



LAKE WHATCOM WATER & SEWER DISTRICT

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MEMORANDUM

To: Board of Commissioners

From: Justin Clary, General Manager

Date: February 2, 2022

RE: Eagleridge Booster Conversion Project
District Project No. C2011

Background

The Eagleridge neighborhood, located within the District's service area, is a subdivision of 64 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 six additional 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 pounds per square inch (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, District staff have been contacted by several customers seeking additional information on the project, as well as many participated in discussion pertaining to the project during the Board's regularly scheduled January 12, 2022, meeting.

Project Challenges

As a public agency, to maintain public trust and mitigate legal liabilities, it is critical that the District administer adopted policies (resolutions, administrative code, design and construction standards, etc.) consistently throughout its service area. Current District policy regarding minimum pressures within its water systems is consistent with state statute and most other Group A water systems throughout the state. The District water utility's primary revenue source is from rates paid by District customers, which finance day-to-day operations and maintenance, and capital improvement projects. With water rates already the highest in the region, to limit the need for further rate increases, the District endeavors to operate the water utility in the most cost-efficient manner possible while maintaining District-adopted level-of-service standards. Based upon the hydraulic analysis performed by Wilson Engineering on the Eagleridge water system, the domestic booster pumps are not necessary to meet current level-of-service standards (pressures within the Eagleridge water system are projected to exceed 40 psi throughout most of the system, which is greater than pressures currently supplied in portions of other District-owned water systems). Replacing the domestic pumps and associated control systems is estimated to be approximately \$156,000 (\$130,000 for construction/equipment with a 20 percent multiplier for engineering design), as well as an additional \$50,000 for operation-related costs over the twenty-year planning horizon. Therefore, by removing the existing domestic pumps, the District can save all rate payers from having to finance a capital project that is not necessary to meet District-wide level-of-service standards.

The Eagleridge Booster Conversion Project has been anticipated by staff as a difficult project in that longstanding level-of-service expectations (current Eagleridge system pressures range from

approximately 70 to 100 psi) are pitted against system operation consistent with District policy and state statute. Since the City of Bellingham increased pressures within its water system, Eagleridge water system customers have enjoyed favorable pressures, and designed both homes and landscaping around these pressures. In addition, many of the homes served by the Eagleridge water system are setback many feet from and/or at a higher elevation than the water meter (under these scenarios, the pressures at the home can be significantly less than those provided at the water meter). Based on these factors, it is understandable that Eagleridge customers have voiced concern regarding the project, as they are faced with a reduction in the level-of-service they are accustomed to while expected to continue to pay the same water rate.

Policy Considerations

The District has maintained and consistently implemented the existing policy with no significant public concern for at least that past 20 years. As a public entity, revision of any longstanding policy, especially one that is consistent with state statute and other like-agencies, should be carefully considered to identify any near- or long-term impacts associated with implementation District-wide, as revising a policy to address a specific issue can often have unanticipated consequences when implemented consistently across the service area.

Booster Station Project Options

Staff have attempted to develop a comprehensive list of options associated with the Eagleridge Booster Station Conversion Project for Board consideration; however, should the Board or public identify additional options, please do not hesitate to provide them. Each option is provided under the overarching premise of either moving forward under existing District policy or revising District policy. Each option then provides a summary, and associated pros and cons.

1. Maintain Existing Policy—Do Nothing (baseline)

Summary: This option is not considered a viable option, but solely presented to create a baseline against which other options may be considered. Under this option, no revision to District policies is proposed (30 psi minimum water system pressure remains). The District would continue to operate the Eagleridge booster station under its current configuration until system failure, at which point the existing domestic pumps would be removed from service and the system rely on City of Bellingham pressures.

Pros:

- *Eagleridge water system customers would continue to enjoy current system pressures over the near-term.*

Cons:

- *Both the District and Eagleridge customers would be placed in a reactive (rather than preferred proactive) situation in that it would be unknown when the booster pump removal would occur.*

2. Maintain Existing Policy—Implement Proposed Project

Summary: Under this option, no revision to District policies is proposed (30 psi minimum water system pressure remains). The District would proceed with project as planned (removal of existing domestic pumps); however, project implementation would be postponed, providing those Eagleridge customers wishing to install private booster pumps sufficient time to do so.

