LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

Date: November 16, 2020

From: Lake Whatcom Water & Sewer District

RE: Meeting Procedures During the Covid-19 Emergency

Lake Whatcom Water & Sewer District continues to operate under adjusted procedures in order to provide continuous service to our customers. That said, we are taking precautions in an effort to protect the health and safety of our staff, commissioners, and customers. Our lobby is currently closed to the public, and we are practicing social distancing guidelines as suggested by Governor Inslee and the CDC.

For the foreseeable future, Commissioners will be attending regular meetings by phone. Per Governor Inslee's Proclamation No. 20-28.3 amending his Stay Home, Stay Health proclamation, the District will provide access to interested public via phone/internet utilizing the GoToMeeting platform.

If you would like to attend the November 25 regular meeting, details can be found below. In this evolving climate, we are committed to doing everything possible to provide opportunity for public comment as well as promote health and safety. As such, the District requests that if possible, public submit comments in written form by noon the day before a scheduled meeting for inclusion in the meeting discussion.

We appreciate your understanding and patience during these uncertain times. If you have any questions, please contact Administrative Assistant Rachael Hope at rachael.hope@lwwsd.org or 360-734-9224.

November 25 Regular Board Meeting

Wed, Nov 25, 2020 8:00 AM - 10:00 AM (PST)

Please join my meeting from your computer, tablet or smartphone.
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United States: +1 (224) 501-3412

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LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS
AGENDA
November 25, 2020
8:00 a.m. – Regular Session

1. CALL TO ORDER

2. ROLL CALL

3. CONFIRMATION OF COMPLIANCE WITH REMOTE MEETING ATTENDANCE PROTOCOLS

4. PUBLIC COMMENT OPPORTUNITY
   At this time, members of the public may address the Board of Commissioners. Please state your name prior to making comments.

5. ADDITIONS, DELETIONS, OR CHANGES TO THE AGENDA

6. CONSENT AGENDA

7. SPECIFIC ITEMS OF BUSINESS
   A. Presentation—Sudden Valley Water Treatment Plant Alternative Analysis
   B. Utility Rate Study Personal Services Contract Award
   C. 2021 Budget Presentation
   D. Disposal of Surplus Property

8. OTHER BUSINESS

9. STAFF REPORTS
   A. General Manager
   B. Engineering Department
   C. Finance Department
   D. Operations Department

10. PUBLIC COMMENT OPPORTUNITY

11. EXECUTIVE SESSION
    Executive Session per RCW 42.30.110(1)(g): To review the performance of a public employee (General Manager performance evaluation) – *30 minutes*

12. ADJOURNMENT

AGENDA BILL Item 6	**Consent Agenda**			
DATE SUBMITTED:	November 17, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Rachael Hope		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. See below		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

****TO BE UPDATED 11.24.2020****

BACKGROUND / EXPLANATION OF IMPACT

- Minutes for the November 12, 2020 Regular Board Meeting
- Payroll for Pay Period #23 (10/31/2020 through 11/13/2020) totaling $50,700.44
- Payroll Benefits for Pay Period #23 totaling $54,577.31
- Accounts Payable Vouchers to be added

FISCAL IMPACT

Fiscal impact is as indicated in the payroll/benefits/accounts payable quantities defined above. All costs are within the Board-approved 2020 Budget.

RECOMMENDED BOARD ACTION

Staff recommends the Board approve the Consent Agenda.

PROPOSED MOTION

A recommended motion is:

"I move to approve the Consent Agenda as presented."

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

SPECIAL SESSION OF THE BOARD OF COMMISSIONERS

Minutes

November 12, 2020

Board President Laura Abele called the Special Session to order at 6:31 p.m.

Attendees:	Commissioner Laura Abele	General Manager Justin Clary
	Commissioner Todd Citron	District Engineer/Assistant GM Bill Hunter
	Commissioner Bruce Ford	Finance Manager/Treasurer Debi Denton
	Commissioner John Carter	District Legal Counsel Bob Carmichael
	Commissioner Leslie McRoberts	Recording Secretary Rachael Hope

No public were in attendance. All attendees participated remotely by phone or video conferencing.

Roll Call

General Manager Justin Clary performed a roll call to identify those in attendance, and then verbally confirmed that the meeting was noticed in accordance with Resolution No. 859 allowing remote meeting attendance as well as in compliance with current statutory requirements. It was confirmed that all participants were able to be heard and hear each other clearly.

Consent Agenda

Action Taken

McRoberts moved, Citron seconded, approval of:

- **Minutes for the October 28, 2020 Regular Board Meeting**
- **3rd Quarter Payroll Taxes totaling $7,807.19**
- **Payroll for Pay Period #22 (10/17/2020 through 10/30/2020) totaling $43,403.27**
- **Payroll Benefits for Pay Period #22 totaling $50,657.76**
- **Accounts Payable Vouchers totaling $910,373.77**

Motion passed.

Resolution No. 869 Extension of the Suspension of Late Fees and Shut-offs

Clary recalled that the Board adopted Resolution No. 865 on March 25, 2020, which temporarily suspended late fees and shut-offs for delinquent accounts, as well as fees associated with voluntary suspension of services (to recognize a number of District customers that are Canadian and unable to cross the border to access their second home in the District). This Resolution was further extended by Resolution No. 868, passed on July 29, 2020, extending the measures until November 30, 2020.

Washington Governor Inslee issued Proclamation No. 20-23.1 on March 24, 2020, strongly encouraging public utilities to take actions to mitigate the economic impacts of the COVID-19 pandemic on their utility customers. A revision to this proclamation (Proclamation No. 20-23.3) was issued on May 5 that then prohibited water utilities from charging late fees or to shut-off services for failure to pay utility bills (effective through May 31). Several subsequent revisions to this proclamation have been issued that extend the prohibition against late fees and shut-offs, which have extended the prohibition through December 31, 2020.

Staff recommended that the Board extend the suspension of collection of late fees and shut-offs, but not the waiver of billing suspension fees. Discussion followed, and the Board agreed that rather than adopting further resolutions, no action would be taken and Resolution No. 868 would be allowed to expire on December 1, at which time the District would be subject to the guidance of the Governor's current and future proclamations.

Draft 2021 Budget Presentation

Denton explained that the first round of budget discussions covered revenue and operations expenditures. The topic for discussion during this session was present District staff proposed capital reinvestment projects to be completed in 2021. Hunter walked Board members through highlights of the Water & Sewer Reinvestment plans for 2021-2026. Discussion followed.

General Manager's Report

Clary updated the Board on several topics, including the District's continued response to the COVID-19 pandemic, CARES act funding updates, and work on updating the documents from last year's legislative brief to send to new and re-elected local representatives. Discussion followed.

Executive Session Per RCW 42.30.110(1)(g) General Manager Performance Evaluation - 30 Minutes

Abele recessed the Special Session to Executive Session at 7:56 p.m. It was estimated that the Executive Session would take about 30 minutes. The purpose of the Executive Session was for considering issues related to evaluating the performance of a public employee. Abele recessed the Executive Session and reconvened the Special Session at 8:17 p.m.

With no further business, Abele adjourned the Special Session 8:17 p.m.

_____	_____
Recording Secretary, Rachael Hope	Date Minutes Approved
_____	_____
Laura Abele	Todd Citron
_____	_____
Bruce R. Ford	Leslie McRoberts
_____	
John Carter	

CHECK REGISTER — PAYROLL

Lake Whatcom W-S District — Time: 11:32:59 Date: 11/17/2020
MCAG #: 2330 — 11/19/2020 To: 11/19/2020 — Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
3527	11/19/2020	Payroll	5	EFT		329.29	10/7/2020, 10/14/2020, 10/28/2020
3528	11/19/2020	Payroll	5	EFT		235.38	10/7/2020, 10/28/2020
3529	11/19/2020	Payroll	5	EFT		353.07	10/8/2020, 10/14/2020, 10/28/2020
3530	11/19/2020	Payroll	5	EFT		5,605.84	10/31/2020 - 11/13/2020 PR 24
3531	11/19/2020	Payroll	5	EFT		2,419.60	10/31/2020 - 11/13/2020 PR 24
3532	11/19/2020	Payroll	5	EFT		4,081.57	10/31/2020 - 11/13/2020 PR 24
3533	11/19/2020	Payroll	5	EFT		3,496.20	10/31/2020 - 11/13/2020 PR 24
3535	11/19/2020	Payroll	5	EFT		1,630.26	10/31/2020 - 11/13/2020 PR 24
3537	11/19/2020	Payroll	5	EFT		1,270.62	10/31/2020 - 11/13/2020 PR 24
3538	11/19/2020	Payroll	5	EFT		2,863.73	10/31/2020 - 11/13/2020 PR 24
3539	11/19/2020	Payroll	5	EFT		1,984.00	10/31/2020 - 11/13/2020 PR 24
3540	11/19/2020	Payroll	5	EFT		3,165.86	10/31/2020 - 11/13/2020 PR 24
3541	11/19/2020	Payroll	5	EFT		3,011.60	10/31/2020 - 11/13/2020 PR 24
3542	11/19/2020	Payroll	5	EFT		3,121.65	10/31/2020 - 11/13/2020 PR 24
3543	11/19/2020	Payroll	5	EFT		353.07	10/8/2020, 10/14/2020, 10/28/2020
3544	11/19/2020	Payroll	5	EFT		2,434.08	10/31/2020 - 11/13/2020 PR 24
3545	11/19/2020	Payroll	5	EFT		1,461.82	10/31/2020 - 11/13/2020 PR 24
3546	11/19/2020	Payroll	5	EFT		1,638.96	10/31/2020 - 11/13/2020 PR 24
3547	11/19/2020	Payroll	5	EFT		3,249.22	10/31/2020 - 11/13/2020 PR 24
3548	11/19/2020	Payroll	5	EFT		2,748.76	10/31/2020 - 11/13/2020 PR 24
3549	11/19/2020	Payroll	5	EFT		2,488.02	10/31/2020 - 11/13/2020 PR 24
3534	11/19/2020	Payroll	5	11005		353.07	10/7/2020, 10/14/2020, 10/28/2020
3536	11/19/2020	Payroll	5	11006		2,404.77	10/31/2020 - 11/13/2020 PR 24
		401 Water Fund				14,229.54	
		402 Sewer Fund				36,470.90	
						50,700.44	Payroll: 50,700.44

I do hereby certify, under penalty of perjury, that the above is an unpaid, just, and due obligation as described herein, and that I am aithorized to certify this claim.

Sign _____ Date 11/17/2020

Board Authorization - As the duly elected board for this district we have reviewed the claims listed and approve the payment with our signatures below.

_____ Commisioner

_____ Commisioner

_____ Commisioner

_____ Commisioner

_____ Commisioner

CHECK REGISTER

BENEFITS

Lake Whatcom W-S District
MCAG #: 2330

Time: 11:43:06 Date: 11/17/2020
11/19/2020 To: 11/19/2020
Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
3551	11/19/2020	Payroll	5	EFT	UNITED STATES TREASURY	19,091.28	941 Deposit for Pay Cycle(s) 11/19/2020 - 11/19/2020
3552	11/19/2020	Payroll	5	EFT	WA ST SUPPORT ENFORCEMENT REGISTERY	208.34	Pay Cycle(s) 11/19/2020 To 11/19/2020 - SUP ENF
3553	11/19/2020	Payroll	5	11007	AFLAC	354.85	Pay Cycle(s) 11/19/2020 To 11/19/2020 - AFLAC Pre-Tax; Pay Cycle(s) 11/19/2020 To 11/19/2020 - AFLAC Post-Tax
3554	11/19/2020	Payroll	5	11008	AFSCME LOCAL	363.74	Pay Cycle(s) 11/19/2020 To 11/19/2020 - Union Dues; Pay Cycle(s) 11/19/2020 To 11/19/2020 - Union Fund
3555	11/19/2020	Payroll	5	11009	DEPARTMENT OF RETIREMENT SYSTEMS	5,390.03	Pay Cycle(s) 11/19/2020 To 11/19/2020 - DCP
3556	11/19/2020	Payroll	5	11010	HRA VEBA TRUST (PAYEE)	590.00	Pay Cycle(s) 11/19/2020 To 11/19/2020 - VEBA
3557	11/19/2020	Payroll	5	11011	VANTAGEPOINT TRANSFER AGENTS - 306798	100.00	Pay Cycle(s) 11/19/2020 To 11/19/2020 - ICMA
3558	11/19/2020	Payroll	5	11012	WA ST HEALTH CARE AUTHORITY	14,533.67	Pay Cycle(s) 11/19/2020 To 11/19/2020 - PEBB Medical; Pay Cycle(s) 11/19/2020 To 11/19/2020 - PEBB ADD LTD; Pay Cycle(s) 11/19/2020 To 11/19/2020 - PEBB SMK Surcharge; Pay Cycle(s) 11/19/2020 To 11/19
3559	11/19/2020	Payroll	5	11013	WA ST PUBLIC EMP RET PLAN 2	10,773.43	Pay Cycle(s) 11/19/2020 To 11/19/2020 - PERS 2
3560	11/19/2020	Payroll	5	11014	WA ST PUBLIC EMP RET PLAN 3	3,171.97	Pay Cycle(s) 11/19/2020 To 11/19/2020 - PERS 3

401 Water Fund	40,894.66		
402 Sewer Fund	13,682.65		
	54,577.31	Payroll:	54,577.31

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo

I do hereby certify, under penalty of perjury, that the above is an unpaid, just, and due obligation as described herein, and that I am aithorized to certify this claim.

Sign _____ **Date** 11/17/2020

Board Authorization - As the duly elected board for this district we have reviewed the claims listed and approve the payment with our signatures below.

_____ **Commisioner**

_____ **Commisioner**

_____ **Commisioner**

_____ **Commisioner**

_____ **Commisioner**

AGENDA BILL Item 7.A	**Sudden Valley Water Treatment Plant Alternatives Analysis Briefing #2**		
DATE SUBMITTED:	November 19 , 2020	MEETING DATE:	November 25, 2020
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, Assist. GM/District Engineer	
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS		1. Draft Technical Memorandum – Tier 2 / Tier 3 Seismic Evaluation 2. Draft Technical Memorandum – Chemical Systems Analysis	
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐ / INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

The existing Sudden Valley Water Treatment Plant (SVWTP) is located along Morning Beach Drive near the shores of Lake Whatcom and was constructed in 1972. The treatment plant utilizes chemical coagulation, flocculation, rapid media filtration, chemical pH adjustment, and gas chlorine disinfection prior to temporary storage within a 225,000-gallon reservoir also located at the site.

In July 2020, Gray & Osborne (G&O) completed a condition assessment in which engineers evaluated the SVWTP from a process, structural/architectural, mechanical, and electrical perspective. The assessment identified both high and low priority items that should be completed to maintain current and reliable function of the SVWTP into the future.

Following the condition assessment, G&O was contracted to perform an alternatives analysis to help the District select and prioritize specific short- and long-term improvements to the treatment equipment and processes currently in use. The work has been broken down by major systems. For each system, G&O will develop alternatives and document each in the form of a technical memorandum. The results from each system analysis will be presented to the Board at regularly scheduled board meetings.

All of the technical memoranda will ultimately be attached and summarized in an Alternatives Analysis Report. The Report will include comparisons and rankings, recommendation on modifications to system, cost estimates, figures to relay relative space requirements, and more.

The major systems as written in the scope of work agreement are:

- Pump Performance Test *(Presented to Board 9/30/2020, Briefing #1)*
- **Chemical Systems Analysis**
- Disinfection Systems Analysis
- Backwash Systems Analysis
- Filtration System Analysis
- **Tier 2/3 Seismic and Structural Analysis**
- Structural/Arch Workspace Analysis
- NACE III Coating Inspection *(Presented to Board 9/30/2020, Briefing #1)*

G&O has completed the Tier 2/3 Seismic and Structural Analysis and the Chemical Systems Analysis. Draft technical memoranda are attached. The consultant will summarize their findings and recommendations in a presentation, and collect Board comments or questions.

Highlights from Tier 2 / Tier 3 Seismic Analysis (excerpts from Executive Summary on Page 2 in Tech Memo)

> *Deficiencies and retrofits for the buildings are separated into two categories: structural and nonstructural. Structural refers to any part of the main structure of the building while nonstructural refers to any item that is supported from the main structure.*
>
> *For the Main Building, no structural deficiencies were found so no structural retrofits are recommended. Nonstructural retrofits with an estimated construction cost of $118,000 are recommended based on seismic deficiencies identified.*
>
> *For the Pump Building, structural and nonstructural retrofits with an estimated construction cost of $291,000 are recommended based on seismic deficiencies that were identified.*
>
> *The SVWTP reservoir was seismically evaluated in 2016 and found to have foundation and piping flexibility deficiencies. The estimated construction cost for addressing these efficiencies is $200,000 after adjusting to 2020 dollars.*

Highlights from Chemical Systems Analysis (excerpts from Summary of Recommendations and Cost Estimates on Page 14 in Tech Memo)

> *As noted above, the District has had good success utilizing liquid alum delivered via a commercial vendor as a coagulant for their water treatment process. However, it was noted that the existing alum storage tank is beyond its recommended useful life, does not contain seismic restraints, is cumbersome to fill and lacks direct line of sight between the parking lot and the tank, and the chemical metering pump equipment requires manual calibration on a daily basis. Furthermore, the proximity of chemicals and moisture to electrical and mechanical equipment may be accelerating the corrosion exhibited on this equipment.*

Because liquid alum is a cost-effective coagulant with a proven track record of success for the Lake Whatcom source, we recommend that the District continue to utilize liquid alum coagulant delivered by a commercial vendor. Furthermore, we recommend that the WTP relocate the chemical systems to a new building in order to provide separation from the electrical components, additional chemical storage capacity, and line of sight for chemical deliveries. Lastly, we recommend that the chemical metering systems be upgraded to include metering pump skids that include calibration columns and various valves/piping to reduce the level of effort required to calibrate the chemical dosing equipment.

The proposed building would accommodate the new alum storage tank and chemical metering skid. The tank would have the design criteria listed in Table 2.

We also recommend that the District utilize a chemical metering pump skid to move alum from the storage tank described above to the injection location in the WTP Main Building. The metering pump skid would include a single pump as well as the components listed previously.

For soda ash, we recommend that the existing tank be relocated to the proposed chemical building and provided with seismic bracing. The existing mixer should be replaced with a new, similarly sized unit, and the existing platform should be sandblasted and recoated to prevent additional corrosion. Additionally, we recommend that a custom shelf be fabricated and rest on the wall of the soda ash tank. This will allow WTP staff to rest the soda ash bags on the shelf, cut the soda ash bags, and dump them to the tank with minimal lifting and hoisting, thus reducing the physical load on the staff during soda ash addition.

The proposed building should be at least 500 square feet and would include two double doors and one 10-foot wide manually operated coiling door. This will allow for suitable access to the building and easy chemical delivery. The building should be large enough to accommodate the chemical delivery and storage equipment, additional dry chemical storage, and still be expandable as required based on future needs. The building will be provided with electrical service, and this service will be sub-fed provided from the existing WTP Finished Water Pump Building supply. New heating and ventilation equipment will be provided for the building, which will increase the overall electrical load. The additional load will be relatively small and as such, it is assumed that the existing electrical service has sufficient capacity. The Assessment Report did note several potential issues with both the capacity of the electrical service for accommodating additional load as well as with the existing utility transformer size. If a new building is constructed as recommended, a formal electrical analysis should be provided once preliminary sizing of the HVAC equipment is available to determine the full scope of electrical modifications required.

FISCAL IMPACT

This presentation is for discussion only; it is too early in the planning process to estimate fiscal impacts of plant improvements.

RECOMMENDED BOARD ACTION

No action is recommended at this time.

PROPOSED MOTION

Not applicable.

Gray & Osborne, Inc.
CONSULTING ENGINEERS

GRAY & OSBORNE, INC. 85TH ANNIVERSARY 1935 2020 CONSULTING ENGINEERS

TECHNICAL MEMORANDUM 20434-3

TO:	BILL HUNTER, P.E., ASSISTANT GENERAL MANAGER/DISTRICT ENGINEER
FROM:	KEITH STEWART, P.E. RUSSELL PORTER, P.E. MYRON BASDEN, P.E., S.E. ALEX QUINN, E.I.T.
DATE:	NOVEMBER 18, 2020
SUBJECT:	WTP TIER 2/TIER 3 SEISMIC EVALUATION LAKE WHATCOM WATER & SEWER DISTRICT, WHATCOM COUNTY, WASHINGTON G&O #20434.00

STRUCTURAL SCOPE OF WORK

In 2019, the Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne to perform a condition assessment for their existing Sudden Valley Water Treatment Plant (WTP) as part of a larger effort to analyze the District's water treatment facilities in order to prioritize funds for rehabilitation, modification, and/or replacement projects. The goal of the assessment and subsequent analysis is to identify potential improvements for the existing structures and treatment processes in an attempt to maximize treatment efficiency and extend the operational life of these facilities. The reports and technical memoranda generated as part of this assessment project will be used to develop a strategy for prioritizing modifications to the WTP to ensure it can efficiently and cost-effectively provide clean, potable water for the existing and projected service areas.

This memorandum includes a seismic evaluation of two buildings at the WTP and provides recommendations for improvements. These buildings are the Main Water Treatment Plant Building (Main Building) and the Finished Water Pump Building (Pump Building). Items evaluated include the structural systems of the buildings as well as nonstructural components that affect building functionality. This memorandum provides the basis and results of the seismic evaluation. The memorandum also summarizes the finding of another seismic evaluation for the Sudden Valley WTP (SVWTP) Reservoir at the WTP site.

1130 Rainier Avenue S., Suite 300 Seattle, Washington 98144 (206) 284-0860 Fax (206) 283-3206

EXECUTIVE SUMMARY

The Main Building and Pump Building were seismically evaluated using the Tier 3 procedure of American Society of Civil Engineers (ASCE) 41 *Seismic Evaluation and Retrofit of Existing Buildings*. This procedure highlights the four seismic hazard levels and four building performance levels for building function after a seismic event, ranging from BSE-1E Collapse Prevention (least stringent) to BSE-2N Operational (most stringent). A seismic hazard level of BSE-1N and a building performance level of Operational were used as seismic design criteria for both the Main Building and the Pump Building because these levels most closely approximate the seismic requirements that would apply for these buildings if they were built under today's building code. The intent of the building performance level of Operational is very minor damage to the building structure after the design-level earthquake and no required structural repairs before reoccupancy.

Deficiencies and retrofits for the buildings are separated into two categories: structural and nonstructural. Structural refers to any part of the main structure of the building while nonstructural refers to any item that is supported from the main structure.

For the Main Building, no structural deficiencies were found so no structural retrofits are recommended. Nonstructural retrofits with an estimated construction cost of $118,000 are recommended based on seismic deficiencies identified.

For the Pump Building, structural and nonstructural retrofits with an estimated construction cost of $291,000 are recommended based on seismic deficiencies that were identified.

The SVWTP reservoir was seismically evaluated in 2016 and found to have foundation and piping flexibility deficiencies. The estimated construction cost for addressing these deficiencies is $200,000 after adjusting to 2020 dollars.

BACKGROUND AND EXISTING FACILITIES

The District operates three Group A water systems – South Shore (DOH 95910), Eagleridge (DOH 08118), and Agate Heights (DOH 52957) – all of which are in and around the shores of Lake Whatcom, which lies southeast of Bellingham in Whatcom County, Washington. The District serves approximately 3,900 residential and commercial water system connections with a residential population of approximately 10,000 people.

The South Shore system is the largest of the three systems and is supplied wholly by water treated at the District's Sudden Valley Water Treatment Plant. In addition to the WTP, the District also owns and maintains surface water source, storage, and distribution system facilities. The distribution system includes multiple pressure zones, four booster stations, and approximately 2.8 million gallons (MG) of storage in five reservoirs. The District also maintains a secondary intertie with the City of Bellingham Water System (DOH 50600) that is used only during emergency situations.

The existing WTP is a rapid-rate direct filtration plant with a rated capacity of 2.0 million gallons per day (MGD) but currently operates at approximately 1.0 MGD (700 gallons per minute (gpm)). The WTP is housed in a partially below-grade concrete building located on Morning Beach Drive approximately 1 mile northeast of the intersection of Lake Whatcom Boulevard and Marigold Drive. The facility was constructed in 1972 and has undergone several minor improvements since that time, but was most recently upgraded in 1992. The WTP provides coagulation, flocculation, filtration, disinfection, and chlorine contact time before treated water is pumped to the distribution system and storage reservoirs.

OVERVIEW OF SEISMIC HAZARDS IN THE PUGET SOUND REGION

Seismic events in the Puget Sound region can generally be categorized into three types. The first is a subduction zone mega-thrust earthquake occurring along the coastline. This type of earthquake can have the largest magnitude with Richter scale magnitudes up to and beyond M9.0 and could affect a large area of the Pacific Northwest. While this event would result in significant and destructive ground shaking in the central Puget Sound region, the highest ground shaking levels would be near the epicenter, which is located along the state's coastline. The frequency of this type of earthquake varies from approximately every 300 to 1,000 years.

The second type is a deep subduction zone earthquake. The epicenter of this type is farther inland and much deeper than the coastal mega-thrust earthquake, and Richter scale magnitudes are typically M6.0 to M7.0. The Nisqually earthquake of 2001 is an example of a deep subduction zone earthquake. These earthquakes happen approximately every 50 years.

The third type is a shallow crustal earthquake. These can happen along a variety of faults in the central Puget Sound region and can have magnitudes up to M7.5. Because the epicenters of these events are much shallower than mega-thrust and deep subduction zone earthquakes, they can cause the highest levels of ground shaking despite not having the greatest Richter scale magnitude. However, shallow crustal earthquakes affect a relatively small area as compared to subduction zone earthquakes. The Seattle Fault and

Whidbey Island Fault are examples of faults prone to shallow crustal earthquakes. The frequency of these types of events is approximately every 5,000 to 7,000 years.

