



Santa Clara Valley Water District

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Item No.: 2.1.

BOARD AGENDA MEMORANDUM

SUBJECT:

Board Study Session on Scope and Timing of Purified Water Projects Construction.

RECOMMENDATION:

- A. Receive an update on status of Purified Water Program planning scope and schedule; and
- B. Provide direction to staff regarding Purified Water Program scope and schedule.

SUMMARY:

The purpose of this work study session is to respond to the Board's request on April 28, 2020, to discuss the scope and schedule of the Purified Water Program; to present staff's analysis of the alternatives, and to receive direction on how to proceed.

Background

The Purified Water Program (Program) is a key strategic goal of the Board to meet the Santa Clara Valley Water District's (Valley Water) water supply reliability goals. Valley Water's Water Supply Master Plan 2040 (approved by the Board November 20, 2019) concluded that Valley Water will need approximately 24,000 Acre-Feet per Year (AFY) of potable reuse water by Fiscal Year (FY) 2028. As part of the FY 2021 rate-setting process, staff considered various alternatives to enable no rate increase. One of the alternatives was to defer start of construction of the Program from FY 2024 to FY 2027. Ultimately the decision was made to include a construction start date of FY 2027 in the Board approved Capital Improvement Plan (CIP), with the understanding that the Board will hold a workshop to discuss the Program.

Key Success Factors

Five key success factors were described at the April 28, 2020 Board meeting that staff deemed important for implementing the Program. Some of these success factors have been impacted by COVID-19.

The five key success factors are as follows:

- 1. Solidify Partnerships:** Since Valley Water is a water wholesaler and does not own

wastewater rights, it is important for Valley Water to partner with wastewater entities to advance the Program. This was demonstrated in the development of the partnership with Palo Alto and Mountain View in 2019. Such processes are time intensive, and all the necessary partnerships are not yet in place.

2. **Develop Comprehensive Regional Plans:** Comprehensive regional plans require extensive stakeholder engagement. The Valley Water Countywide Water Reuse Master Planning (CWRMP) effort has been one of the most innovative and important efforts to help shape the Program. This planning effort has an extensive stakeholder outreach component with regulators, environmental community, and the key public agencies. This effort and engagement needed to finalize the plan has inherently been slowed due to COVID-19. Consequently, this plan will be completed 6 to 12 months later (now scheduled for January 2021), which will align implementation expectations amongst the stakeholders (also essential for solidifying partnerships).
3. **Right-size Program:** The current target of 24,000 AFY may no longer be appropriate (originally based on Valley Water's Water Supply Master Plan 2040) as previously anticipated increases in water use and/or demand have not been observed. Staff is working on updated water demand projections out to 2045 which will change our current baseline water usage, lower the anticipated future water demands, and enable Valley Water to right-size the Program, whether that would be higher or lower than the current target. A preliminary analysis is described below.
4. **Ascertain Regulations:** Direct Potable Reuse (DPR) may offer some potential cost savings. Regulations are currently being developed by State Water Resources Control Board (SWRCB). The framework is under development and draft regulations are anticipated by 2023. SWRCB staff say that any proposed DPR project will require extensive operational testing before it can go online, which may extend the development timeline.
5. **Identify Reverse Osmosis Concentrate Solutions:** Based on the analysis, studies, and evaluations performed to date, the most feasible method in terms of regulatory compliance and cost for addressing the Reverse Osmosis Concentrate (ROC) is discharge to the South Bay. This may involve blending the ROC with effluents from wastewater treatment plants or direct discharge to enhanced mixing zones identified through hydrodynamic modeling studies. Valley Water is undertaking a number of state-of-the-art technology demonstration projects and studies in concert with other sanitary agencies, organizations, and regulatory agencies to further explore various treatment options for ROC prior to discharge.

Alternative Paths

Staff has identified two approaches to implementation that pivot mainly on the desired schedule for development:

- Path A: Immediately implement a project based on treated wastewater supply agreements in place in calendar year 2020. Projected construction start date would be in FY 2025
- Path B: Maintain schedule in CIP and develop projects based on outcomes of the five key

success factors outlined above. Projected construction start date would be FY 2027. Staff has also analyzed a three year construction time period (versus six years as currently provided in the CIP) as well as a potential FY 2030 start date.

Implementation of either path will involve:

- Site selection
- CEQA/NEPA
- Predesign
- Right-of-Way acquisition
- Permitting
- Funding plan
- Implementation of procurement strategy.

