Santa Clara Valley Water District

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Item No.: 2.8.

BOARD AGENDA MEMORANDUM

SUBJECT:
Update on the 2017 Water Supply Master Plan and Alternative Water Supply Strategies.

RECOMMENDATION:
Receive and discuss information on alternative water supply strategies for the 2017 Water Supply Master Plan.

SUMMARY:
The Board received and discussed information on the Water Supply Master Plan update on January 31, 2017. The topics included the long-term water supply outlook, water supply reliability risk assessment, costs and yields for various projects and programs being evaluated as part of the Water Supply Master Plan update, preliminary analysis results, and Expert Panel input on work to date.

The Board provided direction to staff in several areas, which are summarized in Attachment 1. Based on that direction, staff refined and expanded the list of projects that are being evaluated, developed alternative water supply strategies (or portfolios of projects), worked with a consultant to develop a survey to get public input on the level of service, and met with the Expert Panel. This memorandum summarizes that work, requests Board input on the initial list of alternative water supply strategies, provides an update on input on the level of service goal, and provides an update on next steps.

In addition, the Expert Panel, consisting of Paula J. Landis, P.E., Ed Maurer, Ph.D. and David Mitchell, will be available to provide comments on staff's work to date and on the Water Supply Master Plan process, and be available to answer questions from the Board. Ms. Landis is the former executive officer of the California Water Commission. Dr. Maurer is a Professor of Civil Engineering at Santa Clara University. Mr. Mitchell is cofounder and principal of M.Cubed ("Policy Analysis for the Public and Private Sectors").

Water Supply Projects and Programs

Staff updated the list of projects and programs being considered for inclusion in the Water Supply Master Plan based on Board input from January 31, 2017 and additional evaluation of project alternatives. Changes include:

- Added project descriptions,
- Replaced the Agricultural Land Flooding project with an Agricultural Land Recharge project,
- Added a Leak Repair Incentive project,
- Broke out the individual stormwater projects that have been evaluated, and
- Updated the Uvas Pipeline project to include an additional recharge facility downstream of the reservoir.

The latest project list is in Attachment 2.

Water Supply Strategy/Portfolio Development

Staff identified nine initial water supply strategies/portfolio themes based on Board and staff input. The themes are:

1. Modular: Smaller projects and programs that can be phased in as needed
2. Low Risk: Projects that have more certainty for meeting yield, schedule, and cost assumptions
3. Local Control: In-county projects
4. Low Cost: Lowest lifecycle cost projects
5. Climate Change - Operational Flexibility: Pipeline and storage projects
6. Climate Change - Adaptation: Projects that provide dry year supplies
7. Local Storage: Local surface water and groundwater storage projects
8. Statewide Storage: Out-of-county groundwater and surface water storage projects
9. Secure Imported Supplies: California WaterFix

The strategies/portfolios were built by adding projects that fit the theme, with the lowest lifecycle cost projects added first, until no additional projects fitting the theme were available or modeling indicated that the strategy/portfolio achieved the District's current level of service goal, which is to develop drought year supplies to meet 90 percent of demands. For planning purposes, this equates to modeled groundwater storage remaining within Stage 1 or Stage 2 of the District's Water Shortage Contingency Plan.

Some of the projects on the project list are not included in the strategies/portfolios, hereafter referred to as strategies, because they had overlapping benefits already found in other lower cost projects or did not provide water supply benefits commensurate with their costs. For example, some of the South County projects deliver benefits that overlap with each other so only the lower cost project was used, e.g., Butterfield Channel was used in lieu of San Pedro Ponds. Anderson and Uvas Reservoir expansion projects were not included in any of the strategies because they did not make significant enough improvements in water supply reliability given their costs, i.e., including Anderson and Uvas Reservoir expansions in a local storage strategy did not result in the meeting the current level of service goal but added billions of dollars to the cost.

