Santa Clara Valley Water District

File No.: 18-0652

Agenda Date: 8/21/2018
Item No.: 2.1.

BOARD AGENDA MEMORANDUM

SUBJECT:
Overview of the District's Water Infrastructure, Current/Future Water Supply Planning, Capital Improvement Program, and Morgan Hill/South County Flood Protection Projects.

RECOMMENDATION:
That the Santa Clara Valley Water District Board of Directors and the Gilroy and Morgan Hill City Councils consider directing their respective staff to continue their commitment to meaningful engagement in pursuit of new and innovative partnership opportunities for the continued delivery of a safe, and reliable water supply, and flood protection, in Santa Clara County.

SUMMARY:
This item describes various programs that the Santa Clara Valley Water District (District) provides in support and partnership with the Cities of Gilroy and Morgan Hill as the three agencies work together to provide a safe and reliable water supply and flood protection in southern Santa Clara County.

Water Supply and Infrastructure Master Plan
As the groundwater management agency and primary water resources agency for Santa Clara County (County), the District has a mission to provide safe, clean water for the County. In 2012, the Board adopted the Water Supply and Infrastructure Master Plan (Water Master Plan) which outlines the District's strategy for providing a reliable and sustainable future water supply for the County and ensuring new water supply investments are effective and efficient. The three key elements of the Water Master Plan strategy are 1) secure existing supplies and infrastructure, 2) optimize the use of existing supplies and infrastructure, and 3) expand water conservation and recycled water use to meet future increases in demands.

The District's Water Master Plan is intended to be updated every five years to adjust to changing conditions. Based on recent analyses, the County could experience shortages of more than thirty percent during extended droughts as demands increase. District staff is updating the Water Master Plan to reflect current and projected conditions and present projects and programs that meet the District's water supply reliability goal.

Water Supply Overview
Currently, the County's water supply portfolio includes 55 percent imported water sources, 40 percent local water sources (groundwater, surface water), and 5 percent recycled water. Long-term water

use averages about 350,000 acre-feet per year (AFY), though use is currently down following the drought. South Santa Clara County, including Morgan Hill and Gilroy, uses about 50,000 AFY of water from local, imported, and recycled sources.

Water use in the County would be more than 70,000 AFY higher if not for District, city, water retailer, and community commitments to water conservation. Water use efficiency programs reduce demand on existing water and energy supplies, helping to lessen the costs and environmental impacts of developing additional supplies. Conservation program elements include a variety of rebate programs for home, landscaping, and businesses as well as service calls and conservation tools. The District plans to increase water conservation contribution savings to 100,000 acre-feet per year by 2030.

To meet the future water needs and promote greater supply diversity, the District continues to explore additional water supply and water demand reduction options. Pursuing supply diversity helps minimize the potential risks of groundwater overdraft and subsidence, as well as overreliance on imported water supplies, which are used to recharge the groundwater basin and irrigate agriculture in southern Santa Clara County.
Projects being considered include additional water conservation, non-potable recycled water, potable reuse, surface and groundwater storage, stormwater capture, additional recharge ponds, dry year options, etc. Potential projects specific to South County include additional recharge ponds, stormwater capture on agricultural lands, and additional recycling.

On September 19, 2017, as part of the Water Master Plan update, the District Board authorized staff to begin planning for implementation of the projects and programs in the Water Master Plan's "No Regrets" package. The package, which increases the conservation savings goal to 110,000 AFY by 2040, consists of the following water conservation and stormwater capture projects:

- Advanced metering infrastructure,
- Graywater rebate program expansion,
- Leak repair incentives,
- New Development Model Ordinance, and
- Stormwater capture (agricultural land recharge, stormwater recharge in the Cities of San Jose and Saratoga, rain barrel rebates, and rain garden rebates).

Infrastructure Overview
The District operates a complex infrastructure and integrates natural and constructed systems to capture and convey raw and treated water. The District's system can deliver about 300 million gallons of raw water and 200 million gallons of treated drinking water every day. The District's distribution system includes 10 reservoirs, 3 pump stations, 142 miles of pipelines, 4 water treatment plants, 393 acres of recharge ponds, and 275 miles of jurisdictional streams.

