentives for participation in, these programs.
Graywater Laundry to Landscape Rebate and Direct Installation Programs (Graywater Programs)	<p>From 2014 through August 2020, there have been a total of 125 participants in this program, which represents approximately 0.07% of the total single-family residential (SFR) parcels in the County, and compared to other programs is a relatively low level of overall participation.</p> <p>Participation rates in all retail agencies are below 0.2%. Given that the program has overall had a low rate of participation to date, significant opportunities remain to reach customers across the County with this program.</p>	<p>Program participants overall tended to have older, smaller homes (building interior size) than participants in other programs, but generally consistent lot sizes.</p> <p>Customers in homes constructed after 1994 appear to be underrepresented by their participation in this program. Unlike programs that replace older fixtures, customers in newer homes have the potential to benefit from this program, but it appears that that potential is not being fully tapped. Thus, this indicates an opportunity to increase participation, including for customers in newer homes.</p>	<p>Income - customers in very high income areas have had the highest rate of participation (by 10%), and customers in moderate income areas appear to be underrepresented by 12%.</p> <p>Household Member Age - participation by median household member age was generally consistent, with customers in areas of predominantly 45-55 year old household members having a somewhat higher rate of participation (by 6.7%).</p> <p>Rentership - customers in low rentership areas have shown a higher tendency to participate (by 5.1%), than those in low to moderate rentership areas (by 5.6%).</p>	<p>Build on Current Successes</p> <ul style="list-style-type: none"> Identify potential SFR customers: <ul style="list-style-type: none"> Located in very income areas, Where the buildings were constructed before 1994, and Have been identified as being eligible for the program. <p>Evaluate the savings potential and cost-benefit associated with targeting these areas with program outreach materials and through other outreach mechanisms.</p>

⁵³ It is noted that the results associated with the Graywater and Submeter Programs should be considered less robust, and while based on the best available information, due to the small sample sizes may not reflect actual trends in program participation.

APPENDIX C

FY2022 Fixture Costs

Valley Water Fixture Replacement Program

Plumbing Fixture Costs as of May 2022

Fixture	Make and Model	Labor Rate Incl. Logistics, Install, Admin, and Overhead	Fixture Cost Incl. Supplies, Recycling and Taxes	Spring 2022 inflation adjustment	Total Cost of Fixtures, Administrative Services, Purchase of Required Fixtures, Installation of Labor	Notes
Ultra-High Efficiency Toilet	SSI-No Clog Point 8 -Bowl-301302W/Tank-301300W	\$245.00	\$180.00	\$30.00	\$455.00	Increased by \$30 at request of vendor on April 25, 2022 (next page)
High-Efficiency Toilet	SSI-No Clog Point 8 -Bowl-301302W/Tank-301300W	\$245.00	\$180.00	\$30.00	\$455.00	Increased by \$30 at request of vendor on April 25, 2022 (next page)
Residential Low Flow Showerhead	Niagara Earth Massage - N2915CH	\$22.00	\$19.47	--	\$41.47	
Residential faucet aerators	Niagara Bubble Spray - N3201-PC	\$13.00	\$4.44	--	\$17.44	
Kitchen pre-rinse sprayers	Niagara - N2180-1.1	\$89.00	\$36.82	--	\$125.82	
Lavatory faucet aerators	Niagara Needle Spray - N3205N-PC	\$13.00	\$4.44	--	\$17.44	
Piston Style Ultra-High Efficiency Urinal	Sloan SU-1009/GEM-2 186.0.125XL	\$485.00	\$435.33	--	\$920.33	
Urinal Flush-Valve Retrofit	Sloan Crown - 186-0.5	\$210.00	\$147.16	--	\$357.16	



David Sonke

CFO/COO
Bottom Line Utility Solutions, Inc.
23015 Del Lago Drive, Suite D-2
Laguna Hills, CA 992653
800-597-2835

April 25, 2022

Alexander Johanson

Water Conservation Specialist I
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

RE: Purchase Order #: SO-0000037773

Dear Alexander Johanson:

As we mentioned in our email correspondence of March 30, 2022, our costs have significantly increased since the contract award from March 11, 2021. These increases are due to the supply chain issues stemming from COVID19 and affecting the costs of the manufactured goods (toilets, valves and supplies) and the transportation charges. These issues have also caused delays and shortages in inventories throughout the industry.

