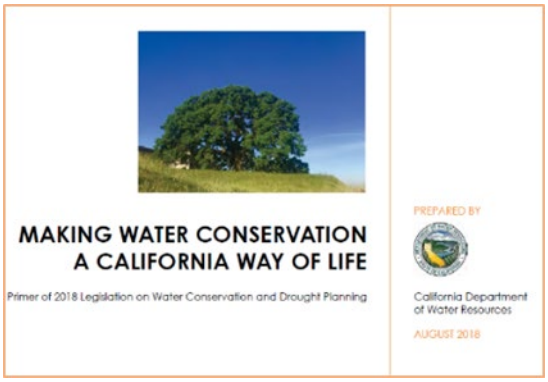
Comprehensive Water Conservation Plan
Las Virgenes Municipal Water District
Fiscal Years 2020-22

1. Introduction

The 2018-20 Comprehensive Water Conservation Plan outlined a number of water conservation programs aimed at reducing wasteful water use, helping customers stay within their water budgets and achieving new and emerging state water conservation regulations. In order to achieve those goals, the District launched several conservation efforts targeting our most wasteful water users and inefficient outdoor water use. This report provides an update of those efforts and what additional efforts are proposed as part of the updated Comprehensive Water Conservation Plan (CWCP). As a principle driver for these efforts, *Making Conservation a California Way of Life* is also summarized with key actions and dates that will form the framework of state water policy for the next decade.

2. Making Conservation a California Way of Life

In 2018, two important legislative actions were passed that require water agencies to implement additional conservation efforts. AB 1668 and SB 606 build on previous state efforts to make water conservation a way of life in California and create a new foundation for long-term improvements in water conservation and drought planning. These legislative actions will provide the long-term direction of state conservation efforts and will have important implications for the District as we implement conservation programs to achieve the state requirements.



SB 606 and AB 1668 establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards, which must be in place by 2022. In addition to these legislative actions, system water loss legislation under SB-555 also requires urban retail water providers to achieve water loss standards for minimizing system water loss (i.e. pipeline leaks). Collectively these bills are anticipated to strengthen the state's water resiliency in the face of future water shortages with provisions that include:

- Establishing water use objectives and long-term standards for efficient water use that apply to urban retail water suppliers; comprised of indoor residential water use, outdoor residential water use, dedicated meters for commercial, industrial and institutional (CII) irrigation on landscapes over a certain size and water loss
- Providing incentives for water suppliers to recycle water for both potable and non-potable uses.

- Identifying small water suppliers and rural communities that may be at risk of drought and water shortage vulnerability and provide recommendations for drought planning
- Requirements for both urban and agricultural water conservation measures

In order to assist with the implementation of these directives, they have been collectively included into an implementation framework called *Making Conservation a California Way of Life*. The framework outlines the actions that state agencies will be taking to implement the legislation and their directives. It also lays out the timelines for each of these actions, which will have important implications for the District and our conservation efforts. Several important actions and their anticipated dates are summarized in Table 1. The framework also includes specific regulatory actions which could occur which are listed in Table 2. The state is proposing progressive regulatory actions for agencies not meeting performance measures starting as early as November 2023. Initial steps will ask agencies to provide more information on what they are doing to achieve regulatory objectives. The actions outlined in the 20-22 CWCP below will allow the District to clearly illustrate steps that have been taken in preparation for new and emerging regulations.

Table 1. Summary of Important Implementation Dates

Date	Actions
July 2020	Adopt Regulation for Water Loss Standard
October 2021	Complete Study on Feasibility of Indoor Water Use Objective
January 2021	Completion of State Developed Land Use Mapping of Landscaped Area
June 2022	Adoption of Water Use Standards and Performance Measures
November 2023	Water Suppliers Calculate Water Use Objectives
January 2024	Water Suppliers Submit Plan to Achieve Water Use Objectives
January 2027	Water Suppliers Need to Meet Water Use Objectives

Table 2. Progressive Enforcement of Water Use Objectives

Deadline	Description
On or after Nov 1, 2023	May Issue Informational Orders
On or after Nov 1, 2024	May Issue Written Notices
On or after Nov 1, 2025	May Issue Conservation Orders
On or after Nov 1, 2027	May Impose Civil Liability (fine) for a Violation of Regulation

2.1 Estimates of Future Compliance

The latest projection for potable water demand with the District's service area by the year 2027 is up to 22,500 acre-feet. This is based on historical use and accounts for additional demands from future development. It does not account for reductions that would result from conservation programs including those outlined in this CWCP. This estimate of projected water use will be revisited when the Urban Water Management Plan is updated for 2020. Staff also compared this projected water use to an initial estimate of water allocation/budget as part of the latest regulations outlined above. Based on this analysis, the projected water use will need to be reduced by as much as 3,000 acre-feet per year (to 19,500 acre-feet per year) in order to align with the state mandated budget by the year 2027. The efforts outlined in this CWCP along with other efforts (i.e. the installation of a Smart Meter/AMI System) and receiving "credits" for the full implementation of the Pure Water Program (potable reuse) are required in order to meet the mandates.

Anticipated reductions in water use are tabulated below:

Efforts associated with the 2018-20 CWCP:	**141**	**AF/Yr**
Efforts associated with the 2020-22 CWCP:	**130**	**AF/Yr**
SmartMeter/AMI System:	**1,000**	**AF/Yr**
Future CWCPs:	**229**	**AF/Yr**
Total (by 2027):	**1,500**	**AF/Yr**
"Credit" for Pure Water Program (by 2030):	**2,000**	**AF/Yr**
Total (with Pure Water Program credit)	**3,500**	**AF/Yr**

As indicated above, the conservation programs along with other programs that will reduce water use, are projected to save as much as 3,500 acre-feet per year. The District may be "shy" of the required reduction by the year 2027 but will be able to demonstrate to the State that it will slightly exceed the requirement once the PureWater Program is producing purified recycled water. The modest buffer of 500 acre-feet per year will ensure that the District will continue meeting the State mandates in future years. This is important as water use behavior can vary year to year despite differences in weather. It is also important to note that these are the best available estimates at this time and will need to be revisited as more up-to-date information becomes available.