Staff previously used two different scenarios (Baseline and Trending) for modeling the water supply outlook and strategies. Based on Expert Panel input, staff is focusing on the Trending Scenario for the analysis of the initial strategies. Staff will analyze recommended strategies and the Board's

preferred strategy under a variety of scenarios to understand and minimize their sensitivity to variations in supplies and demands. All of the Initial Strategies described below reflect the Trending Scenario and include the following:

- District-developed demand projection based on current regional growth projections from the California Department of Finance and Association of Bay Area Governments and retailers' "20x2020" water use targets,
- Additional regulatory restrictions on State Water Project (SWP) and Central Valley Project (CVP) operations that reduce Delta-conveyed imported water supplies,
- Fisheries and Aquatic Habitat Collaborative Effort Settlement Agreement flow and release requirements,
- Completion of dam seismic retrofit projects,
- 24,000 acre-feet per year (AFY) of potable reuse capacity by 2025,
- Long-term water conservation savings of 99,000 AFY by 2030.

Each strategy and includes a "no regrets" package of water conservation and demand management activities, consisting of the model ordinance, graywater rebate program expansion, leak repair incentives, advanced metering infrastructure, agricultural land recharge, rain garden rebates, and stormwater capture projects.

The strategies are summarized in Attachment 3 and discussed below. All the strategies except Strategy 7 - Local Storage achieve the level of service goal. The lifecycle (approximately 100 years) costs range from about $400 million to $4.6 billion.

It should be noted that these are initial strategies and staff is seeking the Board's input before developing recommended strategies for Board consideration.

1. Modular ($1.3 billion): This strategy includes projects that can be brought on-line in phases when they are needed. The key projects are groundwater banking, transfers, and water rights purchases. These projects provide a mix of storage, dry year supplies, and additional all-year supplies.

2. Low Risk ($1.6 billion): This strategy includes projects that have a more certainty in meeting yield, cost, and schedule assumptions. The key projects are groundwater banking, transfers, Los Vaqueros, and water rights purchases. These projects provide a mix of storage, dry year supplies, and additional all-year supplies.

3. Local Control ($3.1 billion): This strategy includes in-county projects. The key projects are additional potable reuse and Pacheco Reservoir. Together, these projects provide additional all-year supply and storage.

4. Low Cost ($800 million): This strategy was developed by adding projects in order of increasing lifecycle cost, but avoiding projects that had overlapping benefits, until the level of service goal was met. The key projects in this portfolio are groundwater banking and Sites

Reservoir, which provide storage, dry year supplies, and all-year supplies. It is important to note that additional modeling is being performed to better estimate the yields from Sites Reservoir. The performance of this strategy may decrease based on the revised modeling. In addition, this strategy could be optimized for cost. Portfolio 8 - Statewide Storage has a subset of projects in Strategy 4 - Low Cost, but it performs about the same at a lower cost.

5. Climate Change (Operational Flexibility) ($4.6 billion): This strategy includes projects that will capture, move, and store wet weather/year flows. The key projects are groundwater banking, Los Vaqueros, Calero Reservoir Expansion, Pacheco Reservoir, and California Waterfix. This strategy could also be optimized for cost. Strategy 9 - Secure Imported Supplies includes a subset of projects in Strategy 5 - Climate Change (Operational Flexibility), but it performs about the same at a lower cost.

6. Climate Change (Adaptation) ($2.1 billion): This strategy includes projects that provide dry year supplies, including regional desalination, groundwater banking, transfers, Los Vaqueros, and additional potable reuse.

7. Local Storage ($2.1 billion): This strategy includes local surface water and groundwater storage projects, with Pacheco Reservoir being the key project. This is the only strategy that could not meet the level of service goal with only projects that met the theme. Modeling was performed that included all in-county reservoir projects as well as adding Los Vaqueros, but the level of service goal was not achieved. The primary challenge with local storage is that it is depleted during an extended drought and needs to be supplemented with dry year supplies. While the additional storage does increase our ability to capture and store water in wetter times, the additional supplies are depleted in the first few years of drought. Local reservoir expansions need to be combined with projects that yield water in dry years, such as water transfers, additional water rights, and potable reuse, in order to avoid water use reductions of more than 10 percent throughout an extended drought. Furthermore, strategies consisting of the projects with dry year yields can achieve the level of service goal at a lower cost.

8. Statewide Storage ($400 million): This strategy includes out-of-county groundwater and surface water storage projects, specifically groundwater banking and Sites Reservoir. Sites Reservoir, as currently modeled, provides significant new supplies in all years. As noted above, additional modeling of Sites Reservoir is being conducted and its performance may decrease.

