



MEMORANDUM

FC 14 (01-02-07)

TO: Board of Directors

FROM: Water Conservation and Demand Management Committee

SUBJECT: Water Conservation and Demand Management Committee Meeting Summary for September 29, 2020

DATE: October 13, 2020

This memorandum summarizes agenda items from the Zoom meeting of the Water Conservation and Demand Management Committee held on September 29, 2020.

Attendees:

Board Members in attendance were: Director Nai Hsueh-District 5, Committee Vice Chair, Director Linda J. LeZotte-District 4, and Committee Chair, Director Richard P. Santos-District 3.

Staff members in attendance were: Antonio Alfaro, Aaron Baker, Neeta Bijoor, Glenna Brambill, Rick Callender, Domingo Candelas, Keila Cisneros, Jerry De La Piedra, Vanessa De La Piedra, Vincent Gin, Samantha Greene, Andrew Gschwind, Jason Gurdak, Garth Hall, Brian Hopper, Karen Koppett, Michael Martin, Melanie Richardson, Metra Richert, Ashley Shannon, Darin Taylor, Sunny Williams, and Jing Wu.

Guest Agencies in attendance were: Diane Asuncion (City of Santa Clara), Michael Bolzowski (California Water Service Company), Kurt Elvert (San Jose Water), Anthony Eulo (City of Morgan Hill), Dr. Andrew Fisher (UC Santa Cruz), Tim Guster (Great Oaks), Jack Kiefer (Hazen and Sawyer), Chelsea Spier (DWR), Bill Tuttle (San Jose Water), and Luke Wang (Hazen and Sawyer).

Public in attendance were: Kit Gordon, Dominic Felipe Gutierrez, Mike Halliwell, Charles Ice, Ava Lazor, Doug Muirhead, Trish, Esther Nigenda, and William Sherman.

ACTION ITEMS

4.1 WATER CONSERVATION STRATEGIC PLAN

Ms. Karen Koppett reviewed the following:

Summary from Meeting Agenda Memo.

Santa Clara Valley Water District (Valley Water) has a long-term water conservation goal of saving nearly 100,000 acre-feet per year by 2030 (base year of 1992), and nearly 110,000 acre-feet per year by 2040, as specified in Valley Water's Water Supply Master Plan 2040.

To achieve this savings goal, Valley Water and its retailers partner to implement nearly 20 different ongoing water conservation programs that use a mix of incentives and rebates, free device installation, residential and commercial landscape surveys, and educational outreach to reduce water consumption in homes, businesses and agriculture. Programs include replacing high-water using landscaping with low-water using landscape, installing efficient irrigation equipment, and offering incentives for graywater laundry-to-landscape systems. Valley Water also implements an annual water conservation campaign that typically includes an online component, social media, and traditional media ads.

As of Fiscal Year 2020, Valley Water has achieved approximately 74,200 acre-feet of water savings (base year of 1992). In order to reach the savings goals for 2030 and 2040, [the 2008 Water Use Efficiency Strategic Plan <https://www.valleywater.org/sites/default/files/Water%20Use%20Efficiency%20Strategic%20Plan.pdf>](https://www.valleywater.org/sites/default/files/Water%20Use%20Efficiency%20Strategic%20Plan.pdf) is being updated to analyze options for meeting Valley Water's long-term savings goals as well as strategies for addressing a water shortage.

To update the 2008 Water Use Efficiency Strategic Plan, Valley Water conducted a competitive bid process and selected the consulting firm EKI. The plan is currently in the data collection phase and is expected to be finalized this fiscal year. Updates will be provided at future committee meetings.

The Water Conservation and Demand Management Committee discussed the following: will the goal of acre-feet be achieved,

Ms. Kit Gordon questioned the rate of conservation and comparison to last 10 years.

Mr. Jerry De La Piedra was available to answer questions.

The Water Conservation and Demand Management Committee took no action.