Under the International Building Code (IBC) 2015, seismic design of buildings is based on a level of ground shaking that is not expected to be exceeded during a designated return interval. The return interval refers to the frequency a seismic event of a certain magnitude is expected to occur, expressed in years. The likelihood and magnitude of ground shaking from any of the three types of earthquakes previously described is used to develop maps of ground shaking parameters. To recognize the relative importance of different types of structures, an importance factor of 1.0, 1.25, or 1.50 is assigned which approximately correlate with event return intervals of 500, 1,000, and 2,500 years, respectively. Per current IBC requirements, buildings that provide essential operations and must remain in service after an earthquake are designed to the "Operational" level, with a corresponding importance factor of 1.5 and earthquake design forces correlated to the 2,500-year earthquake event.[1] This corresponds to design-level ground shaking that has a 2 percent chance of occurrence in the next 50 years, which is generally assumed to be the useful life of a building. In contrast, IBC specifies that common buildings that are not essential after an earthquake are designated to the "Life Safety" level and correspond to an importance factor of 1.0, correlating to a 500-year earthquake event. Under the Life Safety level, the building experiences damage due to the design-level earthquake, but maintains a safety factor against collapse. Repairs likely will be required before reoccupancy of the building. Life Safety is the standard for most residential and commercial structures designed today. Both the Main Building and Pump Building are evaluated to the Operational level as they are essential for continued operation of the WTP.

TIER 3 EVALUATION

After collecting information regarding the structural and nonstructural systems and components of the buildings during a site visit, Gray & Osborne performed a Tier 3 seismic analysis of the Main Building and Pump Building for the Operational performance level in accordance with ASCE 41-13 *Seismic Evaluation and Retrofit of Existing Buildings*. The Tier 3 analysis provides the most accurate results of any seismic analysis procedure stated in ASCE 41. This is due to the rigorous and in-depth calculations performed to evaluate each potential seismic deficiency. The goal of the Operational performance level is to allow occupants to survive the design-level earthquake and remain in the building safely. Continued use of the buildings should not be limited to the structural condition but may be limited by disruption of nonstructural

[1] Implied in the IBC seismic design criteria are the following two simultaneous design criteria: a Life Safety building performance level for the 2,500-year earthquake event and Operational performance level for the 500-year earthquake event.

items or processes outside of the buildings. It is important to note that the Operational performance level is approximately equivalent to the current design criteria required by the building code for new buildings designated as critical structures (Risk Category IV). In other words, if these buildings were being designed as new today, they would be designed to the Operational performance level as they are essential for continued operation of the WTP.

SEISMIC ANALYSIS CRITERIA

The Main Building and Pump Building were analyzed in accordance with the Operational performance level of ASCE 41-13 for the BSE-1N seismic hazard level. The BSE-1N seismic hazard level was chosen as the design acceleration is identical to that required by IBC 2015 for new structures. The Tier 3 analysis was used which includes detailed calculations to evaluate the adequacy of both structural and nonstructural components critical to building safety.

MAIN BUILDING SEISMIC ANALYSIS

The Main Building is constructed of cast-in-place concrete foundations, shear walls, and floors. The roof consists of prestressed concrete "T" girders with a cast-in-place topping slab. The existing components of the building were evaluated for the seismic forces determined from the accelerations for the selected seismic hazard level. Table 1 summarizes the results for each critical structural component of the Main Building. The demand/capacity ratio shown is for the most critical of each type of component. For example, all shear walls were analyzed but only reported for the most critical location. In addition, a demand/capacity ratio greater than 1.0 means the component is overstressed at the design-level forces and is likely to fail. The nonstructural elements were evaluated as well and are summarized later in the memorandum.

TABLE 1

Main Building Structural Analysis Summary

Component	Demand/Capacity Ratio
Shear Wall In-Plane Shear	0.36
Shear Wall In-Plane Flexure	0.69
Concrete Wall Out-of-Plane	0.43
Shear Wall Anchorage to Foundation	0.83
Diaphragm Shear	0.47

The results of the Tier 3 seismic analysis of the Main Building indicate that all components of the lateral force resisting system are adequate for the seismic forces corresponding to the Operational performance level. The original Tier 1 analysis identified the small embedment length of the dowels that anchor the shear walls to the foundation as a potential issue. The in-depth calculations performed as part of the Tier 3 evaluation found that the long shear walls and rigid concrete diaphragm were able to provide sufficient force distribution as to not overstress the dowels. Therefore, no structural retrofits are recommended for the Main Building.

PUMP BUILDING SEISMIC ANALYSIS

The Pump Building is constructed of masonry shear walls with wood trusses and a plywood roof topped with asphalt shingles. The existing components of the Pump Building were evaluated for the seismic forces determined from the acceleration for the selected seismic hazard level. Table 2 summarizes the results for each structural component and the demand/capacity ratio shown is for the most critical of each type of component. In addition, a demand/capacity ratio greater than 1.0 means the component is overstressed at the design-level forces and is likely to fail; these items are colored red. Table 2 shows that the diaphragm has inadequate shear capacity and that no apparent connection exists between the diaphragm and the shear walls. Each of the deficient items and associated retrofit options are discussed below.

TABLE 2

Pump Building Structural Analysis Summary

Component	Demand/Capacity Ratio
Shear Wall In-Plane Shear	0.21
Shear Wall In-Plane Flexure	0.62
CMU Wall Out-of-Plane	0.45
Shear Wall Connection to Diaphragm	— (1)
Shear Wall Anchorage to Foundation	0.30
Diaphragm Shear	**1.63**

(1) No apparent connection exists.

Shear Wall Connection to Diaphragm

Based on the record drawings provided by the District, there is not proper detailing to transmit shear forces in the roof diaphragm to the shear wall. Observations made during the site visit confirmed this condition. This issue poses a threat of significant damage and roof collapse during an earthquake as the diaphragm is not adequately braced by the

CMU shear walls to resist horizontal movements during an earthquake. One retrofit option to address this deficiency involves removing the existing soffit at the long overhangs and replacing it with a structural diaphragm. New blocking could be installed at the fascia and new clips added at the shear walls to anchor the diaphragm. This would allow a load path for the roof diaphragm force to transfer through the soffit to the shear walls. In this option, the existing continuous vent located at the underside of the roof overhangs could be replaced with regularly spaced drilled holes to preserve continuity of sheathing between the edge of the roof and the bearing wall. At the north side of the building where there is very little overhang, the existing blocking would be removed and new vented blocking could be installed that would fasten to both the top of the wall and the underside of the roof sheathing. This would require the removal of a small area of roof sheathing in this location.

Diaphragm Shear

The record drawings did not contain complete information regarding the attachment of the roof sheathing; therefore, the diaphragm was analyzed using assumed values commonly found in this type of construction. Based on these assumptions, the existing diaphragm does not have sufficient shear strength to resist the calculated seismic forces. One option to address this issue is to remove the existing roofing down to the sheathing and install additional nails to increase the shear capacity. A new roofing system would then need to be installed. It should be noted that this retrofit is based on assumed design values. The actual construction of the diaphragm should be verified in the field and checked for consistency with the assumptions. Depending on what is discovered in the field, the diaphragm could require a more robust retrofit or possibly no retrofit at all.

NONSTRUCTURAL ANALYSIS

In addition to the seismic evaluation of the structural system, the nonstructural components were evaluated for the requirements of the Operational performance level. The goal of the nonstructural Operational performance level is for nonstructural components to be able to provide the same function post-earthquake as they provided before the earthquake. This nonstructural performance level provides a design approach for nonstructural items consistent with the design and forces of the selected structural performance level. One consideration is the potential disruption of utilities outside of the structures. If power or communications to the structures are lost, these nonstructural components may not operate. Analysis of utilities outside of the structures is beyond the scope of this evaluation. The list below contains the items covered by the nonstructural evaluation:

1. Architectural:
   a. Cladding and Glazing
   b. Partitions
   c. Ceiling Finishes
   d. Appendages and Marquees
   e. Doors and Windows

2. Mechanical Equipment:
   a. Storage Vessels
   b. Fluid Piping
   c. Fire Suppression Systems
   d. Hazardous Materials
   e. HVAC Equipment

3. Electrical and Communications Equipment:
   a. Emergency Power
   b. Light Fixtures

4. Furnishings and Interior Equipment:
   a. Storage Racks
   b. Fall-Prone Contents
   c. Computers and Communication Racks

MAIN BUILDING NONSTRUCTURAL ANALYSIS

Several nonstructural items within the Main Building were found to be noncompliant with the Operational nonstructural performance level. These items are as follows:

- Wall Framing at Restroom – Seismic bracing required.
- Wall-Mounted Transformer – Seismic bracing required.
- HVAC Unit – Seismic bracing required.
- Fluid Piping – Seismic bracing and flexible connections required.
- Electrical Panels – Seismic anchorage required.

The following retrofits are recommended to address the nonstructural deficiencies identified by the seismic evaluation:

- The wall framing at the restroom area has equipment attached to it that may result in failure of the wall during seismic shaking (Figure A-1). The proposed retrofit involves bracing the tops of the walls against the concrete ceiling of the building.

- The transformer mounted to the west wall (Figure A-2) requires seismic bracing in each lateral direction fastening back to the concrete wall in order to provide proper restraint.

- The suspended HVAC unit (Figure A-3) requires bracing in each lateral direction running back to the ceiling. These braces could consist of tension cables in all four directions or steel struts in two lateral directions.

- The fluid piping (Figure A-4) requires seismic bracing at regular spacing throughout the structure along the runs of each pipe.

- The piping from the various fluid-filled tanks (filters, flocculation tank, soda ash tank, and alum tank) that are supported from the floor of the building require flexible connections in order to mitigate any damage caused by differential movement between the tanks and the building during an earthquake. This applies to all tanks where differential movement poses a risk of significant damage.

- The electrical panels (Figure A-5) require additional seismic anchorage in order to comply with the selected performance level. This involves installing additional anchorage dowels that fasten each panel to the supporting slab to prevent any panels from overturning due to ground shaking.

These nonstructural retrofits are essential in order for the Main Building to conform to the Operational performance level. Figures A-1 through A-5 in Exhibit A show the nonstructural items that require retrofit. Estimated order-of-magnitude construction costs for these nonstructural items are provided in Exhibit C.

PUMP BUILDING NONSTRUCTURAL ANALYSIS

Several nonstructural items within the Pump Building were found to be noncompliant with the Operational nonstructural performance level. These items are as follows:

- Masonry Partition Walls – Remove and replace with wood-framed walls.
- Generator Exhaust – Seismic bracing required.
- Gas Heating Unit – Seismic bracing required.
- Natural Gas Piping – Seismic bracing required.
- Fluid Piping – Flexible connection and seismic bracing required.
- Gas Meter – Flexible connection required.

- Wall-Mounted Transformer – Seismic bracing required.
- Water Heater – Seismic restraint required.
- Conduit Runs – Seismic bracing required.
- Electrical Panels – Seismic anchorage required.

The following retrofits are recommended to address the nonstructural deficiencies identified by the seismic evaluation:

- Masonry partition walls separate the restrooms and the stalls within the restrooms. The masonry appears to be minimally reinforced, creating a high risk of collapse during an earthquake. The most efficient option to address the masonry partition walls is to remove the existing partition walls and replace them with wood-framed walls with a durable finish.

- The generator exhaust (Figure B-1) is unbraced and could become disconnected from the unit during an earthquake. The proposed retrofit is to install a brace in each lateral direction that brace it against the wall.

- The gas heating unit (Figure B-2) is unbraced and new seismic bracing should be installed in each lateral direction and attached to the ceiling.

- The natural gas piping, fluid piping, and conduit runs (Figures B-3, B-4, and B-8) require seismic bracing at regular spacing installed throughout the structure along the runs to each component.

- The gas meter (Figure B-5) just outside the structure has piping that runs from the ground through the wall of the building. Differential movement could cause this line to rupture during an earthquake. It is recommended to install a flexible coupling in the line to accommodate any movement.

- The transformer mounted on the north interior wall (Figure B-6) may shake loose during an earthquake. The proposed retrofit is to install lateral bracing back to the walls.

- The water heater (Figure B-7) does not appear to be properly restrained. It is recommended that the water heater be strapped to the adjacent wall.

- The electrical panels in the building (Figure B-9) require additional seismic anchorage in order to comply with the selected performance level. This involves installing additional dowels that fasten each panel to the supporting slab to prevent the panels from overturning.

These nonstructural retrofits are essential in order for the Pump Building to conform to the Operational performance level. Figures B-1 through B-9 in Exhibit B show the nonstructural items that require retrofit. Estimated order-of-magnitude construction costs for these nonstructural items are provided in Exhibit C.

SEISMIC RETROFIT SUMMARY

We recommend that the District complete the seismic retrofits described in order to ensure that the Main Building and Pump Building meet criteria listed for the Operational performance level. Some items for which seismic retrofits are recommended may be slated for replacement in the next 5 to 10 years. For these items, the District may consider not installing the recommended seismic retrofits and accepting a relatively small risk of a design-level earthquake occurring prior to the planned replacement of the item.

The recommended modifications for the Main Building are estimated to cost $118,000, which includes materials, installation, contingency (20 percent), Washington State sales tax (9.0 percent), and design and project administration (25 percent). A complete budgetary cost estimate is provided in Exhibit C.

The recommended modifications for the Pump Building are estimated to cost $291,000, which includes materials, installation, contingency (20 percent), Washington State sales tax (9.0 percent), and design and project administration (25 percent). A complete budgetary cost estimate is provided in Exhibit C.

SVWTP RESERVOIR SUMMARY

In the December 2016 report "Lake Whatcom Water and Sewer District Reservoir Seismic Vulnerability Assessment Technical Report" by BHC Consultants, a seismic evaluation of the WTP Reservoir was performed. The evaluation found the shell, foundation, and anchorage to be adequate for the predicted seismic forces. The two deficiencies identified were inadequate uplift resistance of the foundation and lack of piping flexibility. The retrofit recommended in the report to address the foundation uplift deficiency is to construct a widened foundation ring wall. To address the lack of flexible piping, it is recommended in the report that force-balanced FLEX-TEND® couplings be installed. The report estimates the cost of these retrofits to be $156,000. After applying 4 years of construction cost escalation, the estimate increases to $200,000 which includes materials, contingency, Washington State sales tax, and design/project administration.

EXHIBIT A

MAIN BUILDING PHOTOS

FIGURE A-1

Restroom Wall Framing

FIGURE A-2

Wall-Mounted Transformer

FIGURE A-3

HVAC Unit

FIGURE A-4

Fluid Piping

FIGURE A-5

Electrical Panels

EXHIBIT B

PUMP BUILDING PHOTOS

FIGURE B-1

Generator Exhaust

FIGURE B-2

Gas Heating Unit

FIGURE B-3

Natural Gas Piping

FIGURE B-4

Fluid Piping

FIGURE B-5

Gas Meter

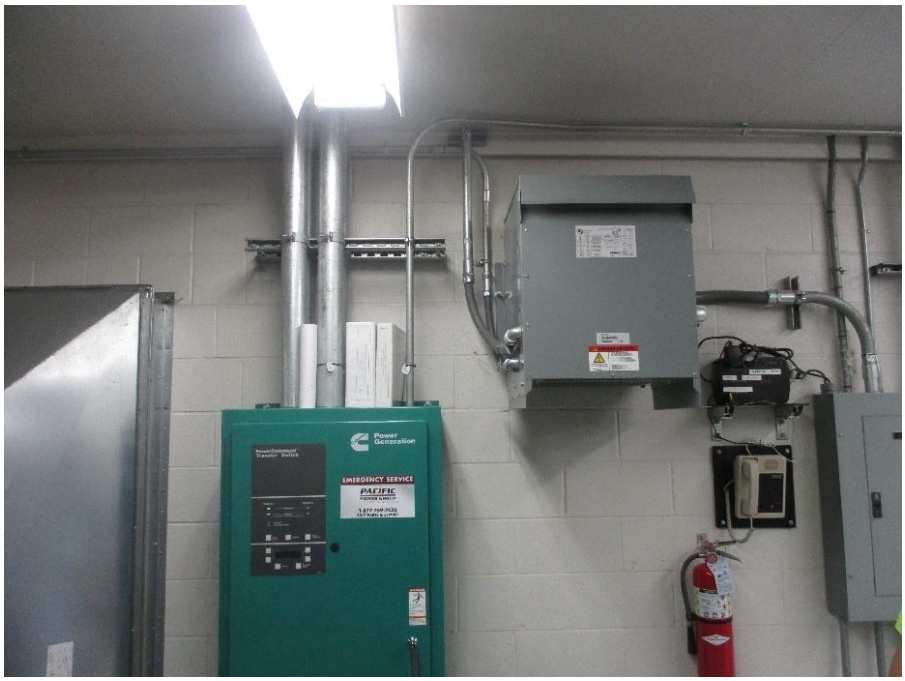

FIGURE B-6

Wall-Mounted Transformer

FIGURE B-7

Water Heater

FIGURE B-8

Conduit Runs

FIGURE B-9

Electrical Panels

EXHIBIT C

SEISMIC RETROFIT COST ESTIMATES

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-3 - Recommended Main Building Seismic Retrofits
October 6, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Restroom wall framing - Bracing	1	LS	$ 7,000	$ 7,000
2	Wall mounted transformer – Bracing	1	LS	$ 4,000	$ 4,000
3	HVAC unit – Bracing	1	LS	$ 4,000	$ 4,000
4	Fluid piping – Bracing	1	LS	$ 20,000	$ 20,000
5	Fluid piping – Flexible connections	1	LS	$ 30,000	$ 30,000
6	Electrical panels - Anchorage	1	LS	$ 7,000	$ 7,000

Subtotal*	**$ 72,000**
Contingency (20%)	$ 14,400
Subtotal	**$ 86,400**
Washington State Sales Tax (9.0%)**	$ 7,800
Subtotal	**$ 94,200**
Design and Project Administration (25.0%)***	$ 23,600
TOTAL CONSTRUCTION COST	**$ 118,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-3 - Recommended Pump Building Seismic Retrofits
October 6, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Shear wall – Connection to diaphragm	1	LS	$ 18,000	$ 18,000
2	Diaphragm – Shear nailing	1	LS	$ 25,000	$ 25,000
3	Roof replacement	1	LS	$ 60,000	$ 60,000
4	Masonry partition walls – Replace	1	LS	$ 20,000	$ 20,000
5	Generator exhaust - Bracing	1	LS	$ 3,000	$ 3,000
6	Gas heater – Bracing	1	LS	$ 3,000	$ 3,000
7	Natural gas piping – Bracing	1	LS	$ 6,000	$ 6,000
8	Wall mounted transformer – Bracing	1	LS	$ 3,000	$ 3,000
9	Fluid piping – Bracing	1	LS	$ 7,000	$ 7,000
10	Fluid piping – Flexible connections	1	LS	$ 15,000	$ 15,000
10	Gas meter – Flexible connection	1	LS	$ 5,000	$ 5,000
11	Water heater – Add restraint	1	LS	$ 2,000	$ 2,000
11	Conduit – Bracing	1	LS	$ 5,000	$ 5,000
12	Electrical panels - Anchorage	1	LS	$ 6,000	$ 6,000
				Subtotal*	**$ 178,000**
				Contingency (20%)	$ 35,600
				Subtotal	**$ 213,600**
				Washington State Sales Tax (9.0%)**	$ 19,200
				Subtotal	**$ 232,800**
				Design and Project Administration (25.0%)***	$ 58,200
				TOTAL CONSTRUCTION COST	**$ 291,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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TECHNICAL MEMORANDUM 20434-4

TO:	BILL HUNTER, P.E., ASSISTANT GENERAL MANAGER/DISTRICT ENGINEER
FROM:	KEITH STEWART, P.E. RUSSELL PORTER, P.E.
DATE:	NOVEMBER 18, 2020
SUBJECT:	SUDDEN VALLEY WTP CHEMICAL SYSTEMS ANALYSIS LAKE WHATCOM WATER & SEWER DISTRICT, WHATCOM COUNTY, WASHINGTON G&O #20434.00

INTRODUCTION

In 2019, the Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne to perform a condition assessment for their existing Sudden Valley Water Treatment Plant (WTP) as part of a larger effort to analyze the District's water treatment facilities in order to prioritize funds for rehabilitation, modification, and/or replacement projects. The goal of the assessment and subsequent analysis is to identify potential improvements for the existing structures and treatment processes in an attempt to maximize treatment efficiency and extend the operational life of these facilities. The reports and technical memoranda generated as part of this assessment project will be used to develop a strategy for prioritizing modifications to the WTP to ensure it can efficiently and cost-effectively provide clean potable water for the existing and projected service areas.

This memorandum summarizes the assessment of the existing chemical systems at the WTP, provides alternatives for chemical delivery, and makes recommendations for modifications to the chemical systems. Cost estimates for the alternatives and recommended modifications are also provided.

BACKGROUND AND EXISTING FACILITIES

The District operates three Group A water systems – South Shore (DOH 95910), Eagleridge (DOH 08118), and Agate Heights (DOH 52957) – all of which are in and around the shores of Lake Whatcom, which lies southeast of Bellingham in Whatcom County, Washington. The District serves approximately 3,900 residential and

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commercial water system connections with a residential population of approximately 10,000 people.

The South Shore system is the largest of the three systems and is supplied wholly by water treated at its Sudden Valley Water Treatment Plant. In addition to the WTP, the District also owns and maintains source, treatment, storage, and distribution system facilities. The distribution system includes multiple pressure zones, four booster stations, and approximately 2.8 million gallons (MG) of storage in five reservoirs. The District also maintains a secondary intertie with the City of Bellingham Water System (DOH 50600) that can be used during emergency situations.

The existing WTP is a rapid-rate, direct filtration plant with a rated capacity of 2.0 million gallons per day (MGD) but currently operates at approximately 1.0 MGD (700 gallons per minute [gpm]). The WTP is housed in a partially below-grade concrete building located on Morning Beach Drive approximately 1 mile northeast of the intersection of Lake Whatcom Boulevard and Marigold Drive. The facility was constructed in 1972 and has undergone several minor improvements since that time, but was most recently upgraded in 1992. The WTP provides coagulation, flocculation, filtration, disinfection, and chlorine contact time before finished water is pumped to the distribution system and storage reservoirs.

Historically, the plant has performed well and provides high-quality finished water with turbidities of less than 0.1 nephelometric turbidity units (NTU). Raw water is collected from the adjacent Lake Whatcom from an outfall located at a depth of approximately 80 feet and approximately 200 feet from the typical shoreline. Lake Whatcom is a large lake that is moderately developed on the northern and western shores but is largely undeveloped on its eastern shore. Raw water quality from the Lake Whatcom source is fairly consistent with turbidities below 1.0 NTU for most of the year. Turbidity increases during the spring and fall runoff seasons, but typically remains below 5.0 NTU during these periods. Raw water pH is typically between 7.5 and 7.7 and raw water temperature varies between 6 and 8 degrees Celsius.

As mentioned above, the District is interested in investigating all of the treatment systems in place at the WTP and assessing whether improvements/modifications are recommended or required, a timeframe to complete any modifications, and how the modifications might fit into the larger picture of improving the overall treatment performance. There are two primary chemical systems in place at the WTP. The District adds potassium aluminum sulfate to the raw water to aid with coagulation of suspended solids, and adds soda ash to the filtered water for pH control. A description of the equipment associated with each of these systems is provided below.

Coagulant

The District adds potassium aluminum sulfate (alum) to raw water upstream of the existing flocculation tank to optimize the coagulation of particles prior to direct filtration. Alum is commonly used as a coagulant aid in water treatment, especially in plants utilizing a surface water source. The District purchases alum from a commercial vendor and has it delivered to the WTP. The vendor connects a hose from the delivery vehicle to a 3-inch diameter tank inlet camlock fitting and pumps the alum solution into a storage tank located within the WTP Main Building approximately once every 3 months. The strength of the alum solution delivered to the WTP is approximately 49 percent and the operations staff target a dose of 27 milligrams per liter (mg/L) (parts per million [ppm]) to the raw water prior to flocculation. Given that the WTP often operates for up to 16 hours during the summer months, this results in an average daily alum solution consumption of approximately 17 to 20 gallons.

The existing storage tank has a capacity of 1,900 gallons, a diameter of 6.2 feet, and an overall height of 8.5 feet. The tank is fully molded and was originally installed in 1992. The existing tank is equipped with a 12-inch threaded manway on top of the tank, a 3-inch diameter vent fitting connected at the top of the sidewall, and a 3-inch drain fitting near the floor. The tank does not contain any seismic bracing or restraints.

The storage tank feeds a single diaphragm metering pump which moves alum solution from the tank to the injection location on the raw water piping upstream of the flocculation tank. The metering pump is a PULSAtron Series E with a capacity of 44 gallons per day (gpd) at a maximum pressure of 100 pounds per square inch (psi). The alum feed pump is manually calibrated daily using a graduated cylinder near the injection location. Based on the daily calibration, the dose rate from the pump is modified and/or the WTP staff performs maintenance on the pump/piping to address flow issues.

The WTP utilizes a current streaming monitor to monitor the dose of alum. It is important to note that the alum dose is manually controlled; however, the operations staff use the current streaming monitor to note abrupt changes in the dosing system and/or raw water quality.

The alum chemical system components are shown on Figures A-1, A-2, and A-3 in Exhibit A.