I've provided the original and updated pricing changes from our supplier which illustrates a price increase and also a new freight charge. This is consistent with all of our toilet fixture suppliers.

As mentioned in the earlier correspondence with Rob Edelstein, we are asking for an additional \$40 for the .8gpf toilet and \$30 for the 1.28gpf or lower category toilets.

Please let me know if you need further back up for this consideration.

Please contact either Rob or myself at **800-597-2835**.

Sincerely,

David Sonke

Enclosure: 2 quotes from HD SUPPLY

APPENDIX D

Enforcement Information Sheet



Guadalupe Reservoir in May 2022 at 28% capacity.

Santa Clara County is in a drought emergency

Santa Clara County is in a severe drought emergency. Our water supplies are in jeopardy, especially if next winter is dry. State and local reservoir levels are well below normal and we're experiencing water supply issues never before seen during a drought. We must reduce our water use immediately to ensure we have enough safe, clean drinking water in the future.

Board of Directors calls for water use reduction

In June 2021, Valley Water established a 15% water use reduction goal for Santa Clara County compared to 2019 use. Actions to assist the public in conservation efforts include the introduction of a free online shopping cart at delivr.com/2th9x and doubling the amount of money offered through our Landscape Rebate Program, including \$3,000 for residential sites and \$100,000 for commercial and multi-family sites.

Restrictions on outdoor watering



Outdoor watering that causes runoff, such as this ponding of water on a sidewalk, is restricted. Watering between 9 a.m. and 6 p.m. is also not allowed.

All property owners in Santa Clara County who receive potable water supplied or managed by Valley Water, either directly or indirectly by a water retailer, must **NOT** do any of the following:

- Water ornamental lawns more than two days a week.
- Water any outdoor landscape between 9 a.m. and 6 p.m.
- Water in a manner that results in excessive runoff.
- Water outdoors during and within 48 hours of a storm.

Enforcement program

Valley Water focuses on education to address water waste, but has the ability to impose fines for those who ignore repeated notices to correct violations. The prohibitions apply to properties in Santa Clara County that receive water supplied by Valley Water directly or indirectly.

Our enforcement program will complement the existing enforcement programs of our water retailers. You can find your water retailer by visiting valleywater.org/find-my-retailer.

The two-day watering limit does not apply to sports fields and functional turf areas that are regularly used for recreational, civic, school and community events.



How to report Water Waste

Valley Water's water waste inspectors respond to reports of water waste and violations of local water use restrictions. To report water waste, you may select any of these convenient options:

1. Download our Access Valley Water app or go to access.valleywater.org/customer/s/ and select the "Conserve Water & Save with Rebates" category, or search "water waste" in the search bar.
2. Call (408) 630-2000
3. Email WaterWise@valleywater.org

Please include photos, cross-streets and landmarks with water waste reports whenever possible.

[continued on back →](#)

How to appeal a fine

Property owners who want to file an appeal and present evidence that a violation did not occur have 30 days upon receiving a Notice of Violation/Fine, issued by Valley Water, to mail a written request for a hearing to:

Valley Water
Clerk of the Board
5750 Almaden Expressway
Valley Water, San José, CA 95118-3686

The request for hearing shall be deemed received by Valley Water on the day it arrives at Valley Water. The Clerk of the Board shall notify the property owner in writing of the place, date and time of the hearing, which will take place no earlier than 30 calendar days after the Notice of Violation was issued.

The Chief Executive Officer or designee shall conduct a hearing considering all applicable facts and issue a written decision. The Chief Executive Officer's or designee's decision shall be final.

Say YES to saving water



The easiest way to reduce water use is by cutting back on outdoor watering, responsible for about 50% of residential water use. Valley Water is asking residents and businesses to please consider letting your lawn go brown this summer or replacing it with a drought-resistant landscape.

