



LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

Date: July 22, 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 July 29 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.

7.29.20 Regular Board Meeting

Wed, Jul 29, 2020 8:00 AM - 10:00 AM (PDT)

Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/248591045>

You can also dial in using your phone.

United States: [+1 \(408\) 650-3123](tel:+14086503123)

Access Code: 248-591-045

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LAKE WHATCOM WATER AND SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS

AGENDA

July 29, 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—Lake Whatcom Boulevard Sewer Interceptor Condition Assessment
 - B. Lakeview Street Reservoir Demolition Project Contract Close-out
 - C. Customer Assistance Programs Review
 - D. General Manager Job Description Revision
 - E. On-site Sewage Disposal System-to-Sewer Conversion Program Policy Discussion
8. OTHER BUSINESS
9. STAFF REPORTS
 - A. General Manager
 - B. Engineering Department
 - C. Finance Department
 - D. Operations Department
10. PUBLIC COMMENT OPPORTUNITY
11. ADJOURNMENT



**AGENDA
BILL
Item 6**

Consent Agenda

DATE SUBMITTED:	July 23, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Rachael Hope		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. See below		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input checked="" type="checkbox"/>	INFORMATIONAL /OTHER <input type="checkbox"/>

****TO BE UPDATED 7.28.2020****

BACKGROUND / EXPLANATION OF IMPACT

- Minutes for the 7/07/20 Special Work Session
- Minutes for the 7/08/20 Regular Board Meeting
- Accounts Payable Vouchers totaling \$3,034.07
- Payroll for Pay Period #14 (06/27/2020 through 07/10/2020) totaling \$45,777.31
- Payroll Benefits for Pay Period #14 totaling \$51,262.62
- Accounts Payable Vouchers total 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

REGULAR SESSION OF THE BOARD OF COMMISSIONERS

Minutes

July 8, 2020

Board Secretary Todd Citron called the Regular Session to order at 6:30 p.m.

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

Excused Absences: Commissioner Laura Abele, Commissioner Leslie McRoberts

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

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.

Changes to Agenda

Due to time constraints, Clary suggested that Item 7C, General Manager Job Description Review, be postponed until the July 29, 2020 regular meeting. The Board agreed.

Consent Agenda

Action Taken

Carter moved, Ford seconded, approval of:

- **Minutes for the 6/24/20 Regular Board Meeting**
- **Payroll for Pay Period #13 (06/13/2020 through 06/26/2020) totaling \$42,721.98**
- **Payroll Benefits for Pay Period #13 totaling \$49,835.57**
- **Accounts Payable Vouchers totaling \$111,841.56**

Motion passed.

Dellesta and Edgewater Sewer Pump Station Improvements Architectural/Engineering Agreement Amendment

Hunter recalled that this project includes replacement of existing Smith & Loveless top-mounted lift stations with new-top mounted package sewer pumps, District-standard controls, and telemetry at two sites: Dellesta (installed in 1977) and Edgewater (installed in 1974). Staff requested the design engineer, RH2 Engineering Inc., prepare a scope of work and fee for Services During Construction to assist District staff with inspection, submittal review, evaluating requests for information, change order support, biweekly meetings, record drawings, testing and startup, and SCADA software development. A scope of work has also been included for additional Services During Bidding that were not anticipated in November 2019 when Amendment No. 3 was approved and executed. Additional Services During Bidding included design to accommodate additional package pump manufacturer (Gorman Rupp), additional 2-month bidding period coordination, and issuance of addenda related to bid period extensions and design changes.

Action Taken

Ford moved, Carter seconded, to authorize the General Manager to execute Architectural/Engineering Agreement Amendment No. 4 for additional Services During Bidding and Services During Construction with RH2 Engineering, Inc. for time and materials not to exceed \$93,157 as presented. Motion passed.

Sudden Valley Water Treatment Plant Architectural/Engineering Agreement Amendment for Alternatives Analysis

In December, 2019 the Board authorized the first phase of work on development of the Sudden Valley Water Treatment Plant (SVWTP) Facility Improvement plan by Gray & Osborne, Inc. The work was divided into three phases, with each phase building upon information developed from the previous step. With phase 1 completed, a scope for phase 2 of the project was developed using information and recommendations documented in the Conditions Assessment.

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 alternatives will be compared and ranked using a decision matrix based on various selection criteria chosen by the District. Finally, G&O will provide a recommendation on modifications to system. Cost estimates for these alternatives will be provided and figures will be produced for the alternatives where feasible. The results from each system analysis will be presented to the Board at regularly scheduled board meetings. All of the technical memoranda will be attached and summarized in an Alternatives Analysis Report.

Action Taken

Carter moved, Ford seconded, to direct \$60,000 of the unallocated water capital funds carried over from 2019 towards the Phase 2 Alternatives Analysis (Capital Improvement Plan), for a total project budget of \$160,000. Motion passed.

Carter moved, Ford seconded, to authorize the General Manager to execute Amendment 1 to the Architectural/Engineering Professional Services Agreement with Gray & Osborne, Inc. for the Phase 2 Alternatives Analysis (Capital Improvement Plan) for time and materials not to exceed \$114,350 as presented. Motion passed.

General Manager's Report

Clary directed the board to the distributed meeting materials for his report.

With no further business, Citron adjourned the Regular Session 6:49 p.m.

Recording Secretary, Rachael Hope

Date Minutes Approved

Laura Abele

Todd Citron

Bruce R. Ford

Leslie McRoberts

John Carter



LAKE WHATCOM WATER AND SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA 98229

WORK SESSION OF THE BOARD OF COMMISSIONERS

Minutes

July 8, 2020

Board Secretary Todd Citron called the Work Session to order at 5:45 p.m.

Attendees: Commissioner Todd Citron
Commissioner John Carter
Commissioner Bruce Ford
Recording Secretary Rachael Hope
General Manager Justin Clary
District Engineer/Assistant GM Bill Hunter
Operations & Maintenance Manager Brent Winters
Consulting Engineer Melanie Mankamyer

Also in attendance was District Customer Graham Melvin (1313 Oriental Avenue).

All attendees participated remotely by phone or video conferencing.

Roll Call

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

On-site Sewage Disposal System-to-Sewer Conversion Program Policy Analysis

Historically, as OSDs within the defined proximity to District sewer mains are identified, the District requires abandonment and connection to District sewer. The owners of one such OSDs noticed for connection to District sewer in February 2019 presented a proposal in November 2019 for creation of a program to financially assist future OSDs-served properties in connecting to District sewer. While the Board elected not to create such a program, they wished to conduct a study session for holistic review of the District's OSDs conversion policy. The purpose of this discussion was to summarize the current policy and its history, to identify exceptions to or nuances of the current policy through evaluation of each known OSDs within relative proximity to District sewer, and to facilitate Board discussion regarding potential policy revisions.