With regard to the alum chemical dosing system, the Sudden Valley WTP Assessment Report (Assessment Report) completed by Gray & Osborne in July 2020 noted that the existing alum storage tank is in fair/poor condition, is beyond its recommended useful

life, lacks seismic restraints or tie-downs, does not have direct line of sight from the parking lot during filling, does not contain level sensing equipment, is adjacent to electrical equipment including MCC 2, and that the chemical metering pump must be calibrated on a daily basis by removing the injection fittings from the raw water piping. Addressing these shortcomings is one of the District's primary goals for improving the chemical delivery system.

Soda Ash

The second chemical utilized at the WTP is soda ash for pH control. Soda ash is mixed and stored in a 1,200-gallon, open-top, welded steel tank with a diameter of 5.6 feet and a height of 6 feet. The tank includes a rim-mounted shaft-driven mixer as well as a polycarbonate hinged access lid. The tank does not contain any seismic restraints, but does contain a 2-inch PVC process water connection where water is added to the tank. The tank is accessed by a set of four steps and a loading platform located adjacent to the tank.

Bags of dry soda ash are delivered to the WTP by a commercial vendor where staff transfer the bags to a rolling cart, which is used to transport them to their various temporary storage locations within the WTP. WTP staff must prepare the soda ash solution as needed by manually adding 50-pound bags of dry soda ash to the tank. When additional soda ash solution is required, the staff haul the bags up a small platform and manually dump them into the soda ash storage tank. Filtered water is then added to the tank in the appropriate volume to create the dosing solution. Approximately 16 to 20 bags of soda ash are mixed approximately every 11 to 12 days to create the dosing solution, which is equivalent to approximately 80 pounds per day (lb/d). Given the delivery and offloading sequence described above, creating one batch of dosing solution requires three separate lifting sessions of 800 to 1,000 pounds each for WTP staff.

Soda ash solution is delivered from the storage tank to the injection location via a PULSAtron Series E diaphragm metering pump with a listed capacity of 600 gpd and a maximum pressure of 30 psi. The chemical metering pump is located at an elevation near the top level of the soda ash storage tank in order to reduce potential for crystallization within the check valve and to reduce the risk of siphoning. The soda ash feed pump is manually calibrated daily using a graduated cylinder near the injection location. Based on the daily calibration, the dose rate from the pump is modified and/or the WTP staff performs maintenance on the pump/piping to address flow issues. Soda ash solution is injected to the filtered water piping immediately downstream of the filters, just before the water enters the below-grade clearwell.

The soda ash chemical system components are shown on Figures A-4, A-5, and A-6 in Exhibit A.

The Assessment Report noted that the tank is in good condition, the associated rim-mounted mixer is in poor condition, and that the access platform for adding soda ash is in fair condition but occupies a large amount of floor space at the entrance to the WTP. The tank and platform do not contain seismic restraints, and the chemical metering pump system is prone to siphoning and must be manually calibrated on a daily basis by removing the injection fittings. Furthermore, the Assessment Report noted that the storage of large volumes of soda ash, both dry and wet, may be contributing to corrosion and/or degradation of electrical or mechanical equipment within the WTP Main Building. Lastly, it was noted that the current system required staff to move 50-pound bags of soda ash at least three times in order to create the dosing solution.

The District is interested in replacing the alum tank since the existing tank has reached the end of its useful life, providing seismic bracing for the tank, and installing a more reliable, user-friendly metering pump system. The District is also interested in optimizing their soda ash delivery system, providing seismic bracing for the dosing tank, and separating the chemicals from the electrical components to preserve and/or extend their service life. The section below provides alternatives to the current chemical delivery system equipment and locations as a means of achieving these goals.

ALTERNATIVES ANALYSIS

The alternatives listed below are provided to help the District determine the best course of action for their chemical dosing systems. Any modifications to these systems should be considered in the context of other changes that are recommended or desired for the WTP. First, we will discuss alternatives for coagulant addition.

Coagulant

Alternative C1 – Liquid Alum Coagulant

This alternative includes continued use of liquid alum coagulant prior to flocculation. Alum would continue to be delivered by a commercial vendor and transferred from the delivery vessel to a temporary storage tank. A new chemical metering pump skid would then pump the solution from the storage tank to the injection location.

Because the existing alum storage tank is beyond its recommended useful life of 15 to 17 years, the tank should be replaced. The new alum storage tank should be between 1,800 and 2,300 gallons (existing alum storage tank is 1,900 gallons) to provide sufficient

storage for alum, minimize frequency for deliveries, and minimize potential for chemical stagnation and/or breakdown of the alum solution. The new tank should include the following components:

- Large (>16-inch diameter) top-side lid for tank access.
- Multiple (two to three) 2- or 3-inch top-side bulkhead fittings to accommodate items such as level sensors, mixers, cables, vent piping, etc.
- Seismic anchors or brace-plates with cables to secure the tank during a seismic event.
- A 3-inch fill connection that is routed to the WTP exterior to provide easy connection for delivery vehicles. This piping should be equipped with a check valve, camlock fitting connection, and should be located in an area where spills or leaks are easily cleaned or can be directed to the municipal sewer system.
- Molded graduated markings to allow for manual estimation of volume of liquid within the tank.
- Level sensor that will relay the liquid level within the tank to the WTP SCADA system.
- A 2- or 3-inch drain fitting that will allow for full and complete drainage of the tank.
- HDPE tank base or concrete equipment pad to accommodate the flange width of the drain connection.

Although the existing storage tank is located in the WTP Main Building, alum is classified as corrosive and its use within the WTP Main Building may expedite degradation of the other mechanical and electrical equipment. Given its corrosivity, it may be beneficial to relocate the alum storage tank to a location outside the WTP Main Building. This could be accomplished by constructing an unenclosed covered area for the storage tank, extending the existing WTP to the north to include a chemical storage room, or constructing a separate Chemical Storage Building.

An unenclosed covered area does not provide protection from moisture or cold temperatures, which would restrict the storage of any dry chemicals and would necessitate the need for insulation and/or heat-trace on any chemical storage tanks or

piping. As such, a covered exterior storage space will not be considered further. Additional storage space could be created by extending the existing WTP to the north and enclosing the space which would provide area suitable for chemical storage and any other components as desired. An additional 20 to 25 linear feet should provide suitable space to accommodate alum storage, additional chemical storage, access for deliveries, and isolation from existing treatment equipment and electrical components. A third option is to construct a stand-alone building to house treatment chemicals. The building would include access doors as well as heating and ventilation equipment and should be approximately 500 square feet.

Because of the various uncertainties and unknowns associated with extending an existing building structure, we recommend that if the District wishes to relocate the existing coagulant system in order to provide separation from the existing electrical equipment, a new separate building should be constructed.

For comparison purposes, two installation alternatives are provided here. One is to continue to use liquid alum as a coagulant, to replace the existing storage tank and metering pump system, but continue to store and pump the alum solution within the existing WTP Main Building. This alternative would provide new alum handling equipment but would not address its proximity to electrical equipment, which may be contributing to deterioration and/or corrosion of the electrical components. This alternative is estimated to cost $64,000 which includes construction, contingency (25 percent), Washington State sales tax (9.0 percent), and project design/administration (25 percent). A preliminary cost estimate is included in Exhibit B.

A second installation alternative includes continued use of liquid alum as a coagulant and replacing the existing storage tank and metering pump system, but relocating the new alum handling equipment to a new separate building. This alternative addresses both shortcomings noted with the alum handling equipment as well as the proximity to existing electrical equipment. This alternative is estimated to cost $1,139,000 which includes construction, contingency (25 percent), Washington State sales tax (9.0 percent), and project design/administration (25 percent). A preliminary cost estimate is included in Exhibit B. If a new building is constructed, it would be provided with HVAC equipment to provide heating for the new space. This new heating equipment will increase the electrical load for the WTP. To accommodate this new load, new electrical supply will be sub-fed from the existing electrical service to the Finished Water Pump Building. For the purposes of this investigation, it is assumed that the existing electrical supply is able to accommodate the additional electrical loads for new HVAC equipment. The cost estimate also includes some moderate site improvements including new storm collection equipment and new asphalt paving.

Alternative C2 – Use of Dry Alum Coagulant

This alternative includes utilizing dry alum chemical and installing a dry chemical handling system. The District would then make up their own alum solution as needed, provide temporary storage in a new dosing tank, and meter the alum solution into the raw water via a new metering pump skid.

Dry alum is available in 25-/50-pound bags and as such, must be manually added to a hopper or directly to the solution tank. Dry chemical handling systems are available and allow owners to handle/store large volumes of dry chemical, add various amounts of this chemical to a container to create a dosing solution, then inject that solution into the media of interest. Specialized offloading, handling, storage, and mixing equipment that is very expensive and requires a large footprint can also be used to assist WTP staff with creating the dosing solution.

Very few municipal water treatment facilities utilize dry alum, mostly because it requires additional expensive handling equipment, requires interaction by WTP personnel in which they are exposed to chemical dust, and requires large areas for dry chemical storage. The existing WTP Main Building does not currently have the space required to accommodate this mechanized equipment or the required chemical storage and as such, a new Chemical Storage Building would be required.

For these reasons as well as the fact that the WTP only requires alum delivery approximately every 3 months, this option will not be considered further.

Alternative C3 – Investigate Alternative Coagulants/Polymers

This alternative includes utilization of alternative coagulants which may optimize the flocculation process.

Various coagulant chemicals are used in water treatment, including alum, ferric chloride, polyaluminum chloride (PAC), cationic polymers, and aluminum chlorohydrate, among others. The primary purpose of coagulants is to destabilize the electrical charge for various colloids and suspended particles found in a raw water source in order to promote the creation of larger particles that are more easily removed through filtration. Coagulants are commonly used in water treatment, especially for facilities that utilize a surface water source.

It may be possible to further optimize the coagulation/flocculation process through the use of alternative coagulants. Some considerations for the use of alternative coagulants are summarized in Table 1.

TABLE 1

Coagulant Chemical Summary

Coagulant	Relative Cost	Advantages	Disadvantages
Aluminum Sulfate (Alum)	$	• Most commonly used coagulant • Readily available • Documented success for District	• Can generate large volumes of solids for highly turbid sources
Ferric Chloride	$$	• Excellent for high TOC source water • Readily available • Use is typically 2/3 that of alum	• Highly corrosive
PAC	$$	• Many customized varieties available	• Use is typically 1.3–1.5 that of alum
Cationic Polymers	$$$$$	• Commonly used for low-turbidity water • Typically generates fewer solids when compared to alum • Can reduce alum dose for certain source waters	• Should be optimized regularly • Not as readily available • Often used in *conjunction* with alum
Aluminum Chlorohydrate	$$$$		• Rarely used, except for membrane facilities

Table 1 highlights the relative cost and some of the advantages and disadvantages for each type of coagulant. Alum and ferric chloride are available in large volumes from commercial vendors while PAC, cationic polymers, and aluminum chlorohydrate are typically provided in 55-gallon drums. Because the District has documented success using alum coagulant, alum is the most inexpensive coagulant, is readily available, and is the most commonly used coagulant when compared to other alternatives, we recommend that the District continue to utilize liquid alum for coagulation at the WTP. Additional recommendations on further modifications to the location of the storage tank and method of alum injection are provided later in this memorandum.

Chemical Metering

Regardless of which alternative is selected or whether chemical storage equipment is relocated to a new building, additional chemical metering equipment is recommended. New metering equipment will provide the WTP operations staff with increased flexibility and accuracy for determining the dose of chemicals as well as provide for safeguards against failure or malfunction of the system components.

We recommend that the District provide space and equipment for a chemical delivery skid that includes the piping, appurtenances, and pumps required for chemical injection. These skids can be preassembled and can include pumps provided by a specific manufacturer, or can be left open for pump selection by the District. Figure A-7 shows a schematic diagram for a typical metering pump skid while Figure A-8 shows some photographs of duplex delivery skids used for chemical delivery in a drinking water application. The metering pump skid would include the following components:

- Chemical metering pump(s)
- Isolation valves
- Pressure relief valves
- Backpressure valves
- Pressure gauges
- Pulsation dampener
- Calibration column
- Flexible connections for inlet and outlet
- HDPE backplate of skid for wall/floor mounting

Providing a metering pump skid with a calibration column would allow the WTP operations staff to calibrate the metering pumps daily without having to remove piping connections, which can lead to deterioration of the fittings and chemical leaks or spills. Only one metering pump is proposed as part of this alternative. A second metering pump would provide redundancy and could be provided as a spare if desired or could be

integrated to the metering pump skid along with the required valves and controls. A skid that includes two pumping units is typically called a duplex metering skid and examples of these are shown on Figure A-8. The metering pump flow would be flow paced and based off of the raw water flow as measured by the raw water flow meter. The cost for a prefabricated metering skid is between $8,000 (single pump) and $14,000 (duplex) depending on the pump size, type, and features.

Soda Ash

Similar to the alternatives for coagulant listed above, three soda ash addition alternatives are described below. Although there are several methods for pH adjustment of potable water including caustic soda, lime, soda ash, and aeration, these methods utilize chemicals that are more dangerous, expensive, or utilize large, specialized equipment for injection/handling. Furthermore, the District has successfully utilized soda ash for many years to meet their treatment goals. Because other chemicals are more costly, require additional equipment, and because the District has developed a level of familiarity and comfort with using soda ash, they are interested in continuing to utilize soda ash for finished water pH control. As such, only delivery methods and metering pump alternatives are explored in this section.

Alternative S1 – Manual Addition of Dry Soda Ash

This alternative includes manual addition of soda ash to a temporary storage tank where it will be diluted with water to create the dosing solution – identical to the current method of soda ash injection used at the WTP.

Currently, WTP staff carry 50-pound bags of dry soda ash up four steps to the loading platform, where the bags are emptied into the soda ash dosing tank. This process requires that staff move each soda ash bag at least three times – from the delivery truck to a cart, from the cart to the temporary storage location, and from this temporary location to the dosing tank – prior to use. This process is cumbersome, difficult for operations staff, and requires that the soda ash chemical be stored within the WTP Main Building where it is in close proximity to electrical and mechanical equipment.

Based on findings from the Assessment Report, the existing soda ash storage tank is in good condition and could be reused. The loading platform shows signs of corrosion and should be prepared and coated to prevent additional corrosion. The existing rim-mounted mixer is in poor condition, is highly corroded, and should be replaced with a similar size unit. Because soda ash is a corrosive chemical and can contribute to degradation of the electrical and/or mechanical equipment, it may be beneficial to relocate the soda ash storage tank to a location outside the WTP Main Building. This could be accomplished

by extending the existing WTP to the north to include a chemical storage room or constructing a separate building as discussed for the coagulant alternative analysis.

Given the difficulties and uncertainties of adding on to an existing building, if the District wishes to provide separation between the soda ash delivery equipment and the electrical equipment, we recommend that the soda ash chemical equipment be relocated to a new building. This building can be CMU/wood truss construction and can be located adjacent (north) to the existing WTP. While approximately 500 square feet is needed for the chemical systems discussed in this memorandum, we recommend that the District construct a building suitable to accommodate other equipment and/or modifications recommended in other supporting technical memoranda prepared as part of this project. If a new building is constructed, the soda ash and coagulant systems should be relocated to the new building in order to provide separation between the chemicals and electrical equipment and to free up space in the existing WTP Main Building.

This alternative includes relocating the existing storage tank to a new separate building, providing the tank with seismic bracing, installing a new chemical metering pump skid, and refurbishing the existing loading platform and access steps for installation in the proposed building. This alternative is estimated to cost $1,128,000 which includes construction, contingency (25 percent), Washington State sales tax (9.0 percent), and project design/administration (25 percent). A budgetary project estimate is provided in Exhibit B. The proposed building would be as described in Alternative C1 and would include HVAC modifications, electrical modifications, and site improvements.

Alternative S2 – Mini-Bulk Addition of Dry Soda Ash

This alternative includes delivery of dry soda ash within a mini-bulk, or super sack storage vessel, offloading the chemical from the delivery vehicle, and staging it onto the loading and distribution equipment where it is delivered to the storage tank via a shaftless screw conveyor or a pneumatic blower.

For this alternative, the District would accept deliveries of dry chemical via super sacks. Super sacks are large, woven bags used to transport various chemicals or other items and are commonly used to transport and/or deliver chemicals to treatment facilities because of their large capacity (~2,000 pounds) and small footprint (4-foot square pallet). Super sacks are filled using specialized equipment by a chemical manufacturer, shipped to a local distribution center, and then delivered to the end user. Because of their large size and weight, super sacks require specialized equipment for offloading and handling. For offloading, the end user is required to provide a forklift to remove the chemical from the delivery vehicle and stage it onto the loading and distribution equipment. One example of loading and distribution equipment is shown on Figure A-9. The equipment includes a

steel frame, vibrating hopper, regulation valves, and a shaftless screw conveyor. This structure is typically freestanding and has a footprint of 36 square feet and a height of 15 feet. This equipment will not fit within the existing WTP Main Building and as such, the existing WTP would need to be extended or a separate building must be constructed as described in the discussion on coagulant alternatives.

Super sack or mini-bulk applications are designed to minimize manual handling of chemicals and would minimize the number of chemical additions to the soda ash solution storage tank. Given the current average annual consumption of approximately 80 lb/d, the District would need to procure approximately 15 super sacks each year for their operations.

This alternative includes relocating the existing soda ash storage tank to a new building, providing the tank with seismic bracing, installing a new chemical metering pump skid, and refurbishing the existing loading platform and access steps for installation in the proposed building. It also includes a new super sack handling and dry chemical delivery system with a freestanding frame, vibrating hopper, and shaftless screw conveyor. This alternative is estimated to cost $1,246,000 which includes contingency (25 percent), Washington State sales tax (9.0 percent), and project design/administration (25 percent). A preliminary project cost estimate is provided in Exhibit B.

Alternative S3 – Liquid Soda Ash Delivery

This alternative includes delivery of liquid soda ash solution via a commercial vendor and injection using a new chemical metering pump system.

Liquid soda ash solution would be delivered to the WTP that is ready for immediate use. The solution is typically provided in 55-gallon drums or 300-gallon totes, and the chemical metering pumps can pump directly from these containers to the injection location. The current cost for 10 percent soda ash solution is approximately $0.22 per pound, which is nearly 2.5 times more expensive than dry soda ash delivered in 25-/50-pound bags as described in Alternative C2 above.

Given the current average consumption of approximately 20 gallons of 10 to 11 percent solution each day (80 pounds of soda ash per day), it is estimated that a 55-gallon drum or a 300-gallon tote would last approximately 2.5 and 15 days, respectively. To provide sufficient redundancy and to accommodate temporary delays in chemical supply, the District should have at least five drums and three totes on site at any time. This will create logistical difficulties for storage of sufficient volume of solution, delivery of new solution, and coordination for removal of used barrels.

Bulk storage of liquid soda ash is also possible, but is uncommon in the Pacific Northwest and vendors are reluctant to deliver partial tankers of chemical due to the high cost of transportation and restocking. Alternatively, vendors charge a premium price for bulk delivery, which makes this form of soda ash not cost effective. To avoid these logistical and coordination challenges and because of the low solubility of soda ash and the cost for preparation and delivery from a commercial vendor, this alternative is not cost effective and will not be considered further.

Chemical Delivery

Regardless of which alternative is selected or whether chemical storage equipment is relocated to a new building, additional chemical delivery equipment is recommended. This additional delivery equipment will provide the WTP operations staff with increased flexibility and accuracy for determining the dose of chemicals as well as provide for safeguards against failure or malfunction of the system components.

The recommended chemical injection system is identical to that described above for the coagulant chemical system.

SUMMARY OF RECOMMENDATIONS AND COST ESTIMATES

As noted above, the District has had good success utilizing liquid alum delivered via a commercial vendor as a coagulant for their water treatment process. However, it was noted that the existing alum storage tank is beyond its recommended useful life, does not contain seismic restraints, is cumbersome to fill and lacks direct line of sight between the parking lot and the tank, and the chemical metering pump equipment requires manual calibration on a daily basis. Furthermore, the proximity of chemicals and moisture to electrical and mechanical equipment may be accelerating the corrosion exhibited on this equipment.

Because liquid alum is a cost-effective coagulant with a proven track record of success for the Lake Whatcom source, we recommend that the District continue to utilize liquid alum coagulant delivered by a commercial vendor. Furthermore, we recommend that the WTP relocate the chemical systems to a new building in order to provide separation from the electrical components, additional chemical storage capacity, and line of sight for chemical deliveries. Lastly, we recommend that the chemical metering systems be upgraded to include metering pump skids that include calibration columns and various valves/piping to reduce the level of effort required to calibrate the chemical dosing equipment.

The proposed building would accommodate the new alum storage tank and chemical metering skid. The tank would have the design criteria listed in Table 2.

TABLE 2

Proposed Alum Storage Tank Design Criteria (1)

Parameter	Value
Material	HDPE
Capacity (gallons)	2,500
Diameter (inches)	90–96
Height (inches)	98–107
Access Port Diameter (inches)	18
Accessories Included	3-inch full drain fitting 3-inch topside vent fitting 3-inch topside fill fitting 2-inch topside NPT bulkhead fittings (2x) Ultrasonic level sensor Seismic tiedown package Seismic calculation package Ladder lugs Molded graduated markings

(1) Tank based on Snider 5090000N-(L) and 5090300N–.

We also recommend that the District utilize a chemical metering pump skid to move alum from the storage tank described above to the injection location in the WTP Main Building. The metering pump skid would include a single pump as well as the components listed previously.

For soda ash, we recommend that the existing tank be relocated to the proposed chemical building and provided with seismic bracing. The existing mixer should be replaced with a new, similarly sized unit, and the existing platform should be sandblasted and recoated to prevent additional corrosion. Additionally, we recommend that a custom shelf be fabricated and rest on the wall of the soda ash tank. This will allow WTP staff to rest the soda ash bags on the shelf, cut the soda ash bags, and dump them to the tank with minimal lifting and hoisting, thus reducing the physical load on the staff during soda ash addition.

The proposed building should be at least 500 square feet and would include two double doors and one 10-foot wide manually operated coiling door. This will allow for suitable access to the building and easy chemical delivery. The building should be large enough

to accommodate the chemical delivery and storage equipment, additional dry chemical storage, and still be expandable as required based on future needs. The building will be provided with electrical service, and this service will be sub-fed provided from the existing WTP Finished Water Pump Building supply. New heating and ventilation equipment will be provided for the building, which will increase the overall electrical load. The additional load will be relatively small and as such, it is assumed that the existing electrical service has sufficient capacity. The Assessment Report did note several potential issues with both the capacity of the electrical service for accommodating additional load as well as with the existing utility transformer size. If a new building is constructed as recommended, a formal electrical analysis should be provided once preliminary sizing of the HVAC equipment is available to determine the full scope of electrical modifications required.

The proposed additions are shown on Figure A-10 and a budgetary cost estimate for the recommended modifications including contingency (25 percent), Washington State sales tax (9.0 percent), and project design and administration (25 percent is provided in Exhibit B.

