



Santa Clara Valley Water District

File No.: 19-1001

Agenda Date: 11/20/2019

Item No.: *2.3.

BOARD AGENDA MEMORANDUM

SUBJECT:

Adopt Water Supply Master Plan.

RECOMMENDATION:

- A. Adopt the Water Supply Master Plan (WSMP); and
- B. Direct staff to return with the WSMP first annual Monitoring and Assessment Plan in fall 2020.

SUMMARY:

The Water Supply Master Plan (Master Plan) (Attachment 1) 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 WSMP annual Monitoring and Assessment Plan (MAP).

This memorandum summarizes Valley Water's water supply strategy for the Master Plan, including review of the level of service goal and "ensure sustainability" strategy, discusses the additional water supply needs through 2040, proposed water supply investments, and how the Master Plan will be monitored and assessed.

Water Supply Reliability Level of Service Goal

The water supply reliability level of service goal is important because it guides long-term water supply planning efforts and informs Board decisions regarding investments. The current level of service, which was approved by the Board on January 14, 2019, 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".

The level of service goal is used for long-term planning purposes and guides the associated long-term investments. While long-term planning considers a range of hydrologic conditions, uncertainties, and risks, the actual level of service in a particular year will depend on actual conditions and could be affected by hydrologic conditions, short-term outages, and extreme situations.

Valley Water's Water Supply Strategy

In January 2019, the Board reaffirmed the 2012 “ensure sustainability” strategy which helps guides water supply investment decisions and consists of three elements:

1) Secure existing supplies and infrastructure

Valley Water will secure existing supplies and facilities for future generations because they are, and will continue to be, the foundation of the county's water supply system. Existing supplies include approximately 55,000 acre-feet per year (AFY) of natural groundwater recharge, 85,000 AFY of local surface water supplies, 20,000 AFY of recycled water, 55,000 AFY of San Francisco Public Utilities Commission (SFPUC) deliveries, and 160,000 AFY of combined Central Valley Project (CVP) and State Water Project (SWP) imported supplies. These baseline supplies are conveyed, treated, and stored in a complex and integrated system of water supply infrastructure.

2) Expand water conservation and reuse

Master Plan analyses show that demand management, stormwater capture, and water reuse are critical elements of the water supply strategy. They perform well under current and late century climate change conditions. Water reuse provides local supplies that are not hydrologically dependent, so they are resilient to extended droughts when Valley Water most needs additional supplies. They make efficient use of existing supplies, so they are sustainable and consistent with a “One Water” approach. In addition, these activities are broadly supported by stakeholders.

3) Optimize the use of existing supplies and infrastructure.

This element of the strategy includes projects that increase Valley Water's ability to use existing supplies and infrastructure. Valley Water's existing supplies are more than sufficient to meet current and future needs in wet and above normal years. In some years, supplies exceed needs and additional facilities would increase flexibility and the ability to use or store those excess supplies for dry and critically dry years. Additional infrastructure could increase Valley Water's ability to respond to outages and respond to challenges such as droughts, as well as water quality problems.

The three elements of the strategy work together to establish a framework for providing a sustainable and reliable water supply, as a more diverse portfolio of supplies will be more resilient to future risks and uncertainties. Furthermore, these elements strike a balance between protecting what we have, investing for the future, and making the most of the water supply system.

Additional Water Supplies Will Be Needed to Meet Future Demands

The Master Plan evaluates the baseline water supply system against projected water demands through 2040. The baseline water supply system includes current water supplies and existing infrastructure. County-wide baseline water supplies include natural groundwater recharge, local runoff, recycled water, imported water through the CVP and the SWP, and imported water delivered by the SFPUC. Existing infrastructure includes 10 dams, 17 miles of canals, four water supply diversion dams, 393 acres of recharge ponds, 91 miles of controlled in-stream recharge, 142 miles of pipelines, three drinking water treatment plans, one advanced water purification center, and three

pump stations. The Master Plan assumes Valley Water will continue to implement and complete the baseline projects, including improving existing dams to remove operating restrictions, completing the Rinconada Water Treatment Plant reliability improvement project, implementing the 10-year pipeline rehabilitation program, completing the Vasona pumping plan upgrade, repairing the Main and Madrone Pipelines, and increasing water conservation savings to approximately 99,000 AFY by 2030. It also assumes countywide non-potable recycled water use will increase to approximately 33,000 AFY by 2040.