Concurrence from partners providing treated wastewater, land and ROC management facilities will be required throughout.

The pros and cons of the two paths are summarized in Table 1.

Table 1: Immediate vs. Post-DPR Regulations Construction Start

Path A Immediate Start		Path B Post-DPR Regulations Start	
Pros	Cons	Pros	Cons
Potentially lower capital costs (lower capacity)	Less cost-effective with smaller facility, higher rates	Potentially more cost-effective with scale and optimization, lower rates	Higher capital cost and greater rate impact (if larger project)
Increased chance for grant opportunities	Earlier onset of rate impacts	Delays rate impacts	Could miss grant funding opportunities
Agreement in place with wastewater provider	Budget constraints on staff hiring	Greater stakeholder consensus	Delays actions for supply reliability
Improves supply reliability sooner	Not fully integrated with water reuse and water treatment plant masterplan analyses	Provides opportunity for DPR	Public acceptance of DPR uncertain and could delay
IPR regulatory approval and public acceptance is high	IPR may not be most optimal	Greater bandwidth for consideration of all issues	

Water Rate Impacts

Several North County M&I groundwater charge projection financial models were prepared with Purified Water Program scenarios as the variable including size of project, delivery method (design-bid-build or progressive design-build with Valley Water financing vs progressive P3 with private financing), construction start date, duration, and low-cost financing (e.g., Water Infrastructure Finance and Innovation Act (WIFIA)).

The scenarios were modeled based on the following assumptions:

- 0% increase to North County (Zone W-2) M&I Groundwater charge for entirety of FY 2021
- WIFIA loan funded alternatives assume repayment of 49% of capital costs 5 years after facility is operational
- P3 (private financing) alternatives assume payments begin when facility is operational, less Valley Water 30% share of debt financing
- Alternative water rate projection results expressed in terms of annual % increase in North County M&I Groundwater charge for FY 2022 thru FY 2030
- All alternative water rate projections are based on the FY 21 adopted budget and CIP with the exception of the Purified Water Program scenarios as the variable

The results are summarized in Table 2. For reference purposes, the Purified Water Program project that is currently included in the FY 2021 Capital Improvement Plan is an approximately \$500M project (in 2019 \$'s) with a construction year start of FY 2027 and an operation year start of 2033.

*Table 2: Rate Impacts of Immediate vs. Post-DPR Regulations Construction Start
(all Years shown are Fiscal Years)*

Element	Path A		Path B			
	11.2 TAF Project Size		11.2 TAF Project Size		20.2 TAF Project Size	
Capital (\$M)	\$500	\$500	\$500	\$500	\$650	\$650
Annual O&M (\$M)	\$12.3	\$12.3	\$12.3	\$12.3	\$20.2	\$20.2
Construction Year Start	2025	2025	2027	2027	2027	2030
Operations Year Start	2028	2031	2030	2033	2030	2033
FY 22-FY30 annual % increase Zone W-2 M&I GW charge						
DBB	10.2%	9.6%	10.0%	9.0%	10.5%	9.2%
P3	9.9%	9.0%	9.5%	8.6%	10.0%	8.8%
DBB + WIFIA	9.4%	8.8%	9.2%	8.3%	9.6%	8.5%
P3 + WIFIA	9.5%	8.7%	9.2%	8.3%	9.6%	8.4%

DBB = Design/Bid/Build

P3 = Public Private Partnership

Capital and Annual O&M costs shown are in 2019 \$'s

Impacts of Right-Sizing Analysis

In January 2019, Valley Water adopted a water supply level of service goal of meeting 100% of demands during dry years and at least 80% of demands during times of shortage (e.g., droughts). To meet this level of service goal, Valley Water's Water Supply Master Plan 2040 (WSMP 2040) included a variety of projects, including:

- 24,000 AFY of potable reuse
- Water conservation and stormwater capture
- Increased recharge capacity in the Llagas groundwater sub-basin
- Dam seismic retrofits
- Approximately 33,000 AFY of non-potable reuse
- Delta Conveyance Project
- Expanding Pacheco Reservoir
- Transfer Bethany Pipeline

Valley Water's existing and planned conservation programs are expected to achieve up to 100,000 AFY of long-term conservation by 2030 when compared to 1992. The WSMP 2040 proposes a suite of new conservation projects that would increase the expected long-term conservation savings by approximately 10,000 AFY by 2040. Therefore, the WSMP 2040 recommends a conservation goal of 110,000 AFY by 2040.