EXHIBIT A

PHOTOGRAPHS OF EXISTING EQUIPMENT

FIGURE A-1

Existing Alum Storage Tank

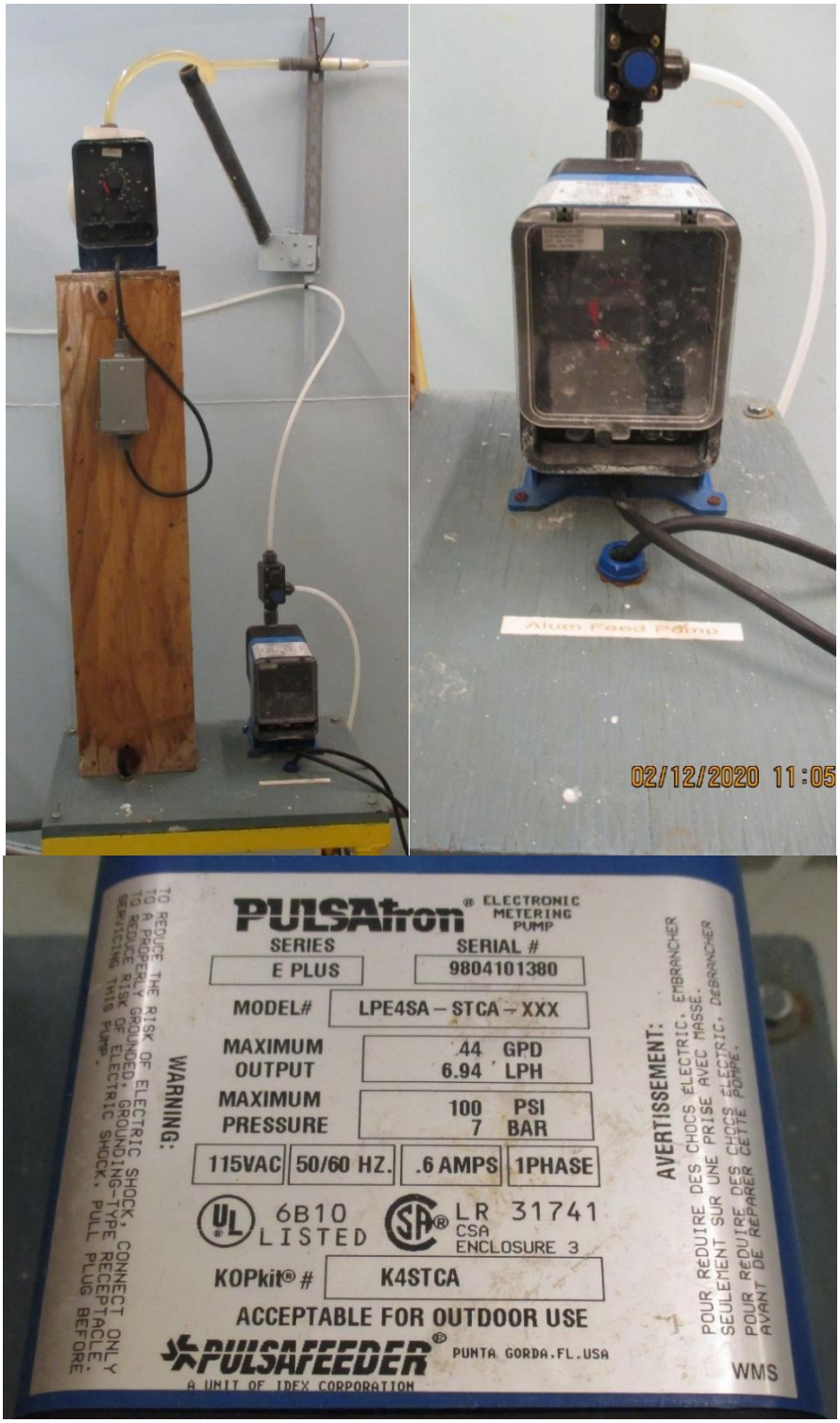


FIGURE A-2

Existing Alum Metering Pump

FIGURE A-3

Existing Alum Injection Location

FIGURE A-4

Existing Soda Ash Storage Tank

FIGURE A-5

Existing Soda Ash Metering Pump

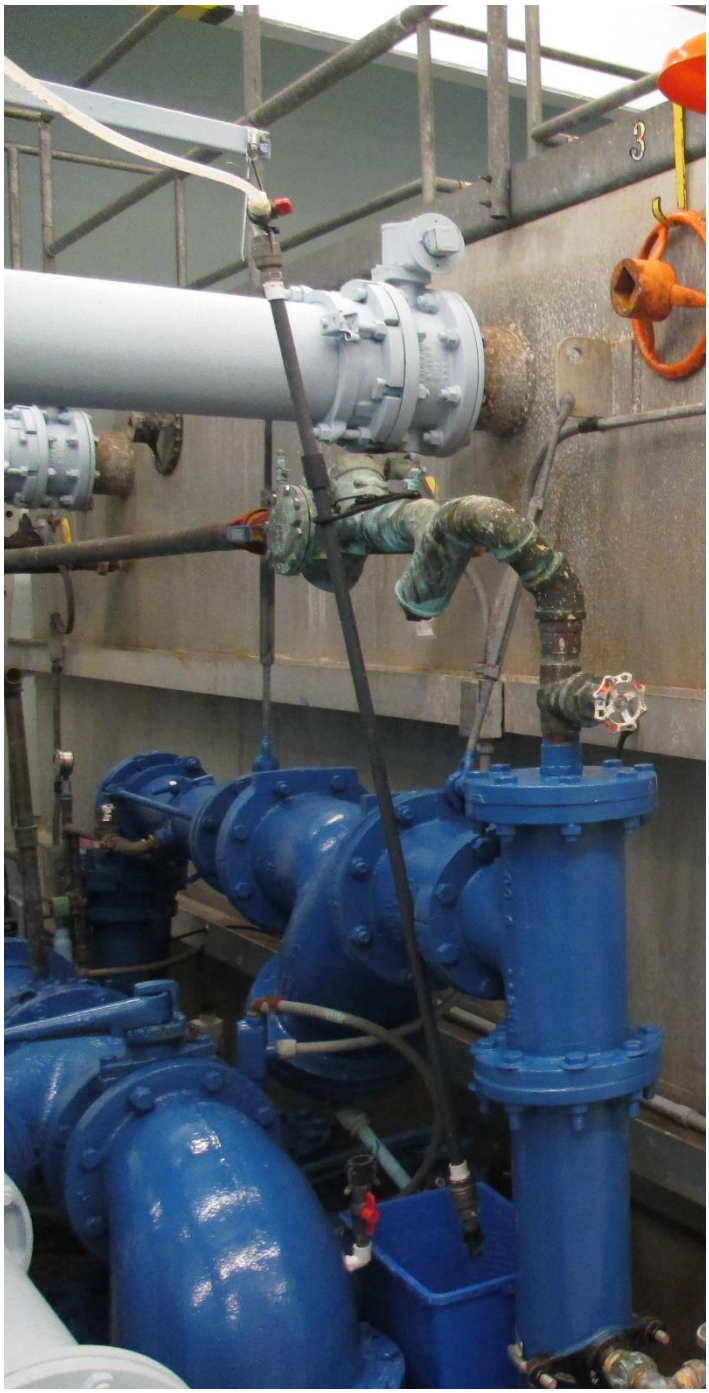
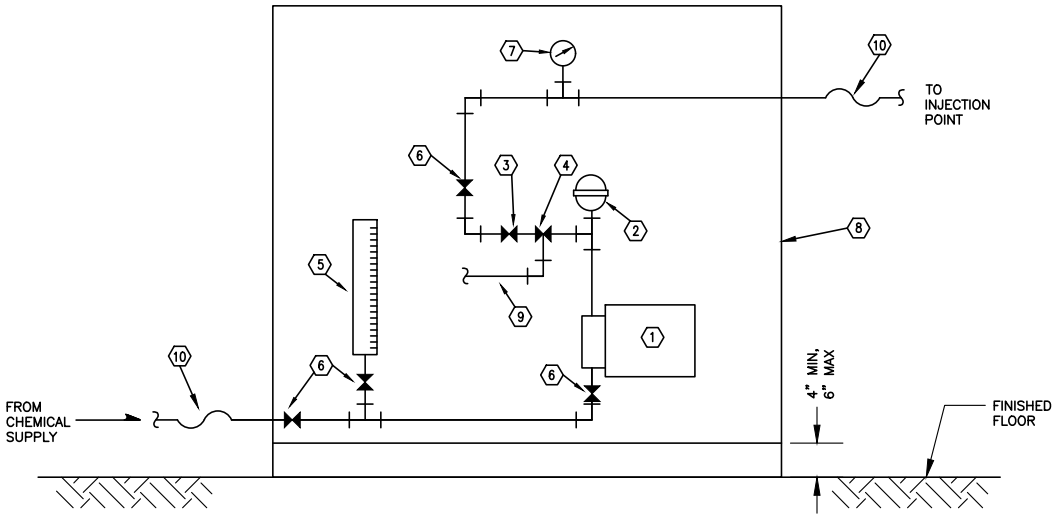


FIGURE A-6

Existing Soda Ash Injection Location



LEGEND:

1. CHEMICAL FEED PUMP
2. PULSATION DAMPENER
3. BACK PRESSURE VALVE
4. PRESSURE RELIEF VALVE
5. CALIBRATION COLUMN
6. ISOLATION VALVE
7. PRESSURE GAUGE
8. FREE STANDING PVC/HDPE SKID & BACKPLATE
9. TO PRESSURE RELIEF CONTAINMENT UNIT
7. FLEXIBLE CONNECTION

CHEMICAL METERING SKID
TYPICAL SCHEMATIC
SCALE: 3/8"=1'-0"

0 1"
ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

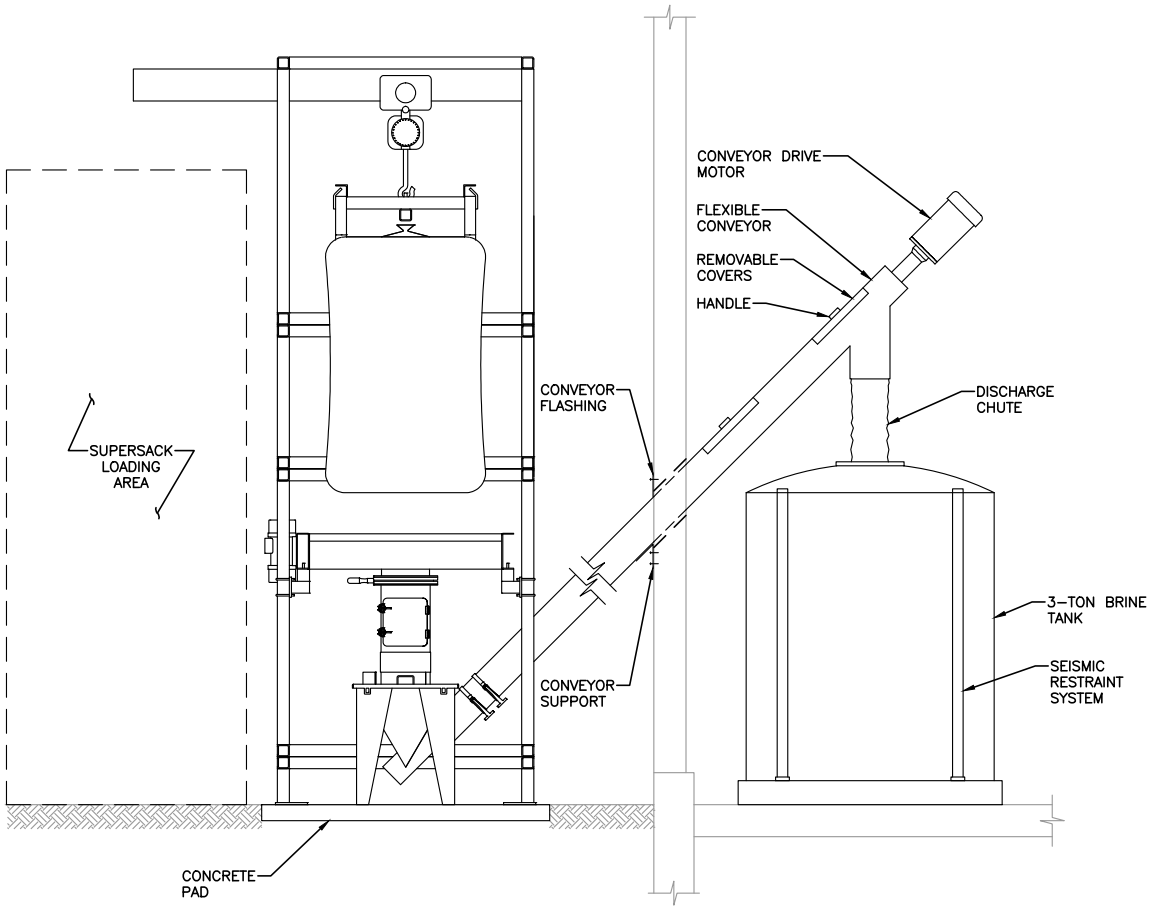
LAKE WHATCOM WATER AND SEWER DISTRICT
TECHNICAL MEMORANDUM 20434-4
CHEMICAL SYSTEMS ANALYSIS

FIGURE A-7
CHEMICAL PUMP SKID SCHEMATIC

Gray & Osborne, Inc.
CONSULTING ENGINEERS

FIGURE A-8

Typical Duplex Chemical Metering Pump Skids



A – **ELEVATION**
SCALE: 1/4"=1'-0"

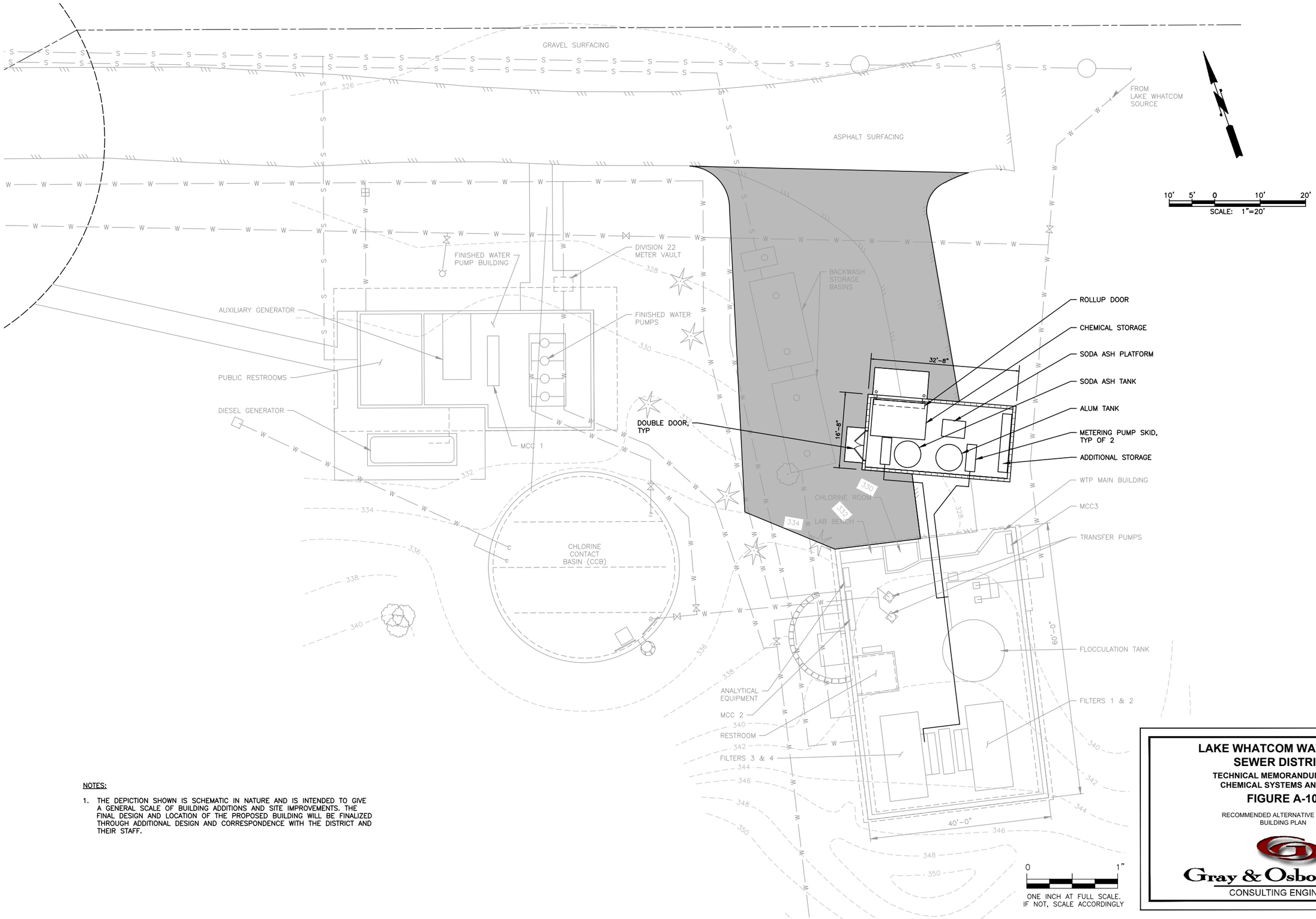
0 1"
ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

LAKE WHATCOM WATER AND SEWER DISTRICT
TECHNICAL MEMORANDUM 20434-4
CHEMICAL SYSTEMS ANALYSIS

FIGURE A-9

SUPERSACK HANDLING EQUIPMENT

Gray & Osborne, Inc.
CONSULTING ENGINEERS



NOTES:

1. THE DEPICTION SHOWN IS SCHEMATIC IN NATURE AND IS INTENDED TO GIVE A GENERAL SCALE OF BUILDING ADDITIONS AND SITE IMPROVEMENTS. THE FINAL DESIGN AND LOCATION OF THE PROPOSED BUILDING WILL BE FINALIZED THROUGH ADDITIONAL DESIGN AND CORRESPONDENCE WITH THE DISTRICT AND THEIR STAFF.

LAKE WHATCOM WATER AND SEWER DISTRICT

TECHNICAL MEMORANDUM 20434-4
CHEMICAL SYSTEMS ANALYSIS

FIGURE A-10

RECOMMENDED ALTERNATIVE SITE AND BUILDING PLAN

Gray & Osborne, Inc.
CONSULTING ENGINEERS

EXHIBIT B

RECOMMENDED ALTERNATIVE COST ESTIMATES

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-4 - Liquid Alum in Existing WTP Main Building
November 4, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 6,500	$ 6,500
2	Alum System Modifications	1	LS	$ 18,000	$ 18,000
3	Piping, Valves, and Appurtenances	1	LS	$ 5,000	$ 5,000
4	Telemetry / SCADA Modifications	1	LS	$ 8,000	$ 8,000

Subtotal*	**$**	**37,500**
Contingency (25%)	$	9,400
Subtotal	**$**	**46,900**
Washington State Sales Tax (9.0%)**	$	4,200
Subtotal	**$**	**51,100**
Design and Project Administration (25.0%)***	$	12,800
TOTAL CONSTRUCTION COST	**$**	**64,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-4 - Liquid Alum in New Chemical Building
November 4, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 60,800	$ 60,800
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 25,000	$ 25,000
5	New Chemical Building	500	SF	$ 750	$ 375,000
6	Alum System Modifications	1	LS	$ 18,000	$ 18,000
7	Piping, Valves, and Appurtenances	1	LS	$ 15,000	$ 15,000
8	Electrical Modifications	1	LS	$ 100,000	$ 100,000
9	HVAC Modifications	1	LS	$ 40,000	$ 40,000
10	Telemetry / SCADA Modifications	1	LS	$ 10,000	$ 10,000

Subtotal*	**$**	**668,800**
Contingency (25%)	$	167,200
Subtotal	**$**	**836,000**
Washington State Sales Tax (9.0%)**	$	75,200
Subtotal	**$**	**911,200**
Design and Project Administration (25.0%)***	$	227,800
TOTAL CONSTRUCTION COST	**$**	**1,139,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-4 - Manual Addition of Soda Ash in WTP Main Building
November 4, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 60,200	$ 60,200
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 25,000	$ 25,000
5	New Chemical Building	500	SF	$ 750	$ 375,000
6	Soda Ash System Modifications	1	LS	$ 12,000	$ 12,000
7	Piping, Valves, and Appurtenances	1	LS	$ 15,000	$ 15,000
8	Electrical Modifications	1	LS	$ 100,000	$ 100,000
9	HVAC Modifications	1	LS	$ 40,000	$ 40,000
10	Telemetry / SCADA Modifications	1	LS	$ 10,000	$ 10,000

Subtotal*	**$**	**662,200**
Contingency (25%)	$	165,600
Subtotal	**$**	**827,800**
Washington State Sales Tax (9.0%)**	$	74,500
Subtotal	**$**	**902,300**
Design and Project Administration (25.0%)***	$	225,600
TOTAL CONSTRUCTION COST	**$**	**1,128,000**

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-4 - Mini-Bulk Addition of Soda Ash in New Chemical Building
November 4, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 66,500	$ 66,500
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 25,000	$ 25,000
5	New Chemical Building	500	SF	$ 750	$ 375,000
6	Soda Ash System Modifications	1	LS	$ 15,000	$ 15,000
7	Dry Chemical Handling Equipment	1	LS	$ 60,000	$ 60,000
8	Piping, Valves, and Appurtenances	1	LS	$ 15,000	$ 15,000
9	Electrical Modifications	1	LS	$ 100,000	$ 100,000
10	HVAC Modifications	1	LS	$ 40,000	$ 40,000
11	Telemetry / SCADA Modifications	1	LS	$ 10,000	$ 10,000

Subtotal*	**$**	**731,500**
Contingency (25%)	$	182,900
Subtotal	**$**	**914,400**
Washington State Sales Tax (9.0%)**	$	82,300
Subtotal	**$**	**996,700**
Design and Project Administration (25.0%)***	$	249,200
TOTAL CONSTRUCTION COST	**$**	**1,246,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-4 - Chemical System Modification Recommendations
November 4, 2020
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 63,300	$ 63,300
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 25,000	$ 25,000
5	New Chemical Building	500	SF	$ 750	$ 375,000
6	Soda Ash System Modifications	1	LS	$ 15,000	$ 15,000
7	Coagulant System Modifications	1	LS	$ 18,000	$ 18,000
8	Piping, Valves, and Appurtenances	1	LS	$ 25,000	$ 25,000
9	Electrical Modifications	1	LS	$ 100,000	$ 100,000
10	HVAC Modifications	1	LS	$ 40,000	$ 40,000
11	Telemetry / SCADA Modifications	1	LS	$ 10,000	$ 10,000

Subtotal*	**$**	**696,300**
Contingency (25%)	$	174,100
Subtotal	**$**	**870,400**
Washington State Sales Tax (9.0%)**	$	78,300
Subtotal	**$**	**948,700**
Design and Project Administration (25.0%)***	$	237,200
TOTAL CONSTRUCTION COST	**$**	**1,186,000**

* Costs listed are in 2020 dollars
** Current sales tax rate is 8.7%.
*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is

AGENDA BILL Item 7.B	**Utility Rate Study Personal Services Agreement Approval**		
DATE SUBMITTED:	November 18, 2020	MEETING DATE:	November 25, 2020
TO: BOARD OF COMMISSIONERS		FROM: Debi Denton, Finance Manager	
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS		1. 2020 Rate Study scope, schedule and budget	
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒ / INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

Every 5 years the District reviews its rates and fees in order to ensure that we address both inflationary and projected operating and capital costs into the future. District rates were last reviewed during the summer of 2014 with an update performed in the fall of 2016. The approved rate/fee structure scheduled annual adjustments with the last adjustment of this cycle to go into effect on January 1, 2021.

With this study, the District aims to develop a long-range financial forecast that funds each utility on a standalone basis, considering its operating and maintenance expenditures, debt service, fiscal policy achievement, and capital project needs.

A Request for Proposals was issued to three firms on September 1, 2020 with a September 30th deadline. The purpose of the RFP was to obtain a qualified consultant for the rate study to determine the 5-year rate structure for 2022-2027. One firm replied, FCS Group, and on October 16th the Notice of Selection was issued and a scope and budget was negotiated. The remaining step is to execute the Personal Services Agreement.

For general planning purposes, we anticipate this project to take 3-4 months to complete.

FISCAL IMPACT

The budget for the study will not exceed $45,786 unless approved in writing by the District. This item is included in the 2021 budget as well as a portion included in the 2020 budget for startup.

RECOMMENDED BOARD ACTION

Staff recommends the Board approve a personal services agreement with FCS Group for the 2020 Water and Sewer Rate Study.

PROPOSED MOTION

A recommended motion is:

> "I move to award the 2020 Water and Sewer Rate Study project to FCS Group and authorize the general manager to execute a personal services agreement for a cost not to exceed the amount of $45,785 as presented."

FCS GROUP
Solutions-Oriented Consulting

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Redmond Town Center
7525 166th Ave NE, Ste D-215
Redmond, Washington 98052

Established in 1988
Washington | 425.867.1802
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LAKE WHATCOM WATER & SEWER DISTRICT

2020 WATER & SEWER RATE STUDY

With this study, the Lake Whatcom Water and Sewer District (District) aims to develop a long-range financial forecast that funds each utility on a standalone basis, considering its operating and maintenance expenditures, debt service, fiscal policy achievement, and capital project needs. The District is planning to develop a six-year business plan which could lead to changes in operating and capital costs. Also, our understanding is that there is significant uncertainty in the water and sewer capital plans, detailed below. This study budget allows for multiple scenarios to consider various cost and timing assumptions.

- Water: The District is in the planning stages of a significant water treatment project in Sudden Valley that could cost roughly $20 million (or more) based on preliminary cost estimates. The magnitude and timing of these expenditures will affect the rate forecast.
- Sewer: The District has a 4.8% capacity share of the City of Bellingham's wastewater treatment plant (WWTP), meaning that the District must contribute 4.8% of the cost of major capital projects at the WWTP. The City is currently planning two significant projects in the next twenty years (biosolids first and nitrogen removal to follow). The preliminary cost of each project is currently estimated to be in the hundreds of millions of dollars.

In the task plan, we follow a structured method to arrive at rate conclusions, which will enable us to perform the work in an orderly, efficient, and results-oriented manner. The tasks noted below will be completed for each of the water and sewer utilities.

TASK PLAN

Task 1 | Project Kickoff Meeting

An initial project meeting will be scheduled to confirm an understanding of the study's goals, objectives, key assumptions, and potential issues and concerns. Meeting participants could include a representative from groups that can address issues related to finance, engineering, operations, customer service, and administration. Deliverables to include:

- Attend one remote project kickoff meeting.
- Meeting notes documenting study schedule, goals, etc.

Task 2 | Data Collection & Validation

Prepare an initial data request identifying financial, operational, and capital planning data pertinent to the performance of the study. Review, analyze, and validate the data as necessary for use in the technical analyses. Follow up with District staff as necessary for any additional items or clarifications. Deliverables:

- Delivery of a request for information needed to perform the study.

Task 3 | Water & Sewer Revenue Requirement Forecast

Update the water and sewer utility revenue requirement forecasts to incorporate financial policies, capital funding strategies, and the operating budget forecast. Develop an annual cash flow forecast to determine the rate revenue requirements over a planning horizon that matches the time horizon of the capital planning. Evaluate the sufficiency of current adopted rates (through 2021) and develop rate revenue strategies that meet financial obligations over the planning horizon and provide a smooth impact to customers, to the extent practical.

The study includes budget for up to three (3) revenue requirement scenarios per utility. For example, one scenario could develop a revenue requirement to fully fund the District's current capital plan. A second scenario could alter the timing of capital projects while keeping the costs the same. A third scenario could alter the cost and timing of projects – such as a different cost for the City of Bellingham's WWTP projects and a different cost for the District's water treatment project. The District is also developing a six-year business plan which could lead to changes in operating and / or capital costs – these changes could also be adjusted in a scenario. Deliverables:

- Up to three (3) distinct revenue requirement scenarios per utility.
- The recommended schedule of rates for each scenario for the forecast period.
- Single-family rate comparison for up to six (6) jurisdictions chosen by District staff.

Task 4 | Meetings & Presentation Materials

Prepare for and attend up to two (2) remote meetings with District staff to review the draft revenue requirement forecast and presentation materials.

Prepare for and attend up to three (3) meetings with the Board of Commissioners to present the draft and final study results. These are assumed to be remote meetings and have been budgeted accordingly (no travel). If restrictions on public gatherings ease during the study, we would be happy to attend onsite meetings, with a budget amendment to cover additional travel. Deliverables:

- Two (2) remote District staff review meetings.
- Three (3) remote Board of Commissioners meetings.