The amount of total water supply varies greatly from year to year, based primarily on hydrology. In years where water supplies exceed demands, Valley Water is able to store surplus water in local groundwater basins, the Semitropic Water Bank, or local and statewide surface water reservoirs for later use. In dry years, Valley Water then draws on these reserves to meet local water demands.

Water demands are currently projected to increase from approximately 368,000 AFY in 2013 (pre-drought) to approximately 399,000 AFY in 2040. Valley Water is in the process of working with the water retailers to update its water demand model as demands have not rebounded from the latest drought as quickly as previously projected. Staff will include an updated demand projection in the 2020 MAP report to the Board.

Average baseline water supplies in 2040 are projected to be approximately 367,000 AFY, resulting in a small shortfall of about 32,000 AFY between average demands and average baseline supplies. However, the projected shortfall during droughts is more significant. Without new investments, reserves would be depleted during extended droughts, and short-term water use reductions of up to 50 percent would be needed to avoid undesirable groundwater conditions such as land subsidence. Valley Water develops the Master Plan specifically for this reason: to identify and evaluate projects to fill gaps between supplies and demands (per Board's level of service policy) and recommend projects to fill the gaps consistent with the "ensure sustainability" strategy. The MAP then allows for staff to provide annual updates to the Board on supplies, demands, and project development, allowing the Board to make adjustments as needed.

Water Supply Master Plan Portfolio of Projects

The purpose of the Master Plan is to present Valley Water's strategy and investments for ensuring a reliable, clean water supply to meet future demands. The methodology to determine those necessary investments includes identifying the water supply reliability goal (i.e., level of service), evaluating the current and future water supply and demand trends, identifying the water supply gap, and investigating potential projects to fill those gaps. Staff identified over 40 projects that could fill that gap between supplies and demands; evaluation included analyzing their water supply yield and their associated life-cycle costs. However, no individual project can address the county's future water supply needs; therefore, various combinations of projects were evaluated for their ability to meet Valley Water's reliability goal under various scenarios.

Once the projects were identified and their yield and costs determined, staff performed a risk ranking to assess their ability to provide the estimated water supply benefits on schedule and budget. The

four different risk categories are stakeholder, implementation, operations, and cost. Stakeholder risks include public perception, regulatory restrictions, and partnerships. Implementation risks include construction complexity and phasing potential. Operation risks include climate change and uncertainty in long-term operations and maintenance. Cost risks include stranded assets and financing security.

The following table includes the suggested Master Plan projects, including the average annual yield, lifecycle costs to Valley Water, the unit cost, and the associated risk level.

Project	Average Annual Yield (AFY)	Valley Water Lifecycle Costs ³	Unit Cost (AF)	Risk
Delta Conveyance Project	41,000	\$630 million	\$600	High/ Extreme
Additional Conservation & Stormwater Projects	11,000	\$100 million	\$400	Medium
Potable Reuse	19,000	\$1.2 billion	\$2,000	Medium
Pacheco Reservoir Expansion ¹	6,000 ²	\$340 million ⁴	\$2,000	Medium
Transfer-Bethany Pipeline ¹	3,500	\$78 million	\$700	Medium
South County Recharge	2,000	\$20 million	\$400	Medium

The amount of project yield and benefit that is usable by Valley Water depends on the portfolio of water supply projects that Valley Water ultimately implements and the outcome of ongoing regulatory processes.

¹ Assumes Prop. 1 Water Storage Investment Program funding. Cost would be roughly double without the funding.

² Based on Prop. 1 Water Storage Investment Program (WSIP) application.

³ Valley Water lifecycle (100 year) costs are presented in 2018 present value dollars.

⁴ Assumes Prop. 1 and WIIN funding, WIFIA loan, and partner agencies pay 20% of the project.

The suggested Master Plan projects (Delta Conveyance Project, a package of additional water conservation and stormwater capture projects, 24,000 AFY of potable reuse, Pacheco Reservoir Expansion, Transfer-Bethany Pipeline, and South County Recharge) were incorporated and reflected as part of the 2019/2020 rate setting process (see 05/14/2019 Board agenda). The suggested Master Plan projects exceed Valley Water's newly-adopted level of service goal. However, it is unlikely that all the projects will be implemented as currently planned and able to deliver their assumed benefits by Year 2040, the planning horizon for this Master Plan. For that reason, as well as the uncertainties of demand projections and climate change, staff has developed a Monitoring and Assessment Plan, as discussed below.