With no further business, Citron adjourned the Work Session 6:30 p.m.

Recording Secretary, Rachael Hope

Date Minutes Approved

Laura Abele

Todd Citron

Bruce R. Ford

Leslie McRoberts

John Carter

ACCOUNTS**CHECK REGISTER****PAYABLE**

Time: 09:22:57 Date: 07/14/2020

Lake Whatcom W-S District

MCAG #: 2330

07/15/2020 To: 07/15/2020

Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
2187	07/15/2020	Claims	5	10565	CENTURYLINK	1,708.40	
2188	07/15/2020	Claims	5	10566	CITY OF BELLINGHAM- OFFICE	480.71	Office Utilities
2189	07/15/2020	Claims	5	10567	LAKEWAY COMCAST	244.96	
2190	07/15/2020	Claims	5	10568	NORTHWEST CRANE INSPECTION INC	600.00	
						1,517.04	401 Water Fund
						1,517.03	402 Sewer Fund
						3,034.07	Claims:
						3,034.07	3,034.07

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 authorized to certify this claim.

Sign  Date 7/14/2020

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

Commissioner

Commissioner

Commissioner

Commissioner

Commissioner

PAYROLL

CHECK REGISTER

Lake Whatcom W-S District

MCAG #: 2330

07/16/2020 To: 07/16/2020

Time: 09:07:16 Date: 07/14/2020

Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
2154	07/16/2020	Payroll	5	EFT		329.29	06/27/2020 - 07/10/2020 PR 15
2155	07/16/2020	Payroll	5	EFT		373.29	06/27/2020 - 07/10/2020 PR 15
2156	07/16/2020	Payroll	5	EFT		353.07	06/27/2020 - 07/10/2020 PR 15
2157	07/16/2020	Payroll	5	EFT		3,682.55	06/27/2020 - 07/10/2020 PR 15
2158	07/16/2020	Payroll	5	EFT		3,639.06	06/27/2020 - 07/10/2020 PR 15
2159	07/16/2020	Payroll	5	EFT		2,584.90	06/27/2020 - 07/10/2020 PR 15
2160	07/16/2020	Payroll	5	EFT		3,508.26	06/27/2020 - 07/10/2020 PR 15
2162	07/16/2020	Payroll	5	EFT		1,634.15	06/27/2020 - 07/10/2020 PR 15
2164	07/16/2020	Payroll	5	EFT		1,450.83	06/27/2020 - 07/10/2020 PR 15
2165	07/16/2020	Payroll	5	EFT		2,863.96	06/27/2020 - 07/10/2020 PR 15
2166	07/16/2020	Payroll	5	EFT		1,900.46	06/27/2020 - 07/10/2020 PR 15
2167	07/16/2020	Payroll	5	EFT		3,179.87	06/27/2020 - 07/10/2020 PR 15
2168	07/16/2020	Payroll	5	EFT		3,208.26	06/27/2020 - 07/10/2020 PR 15
2169	07/16/2020	Payroll	5	EFT		2,065.73	06/27/2020 - 07/10/2020 PR 15
2170	07/16/2020	Payroll	5	EFT		235.38	06/27/2020 - 07/10/2020 PR 15
2171	07/16/2020	Payroll	5	EFT		2,433.74	06/27/2020 - 07/10/2020 PR 15
2172	07/16/2020	Payroll	5	EFT		1,458.43	06/27/2020 - 07/10/2020 PR 15
2173	07/16/2020	Payroll	5	EFT		1,744.62	06/27/2020 - 07/10/2020 PR 15
2174	07/16/2020	Payroll	5	EFT		2,148.13	06/27/2020 - 07/10/2020 PR 15
2175	07/16/2020	Payroll	5	EFT		2,764.83	06/27/2020 - 07/10/2020 PR 15
2176	07/16/2020	Payroll	5	EFT		2,482.34	06/27/2020 - 07/10/2020 PR 15
2161	07/16/2020	Payroll	5	10555		353.07	06/27/2020 - 07/10/2020 PR 15
2163	07/16/2020	Payroll	5	10556		1,383.09	06/27/2020 - 07/10/2020 PR 15

401 Water Fund

14,157.27

402 Sewer Fund

31,620.04

45,777.31 Payroll: 45,777.31

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 authorized to certify this claim.

Sign



Date

7/14/2020

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

Commissioner

Commissioner

Commissioner

Commissioner

Commissioner

BENEFITS**CHECK REGISTER**

Lake Whatcom W-S District

MCAG #: 2330

07/16/2020 To: 07/16/2020

Time: 09:19:44 Date: 07/14/2020

Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
2177	07/16/2020	Payroll	5	EFT	UNITED STATES TREASURY	17,130.87	941 Deposit for Pay Cycle(s) 07/16/2020 - 07/16/2020
2178	07/16/2020	Payroll	5	EFT	WA ST SUPPORT ENFORCEMENT REGISTRY	208.34	Pay Cycle(s) 07/16/2020 To 07/16/2020 - SUP ENF
2179	07/16/2020	Payroll	5	10557	AFLAC	354.85	Pay Cycle(s) 07/16/2020 To 07/16/2020 - AFLAC Pre-Tax; Pay Cycle(s) 07/16/2020 To 07/16/2020 - AFLAC Post-Tax
2180	07/16/2020	Payroll	5	10558	AFSCME LOCAL	363.24	Pay Cycle(s) 07/16/2020 To 07/16/2020 - Union Dues; Pay Cycle(s) 07/16/2020 To 07/16/2020 - Union Fund
2181	07/16/2020	Payroll	5	10559	DEPARTMENT OF RETIREMENT SYSTEMS	4,070.03	Pay Cycle(s) 07/16/2020 To 07/16/2020 - DCP
2182	07/16/2020	Payroll	5	10560	HRA VEBA TRUST (PAYEE)	515.00	Pay Cycle(s) 07/16/2020 To 07/16/2020 - VEBA
2183	07/16/2020	Payroll	5	10561	VANTAGEPOINT TRANSFER AGENTS - 306798	100.00	Pay Cycle(s) 07/16/2020 To 07/16/2020 - ICMA
2184	07/16/2020	Payroll	5	10562	WA ST PUBLIC EMP RET PLAN 2	10,683.72	Pay Cycle(s) 07/16/2020 To 07/16/2020 - PERS 2
2185	07/16/2020	Payroll	5	10563	WA ST PUBLIC EMP RET PLAN 3	3,302.90	Pay Cycle(s) 07/16/2020 To 07/16/2020 - PERS 3
2186	07/16/2020	Payroll	5	10564	WASHINGTON STATE HEALTH CARE AUTHORITY	14,533.67	Pay Cycle(s) 07/16/2020 To 07/16/2020 - PEBB Medical; Pay Cycle(s) 07/16/2020 To 07/16/2020 - PEBB ADD LTD; Pay Cycle(s) 07/16/2020 To 07/16/2020 - PEBB SMK Surcharge; Pay Cycle(s) 07/16/2020 To 07/16/2020
401 Water Fund						37,975.66	
402 Sewer Fund						13,286.96	
						51,262.62	Payroll:
							51,262.62

CHECK REGISTER

Lake Whatcom W-S District

Time: 09:19:44 Date: 07/14/2020

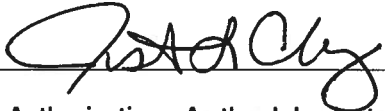
MCAG #: 2330

07/16/2020 To: 07/16/2020

Page: 2

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
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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 authorized to certify this claim.