3. Results of the 2018-2020 Comprehensive Water Conservation Plan

The 2018-2020 Comprehensive Water Conservation Plan outlined five different efforts to achieve water conservation objectives, which included:

- Weather based Irrigation Controller Giveaway Program
- High Water Use Account Review and One-on-One Consultations
- Rain Barrel Giveaway Program
- Development of a Landscape Initiative
- Improved Education and Outreach Efforts

Collectively, these efforts were anticipated to reduce water use by an estimated 421 acre-feet per year (a reduction of 69 acre-feet in the inefficient and excessive tiers and 352 acre-feet per year in the penalty tier). The plan also specifically identified that these indicators would be evaluated twelve months after full implementation, on or after June 30, 2021. This would provide enough time to see

changes over similar periods from year to year. Staff anticipates providing either the results of the previous conservation plan or an updated conservation plan to the Board of Directors every spring. However, some encouraging results have been seen during the period of implementation of the 2018-2020 Conservation Plan and are discussed below. Some programs such as the Weather Based Irrigation Controller Program (WBIC) provides an opportunity to show measurements in different water use before and after installation as well as comparisons of program participants compared to on-participants. Other programs are more difficult to directly measure benefit, as they do not have a direct or measurable connections to changes in people's behavior and or water use.

In recognition of this difficulty staff have added a new task to the 2020-2022 Conservation plan to allow for better tracking and reporting of conservation efforts and water use patterns. As an ongoing effort, staff will be providing greater detail on conservation efforts and water use patterns on a monthly basis while also providing annual reports and a two-year update to the Conservation Plan. Updates on each of the conservation efforts in the 2018-2020 Conservation Plan are included in the following sections.

3.1 Weather Based Irrigation Controller (WBIC) Giveaway and Installation Program

The District contracted with Rachio Inc. to provide a full service controller installation program that was launched in February of 2019. The program was intended to provide 2,000 smart controllers to customers including a free professional installation. The program was also specifically targeted to wasteful water use customers as defined by those customers that have exceeded 200% of their monthly water budget at least once since the inception of budget-based rates. While specifically intended to target these customers, other customers were allowed to participate in the program; however, marketing was solely targeted to wasteful water use customers. The program was limited to one controller per customer, but if a customer needed more than one controller due the size of their property, up to two controllers would be installed with the second controller purchased by the customer. This resulted in more controllers being installed on large properties with those customers sharing in the cost of the program.

The program was developed with a target of 80% of recipients being wasteful customers and 20% being all other customers in the District. In order to maintain this ratio, an email list was developed for all wasteful customers and prioritized based on how far out of budget customers' water usage was on an annual basis. Email marketing to those customers most out of budget was tiered, with initial marketing limited to only the highest tier. As the redemption rate diminished for that tier, email marketing was initiated for the next lower tier until all tiers had received an email message encouraging them to participate in the program. Once all of the tiers had been exhausted, an email list was developed for all of the wasteful customers that had not redeemed and they were notified of the program on a weekly or bi-weekly basis depending on the amount of customer interest. While these marketing efforts were underway all other customers were allowed to participate in the program if they had heard about the program through word-of-mouth (friends and neighbors).

This type of marketing effort had not been tried before and resulted in very surprising adherence to the originally intended ratio of wasteful to non-wasteful customers. As of March 17, 2020, just prior to suspending installations as a result of COVID-19 concerns, 1,746 controllers had been installed for wasteful water use customers and 393 controllers had been installed for non-wasteful customers. This reflected an 82% redemption by the targeted group of customers and an 18% redemption from non-targeted customers. This indicates that this type of marketing effort could be very effective at targeting wasteful water use customers while still allowing participation of all customers. As a result, no customer was refused the option to participate in the program.

Given the scale of this program, it was important for staff to provide the Board an indication of how much water had been conserved through the implementation to date. On February 18, 2020 staff provided a combined presentation with representatives from Rachio Inc. on estimated reductions in water use as a result of the program.

Figure 1. illustrates the redemption rate of controllers during the implementation of the program. Initial interest in the program was very strong with a rapid increase in redemptions. The redemption rate slowed after the initial surge, which is reflective of diminishing interest in the program from the initial tier of email marketing to customers most out of budget. Redemption rates then pick up again as progressive tiers of email marketing were released. Seasonality could also factor into redemption rates with diminished customer interest in the winter months. However, the curve has flattened out within recent months and redemption rates have flattened with fewer wasteful customers redeeming. This could indicate that the wasteful customers that were interested in the program have already redeemed and the remaining customers are less interested or are satisfied with their current irrigation system. While we could see some renewed interest as the weather warms and people begin to think about getting outside more to enjoy their gardens, it appears that the current marketing efforts have reached a point of diminishing returns.