Task 5 | Documentation

Prepare a draft and final report on the rate study. The documentation will outline the rate study process for future reference, and it will include a recommended rate strategy and an explanation of the rationale for our recommendations. Deliverables:

- **Spreadsheet Model**. FCS GROUP will deliver a final copy of the Excel-based spreadsheet models for District use. The models will provide for 1) evaluation of revenue and cost changes on rates, 2) analysis of financial policy implementation options, 3) analysis of changes in economic and financial indicators, 4) rate smoothing, and 5) other key rate study inputs including the capital plan, the operating budget, or customer growth.
- **Draft Report.** Prepare a written draft report documenting the rate study process, methodology, key assumptions, results, and recommendations.
- **Final Report.** Prepare a final report that incorporates comments by the District and decisions made by the Board of Commissioners.

SCHEDULE

Completion of the analysis is based on a variety of issues. These issues include timeliness of receipt of requested data/information (especially capital planning data); quality of data; ability to schedule meetings promptly; and the ability of the District to provide policy direction for the study to move forward at key study milestones. A specific project schedule that meets the District's needs will be developed during the initial project meeting.

For general planning purposes, we anticipate this project to take 3-4 months to complete. Once all data has been received, we can typically generate draft results and have a first review meeting with District staff approximately 30-45 days later.

BUDGET

The budget for the study will not exceed **$45,785** unless approved in writing by the District.

Exhibit A

		Consultant Hours						
		Principal	Advisor	Manager	Consultant	Admin	Total	Total
		Ghilarducci	Wilson	Aaker	TBD	Support	Hours	Budget
Task	Description	$270	$220	$185	$165	$90		
Task 1	**Project Kickoff Meeting**							
	Facilitate Kickoff Meeting		2	2	2		6	$ 1,140
Task 2	**Data Collection & Validation**							
	Prepare Data Request / Follow-up Questions			2	12		14	$ 2,350
Task 3	**Water & Sewer Revenue Requirements**							
	Review Financial Policies & Achievement			2	6		8	$ 1,360
	Update Operating Forecast			2	16		18	$ 3,010
	Update Capital Funding Strategies			2	16		18	$ 3,010
	Revenue Requirements (3 scenarios)	2	2	16	56		76	$ 13,180
	Prepare Rate Comparisons			1	4		5	$ 845
Task 4	**Meetings & Presentation Materials**							
	Staff: Prepare Materials for Staff Review Meetings		2	4	4		10	$ 1,840
	Staff: Remote Staff Review Meetings (2)		4	4	4		12	$ 2,280
	Board: Prepare Presentations for Board Meetings	1	2	8	16		27	$ 4,830
	Board: Remote Board Meetings (3)		6	6			12	$ 2,430
Task 5	**Documentation**							
	Prepare Spreadsheets for Delivery			2	4		6	$ 1,030
	Draft Report	2	4	8	22		36	$ 6,530
	Incorporate Comments & Finalize Report			2	4		6	$ 1,030
	Project Management			4		2	6	$ 920
	Total Budget	**5**	**22**	**65**	**166**	**2**	**260**	**$ 45,785**

AGENDA BILL Item 7.C	**Draft 2021 Budget Presentation**			
DATE SUBMITTED:	November 16, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Debi Denton, Finance Manager/Treasurer		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Preliminary 2021 Budget		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Through the powers granted under Revised Code of Washington Title 57 (Water-Sewer Districts) and codified under the District's Administrative Code Title 2, Chapter 2.2 (1):

> *The General Manager shall develop an operating and capital improvement budget annually for both the water and sewer systems. The annual budget shall provide for the forecasting of revenues and expenditures for the following year. The budget shall be presented to the Board of Commissioners for review and approval prior to the end of December in advance of the budget year.*

Using projected revenues based upon prior Board-adopted rate increases (4% and 2.5% water and sewer rates, respectively), actual 2020 operating expenses and projects defined in the District's water and sewer capital improvement plans, District staff have developed the attached preliminary draft budget for Board discussion.

The Capital Improvement portion of the budget will be the topic of discussion.

FISCAL IMPACT

The preliminary budget for 2021 proposes a budget of $3,100,000 for the water utility, and budget of $4,800,000 for the sewer utility, resulting in a total budget of approximately $7.9 million.

The water capital allocation for budget year 2021 is $605,000

The sewer capital allocation for budget year 2021 is $1,510,000

RECOMMENDED BOARD ACTION

No action is recommended at this time.

PROPOSED MOTION

Not applicable.

2021 ANNUAL BUDGET

LAKE WHATCOM WATER & SEWER DISTRICT

LAKE WHATCOM WATER & SEWER DISTRICT
1220 LAKEWAY DRIVE

BELLINGHAM, WASHINGTON 98229

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2021 ANNUAL BUDGET

LAKE WHATCOM WATER & SEWER DISTRICT
1220 LAKEWAY DRIVE
BELLINGHAM, WASHINGTON 98229

APPROVED December 9, 2020

BOARD OF COMMISSIONERS

Laura Abele, President, Position 1

Todd Citron, Secretary, Position 2

Bruce Ford, Commissioner, Position 3

Leslie McRoberts, Commissioner, Position 4

John Carter, Commissioner, Position 5

Justin Clary, General Manager

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1 GENERAL MANAGER'S MESSAGE

The 2021 Budget represents the proposed fiscal plans for the Lake Whatcom Water & Sewer District for the 2021 calendar year (please refer to Appendix A for a comprehensive presentation of the 2021 Budget). This budget is the culmination of a collaborative effort between the Board of Commissioners and staff, and aligns with the District's mission *to provide the best possible water and sewer services to District customers in a cost efficient manner, and in a way that contributes to protecting Lake Whatcom water quality*. This budget was developed around touchstones of the District's financial policies, which embody the principles that guide District budgeting and long-term financial management, reinforcing the key values of fiscal prudence, pay-as-you-go financing to the extent practicable, and strong stewardship through asset management.

As a special purpose district authorized under state statute, the District's primary functions are the operation of water and sewer utilities, which create relatively forecastable revenues by being funded primarily by rates associated with water sales and sewer services. While many of the District's local government peers (e.g., cities and counties) were adversely impacted over past year by the unanticipated COVID-19 pandemic, the District has weathered the economic impacts of the pandemic thus far based upon its stable revenue sources. At the onset of the pandemic, the District suspended some fees to provide relief to our customers; however, these revenues make up a small percentage of the District's overall revenues and, therefore, had limited impact financially. The District did witness some project delays in 2020 created by pandemic-induced supply chain issues; however, as a whole, the District was largely successful in completing most capital reinvestment projects. While future impacts of the pandemic remain unclear at the time of finalization of the 2021 Budget, the District has conservatively accounted for any impacts that will likely carry forward well into 2021.

Despite the ongoing COVID-19 pandemic, the District's unwavering adherence to its conservative fiscal policies has allowed it to enter 2021 with stable revenue projections while continuing to preserve its fully funded operational and contingency reserves. Utility rate revenues have been projected in accordance with the Board-adopted, multi-year rate schedule. Though new home starts in 2020 (25) were slightly above those witnessed in 2019 (20), development-related revenue projections have been cautiously budgeted at 15 new connections to account for potential impacts of the pandemic. As a result, the 2021 Budget anticipates some growth, yet also maintains a conservative approach in accounting for these revenues.

The budget includes approximately $8 million in expenditures, which is comprised of allocations of approximately $3.1 million and $4.9 million for the water utility and sewer utility, respectively, while maintaining a restricted bond reserve of $772,000. The water utility budget includes $2.3 million dedicated to operations, a capital reinvestment budget of approximately $600,000, and a debt service budget of approximately $229,000, as well as a contingency reserve of $460,000 and an operating reserve of $540,000. The sewer utility budget includes $2.7 million dedicated to operations, a capital reinvestment budget of approximately $1.5 million, and a debt service budget of approximately $640,000, as well as a contingency reserve of $815,000 and an operating reserve of $430,000.

The 2021 Budget reflects a 2.5% increase over the 2020 Budget, which aligns with union contract-required salary cost-of-living-adjustments and step increases, and health insurance increases for District staff, with little overall change to staffing levels (addition of a temporary seasonal worker). Additional factors contributing to the increase are associated with an increase in the District's capital reinvestment program over 2020, which includes construction of the Dellesta and Edgewater sewer lift station rehabilitation projects (carryovers from 2020), construction of the Euclid sewer lift station rehabilitation project, a significant increase in sewer system rehabilitation efforts over past years to reduce inflow and infiltration, and replacement of the Agate Heights water treatment plant. Continued commitment to the District's ongoing effort to systematically upgrade our sewer lift stations will remain by starting the design and permitting process for the Lakewood and Rocky Ridge sewer lift station renovations. All of this work, as well as a number of other ongoing District programs, will be managed by the Engineering Department with some of the projects constructed by the Operations Department, as appropriate.

The budget has been carefully crafted to emphasize the Board's service priorities while deploying resources in a manner that assures a firm foundation that maintains a positive cash balance at yearend. As a result, the 2021 Budget maintains reserves at levels defined by District financial policies, while maintaining adequate operating capital and investing in critical infrastructure improvements that are aimed at prolonging the life of our assets and protecting the environment. The 2021 capital reinvestment program reflects a pay-as-you-go approach funded through a combination of one-time and ongoing resources consistent with the District's asset management philosophy and the 2016 water and sewer utility rate study. The fact that the 2021 investments can be made without reliance on debt can be attributed to the ongoing commitment to disciplined fiscal policy and management.

Forecasting resources, preparing the budget, monitoring its implementation, and assuring accountability and transparency, all while completing day-to-day work functions, takes an exceptional group of professionals. I want to thank District staff, all of whom had a hand in development of the 2021 Budget. I also want to thank the Board of Commissioners, whose leadership and policy direction has placed the District in a position that enables many of the progressive investments found in this budget. Lastly, I thank the District's customers that make up the Lake Whatcom community, without whom we would not have a purpose.

Sincerely,

Justin L. Clary
General Manager

2 SUMMARY OF FUNDS

The Lake Whatcom Water & Sewer District (District) is a special purpose local government authorized under Title 57 Revised Code of Washington (Water-Sewer Districts). Originally formed in 1968 as Whatcom County Water District No. 10, the District's primary function is to provide water and sewer service to customers in an 18-square mile area encompassing much of the Lake Whatcom watershed, including Geneva, Sudden Valley and the North Shore of Lake Whatcom. The District is governed by a five member Board of Commissioners (Board) who set the policies and rates of the District, and who adopt an annual budget. The annual budget defines the operational and capital improvement programs for that year, as well as maintenance of operating and contingency reserves to respond to unanticipated events, should they occur. The following summarizes each of the District's funds.

2.1 Water Utility Fund (Fund 401)

This fund serves as the primary operating fund of the District's water utility. The majority of revenue is derived from rates charged to water customers. Other revenue sources are interest income, late payment fees, recording fees, permit fees, and miscellaneous charges and fees. All fees and charges are set by the Board. Funds collected are used to pay for operations and maintenance, and capital improvement program-related (system reinvestment) expenditures of the water utility in accordance with the Board-approved annual budget.

Managed within the water utility fund are operating reserve, contingency reserve, and debt service funds:

- Operating Reserve. The operating reserve serves as a liquidity cushion providing protection from risk of short-term variation in the timing of revenue collection relative to payment of expenses and is maintained consistent with District financial policies at the cost to operate the utility for 90 days.
- Contingency Reserve. The contingency reserve ensures that unanticipated projects related to water system expenses will be funded, subsequent to Board approval, and is established through the District's financial policies at one percent of the water utility infrastructure replacement cost.
- Debt Service. This fund provides redemption of long-term loans that financed past water utility projects. Principal and interest on those loans are paid entirely from water utility revenues.

2.2 Sewer Utility Fund (Fund 402)

This fund serves as the primary operating fund of the District's sewer utility. The majority of revenue is derived from rates charged to sewer customers. Other revenue sources are interest income, recording fees, permit fees, payments associated with an existing utility local improvement

district (ULID), and miscellaneous charges and fees. All fees and charges are set by the Board. Funds collected are used to pay for operations and maintenance, and capital improvement program-related (system reinvestment) expenditures of the sewer utility in accordance with the Board-approved annual budget.

Managed within the sewer utility fund are operating reserve, contingency reserve, and debt service funds:

- Operating Reserve. The operating reserve serves as a liquidity cushion providing protection from risk of short-term variation in the timing of revenue collection relative to payment of expenses and is maintained consistent with District financial policies at the cost to operate the utility for 60 days.
- Contingency Reserve. The contingency reserve ensures that unanticipated projects related to sewer system expenses will be funded, subsequent to Board approval, and is established through the District's financial policies at one percent of the sewer utility infrastructure replacement cost.
- Debt Service. The debt service allocation provides redemption of outstanding debt incurred associated with a bond that was issued to finance past sewer utility projects. Bond interest is paid semi-annually and the principal is paid annually from sewer utility revenues.

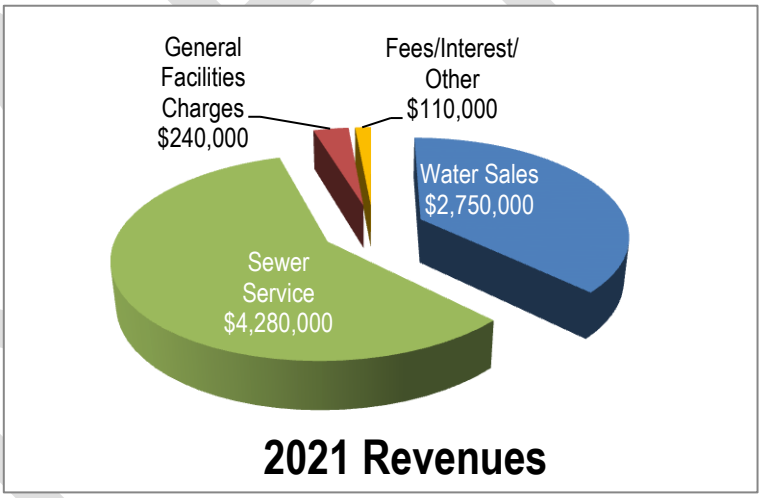
2.3 Bond Reserve Fund (Fund 460)

The fund was established by the covenants of the 2016 bond sale and is restricted by definition. A reserve limitation is required to be held in this fund until the outstanding 2016 bond payment obligations are paid in full.

3 2021 REVENUE PROJECTIONS

District functions are funded primarily through revenues received through water sales and sewer service fees, with the relatively small remainder of revenues coming from other fees and charges, as well as permits and other miscellaneous revenues.

In 2016, the District engaged the services of a utility financing consultant to review the District's operational and capital programs relative to revenue projections. The outcome of the study provided a multi-year approach to incremental increases to water and sewer rates through 2021 to ensure sufficient funding for operations, outstanding debt service, and system reinvestment through capital improvement projects and scheduled equipment replacement. Per the Board-approved multi-year rate schedule, 2021 Budget revenues have been based upon water and sewer rate increases of 4 and 2.5 percent, respectively, over 2020 rates. This will result in approximately $2.75 and $4.28 million in water and sewer utility rate revenues, respectively.



The other relatively significant revenue stream is fees the District receives for the connection of new development to its water and sewer systems. These *general facility charges* have been developed based upon the new customer's proportionate share of the cost of constructing the system to which they are connecting, as well as the proportionate share for future system expansion to accommodate that connection's capacity impact. Development within the District in 2020 (25 new homes) was relatively consistent with that witnessed in 2019 (20 new homes). Although current indications are that 2021 will witness similar levels of new development, development-related revenues have been based upon a more conservative number of 15 new homes (resulting in projections of $96,000 and $142,500 in associated revenues to the water utility and sewer utility, respectively).

Other revenues (totaling approximately $110,000), comprised of latecomer and other miscellaneous fees, investment interest, and revenues associated with ULID 18, have been based upon 2020 revenues.

Therefore, based upon prior adopted rate increases and conservative projections of other revenues, the 2021 Budget reflects a total revenue from external sources of $7,370,000 ($2,910,000 water utility and $4,430,000 sewer utility), which is an approximate one percent increase over revenues projected in the 2020 Budget, but is within a half of a percent of actual revenues projected through 2020 yearend.

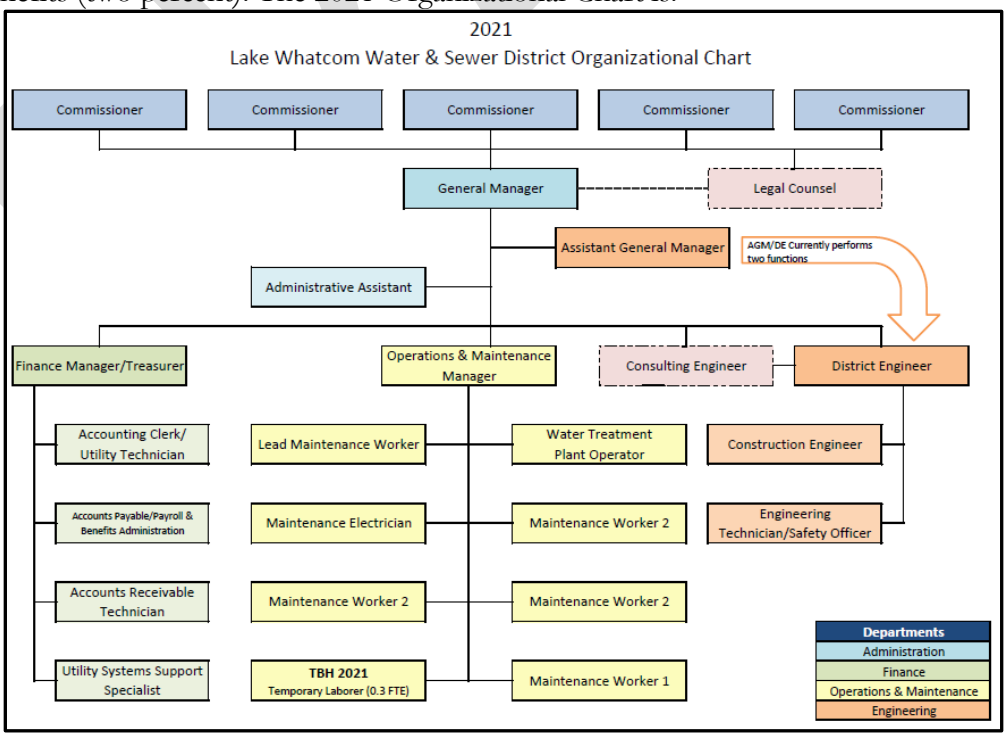
4 2021 EXPENDITURES

4.1 Water Utility Fund (Fund 401)

The Water Utility Fund is the primary fund through which the District conducts water utility-related business. It should be noted that many administrative expenses are shared with the Sewer Utility Fund. The following sections provide summaries of primary components of the fund expenses.

4.1.1 Operating Expenses

Personnel. Being a service-oriented organization, staff salary and associated benefits make up a large portion of the Water Utility Fund budget. Salary- and benefit-related expenses are shared with the Sewer Utility Fund, with exception to the Water Treatment Plant Operator position, which is wholly funded by the Water Utility Fund. For 2021, the District will add a 0.3 full-time equivalent (FTE) above 2020 staffing, which will fund a temporary summer employee to assist the Operations Department. This results in a total of 18.3 FTE positions in 2021. Also of note, the current Finance Manager will retire in mid-2021; the budget therefore reflects 0.5 FTE at the current employee's salary, and 0.5 FTE at a slightly lesser salary, while accounting for some overlap to accommodate transfer of duties consistent with the District's staffing succession plan. Beyond the slight staffing revisions, personnel-related cost increases from the 2020 Budget are primarily associated with union contract-required cost-of-living adjustments to salaries (2.1 percent) and increases to healthcare and related benefits (two percent). The 2021 Organizational Chart is:



Professional Services. The District relies on a number of professional- and vendor-related services to efficiently and effectively carry out the business of the District. Such providers include contracting with the District's legal counsel and on-call consulting engineer, support services associated with asset management, infrastructure control, administrative systems, and general services (e.g., custodial, landscape maintenance, security, etc.). Many of these services are shared evenly between the water and sewer utilities. The combined professional services for 2021 are projected at $333,200, which is an increase from the 2020 Budget ($281,000), and may primarily be attributed to services related to a utility rate study, implementation of a records management system, and an increase in the District's asset management software for additional system components.

City of Bellingham Fees. The District does not have a drinking water source that is connected to the Eagleridge residential neighborhood located on the Lake Whatcom north shore. Therefore, the District purchases water from the City of Bellingham to serve Eagleridge. The total projected cost for water fees from the City of Bellingham for 2021 is budgeted at $40,000, which is relatively equivalent to prior years' actual costs incurred.

Water Quality Partnerships. With Lake Whatcom as the primary source of drinking water within the District, protection of its water quality is crucial. In 2021, the District will continue its partnership with Whatcom County and the City of Bellingham for water quality monitoring and invasive species inspection programs ($60,000).

Utilities. Electricity to treat and distribute water to District customers, and to pump sewage to the City of Bellingham makes up a significant portion of the District's operating budget. Combined water and sewer utility electricity costs, together with other utilities, are budgeted at $220,000 for 2021 which are slightly above those projected through 2020 yearend.

Fund Carryover. Due to competing workload obligations and the impacts of the COVID-19 pandemic, $120,000 in water utility operating monies was not used under system reinvestment because the associated capital projects were not completed. As a result, these funds will be carried over to 2021 when the associated projects will be completed. Also per District policies, in any year where operating and contingency reserves are fully funded and there is a positive fund balance at yearend, the excess cash is to be used in the following year for system reinvestment in capital projects. For 2021, $205,000 of excess cash is projected for reinvestment in water infrastructure resulting from prior years' balances.

4.1.2 Operating Reserve

In accordance with District financial policies, an operating reserve is maintained equivalent to the cost of operating the water utility for 90 days ($540,000).

4.1.3 System Reinvestment

The *2021 Capital Improvement and Maintenance Plan*, included as Appendix B, provides a comprehensive description of the projects that will be completed using system reinvestment funds. Following are projects specific to the water utility:

Category	Project	Cost[1]
Capital Outlay Projects—General		
Water/Sewer	SCADA Telemetry-Managed Ethernet Switches (water portion; 2020 carryover)	$7,500
Water/Sewer	Administrative Server Hardware (water portion; 2020 carryover)	$7,500
Water/Sewer	AWIA Risk Assessment and Emergency Response Plan (water portion; 2020 carryover)	$5,000
Water/Sewer	Miscellaneous General Outlay (water portion)	$43,000
	Subtotal	$63,000
Capital Outlay Projects—Water Utility		
Water	Miscellaneous Water Outlay	$45,000
	Subtotal	$45,000
Capital Improvement Projects—Water Utility		
Water	Agate Heights WTP and Opal Booster Upgrades (2020 carryover)	$23,300
Water	Little Strawberry Bridge Water Main Predesign & Estimate (2020 carryover)	$20,000
Water	Sudden Valley WTP 20-year Facility Plan (2020 carryover)	$64,400
Water	Convert Eagleridge Booster to Metering Station (2020 carryover)	$20,000
Water	Austin-Fremont PRV Rebuild (2020 carryover)	$10,000
Water	Agate Heights WTP Phase 1 Upgrade Construction (30 to 60 gpm capacity)	$235,000
Water	Division 30 Booster PLC and UPS Improvements	$60,000
Water	Division 7 Reservoir Predesign, Easements and Permitting	$63,000
	Subtotal	$495,700
	TOTAL	$603,700

[1] Costs presented in table are rounded, please refer to Appendices A and B for specific projected costs.

4.1.4 Contingency Reserve

A contingency reserve is maintained in accordance with the District's financial policies at one percent of the water utility infrastructure replacement cost ($460,000). As this is contingency fund, no expenditures are budgeted for 2021.

4.1.5 Debt Service

The District is obligated to annually set aside sufficient funds for debt service repayment associated with prior District capital improvements, which are summarized in the *Revenue Bonds and Loan Funds Summary* (Appendix C). Water utility-related 2021 expenditures to make principal and interest payments on District low interest loans will be associated with:

- Geneva AC Pipe Mains Replacement Project ($147,000)
- Division 22 Water Reservoir Construction Project ($82,000)

4.2 Sewer Utility Fund (Fund 402)

The Sewer Utility Fund is the primary fund through which the District conducts sewer utility-related business. It should be noted that many administrative expenses are shared with the Water Utility Fund. The following sections provide summaries of primary components of the fund expenses.

4.2.1 Operating Expenses

Personnel. As sewer utility-related expenses associated with personnel are largely consistent with those of the water utility, please refer to the personnel discussion in Section 4.1.1.

Professional Services. As sewer utility-related expenses associated with professional services are largely consistent with those of the water utility, please refer to the professional services discussion in Section 4.1.1.

City of Bellingham Fees. To protect the quality of Lake Whatcom, all sewage collected by the District is conveyed to the City of Bellingham's sanitary sewer system and treated at the City's Post Point wastewater treatment plant. As a result, the District pays the City for treatment of all sewage collected by the District. The total projected cost for sewer fees from the City of Bellingham for 2021 is budgeted at $700,000, which is slightly above prior years' costs to account for city rate increases.

Utilities. Please refer to the utilities discussion in Section 4.1.1.

Fund Carryover. Due to competing workload obligations and the impacts of the COVID-19 pandemic, $600,000 in sewer utility operating monies was not used under system reinvestment because the associated capital projects were not completed. As a result, these funds will be carried over to 2021 when the associated projects will be completed. Also per District policies, in any year where operating and contingency reserves are fully funded and there is a positive fund balance at yearend, the excess cash is to be used in the following year for system reinvestment in capital projects. For 2021, $110,000 of excess cash is projected for reinvestment in sewer infrastructure resulting from prior years' balances.