Sign  Date 7/14/2020

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

Commissioner

Commissioner

Commissioner


Commissioner

Commissioner



**AGENDA
BILL
Item 7.A**

**Hydraulic Analysis
of the
Lake Whatcom Boulevard
Interceptor**

DATE SUBMITTED:	July 22, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Bill Hunter, District Engineer / Assistant General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Draft Technical Memorandum by Wilson Engineering		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

The purpose of this study is to analyze the performance of the Lake Whatcom Boulevard Interceptor (LWBI) gravity sewer pipe along Lake Whatcom Boulevard and to prioritize improvements that minimize the risk of overflow as the system adds more customers over time until full-build out is reached. The gravity pipe begins at the sewer force main discharge point at Strawberry Point and ends at the Cable Street Sewer Pump Station.

The study addresses two recently identified tasks regarding this section of pipe:

1. The 2020 Comprehensive Sewer Plan includes Exhibit D – Supplemental Hydraulic Sewer Model Analysis which notes *“Lower sewer flows are supported by successful implementation of infiltration and inflow (I&I) reduction and water conservation programs. The capacity of LWBI should be monitored as development occurs. Also, it is recommended that the average daily sewer flows and build out capacity used in the model be re-evaluated and that the modeling analysis be updated during the next Comprehensive Sewer Plan update, or prior to any significant development that may occur.”*
2. The incident report transmitted to the Department of Ecology following the February 1, 2020 sewer overflow notes *“the District is studying the event and will be refining the manual flow management protocols to better anticipate and accommodate spike flows from similar compounding events.....The District will also be looking at Lake Whatcom Boulevard Interceptor cleaning and re-lining that might regain lost capacity due to buildup on pipe walls and sediment.”* The overflow occurred after a significant rainfall event January 31, 2020 following a week of rain. The rainfall event caused major flooding throughout Whatcom County.

This effort identifies capital improvement needs and priorities for the next 20+ years until the District's south shore sewer system reaches full build-out capacity. The information developed in this study provides the basis for preparing project cost estimates, scheduling capital projects over the next 20 years, and securing funding through utility sewer rates as the District prepares for the capital plan update and rate study in 2020-2021.

Wilson Engineering will present to the Board a summary of information collected and analyzed, and the results and recommendations. Attached is a draft technical memorandum that will be finalized following the presentation with the intent of addressing any comments or questions raised by the Board or public.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

No board action is recommended at this time.

PROPOSED MOTION

Not applicable.

TO: LWWSD

FROM: Brian Smith, PE and Melanie Mankamy, PE *Brian M. Smith*

SUBJECT: Hydraulic Analysis of the Lake Whatcom Boulevard Interceptor

DATE: July 23, 2020

Introduction

The purpose of this technical memorandum is to summarize results of the hydraulic analysis performed to investigate the current sewer capacity of the Lake Whatcom Boulevard Interceptor (LWBI) following an observed sewer overflow at manhole GT-29 on 2/1/2020 at 10:15 am on the LWBI. While the overflow event and analysis of available data and information for this event prompted this hydraulic analysis, the analysis also serves to calibrate the sewer hydraulic model to model current conditions and to also investigate future sewer capacity needs for LWBI at full system build-out. Recommendations are provided for improvements to achieve the goal of having sufficient capacity of the LWBI to prevent current and future sewer overflows, as well as future surcharging of the LWBI.

Executive Summary and Recommendations

Wet weather events from the past 8 years were analyzed using detail data from the District's supervisory, control, and data acquisition (SCADA) system. In that period, four events resulted in peaking factors in excess of 4.0. The highest of these events resulted in a peaking factors of 6.37 on January 5, 2015 and a similar number of 6.63 on February 1, 2020. The February 1, 2020 peak flow event occurred at 5:30am on a Saturday and is anticipated to have consisted almost entirely of Inflow and Infiltration (I&I), so to account for the possibility that an event like this could occur during normal to high usage, a more conservative peaking factor of 7.5 is used for analysis.

Modeling results confirm that the existing LWBI gravity pipe segments, when operated in conjunction with the 700,000 gallon detention basin, have sufficient capacity to serve the existing number of sewer connections. To provide this capacity, peak flows must temporarily be partially diverted to the detention basin and then slowly pumped out after the storm flows

diminish. As growth continues without improvements to the LWBI, the District's reliance on the detention basin increases. Current development is at 82% of full build-out.

For a conservative design, future improvements were developed and prioritized such that the LWBI capacity will be able to serve current and future sewer capacity needs without the use of the detention basin. The ultimate design objective is for the entire gravity portion of the LWBI to flow with a free surface with no manhole surcharging under peak hourly flows. In preparation for this effort, LWWSD analyzed existing equivalent residential units (ERUs) and future build-out ERUs for each sewer basin utilizing the County's most recent GIS parcel databases. Model input flows from ERUs along the LWBI were allocated to each manhole using GIS parcel and sewer basin geometry.

Through the modeling process, three groups of improvements became apparent. Each priority group builds upon the improvements of the last, until all of the flow restrictions have been removed. All pipe upsizing shown is upsized sufficiently for future build-out needs.

Priority 1 improvements result in preventing sewer overflows given the current sewer loading without use of the detention basin. The system will still have surcharging manholes during peak events after priority 1 improvements are implemented. Priority 2 improvements result in preventing sewer overflows with build-out sewer loading without use of the detention basin, but manholes will still surcharge during peak events. Priority 3 improvements result in all gravity pipes having sufficient capacity to convey full build-out sewer loading without surcharging without use of the detention basin.

The recommended improvements are prioritized and summarized in the Table 1. See Figure 3 for a map of the recommended improvements.