Monitoring and Assessment Plan (MAP) Approach

A primary purpose of the Master Plan is to inform investment decisions. Therefore, a critical piece of the water supply plan is a process to monitor and report to the Board on the demands, supplies, and

status of projects and programs in the Master Plan so the Board can use that information in its annual strategic planning sessions, which inform the annual water rate setting, Capital Improvement Program (CIP), and budget processes. Monitoring will identify where adjustments to the Master Plan might be needed to respond to changed conditions. Such adjustments could include accelerating and delaying projects due to changes in the demand trend, changing projects due to implementation challenges, adding projects due to lower than expected supply trends, etc. This section describes the Monitoring and Assessment Plan (MAP) approach for the Master Plan.

The first step in the MAP is to develop an implementation schedule for the Master Plan based on Board direction on the recommended water supply strategy and Master Plan projects. The implementation schedule will consider how projects should be timed to meet reliability goals, costs, cash flow, rate impacts, and other needs and opportunities.

The second step of the MAP is to manage unknowns and risks through regular monitoring and assessment. Master Plan monitoring and assessment will build on regular reports on projects and annual water supply conditions and will look at how all the different deviations from schedule affect the long-term water supply reliability outlook. Staff will also evaluate how changing external factors such as changes in policy, regulations, and scientific understanding affect the long-term water supply reliability outlook.

Staff will also identify and monitor the status of projects that could serve as alternative projects should changes to the Master Plan be needed. Examples of such projects include Sites Reservoir, groundwater banking, and shallow groundwater reuse. Staff will also continue to track and participate in projects currently in development, such as the Refinery Recycled Water Exchange project. Ideally, Valley Water will be able to keep all project opportunities open at minimum cost. Realistically, keeping some opportunities open will be costly.

The third step of the MAP is to report to the Board on Master Plan implementation on at least an annual basis, usually during the fall. In addition, the Board will receive reports on specific projects and pertinent policy and regulatory developments as needed. If changes to or decisions about the Master Plan, Master Plan projects, or other projects appear needed, staff will develop recommendations for the Board based on how decisions would affect the level of service, costs and rate impacts, risk management, and relationships between projects.

The fourth step of the MAP is to adjust projects as necessary upon approval by the Board. It is more likely than not that projects, both existing and new projects, will evolve and change over time. The path we are on today will look different in the future, near and distant. We cannot forecast the future and identify a specific response for every possible scenario. However, having a balanced, diverse, and sustainable water supply will help us adapt to future challenges and a strong Monitoring and Assessment Plan will help us stay on top of challenges and uncertainties and our options for managing them.

Master Plan Stakeholder Engagement

Stakeholder engagement and input opportunities over the last two years during the report development include but aren't limited to:

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- 2017: voter survey (conducted in English, Spanish, Chinses and Vietnamese) of over 400 Santa Clara County residents covering topics such as water use reductions and water rates.
 - 2018: Two stakeholder workshops, one for non-government entities and the public and one for water retailers and city/county agencies.
 - 2019: Two stakeholder workshops, one for non-government entities and the public and one for water retailers and city/county agencies.
 - Additionally, staff has also presented numerous updates at various Board and Board advisory committee meetings, including several water retailer sub-committee meetings.

As part developing the final Master Plan, staff requested input from stakeholders on the draft Master Plan which was published on our website in July 2019. Attachment 2 has staff's responses to the comments received.

FINANCIAL IMPACT:

There is no financial impact associated with this item. The Water Supply Master Plan helps inform Board investment decisions but does not commit Valley Water to a specific course of action regarding projects. Rather, it affirms Valley Water's commitment to balance the cost of benefits of investment in long-term water supply reliability.

CEQA:

The recommended action does not constitute a project under CEQA because it does not have a potential for resulting in direct or reasonable foreseeable indirect physical change in the environment. The water supply reliability level of service goal and water supply strategy help inform Board investment decisions, but do not commit the District to a specific course of action regarding projects. All projects that are planned for implementation will go through environmental review consistent with CEQA.

ATTACHMENTS:

Attachment 1: Water Supply Master Plan
Attachment 2: PowerPoint
Attachment 3: Responses to External Comments

UNCLASSIFIED MANAGER:

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