9. Secure Imported Supplies ($1.9 billion): This strategy is to secure the amount of our Delta-conveyed water supplies through California WaterFix. Additional water rights and Sites Reservoir would also contribute to securing our imported supplies.

Water Supply Strategy Analysis

Staff evaluated the initial strategies against the Water Supply Master Plan objectives that were presented to the Board on September 27, 2016, were provided to the Board on January 31, 2017, and are included in Attachment 4. To complete the evaluation, staff developed a system where a

strategy's performance toward each planning sub-objective is rated on a scale from very negative to very positive. The evaluation results and rating system are provided in Attachment 5.

The Modular and Low Risk strategies appear to perform the best, because they had more positive and fewer negative ratings than other strategies, recognizing that the rating system may need to be revised based on Board input. They rated the best for meeting the flexibility objective, rated better than most strategies in meeting the environmental objective, and, for the most part, scored similarly to other strategies on meeting other objectives.

The Local Control strategy rated well for supply reliability, which is the primary purpose of the Water Supply Master Plan. However, it has one of the highest lifecycle costs and did not rate well in meeting the environmental objective.

Staff will refine and optimize strategies based on Board input. For instance, Strategy 1 - Modular and Strategy 2 - Low Risk are very similar and could be combined into a single strategy. Likewise, Strategy 4 - Low Cost and Strategy 8 - Statewide Storage are very similar and could be combined. Projects could be added or removed to improve how the strategy performs in meeting the planning objectives.

Stakeholder Input - Level of Service Goal

Staff worked with a consultant to develop a phone survey on water use reductions during droughts, willingness to pay to minimize future water use reductions, willingness to pay to minimize water use reductions during droughts, and willingness to pay for different types of projects. The results of the survey, which was conducted in late March 2017, are in Attachment 6. The key findings are:

- In spite of the wet winter and potential end to the drought, voters in the Santa Clara Valley Water District still see the need to prepare for the future and invest in a more reliable water supply.
- They do not recall cutting back their water use during the drought as having been much of a challenge.
- A majority are open to a small rate increase of $5-10 per month, but many oppose a larger $20 -30 per month increase.
- Framing the investment as something that would ensure a more reliable water supply is sufficient-adding information on the corresponding emergency drought use reductions could introduce confusion.
- Specific investments in recycled water for irrigation and industrial uses, storm water capture, and updating aging infrastructure generate the most enthusiasm.

Staff also received some initial feedback from water retailers at a joint Water Supply and Groundwater Subcommittee meeting in March 2017. The retailers indicated a willingness to pay for additional investments in supply reliability if there is a high degree of certainty in the level of service that would be achieved. In other words, if the District makes the investment to meet the 90 percent

reliability target, some the retailers indicated they will seek assurances that the District will not call for more than a 10 percent reduction. As the State's "Making Conservation a Way of California Life" policy is implemented and everyday water use becomes even more efficient, it may become more difficult for residents and large landscape managers to achieve temporary drought water use reductions of 20 percent or more.

Next Steps

The next step in Water Supply Master Plan process is to refine and optimize the strategies based on Board input, further technical analysis, and stakeholder input on the level of service. Staff anticipates returning to Board with recommended strategies in July 2017. Subsequent to the Board endorsing a preferred strategy, staff will develop an implementation plan that considers the following elements:

- Implementation schedule, including environmental documentation and engineering design;
- Triggers for revising or replacing projects based on trends in demands, supplies, and risks;
- Potential funding sources such as loans, grants, and impact fees; and
- Water rate impacts.

Staff anticipates completing the Water Supply Master Plan by December 2017.

FINANCIAL IMPACT:

There is no new financial impact associated with this item. Costs for development of the 2017 Water Supply Master Plan are included in the FY 2017 approved budget and in the FY 2018 requested budget. No new projects are recommended for implementation at this time.

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 changes in the environment.

ATTACHMENTS:

Attachment 1: Board Direction from January 31, 2017
Attachment 2: Project Summary
Attachment 3: Initial Water Supply Strategies/Portfolios
Attachment 4: Planning Objectives
Attachment 5: Strategy Evaluation Results
Attachment 6: Survey Report
Attachment 7: PowerPoint

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