



**AGENDA
BILL
Item 7.A**

**Eagleridge Water Booster Station
Conversion Project Discussion**

DATE SUBMITTED:	June 2, 2022	MEETING DATE:	June 8, 2022
TO: BOARD OF COMMISSIONERS	FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Pressure Contour Map with District-recorded Pressures during May 18 Test		
	2. Eagleridge HOA Test Response Packet		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

The Eagleridge neighborhood, located within the District’s service area, is a subdivision of 63 single family residential homes situated on the north shore of Lake Whatcom just outside of Bellingham city limits. The District provides water service to Eagleridge residents via an intertie with the City of Bellingham’s water system. The neighborhood’s water and sewer infrastructure was constructed by the private developer of the subdivision in 1988 and dedicated to the District.

The Eagleridge Water System is classified as a Group A water system regulated by the Washington State Department of Health (DOH) and serves the entire Eagleridge neighborhood, as well as seven homes located immediately north of Donald Avenue (70 total homes). When the water system was originally designed and constructed, the City’s water pressure at the location of the connection (intertie) between the two systems was not sufficient to serve the Eagleridge neighborhood. As a result, a booster pump station was constructed at the location of the intertie (2029 Northshore Road) that consists of a CMU (concrete masonry unit) building that houses three pumps for domestic (general) water service, two pumps for fire suppression, pump controls, and an auxiliary diesel generator (to ensure continuous water service throughout power outages).

At some point between infrastructure construction in 1988 and 2016, the City increased the water pressure in the service area the feeds the Eagleridge water system. During this same timeframe, the District began planning for replacement of the pump control system, which was approaching the end of its useful life. Based on this, a project was identified in the District’s most recent Water System Comprehensive Plan update (approved by DOH in 2018) to study whether part or all of the pump station could be decommissioned. In 2020, the District requested that Wilson Engineering perform a detailed hydraulic analysis to

determine if the City's system pressure on their side of the intertie is sufficient to meet regulatory requirements in the Eagleridge system ([Washington Administrative Code 246-290-230](#) requires that Group A water systems provide a minimum of 30 pounds per square inch [psi] pressure at service water meters).

Wilson Engineering's hydraulic analysis concluded that the domestic pumps are no longer necessary and can be removed from service, with the City's pressure being sufficient to meet regulatory requirements for the domestic demands of the Eagleridge system. However, the fire pumps must remain, as the analysis found that the City pressures were not sufficient to deliver the minimum required flow and pressure in a fire flow scenario. The hydraulic analysis did, however, find that the existing fire pumps are oversized, and concluded that the existing pump control valves for the fire pumps should be modified to add a pressure reducing function.

District Design and Construction Standards, as well as the District's Administrative Code establish a District-wide policy to provide a minimum of 30 psi under peak hour demand at all water meters. The intent of this policy is to meet minimum design criteria defined in the "Water System Design Manual" published by the DOH and WAC Chapter 246-290. Based upon this policy, the District submitted a report to DOH in August 2021 seeking approval for removal of the domestic pumps. DOH granted project approval in November 2021. With the District's determination that system pressures meet current District policy and DOH's approval of the project, the District then provided outreach to Eagleridge system customers via a letter dated December 6, 2021.

Since issuance of the December 6 letter, there has been ongoing dialogue with Eagleridge customers regarding the impacts of the proposed project. The Board has discussed the project during a regularly scheduled meeting held on January 12, a work session held on February 9, and a regularly scheduled meeting held on April 13.

Following discussion with the Eagleridge customers, the District and many of the customers participated in a water pressure test on May 18. The test consisted of shutting off the booster pump station and bypassing the pumps between 3:00 and 7:00 p.m. as a means of simulating water system conditions should the domestic pumps ultimately be removed. The purpose of the test was to: 1) allow the District to check pressures at various locations in the water system to confirm the validity of the hydraulic model, and 2) provide customers both quantitative (read the pressure at their home with a gauge) and qualitative (see how showers, faucets, sprinkler system, etc. function) information specific to their home.

During the test, the District recorded pressures throughout the test at three locations: at the booster station, at blow-off located adjacent to 1735 Eagleridge Drive, and at a fire hydrant located adjacent to 1724 Donald Avenue. District staff also spot-checked pressures at several water meters. The previously presented Water Pressure Contour Map is attached, with District-recorded water pressures superimposed. Pressures recorded aligned with the hydraulic model of the public water system, confirming its validity.