4.2.2 Operating Reserve

In accordance with District financial policies, an operating reserve is maintained equivalent to the cost of operating the sewer utility for 60 days ($430,000).

4.2.3 System Reinvestment

The *2021 Capital Improvement and Maintenance Plan*, included as Appendix B, provides a comprehensive description of the projects that will be completed using system reinvestment funds. Following are projects specific to the sewer utility:

Category	Project	Cost[1]
Capital Outlay Projects—General		
Water/Sewer	SCADA Telemetry-Managed Ethernet Switches (water portion; 2020 carryover)	$7,500
Water/Sewer	Administrative Server Hardware (water portion; 2020 carryover)	$7,500
Water/Sewer	AWIA Risk Assessment and Emergency Response Plan (water portion; 2020 carryover)	$5,000
Water/Sewer	Miscellaneous General Outlay (sewer portion)	$43,000
	Subtotal	$63,000
Capital Outlay Projects—Sewer Utility		
Sewer	none	$0
	Subtotal	$0
Capital Improvement Projects—Sewer Utility		
Sewer	Dellesta, Edgewater & Euclid Sewer Lift Stations Improvements (2020 carryover)	$509,000
Sewer	AB PLC-5 Replacements and UPS Improvements (2020 carryover)	$69,200
Sewer	Rocky Ridge Sewer Lift Station Improvement Predesign & Permitting	$65,000
Sewer	Lakewood Sewer Lift Station Improvement Predesign & Permitting	$65,000
Sewer	Flat Car Sewer Lift Station Reverse Flow to SV Lift Station Predesign & Permitting	$50,000
Sewer	Euclid Sewer Lift Station Improvements & Stationary Generator Construction	$560,000
Sewer	Sewer System Rehab and Replacement Projects	$125,000
	Subtotal	$1,443,200
	TOTAL	$1,506,200

[1] Costs presented in table are rounded, please refer to Appendices A and B for specific projected costs.

4.2.4 Contingency Reserve

A contingency reserve is maintained in accordance with the District's financial policies at one percent of the sewer utility infrastructure replacement cost ($815,000). As this is contingency fund, no expenditures are budgeted for 2021.

4.2.5 Debt Service

The District is obligated to annually set aside sufficient funds for debt service repayment associated with prior District capital improvements, which are summarized in the *Revenue Bonds and Loan Funds Summary* (Appendix C). Sewer utility-related 2021 expenditures to make principal and interest payments on District bond obligations are solely associated with the 2016 Bond (which consisted of financing the renovation of two sewer lift stations and the District's portion of upgrades to the City of Bellingham's Post Point wastewater treatment plant). The 2021 sewer utility debt service will be approximately $640,000.

4.3 Bond Reserve Fund (Fund 460)

No expenditures are anticipated in 2020 from this fund. A fund balance of approximately $772,000 will be carried over from 2020.

APPENDIX A

2021 BUDGET

DRAFT 11/25/2020

APPENDIX A

LAKE WHATCOM WATER AND SEWER FUND SUMMARY 2021

	401 WATER	402 SEWER	TOTAL		460 BOND RESERVE (RESTRICTED)
2021 REVENUES	2,912,738	4,460,208	7,372,947		-
2021 EXPENDITURES	(3,115,194)	(4,871,525)	(7,986,719)		-
2020 OPERATING RESERVES	520,000	420,000	940,000		-
2020 CONTINGENCY FUNDS	460,000	796,000	1,256,000		
2019 CARRYOVER UNALLOCATED FUNDS	205,000	110,000	315,000		
2020 CARRYOVER BALANCE	$120,000	$600,000			772,334
PROPOSED 2021 YEAR END BALANCE	$1,102,544	$1,514,683	2,617,228		$772,334
2021 ALLOCATED TO OPERATING RESERVES	-$540,000	-$430,000	(970,000)		
2021 ALLOCATED TO CONTINGENCY FUNDS	-$460,000	-$815,000	(1,275,000)		
AVAILABLE 2021 YEAR END BALANCE	$102,544	$269,683	372,228		$772,334

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020

	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
WATER - 401						
REVENUES						
401-333-66-00-00	North Shore Sampling Interlocal Agreement			40,000	44,000	-
401-333-97-00-00	FEMA Aug 2015 Storm Assistance	250				-
401-343-40-10	Water Sales Metered (4% base rate increase) *	2,468,445	2,502,734	2,632,739	2,643,979.20	2,749,738
401-343-41-10	Permits (15 new connection permits) $6,400	162,024	175,162	90,000	205,000.00	96,000
401-343-81-10	Combined Fees (Liens and Shut Off Fees)	27,616	27,908	35,000	14,000.00	17,500
401-359-90-00	Late fees	58,690	55,332	55,000	15,000.00	27,500
401-361-11-00	Investment Interest	35,291	35,382	30,000	17,000.00	20,000
401-369-10-00	Sale of scrap metal and surplus	1,252	4,840	3,000	138.00	1,000
401-369-10-01	Miscellaneous	2,517	10,794	1,000	399.60	1,000
401-369-40-00	Judgements and Settlements	23,767	-	-	-	-
401-395-10-00	Sale of Capital Assets	7,800	5,610	-	-	-
401-395-20-00	Deposits	-	1,500	-	-	-
401-395-20-01	Insurance Recoveries	-	5,611	-	-	-
	TOTAL REVENUES	**2,787,652**	**2,824,873**	**2,886,739**	**2,939,517**	**2,912,738**
	* Per Resolution 844 effective 1/1/2020					
	Scheduled annual rate increase					

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020

	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
SEWER - 402						
REVENUES						
402-343-41-10-02	Permits (15 new connection permits) $9,500	162,024	175,162	135,000	245,000	142,500
402-343-50-11	Sewer Service (2.5% rate increase) *	3,964,760	4,068,571	4,186,946	4,172,260.80	4,276,567
402-343-50-19	Sewer Service Other	4,586	4,550	4,500	4,726.80	4,500
402-343-50-80	Latecomer's Fees	6,772	-	-	-	-
402-359-90-02	Late Fees	29,345	-	-	-	-
402-361-11-00-02	Investment Interest	35,291	35,382	30,000	17,000.00	20,000
402-361-40-00-80	ULID 18 Interest/Penalties	8,889	4,822	4,000	6,000.00	2,500
402-368-10-00-80	ULID 18 Principal Payments	30,534	17,407	15,000	13,000.00	8,000
402-369-10-00-02	Sale of scrap metal and surplus	1,251	4,840	3,000	115.20	1,000
402-369-10-00-02	Miscellaneous	2,517	10,794	1,000	399.60	1,000
402-369-40-02	Judgements and Settlements	23,767	-	-	8,283.00	4,141
402-395-10-00-02	Sale of Capital Assets	7,800	5,610	-	-	-
402-395-20-02	Insurance Recoveries	-	5,611	-	-	-
	TOTAL REVENUES	**4,277,536**	**4,332,749**	**4,379,446**	**4,466,785**	**4,460,208**
	* Per Resolution 844 effective 1/1/2020					
	Scheduled annual rate increase					

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
WATER - 401						
OPERATING EXPENDITURES						
401-534-10-10	Admin Payroll (2.1% cola plus step increases - 2021)	301,648	331,296	353,900	361,989	353,000
401-534-10-20	Admin Personnel Benefits	133,169	141,907	174,250	153,165	162,750
401-534-10-31	Gen Admin Supplies/Equipment	11,170	15,430	35,000	21,301	25,000
401-534-10-31-01	Meetings/Team building	1,178	2,493	2,000	1,160	2,000
401-534-10-40	Merchant Services Fees	20,199	20,522	10,000	12,216	10,000
401-534-10-40-01	Bank Fees			-	731	750
	Interlocal - Invasive Species (City) (8% increase)			55,000		
	Interlocal - Lake Whatcom Tributary Monitor (County)			5,000		
	North Shore Sampling (County Interlocal Agreement)			100,000		
	Mutt Mits			5,000		
401-534-10-41	Water Quality Assurance Programs (TOTAL)	55,119	59,184	165,000	165,000	65,000
	Master Meter annual support			2,000		2,000
	South Whatcom Fire (hydrant maintenance)			1,000		1,000
	County Auditor Filing Fees			*3,000*		*3,000*
	Statement processing			*12,500*		*12,500*
	Answering Service			*750*		*750*
	Time clock system			*750*		*750*
	Financial Software Maintenance			*5,000*		*5,000*
	Web Check services			*2,500*		*2,500*
	CPA (Financial statements)			*3,000*		*3,000*
	Rate study			*15,000*		*20,000*
	Salary Study			-		-
	State Audit			*5,000*		-
	Records Management system			*7,500*		*15,000*
	Employee Assistance Program					*600*
	Legal Counsel			-		-
	IT/Cyber security support			*15,000*		*15,000*
	Anti virus subscription			*500*		*500*
	Building security			*1,000*		*1,000*
	Building custodial			*5,000*		*5,000*

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
	Pest control			*500*		*500*
	Landscaping service			*3,000*		*4,000*
	Scada System Software Maintenance - Operations			*3,750*		*5,000*
	Engineering Consultant			-		-
	Safety software			*5,000*		*5,000*
	Hearing/Drug/Employee Testing					*750*
	SCADA/PLC Support - Engineering/Operations			*5,000*		*5,000*
	Cartegraph - Engineering/Operations			*2,500*		*8,500*
	Auto Desk - Engineering			*500*		*500*
	GIS Partnership (County)			*500*		-
	Rockwell - Engineering/Operations			*250*		*250*
	IT Pipes			*750*		-
	ESRI - ARC GIS			*750*		*750*
	Innovyze - Engineering			*1,250*		-
	Cyberlock software			*500*		-
	Whatcom County Emergency Management			*10,000*		*10,000*
	Misc (Bid notices etc.)			*2,500*		*2,500*
401-534-10-41-01	Professional Services (TOTAL)	296,727	158,742	100,250	111,180	130,350
401-534-10-41-02	Engineering Services			21,000	19,998	20,000
401-534-10-41-03	Legal Services			20,000	16,925	20,000
401-534-10-41-04	DEA Expenditures				2,640	-
401-534-10-41-25	20 Year Sudden Valley Water Treatment Plant Study				66,736	
401-534-10-42	Communication	25,601	26,706	30,000	30,167	30,000
401-534-10-45	Admin Lease (copy/printers)	4,198	5,078	5,000	5,300	5,000
401-534-10-46	Property Insurance	66,404	71,480	72,000	89,050	87,500
401-534-10-49	Admin Misc.	795	40	500	36	500
401-534-10-49-01	Memberships/Dues/Permits	9,443	8,601	10,000	17,593	15,000
401-534-10-49-02	WA State Dept of Revenue Taxes/County Stormwater fees	113,994	115,871	115,000	112,367	115,000
401-534-40-43	Administration and Board Training/Travel/Certification	16,743	17,744	17,500	7,121	10,000
401-534-40-43-01	Tuition reimbursement		-	500	-	500
401-534-50-31	Operations/Maintenance Supplies	117,834	104,079	75,000	133,634	120,000
401-534-50-31-01	Small Assets/tools	2,158	21,346	25,000	42,341	40,000
401-534-50-48	Operations Repair/Maint contracted work (includes tree trimming)	75,421	58,687	60,000	33,919	55,000

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
401-534-50-49	Insurance Claims	1,183	-	2,500	-	2,500
401-534-60-41	Operations Contracted (water testing)	5,418	6,619	12,500	10,993	12,500
401-534-60-47	Water City of Bellingham	61,592	42,224	40,000	19,202	40,000
401-534-80-10	Operations Payroll (2.1% cola plus step increases - 2021)	546,976	580,184	575,561	602,490	570,500
401-534-80-20	Operations Personnel Benefits (Medical, Retirement etc)	238,647	255,323	247,590	257,189	244,000
401-534-80-32	Fuel	14,814	13,584	15,000	9,712	10,000
401-534-80-35	Safety Supplies	8,668	11,340	10,000	11,857	10,000
401-534-80-35-01	Safety Supplies Boots	928	816	1,250	650	1,250
401-534-80-35-02	Emergency Preparedness	319	5,169	5,000	3,348	5,000
401-534-80-43-00	Operations Training/Travel/Certifications			-	360	10,000
401-534-80-47	General Utilities (Electric, gas, water, garbage)	111,942	101,725	110,000	114,769	115,000
401-534-80-49	Laundry	2,053	1,943	2,000	1,560	2,000
	WATER OPERATING EXPENDITURES	**2,244,341**	**2,178,133**	**2,313,301**	**2,436,700**	**2,290,100**

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
DEBT SERVICE						
401-591-34-77-01	Redemption of Long Term Debt Geneva AC Mains	119,938	119,938	119,938	119,937	119,937
401-591-34-77-02	Redemption of Long Term Debt Div 22 Reservoir	53,831	65,475	65,475	65,475	65,475
401-591-34-77-73	Redemption of Long Term Debt Loan 064	236,260	-	-	-	
401-592-34-83-01	Debt Service Interest Geneva AC Mains	32,383	30,584	28,785	28,785	26,986
401-592-34-83-02	Debt Service Interest Div 22 Reservoir	30,982	18,660	17,678	17,678	16,696
401-592-34-83-03	Debt Service Interest Loan 064	3,321	-	-	-	
SYSTEM REINVESTMENT						
	Water System Reinvestment Projects	470,687	336,883	569,400	255,000	-
	Water System Reinvestment 2020 Carryover Projects					150,000
	Water System Capital Outlay Projects					88,000
	Water System Capital Projects					358,000
TRANSFERS						
	Transfers out to Water Contingency Fund			-		
WATER FUND	**TOTAL WATER REVENUES**	**2,787,652**	**2,824,873**	**2,886,739**	**2,939,517**	**2,912,738**
	TOTAL WATER EXPENDITURES	**(3,191,743)**	**(2,749,673)**	**(3,114,577)**	**(2,923,575)**	**(3,115,194)**
	2020 - 520,000 reserves/460,000 contingency					**980,000**
	2019 BALANCE CARRYOVER					**205,000**
	2020 BALANCE CARRYOVER					**120,000**
	2021 ALLOCATED TO OPERATING RESERVES					**(540,000)**
	2021 ALLOCATED TO WATER CONTINGENCY (FUND 426)					**(460,000)**
	PROPOSED AVAILABLE 2021 YEAR END BALANCE					**102,544**

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
SEWER - 402						
OPERATING EXPENDITURES						
402-535-10-10	Admin Payroll (2.1% cola plus step increases - 2021)	301,897	331,295	353,900	361,988	353,000
402-535-10-20	Admin Personnel Benefits	132,376	142,020	174,250	153,161	154,250
402-535-10-31	Gen Admin Supplies/Equipment	12,535	16,069	20,000	24,269	25,000
402-535-10-31-01	Meetings/Team building	1,693	2,833	2,000	1,316	2,000
402-535-10-40	Merchant Services Fees	20,195	20,546	10,000	11,384	10,000
402-535-10-40-01	Bank Fees			-	599	750
	Camera Van Software annual support			1,500		1,500
	County Auditor Filing Fees			*3,000*		*3,000*
	Statement processing			*12,500*		*12,500*
	Answering Service			*750*		*750*
	Time clock system			*750*		*750*
	Financial Software Maintenance			*5,000*		*5,000*
	Web Check services			*2,500*		*2,500*
	CPA (Financial statements)			*3,000*		*3,000*
	Rate Study			*15,000*		*20,000*
	Salary Study			-		-
	State Audit			*5,000*		-
	Records Management system			*7,500*		*7,500*
	Employee Assistance Program					*600*
	Legal Counsel			*20,000*		-
	IT/Cyber security support			*15,000*		*15,000*
	Anti virus subscription			*500*		*500*
	Building security			*1,000*		*1,000*
	Building custodial			*5,000*		*5,000*
	Pest control			*500*		*500*

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
	Landscaping service			*3,000*		*4,000*
	Scada System Software Maintenance - Operations			*3,750*		*5,000*
	Engineering Consultant			*5,000*		-
	Safety software			*5,000*		*5,000*
	Hearing/Drug/Employee Testing					*750*
	SCADA/PLC Support - Engineering/Operations			*5,000*		*5,000*
	Cartegraph - Engineering/Operations			*2,500*		*8,500*
	Auto Desk - Engineering			*500*		*500*
	GIS Partnership (County)			*500*		-
	Rockwell - Engineering/Operations			*250*		*250*
	IT Pipes			750		1,500
	ESRI - ARC GIS			*750*		*750*
	Innovyze - Engineering			*1,250*		-
	Cyberlock software			*500*		-
	Whatcom County Emergency Management			*10,000*		*10,000*
	Misc (Bid notices etc.)			*2,500*		*2,500*
402-535-10-41-01	Professional Services (TOTAL)	224,840	130,953	100,750	105,964	122,850
402-535-10-41-02	Engineering Services			19,000	14,980	20,000
402-535-10-41-03	Legal Services			20,000	21,595	20,000
402535-10-41-04	DEA Expenditures				-	-
402-535-10-41-25	Sewer Comp Plan				27,691	-
402-535-10-42	Communication	25,600	26,705	30,000	30,211	30,000
402-535-10-45	Admin Lease (copy/printers)	4,200	5,078	5,000	5,300	5,000
402-535-10-46	Property Insurance	66,403	71,480	72,000	1,531	87,500
402-535-10-49	Admin Misc.	353	417	500	78	500
402-535-10-49-01	Memberships/Dues/Permits	6,545	6,045	8,000	10,710	10,000
402-535-10-49-02	WA State Dept of Revenue Taxes/County Sormwater fees	108,063	109,349	115,000	112,367	115,000
402-535-40-43	Administration and Board Training/Travel/Certification	9,549	13,602	17,500	5,113	10,000
402-535-40-43-01	Tuition reimbursement	-	-	500	-	500
402-535-50-31	Operations/Maintenance Supplies	52,213	40,332	75,000	34,712	50,000
402-535-50-31-01	Small Assets/tools	2,544	16,505	25,000	23,515	30,000
402-535-50-48	Operations Repair/Maint contracted work (includes tree trimming)	74,355	57,617	60,000	33,701	95,000
402-535-50-49	Insurance Claims	1,183	5,000	2,500	1,776	2,500

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
402-535-60-41	Operations Contracted (generator load testing)	-	-	15,000	25,000	25,000
402-535-60-47	Sewer City of Bellingham Treatment Fee	589,677	614,936	680,000	760,000	700,000
402-535-80-10	Operations Payroll (2.1% cola plus step increases - 2021)	442,355	472,156	483,494	485,691	476,500
402-535-80-20	Operations Personnel Benefits (Medical,Retirement etc)	191,170	206,813	247,590	205,499	231,500
402-535-80-32	Fuel	14,770	11,898	13,000	11,428	13,000
402-535-80-35	Safety Supplies	8,686	9,552	10,000	11,813	10,000
402-535-80-35-01	Safety Supplies Boots	887	964	1,250	650	1,250
402-535-80-35-02	Emergency Preparedness	467	374	5,000	2,974	5,000
402-535-80-43-00	Operations Training/Travel/Certifications				1,021	10,000
402-535-80-47	General Utilities (Electric, gas, water, garbage)	101,163	92,329	100,000	103,310	105,000
402-535-80-49	Laundry	2,052	2,144	2,000	2,350	2,000
	SEWER OPERATING EXPENDITURES	**2,395,771**	**2,407,012**	**2,668,234**	**2,591,698**	**2,723,100**

LAKE WHATCOM WATER AND SEWER DISTRICT

DRAFT 11/25/2020	Description	Actual 2018	Actual 2019	Budget 2020	Projected 2020	Budget 2021
DEBT SERVICE						
402-591-35-72-50	2009 Bond Principal Payments	275,000	285,000	-	-	
402-591-35-72-03	2016 Bond Principal Payments	130,000	130,000	425,000	425,000	435,000
402-592-35-83-50	2009 Bond Interest Payments	20,300	10,331	-	-	
402-592-35-83-03	2016 Bond Interest Payments	224,675	222,075	218,176	218,175	205,425
SYSTEM REINVESTMENT						
402-594-35-62-02	Sewer System Reinvestment Projects	470,687	1,970,079	1,230,900	1,200,000	
	Sewer System Reinvestment 2020 Carryover Projects					600,000
	Sewer System Capital Outlay Projects					43,000
	Sewer System Capital Projects					865,000
402-594-35-64-02	Sewer Equipment (Flush/Vac Truck)			525,000	512,000	
TRANSFERS						
	Transfers Out to Sewer/Storm Water Contingency Fund 425	25,000		-	-	-
SEWER FUND	**TOTAL SEWER REVENUES**	**4,277,536**	**4,332,749**	**4,379,446**	**4,466,785**	**4,460,208**
	TOTAL SEWER EXPENDITURES	**(3,541,433)**	**(5,024,497)**	**(5,067,310)**	**(4,946,873)**	**(4,871,525)**
	2020 BALANCE - 420,000 reserves/796,000 contingency					**1,216,000**
	2019 BALANCE CARRYOVER					**110,000**
	2020 BALANCE CARRYOVER					**600,000**
	2021 ALLOCATED TO SEWER OPERATING RESERVES					**(430,000)**
	2021 ALLOCATED TO SEWER CONTINGENCY (FUND 425)					**(815,000)**
	PROPOSED AVAILABLE 2021 YEAR END BALANCE					**269,683**

APPENDIX B

2021 SYSTEM REINVESTMENT PLAN

Introduction

The District has segregated its accounting and annual budgets into separate water and sewer utilities. This year, the Capital Improvement Plan (renamed this year as System Reinvestment Plans) has also been separated into two plans, one for water and the other for sewer.

Planned expenditures have been re-grouped into Capital Outlay and Capital Projects. Capital Outlay is intended to include equipment and small/minor projects. Capital Projects include significant projects in terms of cost, planning, permitting, and design efforts.

The current System Reinvestment Plans are primarily funded by utility rate revenues, with a small amount of funds coming from general facilities fees collected from new connections.

In preparation for the upcoming rate study scheduled to begin in early 2021, a Debt/Grant Funding Needs list is under development. The intent is to provide a comprehensive list of significant capital investments to rank, prioritize, and schedule work in coordination with the rate study's planning horizon for debt financing. The list will include a host of recommendations developed through Sudden Valley Water Treatment Plant 20-year facility planning, and sewer collection system rehabilitation and renewal projects to prepare for ultimate system build-out that will occur in the coming decades. The list also includes the District's share of the City of Bellingham Post Point WWTP Biosolids Improvements.

2021 BUDGET - Active Projects Estimates

This spreadsheet summarizes current active projects that are anticipated to continue into 2021 and updates projected budget amounts to achieve completion.

Water System Reinvestment Plan 2021 thru 2026

For 2021, the Water System Reinvestment Plan has approximately $446,000 available for capital outlay and capital projects. Of that, $240,000 is funded by water rate revenues, and the remaining $206,000 funds are from unallocated 2019 carry-over water funds.

Sewer System Reinvestment Plan 2021 thru 2026

For 2021, the Sewer System Reinvestment Plan has approximately $908,000 available for capital outlay and capital projects. Of that, $800,000 is funded by sewer rate revenues, and the remaining $108,000 funds are from unallocated 2019 carry-over sewer funds.

Debt/Grant Funding Needs 2021 thru 2026

This list is still in development. At this point, most of the project schedules are arbitrarily set to 2026 with the exception of the $10M COB Post Point WWTP expenditure. The projects will be prioritized and scheduled over the next few months as staff prepares for the upcoming rate study to begin in early 2021. It is anticipated the list will be further prioritized and scheduled as staff starts working with the rate study consultant and preliminary rate impacts are calculated.

Also, there are some projects that have multiple options. Until an option is selected, the database sums all of the options for a particular project, thereby multiply funding needs until a single option is selected and the others removed.

2021 BUDGET - Active Projects Estimates

Report Last Revised 11/19/2020

Project Number	Project Title / Tasks	Spent to Date as of 11/3/2020	Projected Budget To Completion	Projected Spending Thru 2020	Additional Payments in 2020	Amt Remaining to include in 2021 Budget
C2006	SCADA Telemetry - Managed Ethernet Switches	$0	$20,000	$5,000	$5,000	$15,000
C2007	Administrative Server Hardware	$0	$25,000	$10,000	$10,000	$15,000
A2021	AWIA Risk Assessment and Emergency Response Plans	$0	$10,000	$0	$0	$10,000
	Subtotal General	***$0***	***$55,000***	***$15,000***	***$15,000***	***$40,000***
C1802	Dellesta, Edgewater & Euclid Sewer Pump Stations	$488,810	$1,105,604	$596,525	$107,715	$509,080
M1917	AB PLC-5 Replacements and UPS Improvements	$12,240	$118,191	$49,000	$36,760	$69,191
	Subtotal Sewer	***$501,050***	***$1,223,795***	***$645,525***	***$144,475***	***$578,270***
C1814	Agate Heights WTP and Opal Booster Upgrades	$90,484	$124,320	$101,046	$10,562	$23,274
C1909	Little Strawberry Bridge Water Main Predesign & Estimate	$0	$20,000	$0	$0	$20,000
C1913	SVWTP 20-Year Facility Plan	$56,008	$159,710	$95,360	$39,352	$64,350
C2011	Convert Eagleridge Booster to Metering Station	$2,979	$30,000	$10,000	$7,022	$20,000
C2012	Austin-Fremont PRV Rebuild	$0	$10,000	$0	$0	$10,000
	Subtotal Water	***$149,471***	***$344,030***	***$206,406***	***$56,936***	***$137,624***

Details for Misc 2021 Capital Outlay Item

The items below provide a breakdown of small and minor equipment and projects that are included in the lines labeled "Misc 2021 General Capital Outlay, Misc 2021 Water Capital Outlay, and Misc 2021 Sewer Capital Outlay in the Water and Sewer System Reinvestment Plans.