The District plans to invest approximately $2.1 Billion in its 5-year Capital Improvement Program to ensure the reliability of our water supply infrastructure. Some of the current/recent capital investments include:

- 10-Year Pipeline Inspection & Rehabilitation Program - This Program involves the inspection, planning, design, and renewal of the District's pipelines and tunnels to rehabilitate distressed pipe sections as required, and replace old valves, flow meters, pipeline appurtenances assemblies, and piping, as appropriate. In the next two years, the Program work will include the Cross Valley Pipeline, Calero Pipeline, and the Central Pipeline.
- Main Avenue/Madrone Pipelines Rehabilitation - This project includes the replacement of about 2.6 miles of pipeline delivering raw water to the Main Avenue Recharge Ponds and the Madrone Channel in Morgan Hill for groundwater recharge of the Llagas Groundwater Sub-basin. Installation of 30-inch to 36-inch diameter pipelines and associated appurtenances will restore the Main Avenue and Madrone pipelines to their full operating capacity of 10 cubic feet per second (cfs) and 27 cfs, respectively. The project work will also restore a connection to the Anderson Dam outlet pipe that had been disconnected many years ago due to pipeline deficiencies. Upon project completion, both Anderson Dam and the Santa Clara Conduit will provide raw water for groundwater recharge at these two facilities.
- Anderson Dam Seismic Retrofit - The District is in the process of retrofitting four of its dams and associated infrastructure to meet current seismic design standards and other Division of Safety of Dam (DSOD) design and operational criteria. The current estimated investment for these four projects is $780M. Anderson Dam is the largest of the District's dams, with a retrofit estimated cost of $550M. Anderson Dam's project work will include excavation and reconstruction of its embankments; replacement of the intake structure and installation of two new outlet pipes; and replacement of the emergency spillway structure.

California WaterFix

On May 8, 2018, the District Board took several actions related to the California WaterFix (WaterFix), including adopting Resolution 18-23 making Responsible Agency findings pursuant to the California Environmental Quality Act (CEQA) and Resolution 18-24, authorizing support of, and participation in, the WaterFix.

Santa Clara County relies on water imported through the Delta by the State Water Project (SWP) and Central Valley Project (CVP) for about 40% of its water supplies, on average. South County imported water supplies come from the CVP, which provides on average about 10,000 acre feet of recharge into South County aquifers each year. Imported water supplies are projected to decline over time in response to continued environmental degradation in the Delta, climate change and sea level rise, and increased regulatory constraints. Modeling indicates that if no action is taken to improve the existing Delta conveyance approach, the District's SWP and CVP deliveries to the County could drop by about 36,000 AFY. Reductions in these SWP/CVP supplies will have a significant impact on the ability of the District to provide reliable water supplies to our communities, businesses, and local streams, and make it more difficult for us to protect our local groundwater basins and prevent land surface subsidence in North County.

WaterFix Benefits

With participation in the WaterFix, modeling indicates this decline can be avoided by diversion of

water during high flow periods. Total deliveries with the WaterFix would remain similar to current average levels. As reported to the Board on May 8, 2018, the primary benefits of the project are summarized in the table below.

Benefit	Staff Analysis of WaterFix
Sustained water supplies	Offsets supply reduction, improves groundwater storage conditions, increases reserves in the Semitropic Groundwater Bank, reduces the frequency and magnitude of water shortages.
More fish-friendly diversions	Equipped with state-of-the-art fish screens located away from important fish habitat; 52% of SWP/CVP exports, on average, will be through these more fish friendly diversions; diverts primarily during higher flow periods safer for fish.
Reduced reverse river flows to protect fish	Changes negative flow (-2,200 cfs on average) to more natural, positive flow (+50 cfs); reduces entrainment.
Improved water quality	20% decrease in average annual salinity of SWP/CVP exports; reduces salt loading to drinking water treatment plants and County groundwater basins.
Resiliency during Delta failure events	Continues water deliveries if Delta fails from earthquakes, sea level rise, and extreme flood events.
Resiliency to climate change including sea level rise	Diverts where salinity intrusion will be minimal under sea level rise scenarios; facilitates diversion during extreme storm events.
Increased access to transfer supplies	Conveys transfer water when existing system cannot; reduces water loss during transport.