Valley Water offers signs you can place in your yard letting neighbors know you are saying yes to saving water during the drought by letting your lawn go brown.

During drought periods in California, even as other parts of your yard go brown to conserve water, please remember to water your trees.

Valley Water also offers rebates through our Landscape Rebate Program to convert your thirsty lawn to drought tolerant landscaping or to upgrade your watering system. Residents and businesses can take advantage of our robust conservation programs by visiting watersavings.org.

Other tips include:

- Taking five-minute showers with a water-efficient showerhead will save about 12.5 gallons per shower.
- Fixing leaky toilets can save 30-50 gallons a day.
- Doing full loads of laundry (save 15 to 45 gallons per load) and dishes (save 5 to 15 gallons per load).



Questions?

For more information, please visit:
beheard.valleywater.org/drought-information.

CONTACT US

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



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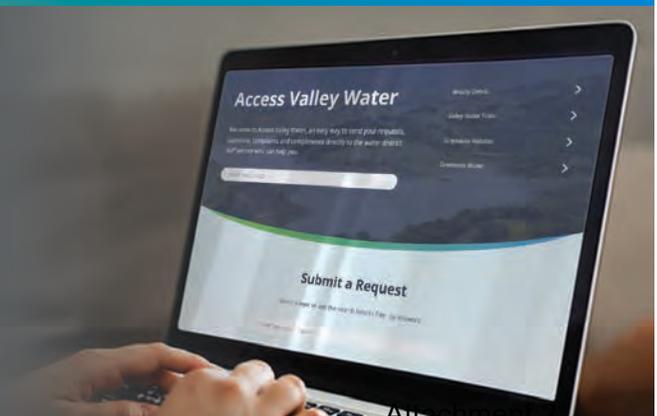


valleywater



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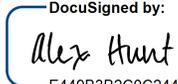
APPENDIX E

CEQA Exemption

SANTA CLARA VALLEY WATER DISTRICT**CEQA Internal Decision Memorandum
Transmittal Form**

Project:	Fixture Replacement Program	Determination:	Categorical Exemption
Project No.:	91151001		
Project Manager/ Extension:	Keila Cisneros Ext. 2653	Environmental Planner/ Extension:	Alex Hunt Ext. 3007

Signature on this transmittal indicates agreement with the recommendations of the attached Internal Decision Memorandum and supporting documents. Approval is required to move the package forward to the next approving authority.

DATE	NAME	TITLE	ACTION
7/26/2022	DocuSigned by:  E449B3B2C0C2446... Alex Hunt	1. Senior Water Resources Specialist (originator)	Originates the green folder, prepares the IDM Transmittal Form, IDM, and Notice of Exemption, signs the IDM, and ensures the signature chain is complete.
7/26/2022	DocuSigned by:  98E2096F214B4A9... Kurt Lueneburger	2. Environmental Services Unit Manager	Reviews the IDM and Notice of Exemption to ensure staff determinations are consistent with CEQA requirements. Signature on the IDM Transmittal Form indicates concurrence with staff determination and recommendation of IDM and Notice of Exemption to Deputy Officer.
7/26/2022	DocuSigned by:  43288E0D5B584B4... Keila Cisneros	3. Management Analyst I (Project Manager)	Reviews the IDM and Notice of Exemption to ensure project information is accurate.
7/26/2022	DocuSigned by:  07DC7252C3DA4F7... Vincent Gin	4. Deputy Operating Officer	Signature of the IDM Transmittal Form indicates endorsement of the staff determinations.

ROUTE IN GREEN FOLDER



MEMORANDUM

TO: Vincent Gin, P.E.
Deputy Operating Officer

FROM: Alex Hunt
Senior Water Resources
Specialist

SUBJECT: Internal Decision Memorandum – Categorical
Exemption for the Fixture Replacement
Program

DATE: July 26, 2022

RECOMMENDATION

This memorandum provides the basis for the Environmental Planning Unit recommendation that the proposed Fixture Replacement Program (Project) qualifies for a Categorical Exemption (CE) under the California Environmental Quality Act (CEQA).¹ This recommendation was developed based on review of the Project background and discussions with the Project team.