Table 1 – Recommended Improvements

<p>Priority 1</p> <p>Upsize Ten Pipe Segments -</p> <p>This will eliminate the dependence on the detention basin to prevent sewer overflows for CURRENT ERUs.</p>	<p>29-28 from 10" to 12" (480 LF)</p> <p>28-27A from 10" to 12" (213 LF)</p> <p>27-26 from 10" to 12" (313 LF)</p> <p>26-25 from 10" to 12" (385 LF)</p> <p>25-24 from 14" to 16" (402 LF)</p> <p>24-23 from 14" to 18" (438 LF)</p> <p>23-22 from 14" to 16" (269 LF)</p> <p>22-21 from 14" to 16" (404 LF)</p> <p>19-18 from 14" to 18" (384 LF)</p> <p>17-16 from 14" to 20" (292 LF)</p>
<p>Priority 2</p> <p>Upsize Six Pipe Segments –</p> <p>This will eliminate the dependence on the detention basin to prevent sewer overflows for BUILD-OUT ERUs.</p>	<p>30-29 from 10" to 12" (373 LF)</p> <p>27A-27 from 10" to 12" (170 LF)</p> <p>21-20 from 14" to 16" (472 LF)</p> <p>20-19 from 14" to 16" (373 LF)</p> <p>16-15 from 14" to 18" (321 LF)</p> <p>12-11 from 14" to 24" (374 LF)</p>
<p>Priority 3</p> <p>Upsize Three Pipe Segments –</p> <p>This will eliminate manhole surcharging for BUILD-OUT ERUs</p>	<p>15-14 from 14" to 18" (268 LF)</p> <p>14-13 from 14" to 16" (306 LF)</p> <p>13-12 from 14" to 18" (410 LF)</p>

Current Sewer System Operation

Sewer Infrastructure and Connectivity

The District currently has two sewer interceptors to convey wastewater from the Sudden Valley area to the Geneva area: the LWBI and the Lake Louise Road Interceptor (LLRI). The following sewer basins flow into the LWBI: Par, Tomb, Marina, North Point, Lakewood, Airport, Plum, Whatcom Views, Lake Whatcom Basin, Rocky Ridge, Boulevard and Strawberry Point. Flow to the LWBI can, during times of high sewer flow, be re-directed into the 700,000 gallon detention basin adjacent to the Sudden Valley Pump Station. This re-direction of flow can be: (A) partial re-direction (throttled open valve at basin to let some flow backward passively by pressure), or (B) can be increased by throttling an in-line valve on the LWBI force main at the Sudden Valley Flow Meter (SVFM), or (C) or completely re-directed by closing the in-line valve on the LWBI force main at the SVFM. Sewer basins upstream of the SVFM that can be partially or fully re-directed to the detention basin include Par, Tomb, Marina, North Point, Airport and Lakewood. The detention basin is typically pumped out to the LLRI as soon as it can be without overwhelming the capacity of that sewer interceptor. It is possible to pump out the detention basin to LWBI, but this is not standard practice according to the operators.

The portion of the LWBI where sewer overflows are a potential concern are along the gravity portion of this interceptor. This portion of the interceptor begins at manhole GT-32 and continues to the Cable St. pump station. This portion of the LWBI is shown in Figure 1 (2 pages, map view and profile view).