WaterFix Costs

SWP contractors are expected to pay 67% of project costs and receive 67% of the WaterFix incremental yield; the District would receive 2.5% of the SWP benefit share, corresponding to its share of SWP contract supply (i.e., “Table A” contract amount). Metropolitan Water District (MWD) is expected to finance the 33% share originally intended for the CVP contractors and, in return, receive an interest in 3,000 cfs of capacity. The District may secure an interest in capacity to convey its CVP supplies through an agreement with MWD as well as a proportional share of WaterFix incremental yield through additional agreements with the U.S. Bureau of Reclamation (Reclamation). Staff has estimated that a capacity interest of 200 cfs, or 6.7% of the 3,000 cfs to be held by MWD for CVP contractors, would provide sufficient reliability to sustain the District’s CVP supplies if modeling projections are realized.

Staff’s analysis of costs indicates that the WaterFix remains one of the most cost-effective options

available, with the District's share of capital costs (unfinanced) in 2017 dollars ranging from $280 million if the District participates only on the SWP side, to $650 million if the District participates on both the SWP and CVP sides of the project. The levelized unit cost of project participation is roughly $600/AF (2017 dollars). If the District only participates on the SWP side, there would be no increase in rates to South County households. If the District participates on both the SWP and CVP sides of the project, the increase in cost per average household in southern Santa Clara County for FY 2033, which coincides with the anticipated beginning of project operation, is estimated at $4.47 per month (2033 dollars).

Table 4. Summary of District costs

	SWP-Side **2.5% share**	SWP-CVP Combined
Costs to Santa Clara County		
Percent of Total Project Costs	1.7%	3.9%
Total Capital Costs (2017 dollars)	$280 million	$650 million
Present Value (PV) fully financed Capital Cost (2017 dollars)	$230 million	$535 million
Total Annual O&M (2017 dollars)	$1.1 million	$2.5 million
Cost per Acre-Foot (2017 dollars)	$610	$600
Rate Impacts (assuming all CWF costs are placed on water rates)		
Monthly Increase per Avg. Household (FY33) N. County	$4.96	$10.26
Monthly Increase per Avg. Household (FY33) S. County	$0.00	$4.47

District staff continues to participate in WaterFix discussions to further develop the best and most responsible agreements and contract amendments to protect the District's investment and to bring those agreements to the Board for consideration prior to execution.

South County Recycled Water Master Plan and Future Water Partnerships

Since 1978, the South County Recycled Water System (previously, the Gilroy Reclamation and Irrigation Project) has been servicing the southern portion of Santa Clara County. This system was developed by the Santa Clara Valley Water District (District) in partnership with the City of Gilroy. In 1999, the District entered into producer-wholesaler-retailer partnership agreements with the South County Regional Wastewater Authority (SCRWA) and the cities of Gilroy and Morgan Hill to develop a marketable recycled water program, which included expansion of the SCRWA Wastewater Treatment and Reclamation Plant and the recycled water distribution system. An element of the agreements was the preparation of a Master Plan to identify additional potential recycled water projects.

The initial *South County Recycled Water Master Plan* was completed in late 2004. It identified Immediate-, Short-, and Long-Term recycled water capital investment projects to improve the recycled water system's reliability and to expand the use of recycled water in South County. Since 2004, the District and SCRWA have successfully completed all immediate term projects, and have continued implementing the planning, design and construction of short and long-term projects as funding and resources have allowed.

The *2015 Master Plan Update* identified recycled water system alternatives that would both expand the use of recycled water in South County and improve the existing recycled water system. Alternatives were categorized as either expansions of the existing non-potable reuse (NPR) distribution system or embracing emerging recycled water technologies. The analysis considered expansions of the recycled water system within Gilroy and initiation of a recycled water system in Morgan Hill. This document serves to update potential users, recycled water regulations, demand projections, capital improvement alternatives, and recycled water projects for the future.

Through these partnerships, the capacity of recycled water treatment has been increased to provide up to 8.5 million gallons per day. By 2017, approximately 30 percent of the total regional wastewater received by SCRWA was recycled and used for beneficial uses. These uses include agricultural irrigation, public parkland irrigation; industrial systems cooling; and commercial manufacturing.