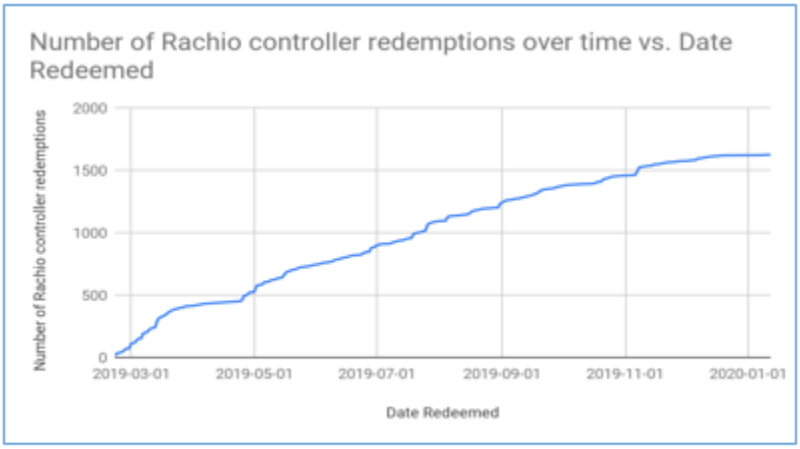


Figure 1. Graph illustrating the redemption rate for smart controllers

The following tables provide a comparison of water use between 2018 and 2019. The numbers that are included in the tables are based on actual water use information for those customers, adjusted for each account, to reflect only the periods of time when the controller was installed. So, if a customer installed their controller in May, water usage between the two years reflects only the water usage from May of the previous year. Two tables are provided for both targeted (wasteful) and non-targeted customers as a comparison between those customers that participated in the program and those that did not participate. It should be noted that in order to be certain the program has resulted in significant water savings, several years of information should be used to make sure there is a consistent water savings.

Tables 3 and 4 provide a comparison of water usage between targeted (wasteful) customers that participated in the program and those that did not participate in the program. "Over Budget" on these two tables refers to customers exceeding 200% of their budget, which classifies them as wasteful, rather than inefficient customers exceeding their budget. Water usage for targeted customers that did not install a controller shows an aggregate reduction in water usage between the two years of -13% (Table 3). While targeted customers that did install the controller show an aggregate reduction of water usage between the same period of 47%.

Table 3. Targeted Customers With No Controller Installed

Percent Over Budget						
	2018		2019		Change	% Change
Sites Over Budget	6,509	80.30%	6,082	75.10%	-427	-5%
Sites at Budget	0		0			
Sites Under Budget	1,593	19.70%	2,020	24.90%	427	5%
Total Sites	8,102		8,102			
Units of Water Used						
Over Budget	1,095,932		949,437		-146,495	-13%
Under Budget	151,345		240,994		89,640	59%

While we cannot say that the controllers were solely responsible for this difference, the change in water usage between the two groups is significant and since outdoor water use is such a large component of water us in the District, it is likely that the controllers were responsible for the vast majority of the difference (not differing weather between the two years). Additionally, there is a corresponding number of customers that drop below the wasteful classification with 21% of customers that participated in the program dropping from wasteful to inefficient or efficient. Also of note, are the changes in under budget water use between participants and non-participants. The change in under budget water use of customers who installed controllers was significantly higher than customers who did not install a controller. Note that one unit of Tables 5 and 6 provide the same information as the previous tables but for non-targeted customers which include both efficient (within budget) and inefficient (between 100 and 200% of budget). Similar to wasteful water use customers, non-targeted customers also showed both a decrease in over budget water use and a decrease in the number of customers over budget when they participated in the program. For those non-target customers that did not participate in the program, there was an aggregate reduction in over budget sites of -5% and a corresponding reduction

Table 4. Targeted Customers With a Controller Installed

Percent Over Budget						
	2018		2019		Change	% Change
Sites Over Budget	1,238	83.30%	925	62.20%	-313	-21%
Sites at Budget	1		0			
Sites Under Budget	247	16.60%	561	37.80%	314	21%
Total Sites	1,486		1,486			
Units of Water Used						
Over Budget	118,907		62,816		-56,091	-47%
Under Budget	11,025		22,373		11,348	103%

Table 5. Non-Targeted Customers With No Controller Installed

Percent Over Budget						
	2018		2019		Change	% Change
Sites Over Budget	2,075	26.10%	1,962	24.70%	-113	-5%
Sites at Budget	52		0			
Sites Under Budget	5,815	73.20%	5,980	75.30%	165	3%
Total Sites	7,942		7,942			
Units of Water Used						
Over Budget	92,426		81,971		-10,455	-11%
Under Budget	676,035		718,443		42,408	6%

in water use of eleven percent between the two years. However, when compared to customers that participated i n the program, there is a more Non-target customers that participated in the program saw an aggregate reduction in sites over budget of minus twelve percent and a reduction of over budget water use of forty-two percent. Similar to wasteful customers, non-target customers saw an increase in the amount of under budget water as compared to those customers who did not install a controller.

Table 6. Non-Targeted Customers With a Controller Installed						
Percent Over Budget						
	2018		2019		Change	% Change
Sites Over Budget	212	52.30%	162	40.00%	-50	-12%
Sites at Budget	0		0			
Sites Under Budget	193	47.70%	243	60.00%	50	12%
Total Sites	405		405			
Units of Water Used						
Over Budget	12,392		7,197		-5,195	-42%
Under Budget	15,544		21,382		5,838	38%

These are encouraging results and show that the installation of smart controllers, 1) reduce the number of customers over budget, 2) reduce the amount of water used over budget and 3) increase the amount of water use within budget. These results also indicate that a program that is available to all customers in the District could have similar results to a program targeted solely to wasteful water use customers.

Since the implementation of the program, approximately 141 acre feet of water have been conserved. This could also be considered an approximation of annual savings since the implementation of the program and analysis of the water savings were done almost exactly one year apart.

3.2 High Water Use Account Review and One-on-One Customer Consultations

Field Customer Service staff have done an excellent job providing one-on-one consultations with customers concerned with high water use. Since the initiation of these efforts in June 2018, 953 one-on-one consultations have been conducted. The 2018 Conservation Plan set a goal of providing detailed review of at least 200 accounts per year and at least 60 comprehensive one-on-one consultations per year.

The process of conducting the account reviews and consultations has been streamlined to allow for both of these processes to occur simultaneously. The on-site consultations now start with a review of account information prior to meeting with customers. Historic water usage is evaluated to see if there are any changes in water usage recently or if the customer is a new resident. The irrigated area of the property is also reviewed and brought to the appointment to review with the customer. While on site, staff go over historic water usage with the customer, check for leaks in the system, review the setting on the irrigation controller and review the District mapped irrigated area to confirm accuracy and modify if needed. Customers are also informed about ways to conserve water indoors. Future reports will look at whether these consultations are making a difference, and to what degree, with regard to reductions in water use.