4.2 WATER SUPPLY MASTER PLAN 2040 MONITORING AND ASSESSMENT PROGRAM

Mr. Michael Martin reviewed the following:

Summary from Meeting Agenda Memo.

The Water Supply Master Plan 2040 (Master Plan) is Santa Clara Valley Water District's (Valley Water) strategy for providing a reliable and sustainable water supply in a cost-effective manner consistent with Board Policy E-2.1 "There is a reliable, clean water supply for current and future generations". It informs investment decisions by describing the type and level of water supply investments Valley Water is planning to make through 2040, the anticipated schedule, the associated costs and benefits, and how the plan will be monitored and adjusted through the Master Plan's Monitoring and Assessment Program (MAP).

The Master Plan, which was adopted by the Board of Directors (Board) in November 2019, defines a new level of service goal, provides an investment strategy, and recommends water supply projects that achieve the investment strategy and level of service goal. However, new data, modeling, and project information is available each year and needs to be integrated into the Master Planning process to determine if the recommended projects will still achieve the level of service goal. Therefore, the MAP integrates new information and tracks changes forecasted for existing water supplies (e.g. imported contract supplies, local water supplies and infrastructure, etc.), potential future water supply projects, and forecasted demands. MAP helps ensure Valley Water is effectively and efficiently implementing the Master Plan and includes a report to the Board at least annually. This memorandum provides a MAP update and next steps in developing the annual report which will be presented to the Board in fall 2020.

Water Supply Master Plan 2040 Strategy

Valley Water's level of service goal is to "develop water supplies designed to meet at least 100 percent of average annual water demand identified in Valley Water's Water Supply Master Plan during non-drought years and at least 80 percent of average annual water demand in drought years." To ensure Valley Water achieves its level of service goal, the Master Plan recommends the following strategy:

- 1) Secure existing supplies and infrastructure
- 2) Expand water conservation and reuse
- 3) Optimize the use of existing supplies and infrastructure

Valley Water staff partner with internal and external stakeholders to ensure staff maintain an accurate understanding of the existing system and water demands, participate in the development of new water

supply projects, and fully evaluate whether investments are needed to meet Valley Water's level of service goal, and if so, which projects best achieve the Master Plan investment strategy summarized above.

MAP Evaluation

Existing Water Supply System

Valley Water staff updates and evaluates new information about the existing water supply system. This updated and new information is input into Valley Water's Water Evaluation and Planning (WEAP) model to evaluate how Valley Water will meet its level of service goal. Review of the existing water supply system primarily included:

- 1) Storage space in Valley Water's reservoirs using bathymetry information collected by the Raw Water Operations and Maintenance Unit
- 2) South Bay Aqueduct conveyance capacity using information from the Department of Water Resources and the South Bay Aqueduct Capacity Analysis being completed by the South Bay Contractors
- 3) Imported water contract language
- 4) Anderson seismic retrofit construction timeline and operations

Potential Future Water Supply Projects

Valley Water is actively participating in local, regional, and state water supply projects to help define project objectives and determine whether Valley Water should invest in those projects to meet the level of service goal. All projects in Appendix H of the Water Supply Master Plan (Attachment 1) are being reviewed and re-evaluated considering changes to each project's design and performance, operations of the existing system, and forecasted demands.

Forecasted Water Demands

The demand forecasts in the Master Plan were developed in 2016 with the best available data and assumed a rebound to pre-drought water use. Since 2016, drought rebound has been significantly less than in forecasts, there is more water-use data available, and new housing and economic development forecasts (e.g. Plan Bay Area) have been published. These factors warranted the development of a new Valley Water Demand Model. After a competitive bidding process, Valley Water contracted with Hazen and Sawyer (Consultant) to develop a new demand model. Valley Water staff are providing an update on the demand model effort, including initial results, at the September 29, 2020 Water Conservation and Demand Management Committee meeting.

Next steps

Staff are using Valley Water's Water Evaluation and Planning (WEAP) model to evaluate the updated projects in Attachment 1 with the new demands and water supply system updates. Using the WEAP model, staff will assess what level of investment is needed to meet the level of service goal and which projects, given the Master Plan investment strategy, can be used to achieve that goal. Staff plans to present the MAP report to the Board in fall 2020.

The Water Conservation and Demand Management Committee took no action.

4.3 AGRICULTURAL WATER USE BASELINE STUDY

Ms. Ashley Shannon reviewed the following:

Summary from Meeting Agenda Memo:

At the April 26, 2019, Water Conservation and Demand Management Board Advisory Committee (WCDM) meeting, the Committee discussed the need to better understand the conservation potential in the agriculture sector, including potentially developing a baseline study of agricultural water use. Once staff developed a summary of proposed components of a Santa Clara Valley Water District (Valley Water)

Agriculture Water Use Baseline Study (Study), staff presented the proposal at the June 18, 2019 WCDM meeting and provided a verbal update to the Agricultural Water Advisory Committee on July 1, 2019. Since that presentation, staff completed a competitive bidding process in which Valley Water contracted with Sherwood Design Engineers (Sherwood) to complete the Study.

Background

The goal of the Study is to better understand current agricultural water use practices and identify opportunities for additional water conservation. While Sherwood will develop and complete the Study, staff will also coordinate Sherwood's study with the local Farm Bureau and Santa Clara County staff.

Study components that Sherwood will address include:

- 1) Types of crops and associated acres of crops in the County
- 2) Types of irrigation systems used, by crop type
- 3) A survey of crop rotation and fallowing practices in the County that evaluates:
 - a. Trends by crop type
 - b. Geographical trends related to crop rotation and fallowing practices within the County (e.g., north vs. south, foothills vs. valley, position relative to a creek)
- 4) Water use by crop type and irrigation method, including comparing to crops' water budgets
- 5) Geographical trends/distribution of agricultural practices and crop types in the County (e.g., north vs. south, foothills vs. valley, position relative to a creek)
- 6) Agricultural producers' water use knowledge and mindsets regarding:
 - a. Concerns related to water supply
 - b. Water use and water conservation, including what motivates their irrigation method choices
 - c. Valley Water's conservation programs
- 7) Factors that determine farmer crop choice
- 8) Recommendation of projects or programs to increase agricultural water use efficiency.

The contract was awarded to Sherwood in June 2020. Since then, staff has met with the Sherwood to determine roles, stakeholders, and data requirements. Staff is currently gathering data and reports needed for Sherwood to complete the Study from internal and external stakeholders.

Next Steps

Sherwood and Valley Water staff will continue coordinating with the local Farm Bureau and Santa Clara County staff throughout the process to ensure we use the best approach and information for completing the Study. Once staff provides all the preliminary data to Sherwood, Sherwood will perform a preliminary analysis to help shape the questions and data needed from agricultural water users. Staff is working with Sherwood to refine a project timeline and approach given complications surrounding COVID-19 Social Distancing restrictions that could delay certain data collection efforts. Staff will update the Committee as the Study progresses.

The Water Conservation and Demand Management Committee thanked staff for conducting the study.

The Water Conservation and Demand Management Committee took no action.

4.4 COLLABORATION WITH UC WATER ON FLOOD MANAGED AQUIFER RECHARGE

Ms. Samantha Greene reviewed the following:

Summary from Meeting Agenda Memo:

Valley Water is exploring a program of collaboration with researchers from the UC Water Security and Sustainability Research Initiative (UC Water), which focuses on strategic research to support water resources management and decision-making. The proposed Water Resource Innovation Partnership (WRIP) includes a multi-year collaboration on two topics of common interest: Flood-Managed Aquifer

Recharge (Flood-MAR) Feasibility and Groundwater-Surface Water (GW-SW) Interaction. Flood-MAR and GW-SW interactions are topics that will help Valley Water sustainably manage groundwater and achieve Sustainable Groundwater Management Act management and reporting requirements. In particular, Valley Water staff has been working with UC Water researchers to develop a scope of work that would help to advance data, tools, and knowledge needed by Valley Water. UC Water is in a unique position to support Valley Water efforts to explore Flood-MAR and GW-SW Interaction due to their expertise, research, and involvement on these issues as they develop at both the local and statewide level.

The initial two years of the collaboration would focus on Flood-MAR planning and implementation in Santa Clara County. DWR generally considers Flood-MAR to be use of "...high flows from, or in anticipation of, rainfall or snowmelt, for managed aquifer recharge on agricultural lands, working landscapes, and natural managed lands." Flood-MAR is a decentralized approach to groundwater recharge that would recharge local stormwater at sites distributed across Santa Clara County. Unlike our centralized managed aquifer recharge program, Flood-MAR sites may be located on private or public lands that would not be owned by Valley Water.

Urbanization has made acquiring sufficiently sized new recharge lands in a location near our raw water distribution system more expensive and difficult. In addition, climate change is expected to increase storm intensity in Santa Clara County, making traditional approaches to water capture (i.e., dams and reservoirs) more difficult. The distributed nature of Flood-MAR, if successful, could help increase stormwater capture and recharge while minimizing floodwaters flowing to the Bay or creating nuisance flooding.

Valley Water staff have been working with UC Water researchers to develop a Flood-MAR work plan that achieves mutual goals of furthering water security and sustainability. As currently envisioned, the Flood-MAR collaboration aims to:

- 1) Evaluate options for implementing Flood-MAR projects in Santa Clara County, including assessing technical approaches, regulatory requirements, and incentive programs.
- 2) Develop GIS-based tools to quantify Flood-MAR suitability for the Valley Water region, including allowing assessment of properties and processes that influence Flood-MAR performance.

Flood-MAR is a project within the Board-approved Water Supply Master Plan 2040 "No Regrets Package" of stormwater capture and water conservation project. Collaborating with UC Water on Flood-MAR will support Valley Water's efforts to better understand the opportunities and challenges associated with implementing a Flood-MAR program in Santa Clara County.

The Water Conservation and Demand Management Committee discussed the following:
This is a worthwhile effort, while moving to the next steps, keep the Committee and full Board informed. The Agricultural Water Advisory Committee may be a good stakeholder to give input, will this be a project for the Water Supply Master Plan, and keep South County in mind.

The Water Conservation and Demand Management Committee took no action.

4.5 SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA) UPDATE

Mr. Jason Gurdak reviewed the following:

Summary from Meeting Agenda Memo:

SGMA requires that local agencies managing basins ranked as medium- or high-priority submit a groundwater sustainability plan (GSPs) or prescribed Alternative to a GSP (Alternative) by the applicable statutory deadline.

The Santa Clara Valley Water District (Valley Water) submitted the 2016 Groundwater Management Plan (GWMP) for the Santa Clara and Llagas Subbasins to the Department of Water Resources (DWR) as an Alternative in December 2016. In July 2019, DWR approved the Alternative, confirming it satisfies SGMA objectives for sustainable groundwater management in both basins.

The DWR staff report for each basin includes recommended actions to facilitate DWR evaluation and improve the Alternative for the next five-year update due January 1, 2022. These recommended actions are summarized below:

1. Identify groundwater dependent ecosystems.
2. Incorporate climate change and expected population growth into the water budget over the 50-year planning and implementation horizon.
3. Create separate outcome measures for water quality in the Santa Clara and Llagas subbasins.
4. Develop specific seawater intrusion outcome measures in the Santa Clara Subbasin.
5. Clarify how meeting outcome measures relates to the avoidance of undesirable results and provide additional clarification and metrics, if needed, to determine what effects represent undesirable results.