In 2017, the District commenced a process to develop a *Countywide Water Reuse Master Plan* (Master Plan) that initiated a new period of integrated and regional planning for water reuse. The Master Plan aims to improve water supply reliability through water reuse for Santa Clara County in collaboration with recycled water producers, wholesalers, retailers, users, and other interested parties. The Master Plan will identify how much water will be available for potential potable reuse development and non-potable reuse expansion, the optimal allocation between potable and non-potable reuse, options for system integration, recommendations for building upon non-potable reuse projects and creating new potable reuse projects, and proposals for governance model alternatives including roles and responsibilities. This planning process is expected to be completed in July 2019 and will be used to guide water reuse in the County, including development of potable/non-potable recycled water for Morgan Hill through 2040.

Pacheco Reservoir Expansion Project

The District is proposing to develop a 141,000 acre-foot surface reservoir project by expanding the existing Pacheco Reservoir (Pacheco Reservoir Expansion Project), which is located on the North Fork Pacheco Creek in south-east Santa Clara County. Partners to this project include the District, San Benito County Water District (SBCWD) and Pacheco Pass Water District (PPWD), of which the latter owns and operates the existing 6,000 acre-foot Pacheco Reservoir. On June 26, 2018, the District Board approved an option agreement with PPWD that provides the District with an option to acquire fee ownership of the existing Pacheco Reservoir should the District decide to proceed with construction of the Pacheco Reservoir Expansion Project.

Pacheco Benefits

Expansion of the existing Pacheco Reservoir will address several water supply, quality, and

environmental issues. Specifically, the Pacheco Reservoir Expansion will:

- Improve the resiliency of imported CVP water supplied for recharge in South County
- Help alleviate taste and odor issues in treated water that typically result from the formation of algae in the San Luis Reservoir during the summer period.
- Mitigate supply interruptions that can occur in late summer/early fall due to lower San Luis Reservoir levels
- Expand groundwater recharge for medium and high priority sub-basins which would ensure compliance with the Sustainable Groundwater Management Act
- Restore populations of the Federally threatened South Central California Coast Steelhead fish species

Pacheco Funding

On March 14, 2017, the District executed Principles of Agreement with SBCWD and PPWD, which committed the parties to coordinate and support the District's preparation and submittal of an application for California Proposition 1 Water Storage Investment Program (WSIP) funding for the Pacheco Reservoir Expansion. This application was submitted by the District to the California Water Commission (CWC) on August 14, 2017, and requested funding for public benefits amounting to $484.5 million, fifty percent of the estimated cost to construct the Pacheco Reservoir Expansion Project.

The CWC conditionally approved the District's full funding request of $484.55 million on July 24, 2018, which included an Early Funding award of $24.2 million. The Early Funding award was authorized by the CWC to reimburse the District for funds expended in the completion of the Environmental Documentation and Permitting for the Pacheco Reservoir Expansion Project. Staff is currently in discussions with the CWC regarding the structure and requirements of the agreement that must be executed to receive the Early Funding award. In addition, for the District to remain eligible to receive the full amount of WSIP funds that have been conditionally awarded (beyond the Early Funding award), a draft CEQA Environmental Impact Report must be issued for public review by December 2021.

The District is also pursuing additional project funding through the Federal Water Infrastructure Improvements for the Nation (WIIN) Act. Should the Pacheco Reservoir Expansion qualify, the WIIN Act has the potential to fund up to 25 percent of the total project costs that are not covered by state investment through WSIP. The first step in the process to apply for WIIN Act funding is for the Governor of California to designate the Pacheco Reservoir Expansion as a "State-Led-Storage Project". To this end, Chair Santos sent a letter to Governor Brown on July 2, 2018, officially requesting that the Pacheco Reservoir Expansion receive the required designation.

Anderson Dam Project Update

The Anderson Dam Seismic Retrofit Project (Anderson Dam Retrofit Project) work is currently focused on design and environmental documentation. The 60% design plans were completed in April

2018 and are currently being reviewed by the state Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC).

The Anderson Dam Retrofit Project's draft Environmental Impact Report (EIR) is currently being prepared. In parallel, the District has initiated meetings with various environmental regulatory agencies (California Dept. of Fish & Wildlife; Regional Water Quality Control Board; Army Corps of Engineers; U.S. Fish & Wildlife Service; National Marine Fisheries Service; and others) to discuss the Anderson Dam Retrofit Project construction, the likely environmental impacts, and to determine what mitigation measures and permit conditions will be required by these agencies before the Anderson Dam Retrofit Project can begin construction. The draft EIR will be released for public review later this calendar year.