3.3 Rain Barrel Giveaway Program

In 2018 the District partnered with a local rain barrel provider, Smith Pipe and Supply, to implement a rain barrel voucher program. Customers were informed to contact the District about their interest in the program and staff then verified their eligibility and provided them with a voucher for up to two free rain

barrels. Customers then brought the voucher to Smith Pipe and Supply to receive the barrels. The District was then invoiced by Smith Pipe and Supply for all rain barrels distributed in a month.

This program was literally an overwhelming success. Within hours of notifying customers on our conservation email list, the program was suspended due to overwhelming demand that far exceed the number of rain barrels available. Due to the program being suspended as a result of expense and staff resource available to administer the program, fewer than expected rain barrels were distributed. However, 327 rain barrels were distributed to the initial wave of respondents.

3.4 Development of Landscape Conversion Initiative

Staff performed a comprehensive review of landscape conversion programs throughout the region to see which were most successful and had the greatest longevity. While individual water agencies each implement various conservation programs they are often expensive, grant-funded, limited in scope and often short lived or sporadic in their implementation. Individually implemented programs are usually limited only to customers in a defined service area while neighbors who live relatively close, my not have certain programs available. This can be confusing to customers and may cause additional frustration with conservation efforts.

Additionally, these programs are not able to take advantage of the economies of scale available to partnerships. In addition to providing potential cost savings, regional conservation partnerships allow opportunities to more broadly advertise programs, develop shared training programs for landscapers and customers. Regional partnerships also allow for the opportunity to develop a network of resources such as outreach, different skill sets, equipment and an integrated network of demonstration and botanical gardens. Regional programs that are funded and implemented by numerous agencies appear to have the greatest success and longevity. Key to the success of a local conservation program will be the need to implement regional landscape conversion initiatives.

In an effort to begin developing broader regional partnerships, staff have begun to discuss the development of a regional conservation and landscape conversion program with the Mountains Restoration Trust, a local non-profit organization with extensive experience in community coordination and outreach. Discussions were focused on the potential to seek grant funding to initiate a coordination effort with other entities in the region of the Santa Monica Mountains. Since our initial discussions, the Mountains Restoration Trust has merged Tree People, with a larger non-profit organization with even more experience coordinating local communities. Staff continues to work with these organizations to develop a regional program. Implementation is not expected for at least another year.

3.5 Improved Education and Outreach Efforts

Over the past two years, External Affairs has put a strong focus on outreach and education to both schools and the community. In the Fall of 2019, we saw a dramatic increase in the number of tours given to schools and community groups, with a new focus on project-based tours. This means that now and moving forward, we not only share information on the inner workings of treatment processes, but we help facilitate applied learning using real time data and potential scenarios. This approach not only enhances awareness and understanding of the importance of water conservation and management, but exposes students to a potential future career in water.

Similarly, we've seen an increase in requests to provide an outreach booth at several community events, both new and continuing, across our service area. This has allowed for more personal interactions with our customers, which is a great opportunity to gauge their individual conservation habits and goals. "Conservation fatigue" is something that has come up often following years of drought messaging and the subsequent 2019 wet season, so we have focused conservation outreach on outdoor watering and Pure Water. The Rachio program has proven a big hit with customers, as it provides them with a free smart irrigation controller and the district with an opportunity for outreach regarding watering habits and rebates. Additional outreach also included regular print ads in local newspapers and publications, as well as several large banners on display along Las Virgenes Road during the fall, reminding customers to adjust their watering for the new season. We are looking to expand upon that outreach with radio ads moving forward.

Finally, one of our greatest tools for conservation messaging has been the students. In fall 2019, we partnered with Triunfo Water & Sanitation District and the Oak Park School District for the first time to provide classroom presentations specifically focused on water conservation and water reuse to hundreds of students across six schools. Not only does this expanded outreach help instill water saving behaviors in students at a young age, it also creates an informed child who will then go home and share that messaging with their parents. Similarly, we began to do the same with hands on water activities for LVUSD's Outdoor Education program prior to the COVID-19 concerns.

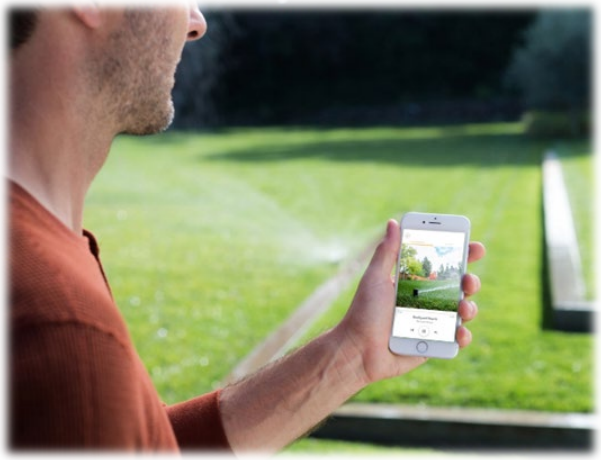
4. 2020-2022 Water Conservation Activities

The District has a history of successful conservation programs and, with the help of our customers, was able to achieve significant water conservation during the last drought, which illustrates that customers in our service area are able to achieve, or exceed, conservation levels that will be required by the state. However, our ability to meet new and emerging water conservation mandates will require a continued and focused effort to achieve required efficiency mandates. Wasteful water use and inefficient outdoor irrigation represent the greatest potential for success and continue to be the focus of the updated 20-22 CWCP. Much of these actions will be building on the success of previous efforts, while others have been modified from the previous plan based upon new understandings. Additional efforts have also been added to the previous CWCP to better address upcoming regulatory requirements. This updated CWCP includes seven efforts that will be implemented over the next two years which are listed below and discussed in greater detail in the following sections:

- Weather Based Irrigation Controller Cost Share Program
- Improved Tracking of Water Use and Conservation Effectiveness (New)
- High Water Use Account Review and One-on-One Customer Consultations
- Rain Barrel Incentive Program
- Regional Landscape Conversion and Conservation Initiative
- Water Loss Prevention Program (New)
- Education and Outreach Efforts

4.1 Weather Based Irrigation Controller Cost Share Program

Outdoor water use presents the largest single opportunity to conserve water in the District. Most of the excess water use that occurs in the District is the result of over irrigation. Estimates of water use indicate that approximately 70% of potable water use is for outdoor irrigation. Reducing excessive irrigation also provides the greatest opportunity to help customers be efficient, stay in budget and reduce the amount of penalties assessed for excessive water use. Consequently, reducing excessive irrigation also represents the greatest opportunity for the District to achieve state-mandated water allocations that will be part of *Making Conservation a California Way of Life*.