ISSUE

The proposed activity is a project as defined by CEQA, so Valley Water must determine the appropriate level of environmental review to fulfill its role as lead agency. This memo considers whether the proposed Project is exempt from the requirements of CEQA pursuant to CEQA Guidelines §15301.

CEQA STANDARD

A Class 1 (Existing Facilities) CE is available under CEQA Guidelines §15301.

“Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use. Examples include but are not limited to a) interior or exterior alterations involving such things as interior partitions, plumbing, and electrical conveyances...”

A project that qualifies for a Class 1 CE may still not be exempt if any of the conditions in CEQA Guidelines §15300.2 exist.

PROJECT BACKGROUND

Water conservation is a proven measure toward enhancing local water supply reliability. Valley Water has provided a robust water conservation program since 1992. In November 2019, the Board approved the 2040 Water Supply Master Plan that updated the long-term conservation targets to 99,000 acre-feet per year (AFY) and 109,000 AFY by 2030 and 2040, respectively. In October 2021, the Water Conservation and Demand Management Committee received Valley Water’s updated Water Conservation Strategic Plan to guide staff on how best to achieve the long-term targets.

During droughts, reducing demand through conservation is the first and most cost-effective measure that water agencies rely upon to address a water shortage while also contributing to long-term water supply reliability. In response to the ongoing extremely challenging drought conditions, Valley Water is seeking a \$2,000,000 grant from the United States Bureau of Reclamation (USBR) to support its water conservation and demand management programs. The increased funding would mitigate rising water

¹ Public Resources Code §21000 et seq. and CCR Title 14 Code of Regulations §15000 et seq.

rates and would allow for greater county-wide participation which would ultimately benefit disadvantaged areas of Santa Clara County.

In response to Valley Water's efforts to promote water conservation along with extensive outreach efforts, participation in Valley Water's conservation programs has skyrocketed and outside funding is needed to sustain and expand services to even more residents.

The USBR grant can provide a supplemental funding source to minimize potential impacts on water rates in response to Valley Water's drought response which would ultimately benefit disadvantaged areas of Santa Clara County. The grant may also increase the likelihood that Valley Water's water conservation programs remain appropriately funded to maximize participation during the current drought. Funding will be utilized for the Fixture Replacement Program to replace inefficient plumbing fixtures in multifamily, commercial, industrial, and institutional properties; the Online Shopping Cart (eCart) Program; and Landscape Rebate Program's irrigation equipment, rainwater capture, and large landscape lawn to mulch rebates. The eCart Program is not a project under CEQA, and a Notice of Exemption (NOE) was filed for the Landscape Rebate Program on July 13, 2022; however, CEQA review of the Fixture Replacement Program has not yet been completed.

PROJECT DESCRIPTION

The Fixture Replacement Program helps multi-family, commercial, institutional, and industrial properties in Santa Clara County replace out of date and inefficient fixtures with state of the art, high-efficiency, WaterSense Certified replacements. This program is primarily run through Valley Water's vendor, Bottom Line Utilities Solutions, Inc. Program activities generally include replacement of toilets, urinals, showerheads, and faucet aerators within existing buildings. As part of the program, a contractor would review properties and conduct pre-installation inspections to ensure the more efficient fixtures can be properly installed and that the existing fixtures meet the efficiency criteria for consideration of replacement. Fixture installation is routine plumbing work and typically completed in a few hours or less per fixture.

ENVIRONMENTAL EVALUATION

The Project consists of a program to replace inefficient water fixtures with high-efficiency replacements at existing qualifying commercial, institutional, industrial, and multi-family properties. Fixture replacement would not constitute an expansion of existing use and would not involve any physical modifications to the natural environment. Therefore, the proposed Project meets the requirements of CEQA Guidelines §15301 and is eligible for a CE. The Project does not include any factors that would preempt the Project's eligibility for a CE per CEQA Guidelines §15300.2, as described below.

Implementation of the proposed Project would not result in cumulative impacts due to successive projects of the same type in the same place (§15300.2(b)). Fixture replacement would occur one time under the program without recurring maintenance.