The Anderson Dam Retrofit Project's seismic retrofit construction is anticipated to begin in 2020 or 2021. It is estimated to take 4 to 5 years to complete all the dam improvements. During two consecutive winter seasons, seasons 3 and 4, of this 5-year construction period, the dam embankment will be about 80 feet below its current height of 647 feet above sea level. Watershed runoff generated by winter storms in those two seasons will have to be conveyed directly to Coyote Creek to prevent the interim dam from being overtopped. To do this, the District will construct a diversion tunnel from the bottom of Anderson Reservoir to Coyote Creek as part of this project. The volume of water diverted through the tunnel will be controlled by the District. Statistical simulations have been conducted as part of the project planning to determine an operating rule curve for the interim dam during those two winter seasons. Based on nearly 40 years of historic rainfall data at Anderson Dam, 100,000 simulations of annual rainfall were modeled. The results indicate that 98% of the flows diverted from the Anderson/Coyote Watershed to Coyote Creek would be no greater than 1,000 cubic feet per second (cfs).

Before the Anderson Dam Retrofit Project construction begins, the District's Office of Emergency Services will establish communication protocols with appropriate personnel at the cities of Gilroy, Morgan Hill, and San Jose to share real-time flow diversion information and to provide them with warnings, as necessary, of higher-than-normal diversions in the event of heavy, back-to-back storm systems.

Update on Morgan Hill/South County Flood Protection Projects

The Upper Llagas Creek Flood Protection Project is steadily nearing the long-anticipated goal of a construction start for Phase 1. One remaining regulatory permit remains to be finalized, and two right of way acquisitions are pending in escrow. Staff anticipates obtaining Board approval to advertise for construction bids this fall, allowing for construction of Phase 1 to begin in early 2019. The Phase 1 work will improve Reach 4 and a portion of Reach 5 (from Buena Vista Avenue north to Highway 101) and will construct a 1.25-mile diversion channel (Reach 7a) from Monterey Road to Watsonville Road.

Phase 2 of the Upper Llagas Creek Flood Protection Project will construct channel improvements on Reaches 6, 7b, and 8 (extending from Highway 101 north to Llagas Road in downtown Morgan Hill) and Reach 14 (East Little Llagas Creek on the east side of Highway 101). Approximately 10 rights of way for Phase 2 work remain to be acquired. If Phase 1 construction begins in early 2019, Phase 2

construction will likely be initiated in 2020.

How Water Supply Services Are Funded

The District is the groundwater management agency and primary wholesale water provider in the County. The District actively manages the groundwater basins by replenishing them with local and imported water, and by operating surface water treatment plants that provide “in-lieu” recharge. A complex system that includes 10 reservoirs, 142 miles of pipelines, 4 water treatment plants, and 3 pump stations, helps keep water flowing across the County.

The cost to operate and maintain this system is reimbursed primarily through groundwater charges and treated water charges paid by water retail customers. Groundwater charges differ depending on the “zone of benefit.” The North County (Zone W-2) is defined as the portion of the County north of the Coyote Valley. The South County (Zone W-5) is defined as the portion of the County extending from Coyote Valley to Gilroy.

District Board Resolution 99-21 guides staff in the development of the overall pricing structure based on principles established in 1971. The general approach is to charge the recipients of the various benefits for the benefits received. More specifically, pricing is structured to manage surface water, groundwater supplies and recycled water conjunctively to ensure the sustainability of the Santa Clara Valley Groundwater Basin and Llagas Groundwater Subbasin.

Each year, the Board establishes groundwater production charges as well as surface water charges, recycled water charges, treated water surcharges, and the amount of the SWP cost to be recouped through the SWP Override tax. The groundwater charge increase for South County Zone W-5 for Fiscal Year 2018-19 equates to an increase of $1.10 per month to the average household and is driven by critical infrastructure repair and replacement needs such as those listed in this memo, and efforts to bolster water supply reliability (this does not include any increase from the retail provider). The North County Zone W-2 groundwater charge increase equates to an increase of $3.92 per month to the average household.

FINANCIAL IMPACT:
There is no fiscal impact from this presentation.

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.

ATTACHMENTS:
Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:
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