Water conservation results from the WBIC program, discussed earlier, showed that the installation of smart controllers can significantly reduce the amount of water used by customers for outdoor irrigation. Smart controllers have the potential to:

- Reduce the number of customers over-budget
- Reduce the amount of water used over-budget
- Increase water use within budget

Results from the first year of WBIC Give Away Program also indicate that a program available to all customers in the District could have similar results to a program targeted solely to wasteful water use customers. In order to continue to build on the success of this program staff reviewed four different approaches to continue the program out lined below.

<u>Option One – Continue with Existing Program</u>

This current program specifically targeted excessive and wasteful water use customers by prioritizing and limiting marketing efforts to the most wasteful customers. However, the program also allows for the participation of all District customers by allowing 20% of available controllers be available to all customers while 80% of controllers would be reserved for customers that have exceeded two hundred percent of their budgets. Currently, 82% of customers participating in the program are wasteful customers while 18% of program participants comprise all other water use types. However, participation of wasteful water use customers has plateaued with fewer wasteful customers participating each month. Which means that the current program is reaching saturation in this customer group. Most of the customers that wanted to participate in the program already have done so.

This program also is the most expensive of all of the alternatives since it includes a free controller and free installation with no cost share from customers. The current program has an average cost per controller and installation of $460. However, this program will also result in the highest level of estimated water savings per controller since it targets the most wasteful customers; however, it is also likely to result in the fewest number of controllers installed over a two-year period based upon current redemption rates. Which also means that maintaining the 80:20 ratio of participants could be

increasingly difficult to maintain as more non-target customers become aware of the program and fewer target customers participating.

Option Two - Modification of Existing Program

Staff also considered modifying the existing program to continue the giveaway program as is for wasteful water use customers while having all other customers either pay for all or some of the combined cost. This approach would create a two-tiered system with the most wasteful customers receiving a giveaway while other customers would have to pay. This would be difficult to market and possibly frustrate those customers that have to pay while appearing to reward customers with wasteful water use. Also, as mentioned above, the program appears to have reached most of the wasteful customers who want to participate.

This alternative would be less expensive per controller than the current program, since some customers would be covering and/or sharing the cost and could be implemented at different scales based upon desired funding levels. However, customers who have to pay would be more likely to do the installation themselves and seek a Metropolitan Water District Rebate. This could result in controllers not being properly set up which reduces the opportunity to maximize irrigation efficiency.

Option Three - Controller/Installation Cost Share (preferred option)

This alternative would provide an incentive for all District customers to install a smart irrigation controller to improve irrigation efficiency. This alternative would still combine the controller and the installation to provide confidence that the controllers will be installed and set up correctly. Customers would also be required to provide part of the combined cost of the controller and installation. Based upon consultation with Rachio Inc. and their experience implementing similar programs through the country, they recommend a customer cost share of around $99, which still incentivizes the program by minimizing customer need to find an installer and submit rebates. In this alternative, a professional installation service would manage the day-to-day operation of the program including scheduling appointments, installing the controller, purchasing controllers at a potentially discounted price and also filing for the Metropolitan Water District rebate on behalf of the customer. In other words, the customer has to simply pay for their cost share and everything else is completed for them.

This is a moderate cost alternative requiring customers to share program costs. The current program has an average cost per controller and installation of $460. However, the program targeted the highest water use customers who are more likely to use the sixteen zone controller and, when needed, the cost of installation of a second controller. Option 3 would allow for all customers to participate in the program which will likely increase the number of efficient and inefficient water use customers. This would reduce the number of sixteen zone controllers which are more expensive than the eight zone controllers. Additionally, the program would not cover the cost of a second controller installation. This could bring the average combined cost closer to $350. When combined with the customer cost share of $100 and the rebate from Metropolitan Water District of $80, the average cost to the District would be about $170. Based upon a $250,000 annual cost, the program would be able to distribute approximately 1,470 controllers per year for two years, resulting in approximately 2,940 controllers installed. Upon full implementation of this program combined with the previous giveaway program, about 25% of residential customers will have a Rachio controller installed.

This alternative would allow for easy marketing of the program for all interested customers while still providing a turn-key service on behalf of the District. By requiring the professional installation as part of the program, it assures that controllers will be set up correctly by a professional installation company and customers will not be inconvenienced by finding an installer or doing it themselves.

Option Four – Controller Only Voucher/Rebate Program

This alternative would not include installation services which would either need to be performed by the customer or a landscape professional of their choice. This alternative only incentivizes the purchase of a smart controller. Customers could potentially take advantage of a discounted rate on a controller available at a web portal specific to District customers who could receive a manufacturer discount negotiated with the manufacturer and the District. Customers could also take advantage of the Metropolitan rebate program. This alternative also includes a District voucher/rebate as an additional incentive.

This alternative could result in the greatest number of controllers being distributed as it is the lowest per controller option for the District. The program would also be very easy to market since all customers would be eligible. However, there would be minimal assurance that the controllers were installed and set up correctly. There would also be an administrative burden on District staff to verify and process vouchers/rebates to assure that only one controller is distributed to each household and that they are District customers.