The WSMP 2040 analysis, however, was based on demand projections that assumed a return to pre-drought water use patterns. During the 2012 to 2016 drought, voluntary and mandatory measures were implemented to reduce water use by more than 20 percent. Water use data from the last three years indicates water use has not rebounded back to pre-droughts level as previously anticipated. Therefore, through the WSMP 2040 Monitoring and Assessment Program (MAP), Valley Water is updating its demand projection to determine how that may impact its overall investment portfolio (in terms of water supply reliability). This is expected to be completed in Fall 2020.

Given the decreased demands currently being realized, Valley Water completed a preliminary analysis to determine how a potential reduction may impact its water supply reliability investment portfolio. The results indicate a project consistent with the Palo Alto/Mountain View agreement in place may be sufficient to meet Valley Water's level of service goal. A more thorough and complete analysis will be provided as part of MAP in Fall 2020.

Staffing

Based on an analysis of the implementation requirements for an immediate start, a staffing plan has been identified that includes the need for dedicated project staff from the Water Utility Capital Division as well as assistance from the following areas: environmental, procurement, operations and maintenance(O&M), finance, and legal. Executive oversight and external consultant support will also be needed.

As discussed below, there are two modes for implementing the project via P3: a) the industry standard where the project is sufficiently defined for the P3 entities to propose a fixed-price for

construction, financing and O&M, and b) an approach where the P3 entity would come under contract initially to develop the project concept and the associated costs, then negotiate the Water Services Agreement for the construction, financing and O&M (aka "Progressive P3"). The staffing described below is based on the Progressive P3 approach.

The workload will be front-loaded for the first three years for Request for Proposal (RFP) development, contract negotiations (for initial phase of Progressive P3), CEQA/NEPA review, design review and coordination, and drafting and negotiating the Water Services Agreement. Approximately 5.5 full-time equivalents (FTE) will be required, including 3 new FTE's in the Water Utility Capital Division (2.5 FTEs will be absorbed by existing staff).

P3 Implementation

For an immediate project start utilizing a P3 project delivery method, several steps are required:

1. Implement staffing plan
2. Finalize agreements with partner public agencies
3. Outline general project requirements and off-ramps, depending on whether it will be the industry standard of a fixed-price design-build-finance-operate-maintain (DBFOM) or a progressive DBFOM.
4. Engage P3 entities and prepare and re-issue Request for Qualification (RFQ).
5. Establish project financing (private vs. public) and determine whether WIFIA will be part of the overall financing strategy.
6. Establish risk allocation
7. Prepare and Publish RFP
8. Select, based on experience, proposed concepts, prorates and price (if fixed-price DBFOM).
9. If progressive DBFOM, then 18-24-month development period for drafting and negotiating a guaranteed maximum price and the Water Services Agreement. If fixed-price DBFOM, then more detailed RFP and longer response period with Water Services Agreement largely developed as part of respondent proposal.

Update on Studies of Water Reuse Opportunities at Refinery Facilities

In April 2018, Valley Water entered a Memorandum of Understanding (MOU) with Central Contra Costa Sanitary District (Central San) and Contra Costa Water District (CCWD) to explore the possibility of a regional potable reuse project. CCWD currently provides 22,000 AFY of Central Valley Project (CVP) water to two oil refineries in Martinez, California. The project will allow Central San to provide recycled water to the refineries in lieu of CCWD's CVP water. CCWD will then provide its

freed-up CVP supply to Valley Water. The main tasks under the MOU are to estimate potential yield and associated costs of the project.

The MOU was set to expire on June 30, 2020; however, the parties are finalizing an amendment to extend the MOU for another six months.

FINANCIAL IMPACT:

This item does not call for Board Action at today's Study Session, and therefore does not have a financial impact *per se*. However, Board direction provided to staff, potentially subject to Board action at a future meeting, could have a significant impact on the Capital Improvement Program and a consequential impact upon groundwater charges in FY 2022 and beyond. In addition, direction provided to staff could be a factor in Board consideration of a mid-year rate increase for FY 2021.

CEQA:

The recommended action does not constitute a project under CEQA because it does not have a potential for resulting in direct or reasonably foreseeable indirect physical change in the environment. All projects that are planned for implementation will go through environmental review consistent with CEQA.

ATTACHMENTS:

Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:

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