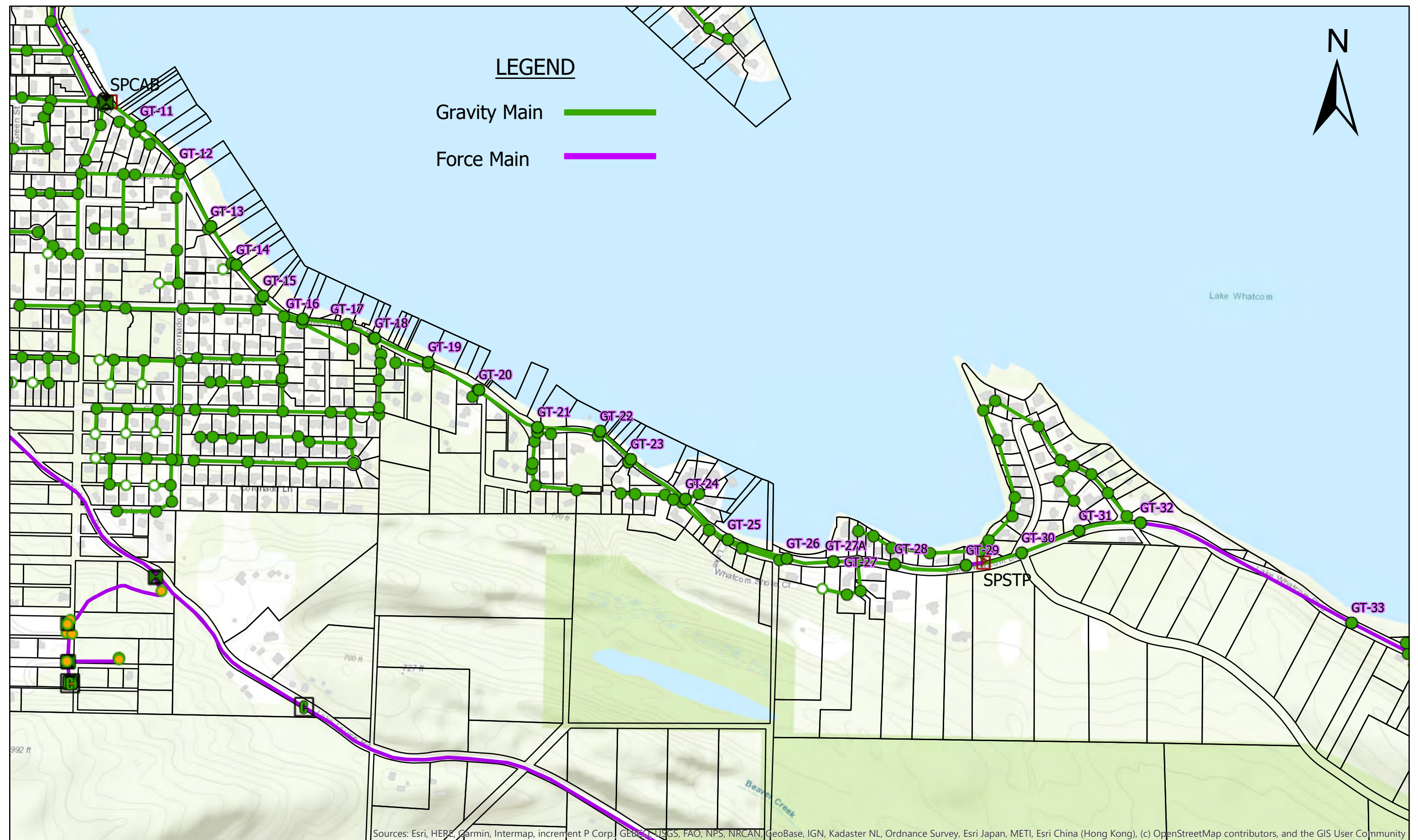
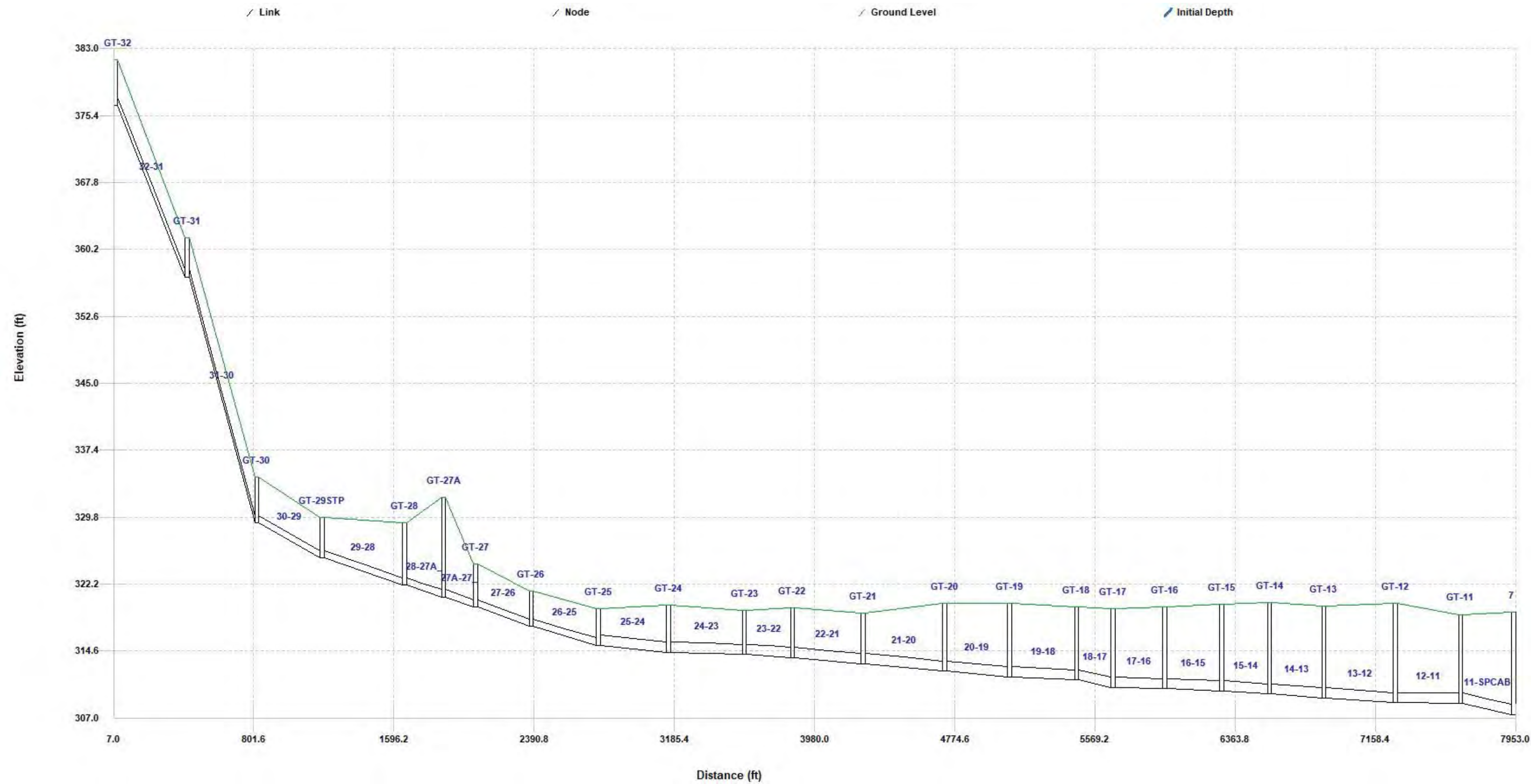


Figure 1 (page 2/2): Profile of the existing gravity portion of the LWBI



Peak Flow

The peak sewer system flow rate experienced during the storm on 2/1/2020 was investigated in detail, as well as storm flows during other peak events within the last couple of years. This section will summarize these investigations.

The Criteria for Sewage Works Design (Department of Ecology Pub #98-37) discusses peak flow in Sections C1-3.3.2 and C1-3.3.3. It explains that peak flow should be determined from actual flow data to the greatest extent possible. LWWSD collects substantial operational data, so this data was analyzed in detail for use in the hydraulic modeling.

To quantify peak flow in standard terms, we used a peaking factor that relates the peak hourly flow to the annual average flow. The 2020 LWWSD Sewer Comprehensive Plan reported an annual average sewer flow of 179 gpd/ERU (gallons per day per Equivalent Residential Unit). This includes Inflow and Infiltration (I&I). Peaking factors were calculated by dividing peak hourly flow by this annual average flow (taking in to consideration the appropriate number of ERUs).

The first analysis was of the 2/1/2020 event. The observed overflow occurred at 10:15 am that day. Rain gauge data was limited for this event, but one weather station in Sudden Valley recorded approximately 3.5 inches of rain throughout this two-day rain event, indicating the severity of the rainfall. In looking at the sewer flow data and discussing the event with the operators, the detention basin was in use during that event. We understand that it was being re-directed via method (A) previously described with the valve throttled open at the detention basin to passively allow some flow backward from the force main to the detention basin hydraulically. Because some flow was being re-directed to the detention basin, the peak flow that caused the observed overflow at manhole GT-29 would have been higher if the detention basin had not been in use. This analysis addresses both the flow to GT-29 and the flow to the detention basin.

There are a number of sources of data that feed into the flow analysis. Data includes minute-by-minute flowmeter data from flowmeters on all the pump stations that flow into manhole GT-29 and an estimation of flows from the un-metered gravity basin Whatcom Views. Flow from this basin is estimated using the actual number of ERUs in this basin and the District's annual average sewer flow per ERU adjusted with peaking behavior that was observed at the SVFM.

There is an ultrasonic level transducer in manhole GT-29, that is used to warn the operation's staff of increasing flows in LWBI, but unfortunately the level transducer in the manhole was not functional during the 2/1/2020 event (the unit had become askew and was pointing toward the manhole wall instead of downward toward the water level).

Analysis indicates that the hourly average flow to manhole GT-29 during the observed overflow was approximately 400 gpm. But analysis at a finer timescale indicates that the peak 10 minute flow rate that likely caused the overflow was approximately 500 gpm. This information is very useful in understanding the current capacity limitation of the LWBI, and also for calibrating the sewer hydraulic model, as discussed in further detail in the next section of this memo.