Based upon the considerations above, staff are recommending Option Three. This option provides reasonable assurance controllers are installed and set up correctly to maximize irrigation efficiency. This option also places the least burden on District resources as all of the program services will principally be managed by an outside service. This outside service provides the most incentive to customers. All they would need to do is pay the cost share and schedule an appointment.

Program Specific Goals

- Reduce water waste resulting from over-irrigation
- Reduce the number of penalty paying customers
- Improve customer engagement and satisfaction
- Maximize the numbers of controllers installed and correctly programmed
- Minimize District administrative effort

Program Cost

Based upon the assumption of moving forward with Option 3 above, $250,000 has been budgeted per year in the proposed FY 20-22 budget. This funding would provide for distribution of approximately 1,470 controllers per year for two years, resulting in 2,940 controllers installed.

It is also important to note that approximately $88,000 in incentive funding could be available from the Metropolitan Water District of Southern California to reimburse District expenses for this program, depending on how the program is implemented. For example, the current program was eligible for

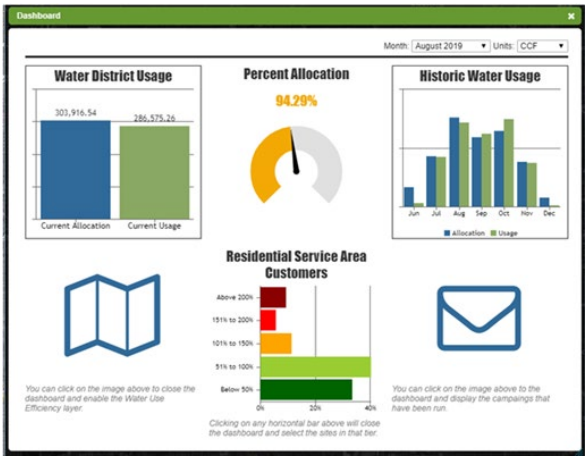
$172,840 in funding from this program since redemption of the Metropolitan rebate was not applied to the program.

Potential Water Savings

The previous conservation plan estimated that the current controller giveaway program would reduce irrigation by between 5,000 and 13,000 gallons per year per single family household. However, assuming total water use reductions for participating customers were the result of controller installations, it appears these estimates could be low. The average water use reduction for targeted customers in the current program was 23,936 gallons per controller installation. The total average water use reduction for non-targeted customers was 9,724 gallons per controller installed. It is also expected that Option Three will result in increased participation of efficient and inefficient customers relative to wasteful customers. Assuming 70% of participants are efficient and inefficient customers and 30% are wasteful, Option Three would result in an estimated 54,978 units of water per year per customer. This translates to approximately 126 acre feet per year.

4.2 Improved Tracking of Water Use and Conservation Program Effectiveness

Eagle Aerial Solutions has been contracted by the state to develop the statewide aerial mapping of irrigated areas to be used for development of water use objectives for retail water providers. This is the same company that completed the mapping of irrigated areas for the District which provided the District the opportunity to participate in the Department of Water Resources pilot program to validate the accuracy of the statewide mapping effort. The results of this effort have not been completed but should provide the District an opportunity to see early results of the statewide mapping effort and be better informed about how closely our mapping of irrigated areas compare to the state.



Eagle Aerial Solutions has developed a software program called WaterView to help water providers track water usage and assist with reporting which will be required as part of Making Conservation a California Way of Life. The software has been specifically developed, with input from member agencies of the California Water Efficiency Partnership, to track water use at both the parcel and district level. The software contains a suite of tools that will allow for more automated tracking of specific water conservation efforts, identification of specific customer types for outreach and focused conservation programs, real-time tracking of compliance with water use allocations and automated reporting.

Program Specific Goals

- Efficient tracking of customer water use
- Improved ability to track results of conservation programs
- Improved ability to measure water use against state water use objectives
- Efficient collection of information needed for regulatory reporting

Program Cost

The District has been able to take advantage of an early adopter program for WaterView which assures that the District will receive a discounted annual subscription fee at least 25% lower than regular pricing. The annual subscription fee for WaterView is $16,500 and is included in the proposed FY 20-22 budget.

Potential Water Saving

Water savings from the development and implementation of this software in conjunction with the other initiatives in this CWCP can be substantial but difficult to quantify at a program specific level.

4.3 High Water Use Account Review and One-on-One Customer Consultations

The Conservation Department is currently in the process of filling a vacant Conservation Specialist position. Once that position is filled, one of their principle responsibilities will be initiating proactive contacts with our most wasteful customers. Based upon a review of the account to evaluate accuracy of irrigated areas and historical water use, high water use accounts will be selected for personal contact and one-on-one consultations.

Field Customer Service currently performs site evaluations for customers who have contacted the District with high bill complaints to help them reduce their water use. The Conservation Specialist will build on the success of these efforts with proactive contact with our highest water users and those using the greatest volume of water in excess of their budget. Participants in the Weather Based Controller Program who continue to exceed their budgets with be prioritized for contact. By meeting with the property owners on-site, District staff will be able discuss water use with the customer to better determine how and where water is being used on the property and how water use can be reduced. Discussions will include proper irrigation scheduling and maintenance and could include an irrigation audit if deemed useful. Indoor water use will also be discussed so that the property owner can better understand how to stay within their total water budget.

Program Specific Goals

- Provide a detailed review of at least 200 accounts per year
- Provide at least 60 comprehensive one-on-one consultations with property owners per year (up to 150 depending on available staffing resources)

Program Cost

This program will be completed with existing staff and budgeted resources and will not require additional funding to complete.

Potential Water Savings

Some of the program elements, such as determining the accuracy of irrigated areas are administrative corrections to budgets that would not result in water savings. The one-on-one consultations could result in significant water savings based upon the issues identified and corrected by property owners. Up front estimation of water savings are difficult to determine with reasonable accuracy. However, water use before and after consultations could be performed to provide more accurate estimations of water savings that result from this program in future years.