The Project would involve the replacement of routine replacement of water fixtures within existing buildings; therefore, there is no reasonable possibility that the Project would have a significant environmental effect to the environment due to unusual circumstances (§15300.2(c)).

The proposed Project would not alter or otherwise affect scenic resources within officially designated state scenic highways (§15300.2(d)), as fixture replacement would occur within building interiors.

The proposed Project involves routine water fixture replacements and would not involve earth disturbing activities capable of exposing people or the environment to hazardous materials. Activities are unlikely to occur on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 (§15300.2(e)).

The proposed Project would not involve modifications of structures of historical significance or result in earth disturbing activities capable of disturbing archaeological resources; therefore, no historical or archaeological resources would be altered or otherwise affected (§15300.2(f)).

CONCLUSION

Staff has concluded that the proposed Project qualifies for a Class 1 CE pursuant to CEQA Guidelines §15301. No exceptions to the use of a CE under CEQA Guidelines §15300.2 would apply. The Notice of Exemption (NOE) is included as **Attachment 1**.

If you approve the use of an exemption for this project, please sign below. Please contact Alex Hunt at Ext. 3007 with any questions.

DocuSigned by:

E449B9B2C0C2446...
Alex Hunt
Senior Water Resources Specialist

Approval:

DocuSigned by:

07DC7252C3DA4F7...
Vincent Gin, P.E.
Deputy Operating Officer

Attachments:

- 1. NOE

cc: CEQA Administrative Record

Attachment 1 – Notice of Exemption

Public Notice
Notice of Exemption



To: Santa Clara County
Clerks Office, Business Division
70 West Hedding Street
San Jose CA 95110

From: Santa Clara Valley Water District
5750 Almaden Expressway
San Jose CA 95118-3686
Telephone (408) 265-2600

Project Title: Fixture Replacement Program

Project Location-Specific: N/A

Project Location-City: Various throughout Santa Clara County **Project Location-County:** Santa Clara

Project Purpose: The purpose of the Fixture Replacement Program is to promote water conservation through the replacement of existing inefficient water fixtures at multi-family, commercial, institutional, and industrial properties.

Name of Public Agency Approving Project: Valley Water

Name of Agency or Person Carrying Out Project: Valley Water

Exempt Status: (check one)

- Ministerial [§21080(b)(1); 15268];
- Declared Emergency [§21080(b)(3); 15269(a)];
- Emergency Project [§21080(b)(c); 15269(b)(c)];
- Categorical Exemptions [§15301, Existing Facilities];
- Statutory Exemptions

Reasons Why Project is Exempt: The project consists of a program to replace inefficient water fixtures with high-efficiency replacements at existing qualifying commercial, institutional, industrial, and multi-family properties. Fixture replacement would not constitute an expansion of existing use and would not involve any physical modifications to the natural environment. Therefore, the proposed project meets the requirements of CEQA Guidelines §15301 and is eligible for a CE.

CEQA Guidelines §15301: "Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination."

The project does not include any factors that would preempt the project's eligibility for a categorical exemption pursuant to CEQA Guidelines §15300.2.

Description of Project: The Fixture Replacement Program helps multi-family and commercial, institutional, and industrial properties in Santa Clara County replace out of date and inefficient fixtures with state of the art, high-efficiency, WaterSense Certified replacements. This program is primarily run through Valley Water's vendor, Bottom Line Utilities Solutions, Inc. Program activities generally include replacement of toilets, urinals, showerheads, and faucet aerators within existing buildings. As part of the program, a contractor would review properties and conduct pre-installation inspections to ensure the more efficient fixtures can be properly installed and that the existing fixtures meet the efficiency criteria for consideration of replacement. Fixture installation is routine plumbing work and typically completed in a few hours or less per fixture.

Lead Agency: Valley Water

Contact Person: Alex Hunt

Area Code/Telephone/Extension: (408) 630-3007

Signature: _____

Date: _____

Title: Alex Hunt
Senior Water Resources Specialist

cc: CEQA Administrative Record

Application prepared by Stantec