As mentioned previously, some flow was being diverted to the detention basin during this event. There is no flowmeter for the pipes entering and leaving the detention basin. However, the detention basin does have a level indicator, and LWWSD has analyzed the internal geometry of the basin such that the volume at each level is known. This level information, and knowing from discussions with operations' staff that the detention basin was not being pumped out during the event, we are able to calculate the flow rate going to the detention basin by analyzing the rate of rise in the level. During the overflow event, the flow rate being diverted to the detention basin was approximately 290 gpm. This shows that the peak hourly flow going to the LWBI would have been much higher had the detention basin not been in use.

To calculate a Peaking Factor (peak hourly flow divided by annual average flow), we determined that the most appropriate method of characterizing the system is to calculate the total peak hourly flow, including both flow to the LWBI and flow to the detention basin. This shows the extent of the peaks of the events and facilitates discussion regarding how much the detention basin can / should be used to mitigate these peaks. Using this methodology, the highest total peak hourly flow was 752 gpm, which calculates to be a peaking factor of 6.63. This peak hourly flow actually occurred at 5:30am on 2/1/2020 (before the observed overflow).

The DOE Criteria for Sewage Works Design, Figure C1-1, suggests that an appropriate peak hourly to design average ratio for a typical sewer collection facility should be approximately 3.5 based on the population served by this portion of the sewer system. With the estimated peaking factor based on observed data calculated at 6.63, nearly double the expected peaking factor, this is very indicative that Inflow and Infiltration (I&I) is affecting the system. Further, since the

peak flow occurred at 5:30 am on a Saturday when domestic sewer flows would be expected to be low, we estimate that the majority of the flow at this time was I&I.

Because the peaking factor was so high for 2/1/2020 event, our next step was to analyze other events to see if this event was an anomaly or a typical event. We then analyzed events within the past 8 years using the same methodology as the 2/1/2020 event. In this period, we found four (4) events that resulted in peaking factors in excess of 4.0. The highest of these events, on 1/5/2015, resulted in a peaking factor of 6.37. So while the 2/1/2020 event was the highest known event in recent history, it was determined that it is not entirely an outlier.

In collaboration with District staff, we realized that because the peak event occurred at 5:30 am on a Saturday and the majority of that flow was likely I&I as opposed to actual usage from sewer connections, the observed peaking factor of 6.63 may not be sufficiently conservative. A similar event could occur in the future during mid to high usage from sewer connections. In order to account for this, District staff analyzed flow data during dry weather periods and determined that a peaking factor of **7.5** appropriately accounts for the anticipated flow if the peak flow of the storm event on 2/1/2020 at 5:30 am had occurred during the typical high flow time of the day (which happens to be 10:00am on Saturdays). Email correspondence further detailing methodology for arriving at this 7.5 peaking factor is available upon request.

Hydraulic Model Calibration

The observed manhole overflow event on 2/1/2020 was used to calibrate the hydraulic sewer model.

As part of the calibration effort, the existing model pipe slopes and sizes were double-checked for the LWBI. The slopes were all confirmed to be correct. There was one pipe segment, ID 25-24, that was incorrectly identified as 10 inch diameter in the model. This was corrected to 14 inch diameter.

There were also two manholes that had not been represented in the existing model: GT-22 and GT-27A. For both of these manholes that were not included in the model, pipe had been shown as a continuous run between adjacent manholes. As part of the calibration effort, these two manholes were added in to the model. Horizontal and vertical location data from the 1992 survey information was used to represent manhole GT-22, and as-built data from the 1997

developer extension that added manhole GT-27A was used (with an adjustment for vertical datum) to add that manhole to the hydraulic model.

As previously described, the estimated flow rate at manhole GT-29 during the overflow event was approximately 500 gpm. The Manning's Roughness Coefficient, n-value, of the downstream pipe segment was adjusted until the model showed a sewer overflow at manhole GT-29. The resulting n-value is 0.023. This n-value corresponds with fairly rough pipe, which is in accordance with the observed pipe condition from December 2019 pipe inspection videos that shows build-up on the sides of this aging pipe. The build-up looks to consist of grease and struvite, a magnesium ammonium phosphate scale. There was also some observed gravel build-up in a couple locations. In comparison, the n-value of new pipe is typically 0.013.

Reviewing video of actual pipe condition, the worst pipe condition is observed in the section of pipe immediately downstream of manhole GT-29 (location of the observed overflow on 2/1/2020). Further downstream, and before the Cable St. pump station, the pipe condition appears to gradually improve. N-values for these pipe segments cannot be precisely calibrated because no level data for them is available, but n-values have been estimated and input in to the model. See Table 2 for these n-values (called "COEFF" in the table).

Table 2: Pipe modeling data – current conditions

ID (Char)	FROM_INV (Num)	TO_INV (Num)	LENGTH (Num)	DIAMETER (Num)	COEFF (Num)
32-31	376.590	357.100	412.100	10.000	0.015
31-30	357.100	329.170	398.770	10.000	0.015
30-29	329.170	325.180	372.870	10.000	0.015
29-28	325.180	322.110	479.630	10.000	0.023
28-27A	322.110	320.730	213.000	10.000	0.022
27A-27	320.730	319.590	170.000	10.000	0.022
27-26	319.590	317.390	313.420	10.000	0.021
26-25	317.390	315.280	385.400	10.000	0.020
25-24	315.280	314.490	401.940	14.000	0.019
24-23	314.490	314.210	437.990	14.000	0.018
23-22	314.210	313.840	269.000	14.000	0.017
22-21	313.840	313.190	404.000	14.000	0.017
21-20	313.190	312.300	472.110	14.000	0.016
20-19	312.300	311.690	372.650	14.000	0.015
19-18	311.690	311.320	384.240	14.000	0.015
18-17	311.320	310.440	195.760	14.000	0.015
17-16	310.440	310.330	292.200	14.000	0.015
16-15	310.330	310.060	321.460	14.000	0.015
15-14	310.060	309.720	267.680	14.000	0.015
14-13	309.720	309.290	305.940	14.000	0.015
13-12	309.290	308.740	409.600	14.000	0.015
12-11	308.740	308.670	374.280	14.000	0.015
11-SPCAB	308.670	307.380	299.120	14.000	0.015

Sewer loads were distributed appropriately along the LWBI based on the number of ERUs that feed in to each manhole and the peak hourly flow based on the peaking factor of 7.5. Loading of the gravity feed of LWB along the LWBI was distributed precisely based on the number of current ERUs as well as future build-out ERUs.