4.4 Rain Barrel Incentive Program

Rain barrels have been a popular item during previous giveaway programs with District customers and we hope to build on the success of previous programs by maximizing the educational benefit of rain barrels. Rather than giving rain barrels away we are going to try a different approach and use them to incentivize gardening classes and tours of the Sustainability Garden. The principle benefit of rain barrels is to make customers more mindful of water usage in their yards. In order to maximize that benefit, we will be providing up to two rain barrels per household in attendance at educational events. This will be particularly beneficial for the garden tours given the educational installation of rain barrels and cisterns in the garden. These have been plumbed into the irrigation system of the garden to illustrate how rain water capture can be used to irrigate large trees in customer's yards or directly augment appropriate irrigation systems. It also provides the opportunity to show customers the benefits of a larger capture feature, such as cisterns and educate customers on how these features can irrigate a climate appropriate garden through the winter months.

Program Specific Goals

- Provide up to 100 rain barrels per year to customers free of charge over a two-year period
- Remind customers of the need to conserve water outdoors, especially in the winter months
- Encourage the use of native plants and climate appropriate landscaping
- Incentivize attendance at District educational events
- Provide attractive rain barrels that complement local residences and landscaping

Program Cost

The program is budgeted for $10,000 per year for two years ($20,000 for two years) plus in-house staff time with existing resources that is provided in the proposed FY20-22 operations budget.

Potential Water Savings

Each rain barrel can typically hold about 50 gallons of rainwater and depending upon the surface of the roof can usually fill up even during relatively small rain events. Conservatively assuming six rain events large enough to fill the barrels each year and complete use of the water between events, the program will save approximately 60,000 gallons of water per year. While the dollar amount invested will yield a relatively low water savings, the purpose of the program is aimed at raising awareness for efficient water use that will in turn contribute to the overall water savings from implementing the entire CWCP.

4.5 Regional Landscape Conversion and Conservation Initiative

The single greatest opportunity to conserve water is to educate customers about efficient outdoor water use and encourage the transition from high water demand landscaping to more efficient landscaping practices. Traditionally, this has been done by linking reduced water use to saving money. While this message is appealing to some, it has a limited audience and does not motivate all customers. Also affecting the decision to modify landscaping is fear of change, lack of inspiration, uncertainty about how it will look, cost of conversion and concern about their ability to convert their landscaping.

Addressing the concerns that customers have, in addition to the cost of outdoor water use could significantly broaden the appeal of conservation programs. Capitalizing on the District's location in the Santa Monica Mountains and the beauty of the local environment have a direct connection to native and climate appropriate landscapes that integrate with and compliment the local ecology. Making a connection to the ecosystem services that native landscapes provide could broaden the appeal of native gardens and inspire customers to convert to landscaping that provides food and habitat for local wildlife. Since native gardens provide these resources, they will attract beneficial wildlife such as birds and insects that provide natural pest control in native gardens. Additionally, native plants do not require fertilizers or pesticides, which reduces the need to use harmful chemicals that impact local watershed. The Las Viergenes-Triunfo Sustainability Garden provides a new educational resource to teach customer about climate appropriate landscaping and a first-hand opportunity to see how appealing these landscapes can be.

Efforts in the previous conservation plan focused primarily on reviewing other landscape conversion initiatives implemented throughout the region to identify opportunities to build on other programs successes and to determine which types of programs would be most likely to succeed in the District's service area. Numerous programs were identified, however most were focused around turf removal incentives which were in large part grant-funded initiatives tied to the Metropolitan Water District's turf removal program. Most of the more recognized, successful and longest lived programs have been implemented

through cooperative partnerships with other water purveyors or municipalities. Examples include the Waterwise partnerships in Ventura and Santa Barbara Counties.

Additionally, these programs are able to take advantage of the economies of scale available to partnerships. In addition to providing potential cost savings, regional conservation partnerships allow opportunities to more broadly advertise programs, develop shared training programs for landscaper's and customers. Regional partnerships also allow for the opportunity to develop a network of resources such as outreach, different skill sets, equipment and an integrated network of demonstration and botanical gardens. These partnerships also allow for the development of innovative programs that can be shared will all customers in a region. Programs such as the "Garden in a Box" discussed in the previous conservation plan are much more likely to succeed when they have a large enough customer base to support continued implementation.

Staff will continue to evaluate other regional opportunities, such as joining the Ventura County Waterwise efforts while also evaluating the opportunities to develop a regional program more specific to the Santa Monica Mountains. As part of this effort, the staff will continue to build on the partnership initiated with Tree People to seek grant funding for program development and to gage foster interest of local water purveyors and municipalities. It is anticipated that this process will take over a year to complete.

Compliment to this effort is the recent installation of the Las Virgenes Triunfo Pure Water Sustainability Garden; specifically designed with nature in mind to educate customers and visitors about the different planting types, irrigation demands and benefits to local wildlife and ecosystems. The Sustainability Garden will provide a first-hand opportunity for visitors to learn more about the benefits of climate appropriate landscaping and how they might be able to design their own landscape conversion projects. The garden will be an important tool for future educational events and tours to help advance the goals of this program.

Program Specific Goals

- Evaluate feasibility of a Santa Monica Mountains regional program
- Evaluate opportunities to partner with existing programs
- Broaden the appeal of native plants and climate appropriate landscaping utilizing social media, the District's website, and gardening classes
- Develop one additional demonstration garden by June 30, 2022

Program Cost

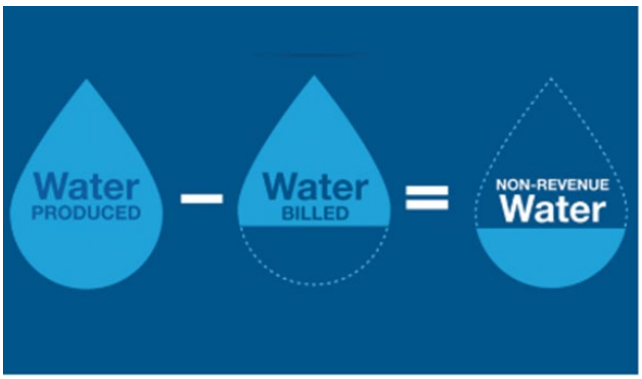
This program will be completed with existing staff and resources, while other funding sources such as grants are being sought out. The FY 20-22 budget includes $30,000 in outside service to assist in evaluating program options and developing regional partnerships.