Budget Amount		Description
		Misc 2021 General Capital Outlay (Costs will be split 50/50 between water/sewer)
$	35,000	Annual Asphalt Patching (A0011)
$	20,000	Upgrade Existing GPS Unit to Centimeter Grade GPS with Real Time Corrections & Staff Training
$	10,000	Install Electrical Outlets Along Fence at Shop for Equipment Engine Block Heaters and Battery Charger
$	11,000	HDPE Pipe Electro fusion Machine & Crew Training
$	10,000	SVWTP to SVPS Radio Link Telemetry (Ubiquiti AirFiber or similar) Study and Testing
$	86,000	Total
$	43,000	Total / 2 (funded 50/50 between water and sewer departments
		Misc 2021 Water Capital Outlay
$	25,000	Install Insertavalve at Geneva Reservoir for Emergency Isolation
$	15,000	SVWTP Raw Water Intake Piping Alignment Investigation/Excavation
$	5,000	Camp Firwood Dead End Water Main Auto Flusher
$	45,000	Total
		Misc 2021 Sewer Capital Outlay
$	-	No items

Lake Whatcom Water and Sewer District
Water System Reinvestment Plan 2021 thru 2026

Program Area / CIP Project # / CIP Project Name			Fund	Total	2021	2022	2023	2024	2025	2026
Capital Outlay - General (Costs are halved, split 50/50 between Water/Sewer)										
0218	1	Misc 2021 General Capital Outlay		43,000	43,000					
A0005	50	Accounting & Administration Server - Replace/Update Hardware, Network Security, & OS		25,000			12,500			12,500
V0001	18	Replace Tool Truck (7 tool trucks in fleet)		108,000		36,000		36,000		36,000
			Subtotal	176,000	43,000	36,000	12,500	36,000		48,500
Capital Outlay - Water										
0214	4	SVWTP Raw Water Intake - Emergency Pumps (water only portable pump)		50,000			50,000			
0219	1	Misc 2021 Water Capital Outlay		45,000	45,000					
W0003	35	SVWTP Filter 3&4 Media - Replace		26,485					26,485	
W0005	35	Reservoirs - Inspection & Maintenance		32,782			32,782			
W0007	35	SVWTP Filter 1&2 Media - Replace		26,485						26,485
			Subtotal	180,753	45,000		82,782		26,485	26,485
Capital Projects - Water										
0084b	40	Agate Heights Phase 1 WTP Upgrade 1/3 capacity (from 30gpm to 60gpm) - Construction		235,000	235,000					
0144a	70	1992 SVWTP 0.235MG Chlorine Contact Tank Seismic Retrofit - Priority 2 - Design		86,946		86,946				
0144b	70	1992 SVWTP 0.235MG Chlorine Contact Tank Seismic Retrofit - Priority 2 - Construction		180,847			180,847			
0145a	70	1971 Division 7 1.0MG Res Seismic Retrofit, Coatings - Priority 1 - Predesign, Esmts & Permitting		63,000	63,000					
0145b	70	1971 Division 7 1.0MG Res Seismic Retrofit, Coatings - Priority 1 - Design & Permitting		133,000				133,000		
0166	1	South Shore Water System - SVWTP - Convert from Chlorine Gas to Liquid		100,000		100,000				
0215	6	1237 Lakeview St - Replace 2" PVC with 2" HDPE		50,000		50,000				
0220	1	Divison 30 Booster PLC and UPS Improvements		60,000	60,000					
W0002a	18	Water System Rehab and Replacement Projects		50,000				50,000		
W0002b	18	Water System Rehab and Replacement Projects		440,000					220,000	220,000
			Subtotal	1,398,792	358,000	236,946	180,847	183,000	220,000	220,000
* Note: Cost Estimates in 2021 Dollars			Grand Total	1,755,545	446,000	272,946	276,129	219,000	246,485	294,985

Lake Whatcom Water and Sewer District
Sewer System Reinvestment Plan 2021 thru 2026

Program Area / CIP Project # / CIP Project Name			Fund	Total	2021	2022	2023	2024	2025	2026
Capital Outlay - General (Costs are halved, split 50/50 between Water/Sewer)										
0218	1	Misc 2021 General Capital Outlay		43,000	43,000					
A0005	50	Accounting & Administration Server - Replace/Update Hardware, Network Security, & OS		25,000			12,500			12,500
V0001	18	Replace Tool Truck (7 tool trucks in fleet)		108,000		36,000		36,000		36,000
		Subtotal		176,000	43,000	36,000	12,500	36,000		48,500
Capital Outlay - Sewer										
A0010	35	Update Sewer Comprehensive Plan (Current Plan approved 7/21/2020)		85,000					85,000	
E0004	8	Replace Camera Equipment		42,769		42,769				
		Subtotal		127,769		42,769			85,000	
Capital Projects - Sewer										
0032a	36	Agate Bay Sewer Pump Station - Predesign and Shorelines Permitting		100,000		100,000				
0032b	36	Agate Bay Sewer Pump Station - Design and Bidding		125,000			125,000			
0032c	36	Agate Bay Sewer Pump Station - Construction		525,000				525,000		
0055a	30	Rocky Ridge Pump Station - Predesign and Shorelines Permitting (with Lakewood)		65,000	65,000					
0055b	30	Rocky Ridge Pump Station - Design and Bidding		75,000		75,000				
0055c	30	Rocky Ridge Pump Station - Construction		425,000			425,000			
0056a	30	Lakewood Pump Station - Predesign and Shorelines Permitting (with Rocky Ridge)		65,000	65,000					
0056b	30	Lakewood Pump Station - Design and Bidding		75,000		75,000				
0056c	30	Lakewood Pump Station - Construction		425,000			425,000			
0124a	42	Flat Car Reverse Flow to SVPS Piping and Valves - Design & Permitting		50,000	50,000					
0124b	42	Flat Car Reverse Flow to SVPS Piping and Valves - Construction		100,000		100,000				
0157	12	Install Ball Check Valves at Cable, Ranch House, Flat Car, Beaver		115,927		115,927				
0161	30	Stationary Generator Closed Loop Cooling Retrofit - North Point, SV, Flat Car, Beaver		231,855			231,855			
0163	36	Euclid Electrical Controls Replacement and New Stationary Generator		560,000	560,000					
0171	18	Sudden Valley Sewer Pump Station - Recondition Electrical Controls		173,891				173,891		
0172	16	Flat Car Sewer Pump Station - Recondition Electrical Controls		173,891					173,891	
0173	16	Beaver Sewer Pump Station- Recondition Electrical Controls		173,891						173,891
0221	1	Sudden Valley Sewer Pump Station PLC and UPS Improvements		75,000		75,000				
S0001a	15	Sewer System Rehab and Replacement Projects		125,000	125,000					
S0001b	15	Sewer System Rehab and Replacement Projects		495,000		165,000	165,000	165,000		
S0001c	15	Sewer System Rehab and Replacement Projects		1,200,000					600,000	600,000
		Subtotal		5,354,456	865,000	705,927	1,371,855	863,891	773,891	773,891
* Note: Cost Estimates in 2021 Dollars			Grand Total	5,658,225	908,000	784,697	1,384,355	899,891	858,891	822,391

Lake Whatcom Water and Sewer District
Debt/Grant Funding Needs 2021 thru 2026

Program Area / CIP Project # / CIP Project Name	Fund	Total	2021	2022	2023	2024	2025	2026
Sewer - Debt/Grant Funding Needed								
0193	100 COB Post Point WWTP Biosolids Handling (LWWSD Cost Share 4.8%) - Construction 2023	10,000,000			10,000,000			
0202	2 Airport Sewer Crossing Gravity Pipeline Sag - Reinstall 250LF to Remove Sag	30,000						30,000
S9999	1 Blank	0	0	0	0	0	0	0
	Subtotal	10,030,000	0	0	10,000,000	0	0	30,000
Water - Debt/Grant Funding Needed								
1011	80 SVWTP - Raw Water Pump Modifications	246,170						246,170
1012	80 SVWTP - Clearwell Transfer Pump Modifications	348,140						348,140
1013	80 SVWTP - Finished Water Pump Modifications	762,200						762,200
0145c	70 1971 Division 7 1.0MG Reservoir Seismic Retrofit and Coatings - Priority 1 - Construction	1,550,000						1,550,000
0189	70 Fire Flow & Seismic Improvements - Replace Division 7 Reservoir (Applied for $1.5M Grant + $215k matching District Funds = $1.7M Total Project Cost)	215,000						215,000
1021	60 SVWTP - Recommended Modifications to Chlorine Contact Basin - Option 1	700,400						700,400
1022	60 SVWTP - Reduced Modifications to Chlorine Contact Basin - Option 2	515,000						515,000
1023	60 SVWTP - New Welded Steel Tank Chlorine Contact Basin - Option 3	1,189,650						1,189,650
1031	60 SVWTP - Recommended Main Bldg Seismic Retrofits	121,540						121,540
1032	60 SVWTP - Recommended Pump Bldg Seismic Retrofits	299,730						299,730
1041	60 SVWTP - Liquid Alum in Existing WTP Main Bldg - Option 1	65,920						65,920
1042	60 SVWTP - Liquid Alum in New Chemical Building - Option 2	1,173,170						1,173,170
1043	60 SVWTP - Manual Addition of Soda Ash in WTP Main Bldg - Option 3	1,161,840						1,161,840
1044	60 SVWTP - Mini-Bulk Addition of Soda Ash in New Chemical Bldg - Option 4	1,283,380						1,283,380
1045	60 SVWTP - Recommended Chemical System Modification - Option 5	1,221,580						1,221,580
0110	18 Security - Intrusion Alarms at Reserviors, Cameras as SVWTP AHWTP	11,941						11,941
0084c	6 Agate Heights Phase 2 WTP Upgrade 2/3 capacity, Tank 1 of 2, Main Ext to Trailer Park and Forks Restaurant	1,519,437						1,519,437
0084d	6 Agate Heights Phase 3 WTP Upgrade 3/3 capacity, Tank 2 of 2, Main Ext	7,878,562						7,878,562
0200	2 Division 30 Reservoir Safety Railing Around Perimeter	30,000						30,000
W9999	1 Blank	0	0	0	0	0	0	0
	Subtotal	20,293,659	0	0	0	0	0	20,293,659
* Note: Cost Estimates in 2021 Dollars	Grand Total	30,323,659	0	0	10,000,000	0	0	20,323,659

APPENDIX C

2021 REVENUE BOND AND LOANS FUND SUMMARY

APPENDIX C

REVENUE BONDS AND LOANS SUMMARY

The District has obtained publicly funded loans to construct projects. The project title, loan remaining, funding source, agency and interest rates are noted as follows:

Project Title	Balance Remaining 1/1/2021	Funding Source	Agency	End Date	Rate
Geneva AC Mains	$ 1,799,062	Rates	Drinking Water State Revolving Fund	2035	1.5%
Division 22 Reservoir	$ 1,113,070	Rates	Drinking Water State Revolving Fund	2037	1.5%
2016 Revenue Bonds Outstanding	$ 5,605,000	Rates		2035	2.25%
Total Debt Outstanding - 1/1/2021	**$ 8,517,132**				

AGENDA BILL Item 7.D	**Disposal of Surplus Property**			
DATE SUBMITTED:	November 16, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. List of Surplus Property dated Nov. 10, 2020		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

Attached is a list of miscellaneous surplus items that the District no longer needs.

FISCAL IMPACT

The District may realize some revenue through sale of items identified as having value.

RECOMMENDED BOARD ACTION

Staff recommends the Board declare the property presented in the attached list as surplus and authorize staff to dispose of each.

PROPOSED MOTION

A recommended motion is:

> "I move to declare the property defined in the list dated November 10, 2020, as surplus and authorize staff to dispose of each item in a manner that is most beneficial to the District and consistent with state law."

LWWSD Surplus Property List
11.10.2020

Item	Asset ID	Model / Serial Number	Condition	Value	Method of Disposal
Fluorometer		Turner Designs Cyclops C7 Optical Brightner UV Probe/ 2104718	Good	$1,932 (depreciated)	Sale
Data Logger w/ 10 meter cable		Turner Designs Databank Datalogger/2900515	Good		

LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager's Report

Upcoming Dates & Announcements

Regular Meeting – Thursday, November 25, 2020 – 8:00 a.m.

Important Upcoming Dates

Lake Whatcom Water & Sewer District			
Regular Board Meeting	Wed Dec 9, 2020	6:30 p.m.	Remote Attendance
Employee Staff Meeting	Thu Dec 10, 2020	8:00 a.m.	Remote Attendance Commissioner Ford to attend
Investment Comm. Meeting	Wed Jan 27, 2021	10:00 a.m.	Remote Attendance
Safety Committee Meeting	Tue Nov 24, 2020	8:00 a.m.	Remote Attendance
Lake Whatcom Management Program			
Data Group Meeting	Thu Dec 10, 2020	9:00 a.m.	Remote Attendance
Policy Group Meeting	Wed Dec 2, 2020	3:00 p.m.	Remote Attendance
Joint Councils Meeting	March 2021	TBD	To be determined
Other Meetings			
WASWD Section III Meeting	Tue Dec 8, 2020	7:00 p.m.	Remote Attendance
Whatcom Water Districts Caucus Meeting	Wed Dec 16, 2020	1:00 p.m.	Remote Attendance
Whatcom County Council of Governments Board Meeting	Wed Dec 9, 2020	3:00 p.m.	Remote Attendance

Committee Meeting Reports

Safety Committee:

- No committee meeting has been held since the last board meeting.

Investment Committee:

- No committee meeting has been held since the last board meeting.

Upcoming Important Board Meeting Topics

- 2021 Budget approval
- Lake Whatcom Boulevard Interceptor Analysis update
- Non-union employees 2021 cost-of-living-adjustment
- Wilson Engineering 2021 rates approval
- On-site sewage system policy discussion
- Agate Heights Water Treatment Plant Upgrade contract award

2020 Initiatives Status

Administration and Operations

Level-of-Service Analysis

- Facilitate Board development of level-of-service standards for District operations.
  The Effective Utility Management self-assessment process was completed at varying levels of the organization that included the board, management team and staff. Results were presented during the August 26 board meeting.

Six-Year Business Plan

- Develop department-specific business plans that define staffing, facility, and equipment needs necessary to meet level-of-service standards over the six-year planning horizon.
  The management team has initiated plan development taking into consideration the results of the Effective Utility Management self-assessment.

Rate Study

- Conduct rate study for the water and sewer utilities for the five-year planning horizon.
  A contract for a comprehensive rate study will be presented for Board consideration during its November 25 meeting; however, the overall schedule for conducting the study requires extension into next year (current rates are approved through December 31, 2021) to allow for incorporating information to be gathered relative to large future capital projects (e.g., Post Point Wastewater Treatment Plant biosolids handling and nutrient removal projects, Sudden Valley Water Treatment Plant 20-year facility plan).

Biennial Budget

- Facilitate Board consideration of shifting from an annual to a biennial budget.
  The board discussed the pros and cons of operating under a biennial budget during the August 26 board meeting.

Bond Rating Review

- Pursue a higher bond rating.
  The most recent bond rating review of the District was completed in December 2017 and resulted in a AA- (stable) rating. While the sole factor noted in the review that would allow for an increase in the rating remains outside of the District's control (strengthening of the service area's economy), the District has taken a number of steps to improve its financial position, including increasing the operating reserves of the Water Utility from 60 to 90 days and the Sewer Utility from 45 to 60 days, implementing issuance of quarterly financial reports, and fortifying the District's fiscal management policies.

Staffing Succession Plan

- Develop a staffing succession plan to address anticipated retirements over the next five years.
  The staffing succession plan was submitted to the board on August 21.

Job Description Review

- Update all District job descriptions that have not been revised in the last three years.
  Review of job descriptions has been broken into departments and the management team. Review of management team job descriptions are complete, and review of Finance, Engineering and Operations department descriptions is underway.

Emergency Response/System Security

Risk and Resilience Assessment

- Develop an America's Water Infrastructure Act-compliant Risk and Resilience Assessment.
  Plan is under development with assistance from the Whatcom County Sheriff's Office under the District's interlocal agreement for emergency planning services.

Cybersecurity Assessment

- Conduct a cybersecurity assessment of the District's IT infrastructure.
  Through the District's insurance provider, implemented ongoing staff/board cybersecurity training platform in November 2019. As a component of the Risk and Resilience Assessment, staff have mapped the District's IT system so that it may be assessed under the cybersecurity component of the Risk and Resilience Assessment process.

Emergency Vendor Contracts

- Pursue contracts with applicable vendors for on-call contracts, including contracts for support during periods of emergency response.
  A public works contract template specific to unit-priced contracting has been developed.

Community/Public Relations

General

- Website
  The District's web content is being updated on a regular basis, including regular posts specific to District operations in response to the COVID-19 pandemic.
- Social Media
  Posts are being made to District Facebook and LinkedIn pages regularly; Nextdoor is regularly monitored for District-related posts.
- Press Releases
  Press releases were issued on March 16, 18, 20, and 25 specific to District operations relative to the COVID-19 pandemic. A press release recognizing Drinking Water Week was issued on May 5, one summarizing the results of the District's 2018-19 audit was issued May 20, and one announcing the District's TOP Award was issued on November 5.

Intergovernmental Relations

- *J Clary continues to represent WASWD at various (virtual) convenings of the Washington's Growth Policy Framework Update.*
- *J Clary attended the WASWD legislative workshop on November 12, including presenting on the District's 2019 legislative breakfast, at WASWD's request.*
- *Congratulations letters were sent on November 17 to recently (re)elected legislators of the 40th and 42nd legislative districts. District-specific information was enclosed.*

EnviroStars Certification

- Gain EnviroStars Green Business certification.
  The District has completed 11 of 20 required core measures and earned a total of 205 points (core and elective measures) in the certification process. Once all core measures are complete, the District will be certified at the Tier 1-Leader level (300 points are required for Tier 2-Partner).

Lake Whatcom Water Quality

Management Program

- Attend meetings of Lake Whatcom Management Program partners.
  J. Clary attended the Data Group meeting (November 12) and the Interjurisdictional Coordinating Team meeting (November 19).

Onsite Septic System Impact Assessment

- Lead effort in water quality monitoring to assess the impacts of septic systems on the lake.
  Herrera issued the final revision of the findings report (September 30), and presented the results during the September 9 board meeting and September 23 Lake Whatcom Management Program policy group meeting. A District-developed technical memo associated with inspection of District sewage collection systems in Drainage 485 of the study was submitted to City and County staff on November 12.

Onsite Septic System Conversion Program

- Pursue connection of septic-served parcels within 200 feet of District sewer system.
  As of September 24, all three properties noticed in 2019 have connected to the District's collection system. No noticed-properties are outstanding.
  A white paper to facilitate analysis of the District's septic conversion policy was issued to the Board on April 9; during its meeting on July 29, the Board elected not to revise the program.

LAKE WHATCOM WATER AND SEWER DISTRICT

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AGENDA BILL Item 9.B	**Engineering Department Report**			
DATE SUBMITTED:	November 19, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, District Engineer		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Engineering Department Report		
		2.		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District projects and current priorities in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

Lake Whatcom Water & Sewer District
Engineering Department Report

Prepared for the November 25, 2020 Board Meeting
Data Compiled 11/19/20 by RH, BH, RM, KH

Status of Water and System Capacities				
	South Shore ID# 95910	Eagleridge ID# 08118	Agate Heights ID# 52957	Johnson Well ID# 04782
DOH Approved ERUs	**	85	57	2
Connected ERUs	3881	70	44	2
Remaining Capacity (ERUs)	**	15	13	0
Permitted ERUs Under Construction	36	0	0	0
Pre-paid Connection Certificates & Expired Permit	14	0	5	0
Water Availabilities (trailing 12 months)	44	0	0	0
Subtotal - Commitments not yet connected	94	0	5	0
Available ERUs	****	**15**	**8**	**0**

** Per DOH, water system capacity is sufficient for buildout. Oct 2018

Annual Reports		
Name Of Report	**Deadline**	**Completed**
Report Number of Sewer ERUs to City of Bellingham Prepared by: Bill	January 15	March 3, 2020
Other Reports		
Name Of Report	**Deadline**	**Last Completed**
Water Right Permit No. G1-22681 Development Extension	Due Every 5 Years Next Due Feb 15, 2023	March 20, 2018
Water Right Permit No. S1-25121 Development Extension	Due Every 5 Years Next Due March 30, 2023	March 20, 2018

Developer Extension Agreements

D1801	**Sudden Valley Community Association - Area Z Fire Hydrant**
Scope	Installation of Fire Hydrant

Sign Date	8/16/2018	Expiration Date	8/16/2021 (3 years)

Prior to Commencing Construction

- ☒ 1. District Engineer approves design
- ☒ 2. Reimbursement of District Engineer review costs
- ☒ 3. Copy of insurance policy
- ☒ ~~4. Copies of recorded easement~~
  n/a: to be recorded prior to final acceptance, property owned by Sudden Valley Community Association
- ☒ 5. Copies of permits
- ☒ 6. Pay Developer Conformance Deposit
  Receipt #16291 8/14/18
- ☒ 7. Developer delivers performance bond
  Assignment of savings account received in the amount of $135,798 and dated 8/14/2018. This will cover up to $90,532 of constructed facilities
- ☒ 8. Pays 25% of total amount of general facilities connection fees due to District
  n/a: no new connection
- ☒ 9. Pays District Administration, Legal Services, and Inspection Deposit
  Receipt #16291 8/14/18
- ☒ 10. District Issues Notice to Proceed w/Construction

Prior to Final Acceptance

- ☒ 1. District inspects & approves facilities as complete
- N/A 2. District receives water meters for each service
- ☒ 3. District accepts record drawings
- ☒ 4. District accepts easements & title insurance
- ☐ 5. District receives warranty bond or like security
- ☐ 6. District receives maintenance bond
- ☒ 7. District receives and approves Bill of Sale
- N/A 8. District receives a copy of recorded plat or legal description
- ☒ 9. District receives legal description of property
- N/A 10. District receives Latecomers Reimbursement fees due to otherDevelopers (if applicable)
- ☒ 11. Developer pays any applicable Supplemental DEA Processing/General Administrative fees
- N/A 12. District receives signed and notarized Latecomers Reimbursement Agreement (when applicable)
- ☐ 13. Developer has reimbursed the District for all incurred costs associated with DEA
- ☐ 14. Developer has met and completed all local, state, and federal permit requirements
- ☒ 15. Copies of recorded easement on file with District

Tasks/Notes

- 7/3/2018 DEA Application Received
- 7/25/2018 Board Authorizes DEA with Conditions
- 8/7/2018 SVCA Submits Hydraulic Analysis
- 8/14/2018 SVCA submits drawings, DEA, assignment of savings, insurance certificate, check for $6,750 ($5,000 deposit for review & inspection, $1,000 conformance deposit, and $750 for processing fee), and shallow pipe depth memo.
- 9/5/2018 District completes review of hydraulic analysis. 1,250 GPM for 90 minutes is available.
- 9/5/2018 SVCA submits revised plans. Review on hold until SVCA makes another deposit of $5,329.66 to cover legal and engineering review.

Continued on next page

Developer Extension Agreements (cont'd)	
D1801	**Sudden Valley Community Association - Area Z Fire Hydrant**

Tasks/Notes (cont'd)

- 12/17/2018 Deposit of $5,329.66 received
- 1/23/2019 Meeting with SVCA to review revised plans received 1/9/2019
- 2/26/2019 SVCA submits revised plans
- 3/20/2019 District returns plan review comments to Wilson Engineering
- 4/1/2019 Deposit of $2031.91 received.
- 4/9/2019 District approves plans and issues notice to proceed.
- 6/3/2019 Preconstruction meeting with SVCA, contractor, and Wilson to coordinate construct and inspections. Contractor will be starting work soon.
- 8/5/2019 Punch list inspection
- 8/15/2019 Final acceptance checklist/punch list sent to SVCA
- 9/19/2019 Deposit of $13,842.73 received.
- 10/22/2019 District Preparing Bill of Sale, Easement, and Supplemental Conditions agreemnt
- 11/7/2019 District receives record drawings
- 11/18/2019 Supplemental conditions and municipal utility easement sent to SVCA
- 11/18/2019 Deposit of $2,136.39 received.
- 12/16/2019 District reviewing SVCA's proposed changes to bill of sale and supplemental conditions and municipality utility easement agreement received 12/16/19
- 1/15/2020 District receives signed supplemental conditions and municipality utility easement agreement
- 2/11/2020 District receives and signs bill of sale
- 3/6/2020 Bill of Sale Recorded
- 3/17/2020 Sent status letter to SVCA for final acceptance, need maintenance bond & ecology permit documentation to close out project

Summary of District Projects

Report Prepared 11/19/2020

Line #	Project Number	Project Title / Tasks	Approved Budget	Spent to Date	Amount Remaining	2020 Schedule J F M A M J J A S O N D
1	~~C1708~~	~~Ball Check Valves at Austin and Beaver Sewer Pump Stations~~	$8,519	$8,961	$442	
2	~~C1716A~~	~~Dead End Blowoffs (53 of them completed)~~	$20,000	$17,961	$2,039	
3	~~C1716B~~	~~Geneva Booster Station - PRV's,Backflow, Roof~~	$40,000	$39,920	$80	
4	~~M1811~~	~~N. Shore FM Stream Crossing Protection (2020 FIX WASHOUT)~~	$28,602	$27,910	$692	
5	~~A1901~~	~~Whatcom County Region GIS Imagery Partnership 2019 Flight~~	$1,000	$1,000	$0	
6	~~A1902~~	~~Compulsory Sewer Connections~~	$20,000	$7,602	$12,398	
7	~~C1904~~	~~Comprehensive Sewer Plan Update~~	$79,832	$80,143	$311	
8	~~A1919~~	~~OSS Impact Assessment~~	$100,000	$107,610	$7,610	
9	~~C2001~~	~~Demolish Old Concrete Resevoir at 1010 Lakeview St~~	$55,000	$48,553	$6,447	
10	~~C2002~~	~~Johnson Well Storage Building - New Siding and Paint~~	$27,500	$24,800	$2,700	
11	~~C2004~~	~~Quick Connect Fitting Kit for CAT Backhoe~~	$4,000	$3,343	$657	
12	~~C2005~~	~~Used Forklift~~	$20,000	$19,457	$543	
13	~~C2008~~	~~Tool Truck with Snowplow and Sander Attachments~~	$86,300	$0	$86,300	
14	~~C2009~~	~~Flush-Vac Truck~~	$525,000	$514,245	$10,755	
15	~~C2010~~	~~Beaver, Flat Car, SVPS Motor Leads (cancelled - not needed)~~	$18,000	$0	$18,000	
16	~~C2014~~	~~Water Meters and Registers~~	$13,000	$10,616	$2,384	
17	~~C2015~~	~~Fire Hydrant Flow Testing Kit~~	$3,500	$2,864	$636	
18	~~M2018~~	~~Annual Asphalt Patching~~	$35,000	$26,173	$8,827	
19	~~M2019~~	~~Annual Tree Trimming (none needed in 2020)~~	$10,000	$0	$10,000	
20	~~A2020~~	~~Design and Construction Standards Update~~	$8,175	$6,613	$1,562	
21	~~A2022~~	~~Onsite Records Management Assessment~~	$5,952	$6,092	$140	
22	~~M2023~~	~~District Facilities Pavement Striping~~	$2,476	$2,883	$408	
23	~~M2024~~	~~Landscape Maintenance (contract executed for monthly maint)~~	$6,000	$0	$6,000	
24	~~C2026~~	~~Electrical On-Call Unit Price Contract (contract executed)~~	$0	$0	$0	
25	C1802	Dellesta, Edgewater & Euclid Sewer Pump Stations	$1,057,472	$566,457	$491,015	
26	C1814	Agate Heights WTP and Opal Booster Upgrades	$124,320	$94,784	$29,536	
27	C1908	Fire Flow Improvements - Hydraulic Model Calibration	$15,000	$5,135	$9,866	
28	C1909	Little Strawberry Bridge Water Main Predesign & Estimate	$20,000	$0	$20,000	
29	C1910	SVWTP and AHWTP Misc Component Replacement	$72,000	$59,433	$12,567	
30	C1913	SVWTP 20-Year Facility Plan	$159,710	$56,008	$103,702	
31	M1917	Beaver & Flat Car PLC and UPS Improvements	$100,000	$19,163	$80,837	
32	C2003	Sewer System Rehab and Replacement Projects	$71,460	$42,314	$29,146	
33	C2006	SCADA Telemetry - Managed Ethernet Switches	$20,000	$0	$20,000	
34	C2007	Administrative Server Hardware	$25,000	$0	$25,000	
35	C2011	Convert Eagleridge Booster to Metering Station	$30,000	$11,463	$18,538	
36	C2012	Austin-Fremont PRV Rebuild	$10,000	$0	$10,000	
37	C2013	Geneva and Div 22 Res Impressed Current Cathodic Protection	$40,000	$0	$40,000	
38	C2016	SVWTP Misc Component Replacement	$40,000	$14,559	$25,441	
39	C2017	Fire Hydrant Stortz Adapters	$12,000	$7,738	$4,262	
40	A2021	AWIA Risk Assessment and Emergency Response Plans	$10,000	$0	$10,000	
41	A2025	Rate Study	$30,000	$0	$30,000	

NOTATION LEGEND

A____	Administrative Project	p	Planned (labor not started)
C____	Capital Project	a	Active (labor underway)
M____	Maintenance Project	c	Completed (no further labor needed)
	Sewer Project (Green Font)	t	Target Completion
	Water Project (Blue Font)		
	Sewer and Water Project (Black Font)		

AGENDA BILL Item 9.C		**Finance Department Report**		
DATE SUBMITTED:	November 17, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Debi Denton, Finance Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Monthly Summary, Revenues & Expenditures		
		2. Monthly Investment Report		
		3. Oct 2020 Adjustment Report		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District finances in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

LAKE WHATCOM WATER AND SEWER FUND SUMMARY 2020

	401	402	460	
	WATER	SEWER	BOND RESERVE (RESTRICTED)	TOTAL
2020 REVENUES	2,439,689	3,764,598	-	6,204,287
2020 EXPENDITURES	(2,368,488)	(3,240,226)	-	(5,608,714)
2019 BALANCE CARRYOVER	987,272	1,363,375	772,335	3,122,982
2019 CONTINGENCY CARRYOVER	460,000	787,088		1,247,088
2020 BALANCE	$1,518,473	$2,674,835	$772,335	$4,965,643
2020 ALLOCATED TO OPERATING RESERVES	-$520,000	-$420,000		-$940,000
2020 ALLOCATED TO CONTINGENCY	-$460,000	-$796,088		-$1,256,088
AVAILABLE 2020 BALANCE	$538,473	$1,458,747	$772,335	$2,769,555

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget 2020	10/31/2020	83%
WATER - 401				
REVENUES				
	EPA Grant Water Quality			
401-333-66-00-00	North Shore Sampling Interlocal Agreement	40,000		
401-343-40-10	Water Sales Metered (4% base rate increase) *	2,632,739	2,203,316	83.69%
401-343-40-20	DEA Permits		(9,311)	
401-343-41-10	Permits (15 new connection permits) $6,000	90,000	204,425	227.14%
401-343-81-10	Combined Fees (Increase in Lien and Lock fees)	35,000	14,132	40.38%
401-359-90-00	Late fees	55,000	14,573	26.50%
401-361-11-00	Investment Interest	30,000	12,106	40.35%
401-369-10-00	Sale of scrap metal and surplus	3,000	115	0.038333
401-369-10-01	Miscellaneous	1,000	333	33.30%
401-369-40-00	Judgements and Settlements	-	-	
401-395-10-00	Sale of Capital Assets	-	-	
401-395-20-00	Insurance Recoveries	-	-	
	TOTAL REVENUES	**2,886,739**	**2,439,689**	**84.51%**
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget 2020	10/31/2020	83%
SEWER - 402				
REVENUES				
402-343-41-10-02	Permits (15 new connection permits) $9,000	135,000	244,827	181.35%
402-343-50-11	Sewer Service Residential (2.5% rate increase) *	4,186,946	3,476,884	83.04%
402-343-50-19	Sewer Service Other	4,500	3,979	88.42%
402-343-50-80	Latecomer's Fees	-	-	0
402-361-11-00-02	Investment Interest	30,000	10,355	34.52%
402-361-40-00-80	ULID 18 Interest/Penalties	4,000	6,083	152.08%
402-368-10-00-80	ULID 18 Principal Payments	15,000	13,759	91.73%
402-369-10-00-02	Sale of scrap metal and surplus	3,000	96	0.032
402-369-10-00-02	Miscellaneous	1,000	333	33.30%
402-369-40-02	Judgements and Settlements	-	8,282	0
402-395-10-00-02	Sale of Capital Assets	-	-	0
402-395-20-02	Insurance Recoveries	-	-	0
	TOTAL REVENUES	**4,379,446**	**3,764,598**	**85.96%**
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
WATER - 401	***OPERATING EXPENDITURES***			
401-534-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	294,954	83.34%
401-534-10-20	Admin Personnel Benefits	174,250	124,801	71.62%
401-534-10-31	Gen Admin Supplies/Equipment (Master Meter Software)	35,000	17,751	50.72%
401-534-10-31-01	Meetings/Team building	2,000	967	48.35%
401-534-10-40	Merchant Services Fees	10,000	9,487	94.87%
401-534-10-40-01	Bank Fees		609	
	Interlocal - Invasive Species (City) (8% increase)	55,000	50,000	
	Interlocal - Lake Whatcom Tributary Monitor (County)	5,000	6,276	
	North Shore Sampling (County Interlocal Agreement)	100,000	97,475	
	Mutt Mits	5,000	5,575	
401-534-10-41	Water Quality Assurance Programs (TOTAL)	165,000	159,326	
	County Auditor Filing Fees	*3,000*		
	Statement processing	*12,500*		
	Answering Service	*750*		
	Time clock system	*750*		
	Financial Software Maintenance	*5,000*		
	Web Check services	*2,500*		
	CPA (Financial statements)	*3,000*		
	Rate Study	*15,000*		
	State Audit	*8,000*		
	Ergonomic Assessment	*1,000*		
	Docuware maintenance and upgrade	*4,500*		
	Computer support	*15,000*		
	Anti virus subscription	*500*		
	Building security	*1,000*		
	Building custodial	*5,000*		
	Pest control	*500*		
	Landscaping service	*3,000*		
	South Whatcom Fire (hydrant maintenance)	1,000		
	Scada System Software Maintenance - Operations	*3,750*		
	Cyber Security AWIA Assessment	*5,000*		
	SCADA/PLC Support - Engineering/Operations	*5,000*		
	Cartegraph - Engineering/Operations	*2,500*		
	Auto Desk - Engineering	*500*		
	GIS Partnership (County)	*500*		
	Rockwell - Engineering/Operations	*250*		
	IT Pipes	*750*		

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
	ESRI - ARC GIS	*750*		
	Innovyze - Engineering	*1,250*		
	Master Meter	2,000		
	Cyberlock software	*500*		
	Whatcom County Emergency Management	*10,000*		
	Misc (Bid notices etc.)	*2,500*		
401-534-10-41-01	Professional Services (TOTAL)	117,250	92,650	79.02%
401-534-10-41-02	Water Engineering Services	21,000	16,665	79.36%
401-534-10-41-03	Water Legal Services	20,000	14,104	70.52%
401-534-10-41-04	DEA expenditures	-	2,200	
401-534-10-42	Communication	30,000	25,139	83.80%
401-534-10-45	Admin Lease (copy/printers)	5,000	4,417	88.34%
401-534-10-46	Property Insurance	72,000	1,276	1.77%
401-534-10-49	Admin Misc.	500	60	12.00%
401-534-10-49-01	Memberships/Dues/Permits	10,000	14,661	146.61%
401-534-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	93,639	81.43%
401-534-40-43	Training & Travel	17,500	5,934	33.91%
401-534-40-43-01	Tuition reimbursement	500	-	0.00%
401-534-50-31	Operations/Maintenance Supplies	95,000	111,362	117.22%
401-534-50-31-01	Small Assets/tools	30,000	35,284	117.61%
401-534-50-48	Operations Repair/Maint contracted work	35,000	28,266	80.76%
401-534-50-49	Insurance Claims	2,500	-	0.00%
401-534-60-41	Operations Contracted (water testing)	12,500	9,161	73.29%
401-534-60-47	Water City of Bellingham	40,000	16,002	40.01%
401-534-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	575,561	490,918	85.29%
401-534-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	209,561	84.64%
401-534-80-32	Fuel	15,000	8,093	53.95%
401-534-80-35	Safety Supplies	9,000	9,881	109.79%
401-534-80-35-01	Safety Supplies Boots	1,250	542	43.36%
401-534-80-35-02	Emergency Preparedness	5,000	2,790	55.80%
401-534-80-43-00	Water - Operatoins Training/Travel/Certification		300	
401-534-80-47	General Utilities (Electric, gas, water, garbage)	110,000	95,641	86.95%
401-534-80-49	Laundry	2,000	1,300	65.00%
	Payroll liability		286	
	WATER OPERATING EXPENDITURES	**2,329,301**	**1,898,027**	**81.48%**
DEBT SERVICE				

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
401-591-34-77-01	Redemption of Long Term Debt Geneva AC Mains	119,938	119,938	
401-591-34-77-02	Redemption of Long Term Debt Div 22 Reservoir	65,475	65,475	
401-592-34-83-01	Debt Service Interest Geneva AC Mains	28,785	28,785	
401-592-34-83-02	Debt Service Interest Div 22 Reservoir	17,678	17,678	**100%**
SYSTEM REINVESTMENT				
	2019 System Reinvestment Projects	105,000		
	2020 System Reimvestment Projects	457,400		
	2019 Excess Caryover Unallocated	206,272		
401-534-10-41-20	20 Year Plan for SVWTP C19-13		55,613	
401-594-34-62-01	Water Structures		120,151	
401-594-34-63-01	Water System		49,263	
401-594-34-64-01	Water Equipment		13,558	**31.04%**
WATER FUND	**TOTAL WATER REVENUES**	**2,886,739**	**2,439,689**	
	TOTAL WATER EXPENDITURES	**(3,329,849)**	**(2,368,488)**	**71.13%**
	2019 BALANCE CARRYOVER	**987,272**	**987,272**	
	2019 CONTINGENCY CARRYOVER	**460,000**	**460,000**	
	2020 ALLOCATED TO OPERATING RESERVES	**(520,000)**	**(520,000)**	
	2020 ALLOCATED TO WATER CONTINGENCY	**(460,000)**	**(460,000)**	
	AVAILABLE 2020 YEAR END BALANCE	**24,162**	**538,473**	

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
SEWER - 402				
OPERATING EXPENDITURES				
402-535-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	294,953	83.34%
402-535-10-20	Admin Personnel Benefits	174,250	124,798	71.62%
402-535-10-31	Gen Admin Supplies/Equipment	20,000	20,224	101.12%
402-535-10-31-01	Meetings/Team building	2,000	1,097	54.85%
402-535-10-40	Merchant Services Fees	10,000	9,487	94.87%
402-535-10-40-01	Bank Fees	-	499	
	County Auditor Filing Fees	*3,000*		
	Statement processing	*12,500*		
	Answering Service	*750*		
	Time clock system	*750*		
	Financial Software Maintenance	*5,000*		
	Web Check services	*2,500*		
	CPA (Internal audit and Financial statements)	*3,000*		
	Rate study	*15,000*		
	State audit	*8,000*		
	Ergonomic Assessment	*1,000*		
	Docuware maintenance and upgrade	*4,500*		
	Computer support	*15,000*		
	Cyber Security AWIA Assessment	*5,000*		
	Anti virus subscription	*500*		
	Building security for offices	*1,000*		
	Building custodial	*5,000*		
	Pest control	*500*		
	Landscaping service	*3,000*		
	Scada System Software Maintenance - Operations	*3,750*		
	Camera Van Software	1,500		
	SCADA/PLC Support - Engineering/Operations	*5,000*		
	Cartegraph - Engineering/Operations	*2,500*		
	Auto Desk - Engineering	*500*		
	GIS Partnership (County)	*500*		
	Rockwell - Engineering/Operations	*250*		
	IT Pipes	*750*		
	ESRI - ARC GIS	*750*		
	Innovyze - Engineering	*1,250*		

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
	Cyberlock software	*500*		
	Whatcom County Emergency Management	*10,000*		
	Misc (Bid notices etc.)	*2,500*		
402-535-10-41-01	Professional Services (TOTAL)	115,750	88,303	76.29%
402-535-10-41-02	Engineering Services	19,000	12,483	65.70%
402-535-10-41-03	Legal Services	20,000	17,996	89.98%
402-535-10-41-04	DEA expenditures		-	
402-535-10-42	Communication	30,000	25,176	83.92%
402-535-10-45	Admin Lease (copy/printers)	5,000	4,417	88.34%
402-535-10-46	Property Insurance	72,000	1,276	1.77%
402-535-10-49	Admin Misc.	500	65	13.00%
402-535-10-49-01	Memberships/Dues/Permits	8,000	8,925	111.56%
402-535-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	93,639	81.43%
402-535-40-43	Training & Travel	17,500	4,261	24.35%
402-535-40-43-01	Tuition reimbursement	500	-	0.00%
402-535-50-31	Operations/Maintenance Supplies	55,000	28,927	52.59%
402-535-50-31-01	Small Assets/tools	25,000	19,596	78.38%
402-535-50-48	Operations Repair/Maint contracted work	80,000	51,753	64.69%
402-535-50-49	Insurance Claims	2,500	1,480	59.20%
402-535-60-41	Operations Contracted (generator load testing)	15,000	24,654	164.36%
402-535-60-47	Sewer City of Bellingham Treatment Fee	680,000	660,172	97.08%
402-535-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	483,494	395,748	81.85%
402-535-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	167,444	67.63%
402-535-80-32	Fuel	13,000	9,523	73.25%
402-535-80-35	Safety Supplies	9,000	9,844	109.38%
402-535-80-35-01	Safety Supplies Boots	1,250	542	43.36%
402-535-80-35-02	Emergency Preparedness	5,000	2,478	49.56%
402-535-80-43-00	Operations Training/Travel/Certification		851	
402-535-80-47	General Utilities (Electric, gas, water, garbage)	100,000	86,092	86.09%
402-535-80-49	Laundry	2,000	1,958	97.90%
	SEWER OPERATING EXPENDITURES	**2,682,234**	**2,168,661**	**80.85%**

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	10/31/2020	83%
DEBT SERVICE				
402-591-35-72-03	2016 Bond Principal Payments	425,000	425,000	
402-592-35-83-03	2016 Bond Interest Payments	218,176	218,175	**100.00%**
SYSTEM REINVESTMENT				
	2019 Sewer System Reinvestment Projects	770,000		
	2020 Sewer System Reinvestment Projects	416,100		
	2019 Excess Carryover Unallocated	108,554		
	Sewer Comp Plan C19-04		23,076	
402-594-35-62-02	Sewer Structures		300,906	
402-594-35-63-02	Sewer System		81,424	
402-594-35-64-02	Sewer Equipment		22,984	
402-594-35-64-02	Sewer Equipment (Flush/Vac Truck)	525,000		**23.54%**
SEWER FUND	**TOTAL SEWER REVENUES**	**4,379,446**	**3,764,598**	
	TOTAL SEWER EXPENDITURES	**(5,145,064)**	**(3,240,226)**	**62.98%**
	2019 BALANCE CARRYOVER	**1,363,375**	**1,363,375**	
	2019 CONTINGENCY CARRYOVER	**787,000**	**787,000**	
	2020 ALLOCATED TO SEWER OPERATING RESERVES	**(420,000)**	**(420,000)**	
	2020 ALLOCATED TO SEWER CONTINGENCY	**(796,000)**	**(796,088)**	
	AVAILABLE 2020 YEAR END BALANCE	**168,757**	**1,458,659**	

LAKE WHATCOM WATER AND SEWER

INVESTMENTS/CASH AS OF 10/31/2020

Petty Cash		$	1,600		
Cash		$	599,699		0.45%
Public Funds Account		$	502,606		0.10%
LGIP		$	1,035,968		0.21%
		$	2,139,873		
			PAR VALUE		YIELD
RFCO-ProEquity	Non-callable	$	1,071,488	Jan-21	2.71%
FHLB - Pro equity	Callable	$	1,002,619	Nov-22	1.55%
FHLB - Pro equity	Non-callable	$	751,663	Apr-23	0.80%
US Bank		$	2,825,770		
TOTAL		**$**	**4,965,643**		

USE OF FUNDS:		
Reserved	$	772,334
Contingency	$	1,256,088
Unrestricted	$	2,937,221
	$	**4,965,643**

Oct-20	ADJUSTMENTS		
200016014	$	214.73	Leak Credit
220005048	$	176.98	District Equipment Malfunction
140099060	$	293.22	Leak Credit
180012100	$	263.37	Leak Credit
100001509	$	98.40	Broken Freeze Plate
240003221	$	609.81	Leak Credit
80001323	$	37.15	Adjust to Tier 1 Rate
220005085	$	14.01	Leak Credit
140007031	$	211.49	Leak Credit
180023058	$	248.66	District Equipment Malfunction
240001094	$	66.90	Leak Credit
20000690	$	33.80	Adjust to Tier 1 Rate
TOTAL	**$**	**2,268.52**	

AGENDA BILL Item 9.D	**Operations Department Report**			
DATE SUBMITTED:	November 19, 2020	MEETING DATE:	November 25, 2020	
TO: BOARD OF COMMISSIONERS		FROM: Brent Winters, Operations Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Operations Department Report		
		2. Status of District Water & Sewer Systems		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information regarding District operations in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

Lake Whatcom Water & Sewer District
Operations & Maintenance Department Report

Prepared for the November 25, 2020 Board Meeting
Data Compiled 11/19/20 by RH, BW, RM

State Required Report Status													
Monthly Reports													
Name Of Report		**Completed**											
Chlorination Report Agate Heights Prepared by: Kevin	Postmarked by the 10th of month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
		x	x	x	x	x	x	x	x	x	x	x	
Surface Water Treatment Rule Report (SVWTP) Prepared by: Kevin	Postmarked by the 10th of month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
		x	x	x	x	x	x	x	x	x	x	x	
Annual Reports													
Name Of Report	**Deadline**	**Completed**											
WA State Cross Connection Report Prepared by: Rich	May	May 6, 2020											
OSHA 300 Log Prepared by: Rich	February 1	January 27, 2020											
Water Use Efficiency Performance Report Prepared by: Kevin	July 1	February 24, 2020											
Community Right to Know (Hazardous Materials) Prepared by: Rich & Brent	March 31	January 14, 2020											
Consumer Confidence Reports Prepared by: Kevin	June 30	Geneva		SV		EagleR		Agate Ht					
		6/1/20		6/1/20		6/1/20		6/1/20					
Other Reports													
Name Of Report	**Deadline**	**Last Completed**											
CPR/First Aid Training Coordinated by: Rich	Due Biennially Next Due 2021	March 23, 2019											
Flagging Card Training Coordinated by: Rich	Due Triennially Next Due 2022	June 6, 2019											

Safety Program Summary Completed by Rich Munson & Brent Winters			
Summary of Annual Safety Training *2020 Testing Period - Jan 1, 2020 to May 1, 2020*			
	Enrollments	Completions	% Complete
Engineering - Managers	69	69	100%
Engineering - Staff	25	25	100%
Field Crew - Managers	224	224	100%
Office - Managers	15	15	100%
Office - Staff	52	52	100%
Overall	**385**	**385**	100%

Safety meetings for the field crew take place every Friday at 7 a.m.

Dates of Completed Safety Committee Meetings		
1/21/2020	5/20/2020	9/24/2020
2/18/2020	6/18/2020	10/29/2020
3/17/2020	7/29/2020	11/24/2020
4/30/2020		

Summary of Work-Related Injuries & Illnesses						
	Current Month	2020	2019	2018	2017	2016
Total Number of Work Related Injuries Defined as a work related injury or illness that results in: ・Death ・Medical treatment beyond first aid ・Loss of consciousness ・Significant injury or illness diagnosed by a licensed health care professional ・Days away from work (off work) ・Restricted work or job transfer	0	0	0	0	1	0
Total Number of Days of Job Transfer or Restriction (light duty or other medical restriction)	0	0	0	0	13	0
Total Number of Days Away from Work (at home, in hospital, not at work)	0	0	0	0	4	0
Near Misses	0	0	2	2	1	

Safety Coordinator Update

Status of District Water and Sewer Systems
Prepared by Brent Winters Operations and Maintenance Manager
11/25/2020 Board Meeting

Safety Activities

1. Continuing social distancing of crew. Kevin Cook is reporting directly to the water plant, the rest of the crew is reporting directly to their assigned vehicle and then attending the morning briefing via "Go to Meeting."
2. No injuries or near misses.
3. Daily safety reminders directly relevant to the day's tasks.
4. Jobsite tailgate meetings by project lead.

Water Utility Activities

Water Treatment Plants

1. Sudden Valley
    a. Plant is operating well, averaging 0.5 million gallons per day (MGD).
2. Agate Heights
    a. Plant is operating well, averaging .01 million gallons per day (MGD).

Distribution System

a. Projects on hold during watershed closure.
b. No leaks this reporting period.
c. No new connections this reporting period.

Sewer Utility Activities

Lift Stations

1. Lift stations are in normal operation.
2. Performed scheduled pump maintenance and inspections.
3. Performed scheduled air/vacuum relief valve maintenance on Lake Louise Rd. interceptor.

Collection System

1. Cleaned and televised portions of the Lake Whatcom Boulevard sewer main from Strawberry Point to Cable St. to maximize capacity.
2. Continuing to clean and televise sewer mains in the Sudden Valley area. We are adding any laterals with potential I&I to a work order that was created for follow up investigation.

Fleet

Vehicles

1. All vehicles are in service.

Equipment

1. All equipment is in service.
2. New vac truck is in service and has been working great.
3. New service truck is on order (December delivery).

Facilities

Shop Building

1. Performing shop and grounds maintenance as fill in work between projects.

Development

1. Inspector is actively working with ten (10) contractors making connection to our systems.
2. No new connections this reporting period.

AGENDA BILL Item 11	**Executive Session General Manager Annual Performance Evaluation**			
DATE SUBMITTED:	November 17, 2019	MEETING DATE:	November 25, 2019	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. 2019-2020 Performance Report		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

The District entered into an employment agreement on August 29, 2018, with Justin Clary to serve as the District's general manager. Mr. Clary's first day of employment with the District was October 1, 2018. Per Section 10, Performance Evaluation, of the agreement, the Board of Commissioners is to evaluate Mr. Clary's performance annually, on or about the anniversary of appointment. Consistent with the prior year's evaluation process, Mr. Clary previously submitted an annual report summarizing District achievements over the past year, as well as proposed initiatives for 2021.

Recess to Executive Session Text:

The Board will now hold an Executive Session for the purpose evaluating the performance of a public employee per RCW 42.30.110(1)(g).

The Executive Session is expected to last 30 minutes; no action is anticipated following the executive session.

FISCAL IMPACT

No impact is anticipated.

RECOMMENDED BOARD ACTION

No action is recommended at this time.

PROPOSED MOTION

Not applicable.