Estimated Current LWBI Sewer Capacity

For each scenario/model run of the hydraulic model, two tables of results are included. The first table is the pipe report that shows each pipe segment, the flow through that segment, whether the flow is pressurized (indicating that the upstream manhole is surcharged) or flowing with a free surface, and what that pipe's capacity is at the point it becomes full (the point at which flow

changes from free surface to pressurized). The second table is the manhole report that shows how much flow is being added at that manhole, whether the manhole is full (overflowing) or not full, and what the surcharge depth is (height above the crown of the discharge pipe). It should be noted that all model runs are steady-state at the peak hourly flow condition (as opposed to an extended period simulation with varying flow rates).

Scenario 1: The estimated existing conditions, incorporating both the model calibration results and the assessment of the pipe condition from video inspection (as shown in Table 2) were modeled with current sewer system loading based on the current number of ERUs and the peak hourly flow based on the peaking factor of 7.5. Model results are shown in Attachment 1.

Attachment 1 results show that the current system experiences overflows with the peak hourly flow when the detention basin is not used. This is consistent with the observed overflow event on 2/1/2020 (since an overflow was observed even when some flow was being re-directed to the detention basin). However, this scenario also shows that the issue does not appear to be limited to only an overflow at manhole GT-29. The scenario shows that **if the detention basin was not used, all manholes from manhole GT-29 to manhole GT-21 would be “full” (overflowing)**, except for manhole GT-27A which has a higher rim elevation than the nearby manholes. This is depicted in Figure 2. In an event like this in reality, the first one or two manholes might overflow, and that would decrease the flow in the downstream sewer system so that the number of overflowing manholes would be limited. But what this shows us is that there is limited capacity throughout this portion of the LWBI, and capacity for each piece of the system downstream of an overflowing manhole is limited.

Overall, the results confirm that many of the existing LWBI gravity pipe segments do not have sufficient capacity to convey peak hourly flow of the system using the peaking factor calculated from the 2/1/2020 event and as adjusted to account for peak usage. To prevent overflows during events like these, the detention basin must be used to flatten the peak flow through LWBI until improvements can be made to increase sewer system capacity.

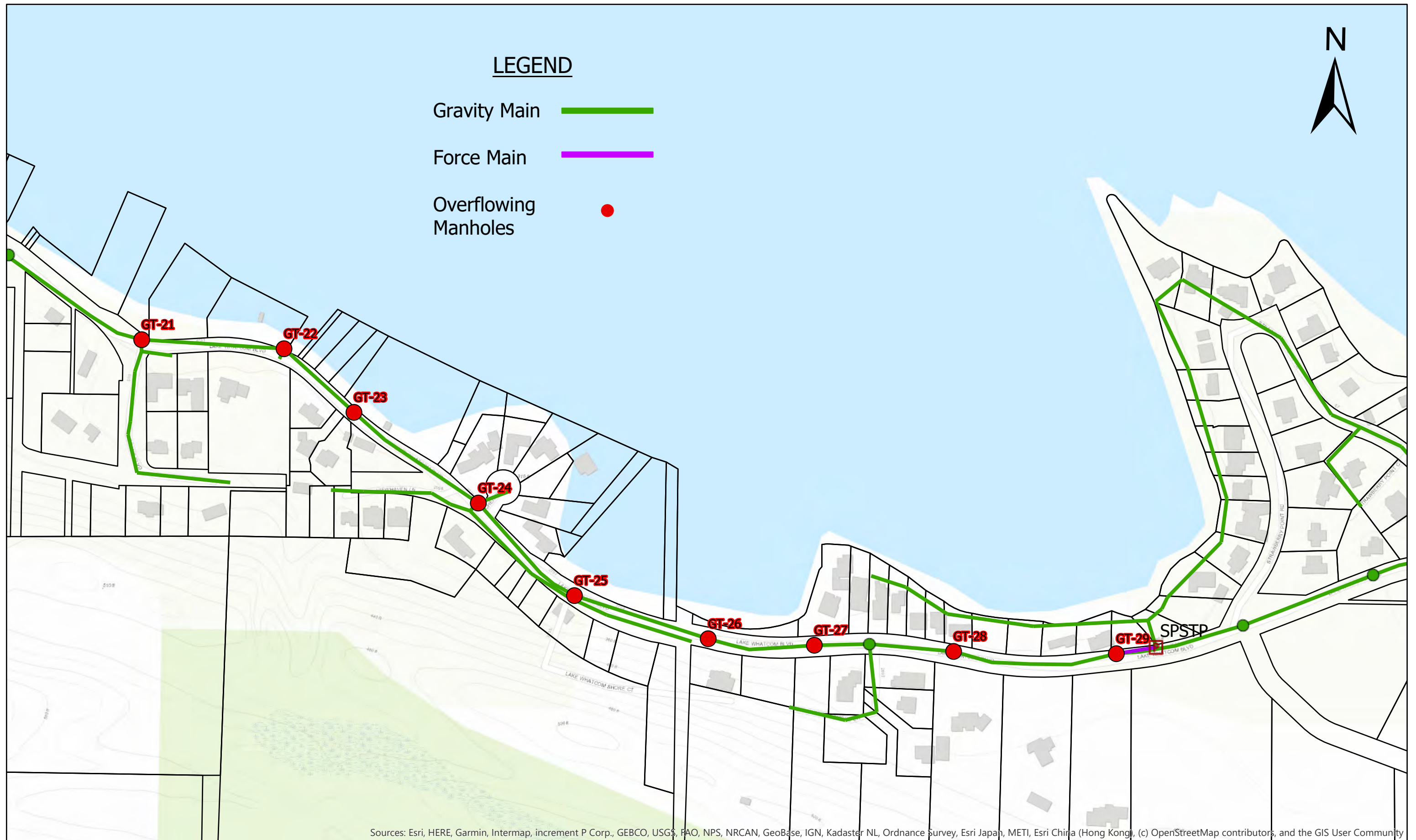


Figure 2 - Lake Whatcom Boulevard Interceptor (LWBI) - Overflowing Manholes
Hydraulic Analysis of the Lake Whatcom Boulevard Interceptor

Potential Near-term Capacity Improvements

Because the existing LWBI does not have sufficient capacity to convey peak hourly flow without use of the detention basin, any efforts to improve capacity that are low cost, low risk, and short timeline (with regards to permitting, design and construction) could decrease the risk of another sewer overflow in the near term. In June 2020, based on the preliminary findings of this report and the pipe video inspections, the District's maintenance staff performed gentle pipe cleaning operations on the gravity main portion of the LWBI. Staff noticed some additional flaking of already deteriorating pipe coatings but did observe improvements after following the cleaning with additional video inspection. It is unknown precisely how much improvement in the pipe n -value this cleaning resulted in, but this low-cost and low-risk improvement is expected to have somewhat improved the flow capacity of the pipe and decreased the risk of a sewer overflow.

