



AGENDA REPORT SUMMARY

Meeting Date: December 18, 2018

Subject: Approval of Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction Phase; Adoption of Resolution No. 18-28

Prepared by: J. Logan, General Manager

Attachment: Purissima Hills Water District Background and Summary Report of Cost Sharing Projects with Fire District.

Initiated by:
Los Altos Hills County Fire District Commission

Previous Commission Consideration (summary):
January 18, 2018; February 28, 2018; July 31, 2018; November 13, 2018; March 21, 2017; June 20, 2017; July 25, 2017; October 18, 2016

Fiscal Impact:
Los Altos Hills County Fire District (Fire District) will allocate funds from the FY2018/19 Operating Budget for cost sharing of the design construction phase of the Hydrant Flow and Pipeline Resiliency Improvement Project. Recommended fund allocation for the design construction phase is \$316,508 and recommend fund allocation for design construction costs over project estimates is \$15,000. Funds are available in the FY2018/19 Operating Budget

Policy Question(s) for Fire Commission Consideration:

- Will the Fire Commission allocate funds to share costs with Purissima Hills Water District (Water District) for the design construction phase of the Hydrant Flow and Pipeline Resiliency Improvement Project?

Summary:

- Fire District has successfully participated with Water District in prior projects that fulfilled the mission of both agencies for the benefits of the community served
- This Project is the next step in a series of improvement projects and cost sharing agreements between the Districts. The intention of this Project is to replace, improve, and stabilize the water pipeline infrastructure for greater resiliency and operational capabilities in event of fire, earthquake, flood and other disasters
- Fire District and Water District (herein referred to as Parties) concluded that for each area of pipeline improvement construction, a percentage of the costs of the construction project would be allocated to each of the Parties based on the percentage of benefits the improvement would deliver toward fire protection service and the percentage of benefits the improvements

would deliver toward Water District service. The Parties allocated the costs associated with the percentage of benefits accordingly (**Exhibit A** to Cost Sharing Agreement).

- Parties also concluded that for purposes of the design construction phase of the Project, the costs allocated to each of the Parties would be a 50/50 split of the estimated design construction costs. This split is derived from the total percentage allocated to each Party for the full construction project (49% Water District/51% Fire District). If the Project costs go over estimate, a cap on costs to Fire District was determined as well as a true-up specified in the event Project was completed under cost estimates.
- In the interest of public service and to expedite the Project, Water District selected and retained an engineering consultant, Pakpour Consulting Group, Inc. (Pakpour) to design the construction Project. Pakpour also has a contract with the Fire District to provide services, however Pakpour is not providing services to the Fire District on the Hydrant Flow and Pipeline Resiliency Improvement Project. Fire District may retain engineering consultant firms if it decides doing so would be beneficial.
- In July 2017, Fire District retained EKI Environment & Water, Inc. to evaluate options to improve fire flow infrastructure in the Fire District. EKI delivered its report in February 2018. The report provided criteria for prioritizing fire flow improvement projects and presented hydraulic models and evaluation of fire flow improvement options for both Water Districts, Purissima Hills and California Water Service. The report concluded with recommendations. EKI presented its reports to the Fire District Commission at public meetings throughout the project.
- At this time, the first phase of the pipeline improvement design construction project is underway and is anticipated to be completed in June 2019; Fire District's portion of the design construction phase will follow soon thereafter. **Exhibit B** to the Cost Sharing Agreement describes the projects now underway by Water District; page 4 provides details on the cost of the Project phase. Fire District project phase is described in **Exhibit C** to the Cost Sharing Agreement with cost details on page 4. The two design construction phases are not of equal costs; therefore, Water District will contribute \$42,273 in addition to the cost of their phase of the design construction project. In accordance with the 50/50 split, both Parties will contribute \$316,508 for the design construction project.
- Plans to proceed to bid-package distribution and Requests for Proposals for pipeline improvement construction are anticipated in July 2019
- Water District will be solely responsible to manage all phases of the design construction Project, all liabilities and administer all aspects of the Project including but not limited to receipt of invoices and payment of funds
- Fire District will participate in the cost sharing design construction phase to ensure the pipeline water flow is improved and the pipeline infrastructure is retrofitted or replaced for greater resiliency and operational capabilities in event of fire, earthquake, flood or other disaster. This Project fulfills the mission of Fire District to provide for the safety and protection of the public. The cost sharing enables construction of the Project even if Fire District decides it will not participate in part of or in all of the pipeline construction Project.
- The Cost Sharing Agreement is limited to the design construction Project only, thereby allowing Fire District the option to consider whether to proceed in a cost sharing agreement with Water District for the construction phase of the Project.

Staff Recommendation:

Adopt Resolution No. 18-28; approve Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction Phase; authorize President of the Board of Commissioners to execute the Cost Sharing Agreement and for the President and General Manager, to take administrative action as needed and, to make revisions as necessary to the Cost Sharing

Agreement or to delay execution of the Cost Sharing Agreement; report said revisions or delay in execution of the Cost Sharing Agreement back to the Fire Commission at a public meeting.

Purpose:

Fire District will enter into a Cost Sharing Agreement with Water District to provide for the safety and protection of the public against fires, earthquakes, floods and other disasters by improving pipeline fire flow, resiliency and operational capabilities of the designated sections of the water pipelines that are within the Water and Fire District boundaries.

Background

The Parties successfully partnered over many years in many mutually beneficial projects. These projects benefited the mission of the Fire District to provide fire protection to residents and community and benefited the Water District with improvements to its water service and water system infrastructure. These partnerships were created as necessity for improvements became evident, largely in part, due to the aging of the Water District infrastructure, demands of the residential population and as a result of climate change and environmental influence. All these factors greatly increased the potential for loss of life and property resulting from wildland fires, seismic events and resulting fires, floods, and other disasters. Such disasters have a high potential to disable the pipeline backbone and thereby seriously reduce fire protection capabilities

The Parties developed projects to address these threats and allocated funds in a cost sharing methodology based on the percentage of benefit to each of the Districts. These projects, initiatives, decisions and cost allocations were determined by its local officials i.e. appointees on the Fire District Board of Commissioners and the elected Board of Directors of the Water District. The capital improvement projects that resulted were funded by both Districts' budgets. By these initiatives, the Parties responded in a responsible manner to fulfill their missions to the public they serve.

For this Report, Water District provided a review of its background and development of infrastructure over the decades. Water District reviewed recent traumatic events and lessons learned post-disaster. Water District also summarized the shared cost capital improvement projects that serve to strengthen and improved infrastructure and resiliency of Water District's infrastructures for protection of lives and property (**Attachment 1**).

Discussion/Analysis

Mandate for Action: Imperative to preservation of life and property is protection from fire, earthquake, flood and disaster. Recent fires in the Fire District along with fires in Northern California and throughout the State punctuate the need for a mandate of progressive and preventative measures. The Parties, through a unique partnership built on years of success, mutually addressed this challenge. The Districts prepared for traumatic events by working in partnership on projects formulated to lessen the impact or possibility of these disasters. Through a series of cost sharing capital improvement projects, both Districts were able to better protect their constituents.

This next cost sharing project, Hydrant Flow and Pipeline Resiliency Improvement, addresses the following issues. Hydrants that are new but do not have sufficient pipeline fire flow to aid firefighter's efforts to extinguish fires and prevent fires from spreading, must be addressed. Pipelines that are deficient in structure and material must be retrofitted or replaced. Inadequate resiliency of pipeline infrastructure that cannot withstand the event of an earthquake and resulting threats of fire, must be improved and/or replaced. The Hydrant Flow and Pipeline Resiliency Improvement Project addresses these concerns and engineers solutions for improvements to the pipeline infrastructure (**Exhibit A** to Cost Sharing Agreement).

Design Construction Phase: The first phase of the project is the design of the pipeline improvement construction. This phase was initiated by the Water District and is currently in progress (Exhibit B to Cost Sharing Agreement). The second phase will proceed in 2019. Subsequent to participating in the design construction phase, the Fire District is under no obligation to proceed to the construction phase of the Project but can weigh its options as further analysis of cost and project scope are developed. Due to the importance of this project, Fire District is committed to advancing the project design development to ensure construction can begin without delay. If the Fire District wishes to proceed into the construction phase of the Project, a new cost sharing agreement will be developed.

Water District retained the engineering consultant, Pakpour Consulting Group, Inc. and will be solely responsible for the design construction phase. Water District will provide all management, administration, receipt of invoice and payment of funds, manage environment issues, legally applicable bidding requirements and any issues associated with the Project.

Allocation of Costs: Parties designated subcommittees to meet, discuss and determine the cost sharing percentages each would allocate as its share of the costs of the design construction. The decision was a 50/50 split of the estimated costs provided by Pakpour. Parties will each allocate \$316,508.00 for design construction. Because the costs are estimates, any cost over the estimated amount due to conditions unforeseen by engineers, will be capped at \$15,000 for Fire District. If unforeseen costs are more extensive, Parties will meet to discuss and consider an amendment to the Agreement. If estimated costs are lower than estimates, both Parties will conduct a true-up to mutually benefit from the lower costs.

Fire District will make an advanced deposit of \$50,000 to be used for payment of invoices with interest paid by Water District for funds in the deposit account.

Insurance and Indemnification: Water District and Pakpour will provide indemnification and required evidence of insurance to Fire District. In addition, Water District and Pakpour will be responsible for insurance coverage from their contractors and employees, etc. (Exhibit D to Cost Sharing Agreement).

Options

1) Adopt Resolution No. 18-28; approve Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction Phase; authorize President of the Board of Commissioners to execute the Cost Sharing Agreement and for the President and General Manager, to take administrative action as needed and, to make revisions as necessary to the Cost Sharing Agreement or to delay execution of the Cost Sharing Agreement; report said revisions or delay in execution of the Cost Sharing Agreement back to the Fire Commission at a public meeting

Advantages: Fire District will be in proper sequence with Water District to allocated funds in a timely manner and without delay for the design construction phase that is now in process. This action enables the Project that will strengthen fire flow capabilities of the pipeline which aid firefighting efforts, address inadequate resiliency and needed improvements of the pipeline for firefighting capabilities, strengthen resiliency in seismic events and resulting fires, floods and other disasters.

Disadvantages: Action will occur prior to receiving the Santa Clara County Management Audit Report now underway. The Report will not be a factor in actions taken by the Board of Commissioners prior to delivery of said Report.

2) Delay taking action to approve the Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction Project pending receipt and processes involved in the Santa Clara County Management Audit Report

Advantages: Delay action pending receipt of the Management Audit Report and process adds an additional factor for consideration prior to taking action pursuant to the Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction

Disadvantages: Delay of action would interrupt the progress of the current design construction project and would delay and or alter the extent of the pipeline improvement construction project. It is not known in what month the Management Audit Report will be delivered nor the time provided for responses and deliberations. This could cause significant design construction delay that would, in turn, alter the scope and delay the request for proposals, bid and selection process for construction of the Hydrant Flow and Pipeline Resiliency Improvement Project. This delay would subject residents and community to longer exposure to insufficient pipeline fire flow, delay seismic improvements for pipelines to withstand earthquake events and threat of resulting fires and could expose the pipeline to further infirmities thereby endangering life and property.

Recommendation

Adopt Resolution No. 18-28; approve Cost Sharing Agreement for the Hydrant Flow and Pipeline Resiliency Improvement Project Design Construction Phase; authorize President of the Board of Commissioners to execute the Cost Sharing Agreement and for the President and General Manager, to take administrative action as needed and, to make revisions as necessary to the Cost Sharing Agreement or to delay execution of the Cost Sharing Agreement; report said revisions or delay in execution of the Cost Sharing Agreement back to the Fire Commission at a public meeting.

Attachment 1

Purissima Hills Water District Report

BACKGROUND

Purissima Hills Water District is a water utility serving two-thirds of Los Altos Hills since 1955. The primary driver for the formation of the District was a transition from well water to the more sustainable and reliable source of water from San Francisco Public Utilities Commission's Hetch Hetchy Regional Water System. The water distribution system has 80 miles of pipe, 10 million gallons of storage, and five pump stations with 15 pumps serving three pressure zones. Except for the Zone 4 Page Mill Tank, there is more than adequate redundancy. The distribution system was mostly built in the late fifties and early sixties, driven by new subdivisions. In the late sixties Purissima Water merged with a number of small mutual water systems, each with their own facilities. These small neighborhood water systems installed the appropriate facilities suitable for the water needs of the time. The distribution facilities, while undersized for fire flows, are perfectly suitable for potable water delivery.

Since the District is largely built out, a lot of work has been done to integrate the District as if it was designed as a complete system from the beginning. During the seventies and eighties, two 3 million gallon storage tanks were built, Neary tank 2 and Hungry Horse Tank, and a pump station, Deer Creek. An 18" ductile iron pipe was constructed from the SFPUC source on Hillview and Foothill Expressway to the Deer Creek pump station, Arastradero Road and Purissima Road, an important facility because it supplies water to both Zone 2 and Zone 3. The District is also challenging because the terrain does not increase in elevation gradually. There are local hills in the middle of lower zones that require pipe from higher zones to serve them with enough pressure and flow. Again, while this water system is perfectly adequate for potable water delivery, the water system is undersized, in areas, to provide fire flows for a community as affluent as Los Altos Hills, with home values that range from \$3 million to \$20 million and above.

The District capital improvements are also influenced by traumatic events, such as the Liddicoat fire in 1985 that destroyed nine homes, causing an estimated total of \$9 million of damage, fueled by exploding eucalyptus trees. It was reported, at the time, that the District ran out of water, resulting in construction of a 12" water main from the La Cresta tank to the Liddicoat subdivision. In 1989, the Loma Prieta earthquake destroyed the La Cresta tank, sending a million gallons of valuable fire fighting water into houses below. Both the Fire District and Water District have learned from history and are proactive in partnering to harden the water distribution system for seismic resilience, efficient water transmission from the source on the northern boundary to the southern boundary, where the storage is located.

COST SHARING PROJECTS

Zone 2.5 Main Improvement

Zone 2.5 is a high ridge in the middle of Zone 2 that could not be adequately served with Zone 2 pressures. It is located along La Cresta Drive, running from approximately Nina Place on the North to Leander Drive and La Barranca Drive to the South. The water supply for this zone is obtained from Zone 3 through an aging pressure regulator valve (PRV's) located on La Barranca Drive just west on I280. This regulator reduces the Zone 3 pressure to 85 psi for the long dead end through a combination of 6 and 8 inch asbestos cement (AC) water mains. There is an emergency connection utilizing a check valve to Zone 2½ from the La Cresta Tanks to supplement the supply from La Barranca PRV under high fire flow demand resulting in low pressure. The fire flow in most of this area is well below 1,000 gpm at a 20 psi residual. The existing zone 2 ½ is a long dead-end with little or no redundancy.

This project was done in three phases. The Fire District constructed the Phase 1 that brought a 12" water main from the Zone 3 side of the Deer Creek pump station and tied into the dead end of the zone 2.5 with a regulator. The Water District constructed Phase 2 and 3, with the help of a \$2 million Fire District loan. This project upgraded most of the mains in the area from existing 2½" PVC, 4 , 6 and 8" AC to 12" DIP allowing for a pressure and flow increase and also provide a northern transmission quality and seismically hardened connection to Zone 3.

Neary Tank Utilization Project

The Neary Tank Site is the District's largest facility and has a capacity of 3,200,000 gallons split between Neary No. 1 (200,000 gallons) and Neary No. 2 (3,000,000 gallons). Due to smaller diameter piping, only a fraction of the available storage is used. The existing storage is adequate for the District's day to day operations but may not be adequate for fire protection. Since the site is located at the southwestern edge of the District, water travels through the entire District from the San Francisco PUC connections at Veterans Hospital to reach the tanks.

In 2000, as part of the Mains 1999-2000 Project, the District Installed 7,700 feet of 12" seismically designed Ductile Iron Pipe (DIP) from Altamont Court to the Neary Tank driveway on La Loma Drive. The Neary Tank Utilization Project extended a 12" DIP approximately 6,600 feet from Altamont Court to the Altamont Tank Site. There were no water mains currently in this area. The Mains 1999-2000 Project greatly promoted usage of the Neary Tanks and the Neary Tank Utilization Project completed the missing link by providing a seismically hardened connection for the two Zone 3 tank sites. The two Zone 3 tanks float together very efficiently eliminating the need for an additional tank at Altamont.

As part of this project, Neary Tank 2 was seismically retrofitted to withstand a 975 year earthquake. This was designed to a higher level of motion than essential structures in California and correlates to the recently completed design criteria of the SFPUC Hetch Hetchy Seismic Upgrade Project. The seismic improvements included installing a

Attachment 1

foundation underneath the tank, anchoring the tank to the foundation and welding additional support to the tank interior.

Page Mill Seismic Upgrade

The Page Mill Seismic Upgrade Project enhanced both drinking water preservation and fire protection capability in the event of a major earthquake. The Fire District approached the Water District to increase the capacity of the tank in addition to meeting improved seismic safety. It was deemed cost prohibitive to construct the maximum allowable tank on the site. However, a unique engineering solution allowed for a capacity increase by installing the rafters on the roof of the tank. As with the Neary Tank, the tank was anchored to a new foundation underneath.

The Page Mill Tank project was enabled by LAHCFD-funded intertie with the City of Palo Alto that allowed the tank to be out of service for the duration of the project. The intertie provides a necessary redundancy for our Zone 4 and has been used on numerous occasions

Deer Creek and Altamont Generator Projects

These two projects consisted of the installation of a dedicated diesel generator at both the Deer Creek and Altamont pump stations. Deer Creek pump station supplies Zone 3 with a 200 horsepower (hp) pump, supplies Zone 2 with 100 hp pumps. The 400KVA generator allows for a 200 hp and a 100 hp pump to run simultaneously with some spare capacity. The Altamont is a single source pump station that supplies Zone 4 and Page Mill Tank. The 150KVA generator allows three 30 hp pump to run simultaneously with some spare capacity. Both generators are equipped with auto start features and connected to the District's SCADA system. Prior to the installation, the District used portable generators to supply back up power.