In addition to the DWR recommended actions, the 2016 GWMP outlines several recommendations, which include the following:

1. Identify gaps and redundancies in monitoring networks.
2. Identify and implement groundwater modeling improvements.
3. Re-evaluate operational groundwater storage capacity.
4. Improve understanding of groundwater/surface water interaction.

Staff are conducting various technical analyses needed to incorporate both the DWR and 2016 GWMP recommendations into the next five-year update to the Alternative. As this work progresses further, staff will update the Water Conservation and Demand Management Committee and engage basin stakeholders through email updates and public meetings. A public review draft of the updated Alternative is expected to be available in late summer 2021 to solicit public input prior to consideration by the Board of Directors.

Valley Water will continue implementing its comprehensive Groundwater Management Plan, provide annual SGMA reports to DWR by April 1, and submit the updated Alternative to DWR by January 1, 2022.

The Water Conservation and Demand Management Committee discussed the following:
Thanked the Team for a great product, hard work, good report and that DWR accepted the proposal. Mr. Doug Muirhead stated that regarding subsidence being highly unlikely in South County because of different soil composition when making statements when it's more relevant in one basin over the other that it be highlighted to that fact. He's mentioned this to SCRWA, having an evaluation of depth of wells losing certain amount of the storage and could it be noted how many wells are impacted and communicate those impacts when groundwater levels drop.

Mr. Bill Tuttle questioned if the GWMP addresses the spread, fate, and transportation of PFAS.

Ms. Kit Gordon questioned when the GDE would be defined and the studies completed.

Ms. Vanessa De La Piedra was available to answer questions.

The Water Conservation and Demand Management Committee took no action.

4.6 WATER DEMAND FORECASTING

Ms. Samantha Greene and Dr. Andrew Fisher reviewed the following:

Summary from Meeting Agenda Memo:

In November 2019, the Santa Clara Valley Water District (Valley Water) Board of Directors (Board) adopted the Water Supply Master Plan 2040 (Master Plan), which sets a new level of service goal, defines an investment strategy, and recommends a suite of projects to achieve the investment strategy and level of service goal. To determine the level of new investments that may be needed to achieve our level of service goal through 2040, Valley Water uses a demand forecasting model. Valley Water developed the Master Plan demand forecasts in 2016 using the best available knowledge of how Santa Clara County would use water after the drought (i.e., drought rebound) and the best available housing and economic development data. Since 2016, significantly more is known about Santa Clara County's drought rebound, there is a longer water use dataset available, and new housing and economic development forecasts (e.g., Plan Bay Area). Through a competitive bid process, Valley Water contracted with Hazen and Sawyer (Consultant) to develop a new demand model that will provide new demand forecasts. The new demand model provides forecasted demands in 5-year increments out to 2045 to meet our current planning needs. Valley Water's recommended demand scenario forecasts 2040 demands to be approximately 335 thousand acre-feet (TAF). This memorandum summarizes the demand modeling purpose, results, and next steps.

Water Demand Model Development

The new demand model combines the latest science and data to forecast demands through 2045. A reliable water demand forecast helps determine what level of investment is necessary to meet Valley Water's level of service goal. The Master Plan defines Valley Water's level of service goal to be "to develop water supplies designed to meet at least 100 percent of average annual water demand during non-drought years and at least 80 percent of average annual water demand in drought years." The new demand forecasts will be used to complete the 2020 Urban Water Management Plan (UWMP) due in July 2021 and the Master Plan's Monitoring and Assessment Program (MAP) annual report that is provided to the Board each fall.

To develop the water demand model, Valley Water decided it would be best to use the expertise of a consultant that specializes on developing demand models. After a competitive bidding process, Valley Water contracted with Hazen and Sawyer (Consultant) to develop a new demand model. To support the Consultant in developing the model, Valley Water collected monthly sectoral water use data from our retailers for 2000-2019 (although certain retailers only had data from 2011 or 2013) and groundwater pumping data for Valley Water's independent pumpers (i.e., non-retailer well owners). In addition, the Consultant collected historic data on temperature, precipitation, water rates, water shortage restrictions, economic information, and housing information. The consultant collected historic data primarily from Valley Water, the US Census, Federal Reservoir, and California Department of Finance. Demand forecasts were developed using several forecasting variables, including housing information, median income, economic information, water rates, drought restrictions and weather projections from the Association of Bay Area Governments (ABAG), California Department of Finance (CDOF), and Prism (provides data on climate projections).

Demand Forecasts

The Demand Model can be used to evaluate different potential future scenarios by adjusting the forecasting variables. This supports Valley Water's efforts in understanding the uncertainty related to water demand forecasts. Recommended demand forecasts for planning evaluations, such as the 2020 UWMP and the MAP, focus on using forecasting variable information from regional and state agencies, such as ABAG and CDOF (table 1). In addition, an important modeling assumption in forecasting water demand is related to defining a drought rebound. Currently, Valley Water experienced a small rebound in 2017 and then demands have remained relatively stable through 2018 and 2019. Therefore, the

rebound has been relatively muted. Valley Water and the Consultant developed two demand scenarios to consider the range of drought rebounds that could be realistically achieved:

- 1) No further demand rebound beyond 2019
- 2) 50% rebound to pre-drought water use by 2025 and then no further rebound

Table 1. Forecasting variables used in the demand model

Forecasting Variable	Source
Water rates (by retailer and groundwater zone, inflation adjusted)	Valley Water
Drought Restrictions	Valley Water and retailers
Median income	US Census
Economic indices (e.g., unemployment)	Federal Reserve, Economic Cycle Research Institute (ECRI)
Housing density	Derived from US Census and CDOF
Persons per household	Derived from US Census and CDOF
Housing Units	ABAG
Sectoral employment	ABAG
Weather (temperature and precipitation)	Prism

The new demand forecasts include planned conservation goals of 99 thousand acre-feet (TAF) by 2030 and an additional 11 TAF by 2040. Valley Water is currently on target for meeting our 99 TAF of conservation by 2030, with a current savings of approximately 74 TAF (starting datum at zero in 1992).

Assuming no further drought rebound (scenario 1), planned conservation is forecasted to mitigate increases in growth on water demands with a forecasted 2040 demand of approximately 290 TAF (figure 1). A 50% drought rebound (scenario 2) by 2025 translates to a 13% increase in demands (approximately 40 TAF) by 2025 and results in a 2040 demand forecast of approximately 335 TAF (figure 1). The 50% drought rebound scenario is likely a conservative but realistic outlook for demand rebound. In comparison, the Master Plan 2040 demand forecast developed in 2016 was 389 TAF. Therefore, improving Valley Water's demand modeling to more accurately reflect expected drought rebound, integrating new water use data, and integrating new growth forecasts have reduced Valley Water's forecasted demands by approximately 55-100 TAF (table 2).

Figure 1: Historic and Projected Water Use including Planned Conservation (rounded to nearest 5 TAF)

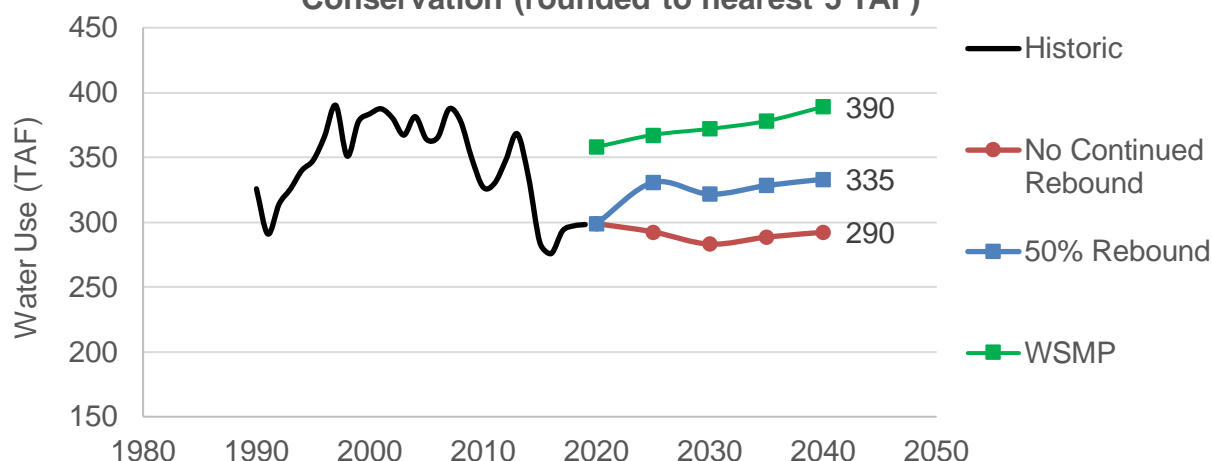


Table 2. Newly forecasted demands compared to the WSMP demands (rounded to the nearest 5 TAF), including planned conservation.

Demand Scenario	2020	2025	2030	2035	2040
50% Rebound	300	330	320	330	335
No Continued Rebound	300	295	285	290	290
WSMP	360	365	370	380	390
Difference¹	60	35-70	50-85	50-90	55-100

¹The low bookend is the difference between the 50% Rebound scenario and the WSMP scenario while the high bookend is the difference between the No Continued Rebound scenario and the WSMP scenario.

Next Steps

Valley Water will use the 50% rebound scenario for the MAP analysis that will be presented to the Board in fall 2020. In addition to MAP, this demand model will be used for developing the 2020 UWMP. Valley Water will use the demand model and forecast results for internal UWMP analyses and in discussions with retailers related to the UWMP.

The Water Conservation and Demand Management Committee discussed the following: Mr. Anthony Eulo appreciates the endeavor as it is an important undertaking but had questions. 1. How with demands does it account for resiliency value in future water use and water planning adapting to climate change and imported water. 2. Revenue projections in line with which of the models. 3. Accounting for Agricultural Water pumping or water used by Retailers.

Mr. Bill Tuttle questioned 1. The 50% rebound scenario is based on what year/group of years for the baseline. 2. Projected rates for the next ten years or so went up from 6.6% to 9%, is this related.

Mr. Darin Taylor, Mr. Jack Kiefer and Mr. Jerry De La Piedra were available to answer questions.

Ms. Kit Gordon, echoed Mr. Eulo's sentiments, great presentation, and scenarios. Question about Australia, they have done an amazing job. How is our residential per capita use compare to whatever region in Australia that is similar in comparison to Santa Clara County's on the chart.

Mr. Sherman was available to answer questions.

Director LeZotte noted the 50% rebound does not coordinate with the historical water use and population chart. In 2013-2020, there was some drops in water usage and growth/increase in population, however, the information did not track.

Director Santos noted that we need to look at the rebound information, Australia-comparison data and the Stanford Scientific data on this subject and bring it back to the Committee.

Mr. Bill Sherman stated that he suggested some comments on the preliminary program. He thanked the Team (Jerry, Metra, Samantha, et al) for the work on today's excellent presentation. He noted that the scales on page 63 maybe misleading and the scales would need to be equal to do an actual comparison because the population is not growing as fast as it appears.

Director LeZotte noted that she is not a scientist but thanked staff for the chart and presentation as it is very helpful when she goes out to the community.

Director Hsueh thanked staff for the presentation and all the input from the guests. When this subject comes to the full Board staff should be prepared to go through the details fully and advise how Valley Water invests the people's money in the future.

The Water Conservation and Demand Management Committee took no action.

Any attachments noted in the agenda summaries can be supplied upon request as they are contained in the actual Water Conservation and Demand Management Committee 9/29/2020, meeting packet.

If you have any questions or concerns, you may contact me at, gbrambill@valleywater.org or 1.408.630.2408

Thank you!

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