Scenario 2: While it is not anticipated that the existing gravity pipes on LWBI could be rehabilitated to a "like new" condition because of anticipated struvite build-up on the sides that likely cannot be removed without damaging the pipe liner, we modeled a "like new" condition just to see if it would fix the capacity issue. Results using $n = 0.013$ for all pipes can be seen in Attachment 2. This scenario models current ERUs and corresponding sewer flows.

The model results shown in Attachment 2 indicate that with a complete rehabilitation of the pipe with existing modeled sewer loading ($PF = 7.5$) and current ERUs, and no use of the detention basin, would result in two manholes overflowing, manholes GT-29 and GT-26. Many of the manholes would be surcharged, and 7 manholes would be within 2 feet of being full. Any substantial effort for pipe rehabilitation should aim to provide sufficient capacity for future anticipated sewer flows (discussed in the subsequent report section) and not just current flows.

Scenario 3: We wanted to determine if a lower peaking factor would result in overflow with current ERUs. As previously discussed, the current operation of the system for storm events similar to that on 2/1/2020 relies on the detention basin to decrease the peaking factor for flow sent to LWBI. A model run was performed with a peaking factor of 4.0 (less than what was observed during the 2/1/2020 event) and the current pipe conditions shown in Table 2. Results shown in Attachment 3 indicate that the system can convey this peak hour flow with no full manholes. Many of the pipes flow with a free surface. Some of the manholes surcharge slightly, but none are within 3 ft of overflowing. These results indicate that if the detention basin

can be effectively used to maintain the peaking factor around 4, we would not expect any sewer overflows based on current ERUs.

Future Sewer Capacity Needs

Any major investments in the LWBI should be done with future sewer capacity needs in mind, and a goal of being able to serve all future sewer capacity needs without the use of the detention basin. Ideally, the entire gravity portion of the LWBI would flow with a free surface without manhole surcharging under peak hourly flow, but perhaps tolerating some minor manhole surcharging would be acceptable during a peak hourly flow event as long as the amount of surcharging was less than a predetermined limit (for example, within 2 feet) to filling and overflowing the manhole. This is a cost vs risk tolerance decision that the District must determine.

Another consideration regarding future sewer capacity needs is the peaking factor. As mentioned previously, the peak event that resulted in the 6.63 peaking factor consisted of what we assume was mostly inflow and infiltration (I&I) due to the time of the day of the peak (5:30 am on a Saturday). As I&I is reduced throughout the sewer collection system by ongoing efforts to target and repair known locations of inflow and infiltration, the peaking factor should decrease over time. However, global climate change may result in changes in rain events and could result in increased storm intensity or duration, which has the potential to increase I&I and therefore increase the peaking factor.

Future sewer capacity needs are driven by the anticipated worst-case peaking factor (7.5) and the number of ERUs. The current ERUs and future ERUs at build-out for each basin was analyzed by LWWSD in conjunction with a previously prepared memorandum by Wilson Engineering dated 3/26/20, "Summary of Vacant Parcel Serviceable by Sanitary Sewer". The distribution of existing and future ERUs along the LWB sewer basin was quantified by LWWSD by creating sub-basins within the larger LWB gravity sewer basin. This information was entered into the hydraulic model.

The other major factor in sewer capacity considerations is the use of the detention basin. As previously described, the detention basin can be used to mitigate peak flows (flatten the curve) and therefore avoid exceeding the instantaneous capacity of LWBI. The limitation with the detention basin is that, although it is very large at approximately 700,000 gallons, there is a limit

to its capacity. If peak events are long in duration, and if flows are aggressively diverted to it, without the ability for an ongoing, monitored discharge of flow and capacity of the downstream system to receive it, the basin could become full before the storm event is over. For perspective, we can calculate that it would take a constant diversion of 500 gpm to the detention basin, for almost 24 hours, to fully fill the detention basin. In the case of the event on 2/1/2020, the 24 hour average flow to manhole GT-29 on the LWBI was 480 gpm. So all of the flow could have been diverted to the detention basin for 24 hours without exceeding its capacity. This comparison is made only for perspective, as it would be more prudent to only divert a portion of the flow, and not a complete diversion, in the case of a prolonged event.

Model Results

Future, full build-out sewer loadings are shown in Scenario 4, Attachment 4. This shows peak hour flows, and uses n-values as shown in Table 2 that is our best estimate of the current pipe conditions. Flows are higher than current loadings, and therefore more of the manholes are overflowing than in the Scenario 1 conditions (13 overflowing manholes instead of 9).

Potential Improvements

Major investments in LWBI pipe capacity improvement could include Cured In Place Pipe (CIPP) or pipe upsizing via pipe bursting or open-cut trenching. Reduction in I&I can also result from targeting CIPP projects within problematic basins. The optimal solution could include a mix of all of these techniques.

CIPP

CIPP involves installation of a new pipe within the existing pipe that is cured in place. This will result in a smoother pipe while slightly decreasing the internal diameter. Although literature indicates CIPP can result in an n-value of 0.009, the DOE Criteria for Sewage Works Design (Orange Book) guidance dictates that for all sewer pipe design, regardless of pipe type, the n-value used in the hydraulic analyses should not be lower than $n = 0.013$. More detailed design could further refine the amount of internal diameter decrease, but we assumed a decrease of 0.5 inches for the current analysis. Because we are aiming to get a general sense of how much improvement is possible with this technique, we applied it to all the gravity pipe. Results could be further refined to only apply these conditions to certain targeted pipe as a next step.

Results from modeling efforts to represent CIPP indicate that CIPP for any of the individual pipe segments would not solve the capacity problems. The improvement in n-value does not sufficiently improve capacity. The capacity needs to be increased too much for this to be a sufficient solution. Results from this effort can be provided upon request.

Pipe Upsizing

The ultimate goal of making improvements to the LWBI is to allow the gravity mains to flow with a free surface (no surcharging) under peak hourly flow with full build-out ERU sewer loading, with no reliance on the detention basin so that the detention basin is simply an extra risk mitigation tool. Intermediate goals are to prevent sewer overflows under current ERU sewer loading without use of the detention basin, and to prevent sewer overflows under full build-out ERU sewer loading. Because any intermediate pipe upsizing should be upsized sufficiently for that pipe segment to be able to achieve the ultimate goal, this shaped the modeling methodology.

Scenario 5: This scenario investigates how much pipe upsizing is required to achieve the ultimate goal of no manhole surcharging for full future build-out sewer loading with the appropriate peaking factor of 7.5. Pipe upsizing was refined through trial and error modeling to find the minimum pipe upsizing for each pipe segment required to have flow capacity for this goal. