Santa Clara Valley Water District

File No.: 20-1002

Agenda Date: 10/27/2020
Item No.: *4.2.

BOARD AGENDA MEMORANDUM

SUBJECT:
Water Supply Master Plan 2040 Monitoring and Assessment Program Annual Report and Water Demands Update.

RECOMMENDATION:
Receive and discuss information on the Water Supply Master Plan 2040 Monitoring and Assessment Program Annual Report and Water Demands Update.

SUMMARY:
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 by providing Valley Water a reliable water supply that is resilient to future uncertainties. Therefore, the MAP integrates new information and tracks changes forecasted for existing water supplies (e.g., imported water 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. The Board can use the MAP report to support annual strategic planning that informs the annual water rate setting, Capital Improvement Program (CIP), and budget processes. This memorandum summarizes the MAP 2020 report (Attachment 1) and next steps.

Monitoring and Assessment Program 2020
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 and associated projects:

1) Secure existing supplies and infrastructure:
    a. Continue baseline projects (Vasona Pump Plant Upgrade, Rinconada Water Treatment Plant Reliability Improvement, dam seismic upgrades)
    b. Delta Conveyance Project (DCP)
2) Expand water conservation and reuse:
    a. 24,000 acre-foot (AF) potable reuse project
    b. Achieve 110,000 AF of conservation by 2040 (represents an additional 11,000 AF of conservation above the baseline).
3) Optimize the use of existing supplies and infrastructure:
    a. Pacheco Reservoir
    b. Transfer Bethany Pipeline

As part of MAP, Valley Water collaborates with internal and external stakeholders to maintain an accurate understanding of the existing system and water demands, participates in the development of new water supply projects, and fully evaluates which investments are needed to meet Valley Water's level of service goal.

Water Demand Forecast

A reliable water demand forecast is needed to determine the level of investment necessary to meet Valley Water's level of service goal. 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, the drought rebound has been significantly less than forecasted; in addition, more water use data and new housing and economic development forecasts have become available (e.g., Plan Bay Area). These factors warranted the development of a new Valley Water demand model.

Valley Water's new demand forecasts integrate the understanding of historic water use trends and drought rebound. Defining a drought rebound is an important modeling assumption in forecasting water demand. Valley Water experienced a small rebound in 2017 and since 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 (Table 1):

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

Table 1. Newly forecasted demands in thousand AF units compared to the Master Plan demands (rounded to the nearest 5 thousand AF), including planned water conservation.

Demand Scenario	2020	2025	2030	2035	2040
No Continued Rebound	300	295	285	290	290

50% Rebound	300	330	320	330	335
Master Plan	360	365	370	380	390
Difference[1]	60	35-70	50-85	50-90	55-100

[1]The low bookend is the difference between the 50% Rebound scenario and the Master Plan scenario while the high bookend is the difference between the No Continued Rebound scenario and the Master Plan scenario.

Assuming no continued drought rebound (scenario 1), planned water conservation is forecasted to mitigate increases in water demands with a forecasted 2040 demand of approximately 290,000 AF. Alternatively, assuming a 50% drought rebound by 2025 (scenario 2) translates to a 13% increase (approximately 40,000 AF) in demands by 2025 and results in a 2040 demand forecast of approximately 335,000 AF. In comparison, the Master Plan demand forecast developed in 2016 was 389,000 AF. The new demand model forecasts compared to the Master Plan are approximately 55,000-100,000 AF lower in 2040 than the forecast in the Master Plan (Table 1). The new demand model improved Valley Water's demand forecasting to more accurately reflect expected drought rebound, integrate new water use data, and integrate new growth forecasts.

While water conservation has mitigated the impacts of growth over the past decade, demand rebounds have also occurred historically. However, the drought rebound thus far has been limited for Valley Water and most peer agencies. Therefore, the 50% drought rebound scenario and the modeled growth through 2040 integrate the understanding of historic water use trends and drought rebound. The 50% drought rebound scenario is likely a conservative (i.e., minimizes risk of under-predicting demand) outlook for demand rebound, but more realistic when compared to the Master Plan demands. Therefore, staff used the 50% drought rebound scenario for this initial MAP evaluation.

Project Evaluation

Since the drought rebound is likely going to be significantly less than what was originally expected back in 2016, the newly forecasted demands are significantly lower than those reported in the Master Plan. With lower demands, the Board may wish to revisit the current portfolio of projects in the Master Plan to determine which projects should continue to be invested in to meet the level of service goal and potentially for other benefits such as operational flexibility, supply diversification, and resiliency to future uncertainties. Staff evaluated each Master Plan recommended project to determine how it could help meet the level of service goal while considering cost and resilience to future uncertainties (e.g., climate change, regulations, etc.) (Figure 1). Each project was evaluated with the baseline investments (dam seismic retrofits, Rinconada Water Treatment Plant Improvement Project, Vasona Pump Plant Upgrade, and 99,000 AF of water conservation by 2030) and the Master Plan's additional water conservation of 11,000 AF.

Figure 1 Individual Projects Evaluated to Achieve the Level of Service Goal.

Staff did not evaluate the DCP because modeling on its potential benefits for Valley Water is not available. Staff is planning to provide a more detailed DCP update to the Board in November 2020, and will model its potential benefits once the information is available.

The Master Plan analysis indicated that additional groundwater recharge may be necessary in the northern portion of the Llagas sub-basin. Given the new demands, staff is analyzing groundwater in

the Llagas sub-basin to ensure adequate groundwater storage is maintained throughout the entire sub- basin through 2040.

Staff is interested in Board feedback on projects they are interested in for continued evaluation. As an example, staff is providing an evaluation of water conservation paired with potable reuse, which would provide Valley Water locally controlled, climate-change resilient supplies that diversify Valley Water's system and reduce reliance on the Delta.

Modeling and analysis indicate that investing in a 10 million gallons per day (MGD) potable reuse plant coupled with achieving the 110,000 AF by 2040 water conservation goal will meet Valley Water's level of service goal through 2040. Valley Water executed a partnership agreement with the cities of Palo Alto and Mountain View that, in part, provides effluent to Valley Water for use at a regional purification facility. Valley Water is also in discussions with San Jose to secure a similar partnership agreement. In addition, Valley Water is on track to meet the water conservation goal, needing only approximately 35,000 AF more of water conservation by 2040.

There may be other operational and/or policy reasons to continue consideration of other projects not needed to meet the level of service goal. For example, the Board may decide to continue planning for a 24 MGD potable reuse plant to further reduce Valley Water's reliance on the Delta and increase local resilience to climate change or emergencies. Conveyance projects such as DCP and the Transfer Bethany Pipeline provide operational flexibility. Valley Water is also developing three coordinated plans that will recommend and prepare capital projects to strengthen infrastructure resilience and reliability into the future, including the Distribution System Implementation Plan, the Water Treatment Plant Implementation Plan, and the Supervisory Control and Data Acquisition (SCADA) Implementation Plan (collectively referred to as the Infrastructure Implementation Plans). At the Board's direction, projects under the strategy elements "Secure Existing Supplies and Infrastructure" and "Optimize the Use of Existing Supplies and Infrastructure," may be considered within the Infrastructure Implementation Plans.

Voluntary Call for Water Use Reduction

During the 2012-2016 drought, Valley Water's Board called on residents and businesses throughout Santa Clara County to reduce water use. At the peak of the drought, the community achieved nearly a 30% water use reduction. Since the end of the 2012-2016 drought, Valley Water's Board has continued a call for a 20% voluntary water use reduction. The 2012-2016 drought emergency has ended and Valley Water's groundwater is healthy. The Water Shortage Contingency Plan no longer recommends a call for water use reduction. However, the Board may decide to continue the voluntary 20% call to continue drought messaging and education. At the July 15th, 2020 Retailer Meeting, staff received informal direction from Chair Hsueh to discuss the call for a 20% voluntary water use reduction with the Board.

Next Steps

Through MAP, Valley Water will continue to track uncertainties and recommend approaches for adapting to future conditions. In addition, staff will continue to refine project costs and evaluate project benefits. Appendix B of the MAP Report provides a full list of Valley Water's potential water supply projects that staff is or has evaluated. Valley Water will continue to update the list as new

opportunities arise and with direction from the Board. Regular monitoring of specific projects and overall conditions provide Valley Water and its Board the opportunity to adjust the Master Plan strategy and recommended projects as needed. Through MAP, staff will continue to evaluate Valley Water's supplies, demands, and investment opportunities. Staff will prepare the MAP report annually and provide other MAP updates to the Board throughout the year as needed.

FINANCIAL IMPACT:
There is no new financial impact associated with this item. Costs associated with continued participation and planning of projects are already included in the FY 2021 budget will be included in future budget proposals as appropriate.

CEQA:
The recommended action does not constitute a project under CEQA because it does not have the potential for resulting in direct or reasonably foreseeable indirect physical change in the environment.

ATTACHMENTS:
Attachment 1: 2020 MAP Report
Attachment 2: PowerPoint
*Handout 4.2-A: Revised PowerPoint

UNCLASSIFIED MANAGER:
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