Pros:

- *Provides for consistency of application of a longstanding District policy.*

Cons:

- *Eagleridge customers wishing to augment their water pressures would be responsible for installing and maintaining private booster pumps as well as annual backflow assembly testing.*

3. Maintain Existing Policy—Booster Station Replaced via Developer Extension Agreement

Summary: Under this option, no revision to District policies is proposed (30 psi minimum water system pressure remains). To maintain current system pressures, the District would enter into a Developer Extension Agreement with the Eagleridge HOA/Donald Avenue customers to design and replace the existing booster station pumps/controls.

Pros:

- *Provides for consistency of application of a longstanding District policy.*
- *Eagleridge customers would continue to enjoy water system pressures similar to those with which they have grown accustomed to.*
- *Ratepayers (District-wide) would not be responsible for financing a project that is not necessary to meet current District policy and state statute.*
- *Project costs would likely be lower because the project would not be required to follow public works bid laws and prevailing wages (relative to Option 4, which would be completed by the District).*

Cons:

- *Eagleridge customers would be responsible for completing the design and construction of the replacement pump system (with District review/oversight).*

4. Maintain Existing Policy—Booster Station Replace via Utility Local Improvement District

Summary: Under this option, no revision to District policies is proposed (30 psi minimum water system pressure remains). To maintain current system pressures, the Eagleridge HOA/Donald Avenue customers would petition the District to form a Utility Local Improvement District to finance the design and replacement of the existing booster station pumps/controls.

Pros:

- *Provides for consistency of application of a longstanding District policy.*
- *Eagleridge customers would continue to enjoy water system pressures similar to those with which they have grown accustomed to.*

- *Ratepayers (District-wide) would not be responsible for financing a project that is not necessary to meet current District policy and state statute.*

Cons:

- *All benefitting Eagleridge customers would be responsible for financing the District's design and construction of the replacement pump system as well as the development and administration of ULID, assessments rolls, and associated documents.*
- *Project costs would be as estimated because the project would be required to follow public works bid laws and prevailing wages (relative to Option 3, which would be completed by a private Eagleridge group).*

5. **Revise Policy—Minimum Pressures based upon Pressure at Point of Delivery**

Summary: District revises 30 psi minimum pressure at the water meter to be monitored at the point of delivery (e.g., home), thus justifying replacement of the Eagleridge domestic pumps as a capital project.

Pros:

- *Provides policy justifying the District's replacement of the domestic pumps as a capital improvement project financed by all ratepayers.*

Cons:

- *To apply the policy consistently District-wide, the District would be required to upgrade its other water systems to meet the new policy (costs are unknown but anticipated to be significant).*
- *The District would be setting its policy to be specific to individual, private systems rather than a public system (which stops at the water meter).*
- *District policy would be inconsistent with most other public Group A water systems in Washington.*

6. **New Policy—Future Capital Improvement Projects must Accommodate Legacy Systems**

Summary: District adopts policy requiring all future infrastructure repair/replacement projects be designed and constructed to meet or exceed existing level of service capabilities, thus justifying replacement of the Eagleridge domestic pumps as a capital project.

Pros:

- *Provides policy justifying the District's replacement of the domestic pumps as a capital improvement project financed by all ratepayers.*