Many Eagleridge customers participated in the test, recording their observations (both quantitative and qualitative on forms developed by the HOA). Attached is the packet submitted by the HOA, which also includes responses received from customers located on Donald Avenue (including a letter from Mr. Rosenberg summarizing all Donald Avenue customer pressure impacts). Numeric pressures recorded by the customers varied in relation to anticipated pressures on the contour map (some were consistent with the map, while others deviated significantly). Potential reasons for the deviations could have been: issues within the private system (such as PRV malfunction); recording pressures with multiple fixtures open/operating; inaccurate gauges (District staff noted a 7 psi difference at one customer's hose bib between District gauge readings and the customer's gauge reading); or operator error. Regardless, the more critical issue for the District is addressing customer perception regarding a drop in pressure from which they have grown accustomed to (and made investments in their home appliances and systems around).

Prior Board discussion has included an analysis of a variety of potential alternatives associated with the project. Based upon past discussion, the alternatives have been winnowed down to three primary options:

- 1) Implement the Proposed Project (domestic pump removal)
- 2) Incorporate Pump System Replacement into the 6-Year Capital Improvement Program (funded by the Water Utility System Reinvestment Fund)
- 3) Incorporate Pump System Replacement into the 6-Year Capital Improvement Program (funded by a rate surcharge placed on benefiting customers)

Alternative 1

Domestic pump removal is the most readily implementable option with engineering and permitting being complete and the project constructable by District staff. It is also the lowest cost option (both capital and long-term operational) and aligns with the District's goal of Operational Optimization (removes workload obligations and operational costs associated with the pumps). However, from a customer satisfaction perspective, the pressure test feedback received overwhelming aligns with a desire to have current pressures maintained (even for several customers in the lower elevations of the water system that would still have relatively high pressures). In addition, there would most certainly be an impact to those in higher elevations of the system, as many would need to install and maintain private booster pump systems and associated appurtenances to maintain desired pressures.

Alternative 2

Booster pump system replacement would allow for maintenance of water system pressures that Eagleridge customers are accustomed to and align with the desires voiced by many since December (and most recently through the test day responses). The project cost would need to be incorporated into the 6-year CIP, thus bumping prior prioritized water system investments (with approximately \$250,000/year dedicated to water system reinvestment projects, and required FEMA grant match obligations consuming the majority of reinvestment funds, there is a risk of project implementation being scheduled after system failure). Consideration of precedent setting should also be considered—District

financing of a capital improvement project that provides a level-of-service benefit in excess of District policy (and service currently provided to other portions of the District) could result in District financing of other future projects requested by specific areas/populations of the District.

Alternative 3

Alternative 3 benefits largely align with those summarized in Alternative 2 above. Though the District would need to finance the upfront costs of pump system replacement, the improvement would be financed by the benefiting customers, thus removing policy precedent setting issues identified associated with Alternative 2.

FISCAL IMPACT

The estimated cost to retrofit the fire pumps and replace the domestic pumps is \$156,000 (\$130,000 for construction/equipment with a 20 percent multiplier for engineering design), with operational costs of the 20-year planning horizon being \$50,000. The estimated cost to retrofit the fire pumps and remove the domestic pumps is \$13,000 with no associated operational costs anticipated. Therefore, removal of the domestic pumps would save the water utility approximately \$143,000 in near-term capital costs and \$50,000 in operational costs over the next 20 years.

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Product Quality

Customer Satisfaction

Operational Optimization

Financial Viability

RECOMMENDED BOARD ACTION

Implementation of the proposed project, while it aligns with operational optimization objectives, is inconsistent with customer desires. On the other hand, requiring all ratepayers to finance a project that provides a level-of-service above and beyond the level-of-service currently provided to other portions of the District may create a policy precedent with significant future financial impacts. Therefore, the recommended action is to authorize pump system replacement, but in a manner that allows that those benefiting in excess of current District policy finance the improvement.

PROPOSED MOTION

If the Board wishes to proceed with direction during the June 8 meeting, following are possible motions that may be used, dependent upon the Board-defined approach forward.

“I move to authorize District staff to proceed with implementation of the Eagleridge Booster Station Conversion project, as approved by the Washington State Department of Health.”

“I move that replacement of the Eagleridge pump system be included in the District’s 6-year Capital Improvement Program during development of the next District budget.”

“I move that replacement of the Eagleridge pump system be included in the District’s 6-year Capital Improvement Program during development of the next District budget, and that staff develop a surcharge to finance the pump system replacement that will be placed on Eagleridge water system customers for Board consideration that is consistent with applicable state statutes.”