Potential Water Saving

Water savings from the development and implementation of this Program in conjunction with the other initiatives in this CWCP, can be substantial but difficult to quantify at a program specific level.

4.6 Water Loss Prevention Program

The District completes a water loss audit every year which is then required to go through a third party validation process before being submitted to the Department of Water Resources. The purpose of the water loss audit is to determine the amount of water loss in the distribution system that is occurring either as a real loss, such as a leak, or an apparent loss, such as incorrect meter readings. This process provides the opportunity for water purveyors to better understand where water is being lost in the distribution system or if corrections need to made in how water distribution is being accounted.



The District has a relatively new distribution system and historically has very low water loss. However, SB 555 and *Making Conservation a California Way of Life* will require the District to take a closer look at water loss and be more proactive in addressing potential areas of concern and new regulatory requirements. In order to be prepared for this inevitability, Staff will be organizing a water loss prevention team that will draw on different areas of expertise in the District. Since water loss prevention covers such a wide range of issues the team will be comprised of staff from operations, customer service, finance and conservation. The initial focus of this effort will be the development of a Water Loss Prevention Program that will outline what actions will need to be taken to address the new regulations, identify proactive measures to document the Districts efforts to minimize water loss and development of a timeline of when these actions will be taken. The water loss prevention team will then be responsible for implementing the program, tracking district efforts and achieving regulatory requirements.

Program Specific Goals

- Identify areas to reduce system water loss and prioritize implementation
- Improve the District's water loss audit score
- Reduce system water loss by 4 acre feet per year
- Identify potential implications of new and emerging regulations and plan for compliance
- Develop a District Water Loss Prevention Plan that identifies specific actions and timelines to achieve the goals above

Program Cost

This program will be completed primarily with existing staff and resources and will not require additional funding to complete.

Potential Water Saving

By addressing both real and apparent water loss it is estimated that this program can save 4 acre feet per year or about one percent reduction in water loss per year. The District does not have high system water loss so incremental improvements will be needed particularly with apparent water loss. Implementation of the AMI/AMR system will significantly improve the estimations of apparent water loss due to customer meter reading inaccuracies in older meters, which could improve the amount of water savings estimated here.

4.7 Education and Outreach Efforts

Conservation efforts moving forward will largely focus on addressing our customers' "conservation fatigue" by taking a more creative approach and emphasizing water efficiency. A large part of that outreach will consist of tours at our Sustainability Garden outside of the Las Virgenes-Triunfo Pure Water Demonstration Facility. The purpose of this garden is to demonstrate to the public how they can take their conservation efforts in a new, beautiful direction by replacing their thirsty lawns with climate appropriate and low-water plants. The crux of this outreach method is the demonstration aspect, as opposed to just continually telling our customers the same things.

Additionally, this creative approach spurred the birth of the "Water Warriors." In fall 2019, we found much success with and recognition of our Hidden Hills Parade float themed "Conservation Water Warriors". The concept consisted of not just a parade float, but a narrative outfitted with characters that represent each of LVMWD's services and how we work to fight climate change with conservation, water recycling, wastewater treatment, and of course drinking water. Moving forward, we seek to extend this concept into print, with a children's comic book.

Finally, we will be ramping up public tours (when circumstances allow) adding a possible virtual tour of the Pure Water Demo Facility. We're also looking at the possibility of offering all of our tours in the virtual space, adhering to social distancing guidelines that may persist for the rest of the year. Community events will also continue to grow as one of our main outreach efforts, probably beginning again sometime in 2021.

Program Specific Goals

- Improve customer understating of water use efficiency
- Include a broader range of outreach topics to appeal to a broader audience
- Develop more video based outreach for web site and social media applications
- Develop outreach material for one-on-one consultations
- Develop an advertising campaign that identifies seasonal water use concerns to be targeted

Program Cost

This program will be completed primarily with existing staff and resources and will not require additional funding to complete.

Potential Water Saving

Water savings from the development and implementation of this Program in conjunction with the other initiatives in this Conservation Plan can be substantial but difficult to quantify at a program specific level.

5.0 Two-Year Water Conservation Targets for 2020 - 2022

This CWCP will be implemented over the period beginning July 1, 2020 through June 30, 2022. Adjustments to the Plan may be made as improvements are identified. The overarching targets for this Conservation Plan, to be calculated twelve months after full implementation, on or after June 30, 2023 are as follows:

- Reduce water use in the inefficient and excessive tiers (which includes all water use for single family households above 100% of water budgets) by 25% based on a 12-month rolling average when compared to the baseline annual average between April 2018 and March 2020
- Reduce water use that is 200% above water budgets by at least 50% based on a 12-month rolling average when compared to the baseline annual average between April 2018 and March 2020

These are ambitious goals originally estimated as part of the 18-20 CWCP and continue to be target of this CWCP and future plans moving forward. Based upon the results of programs implemented as part of that plan, the 20-22 CWCP is estimated to conserve 130 acre-feet per year or 260 acre-feet over the two years of the plan. This translates to a 2,600 acre-foot water savings over a 20 year period. Based on the capital investments for the WBIC, Rain Barrel, and the other initiatives as described, and accounting for $88,000 in incentive funding from Metropolitan Water District, the dollar per acre-foot of water saved is estimated at $190 when not accounting for internal staff time that is already included in the annual operating budget.