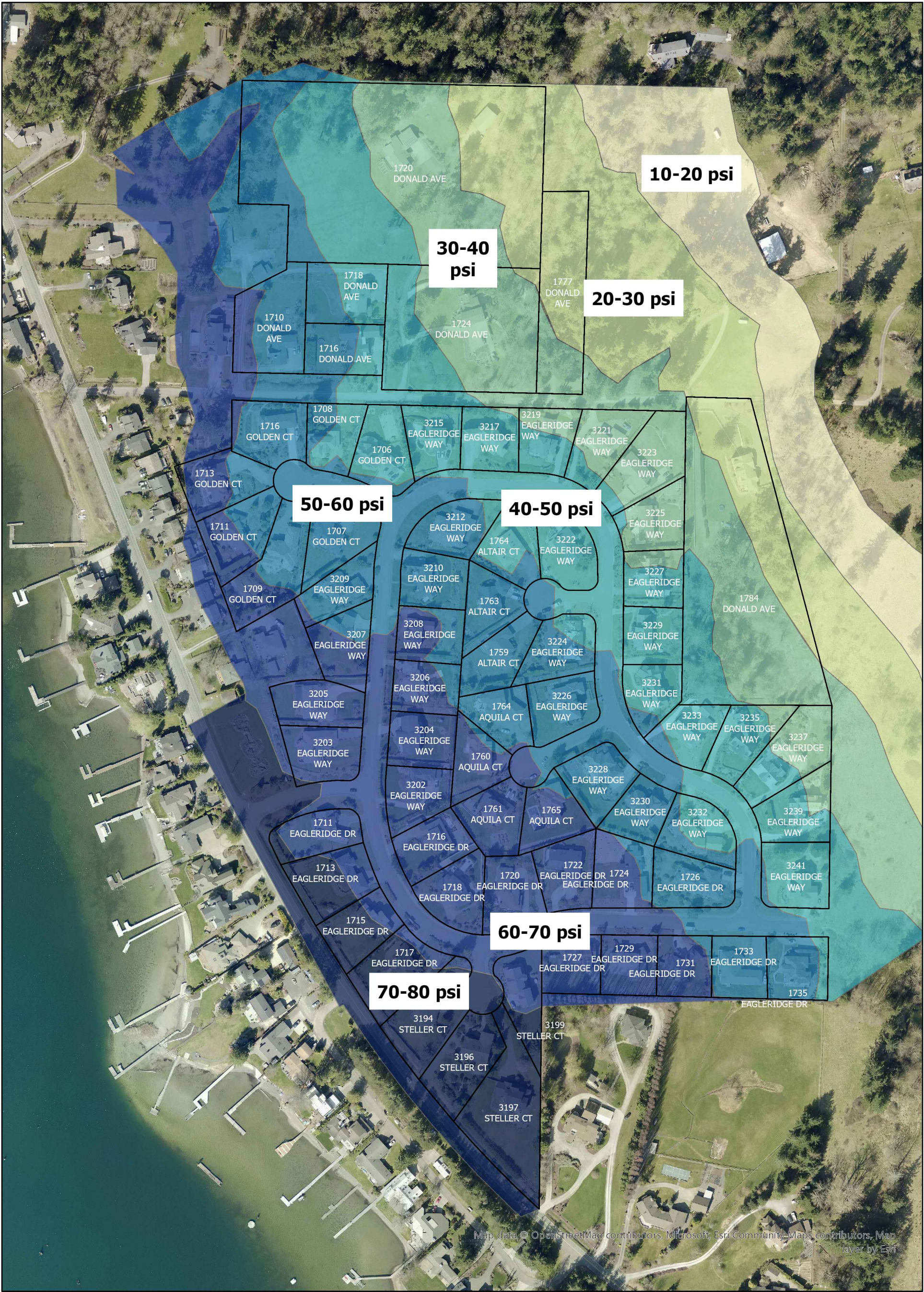
Cons:

- *Such a policy would restrict the District's ability to replace infrastructure based upon current/projected capacity needs.*
- *Financial impacts of such a policy are unknown but anticipated to be significant (near-term projects that may be negatively impacted by such a policy are the Division 7 water reservoir replacement project and the Lakewood/Rocky Ridge sewer lift stations renovations project).*

Additional Considerations

As discussed above, the Eagleridge Booster Station conversion project has created concern amongst Eagleridge water system customers due to the anticipated drop in system pressures. To acknowledge these concerns, a couple of additional actions were proposed during the general manager's discussion with the Eagleridge HOA members during their annual meeting on January 17. The first was consideration of working with the Eagleridge customers in identifying a date in which the domestic pumps could be turned off so that customers could observe what pressures they could expect at their homes should the project move forward (customers have also offered to record and submit those pressures to the District). Also requested during the HOA meeting was the formation of a task force to review the proposed project and identify potential mutually beneficial steps forward. Staff has found both requests reasonable, should the Board wish to implement them.

To assist Eagleridge customers in understanding the potential impact to their homes, engineering staff have developed a map that presents the anticipated (without booster station) static water pressures at the ground level at each residence (attached). This may help answer the question every homeowner wants to know – What pressure can I anticipate at my home should the project proceed?



Eagleridge Water System

**Calculated Water Pressure
for Average Day Demand
after Removal of Domestic Booster Pumps**

District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District
2/2/2022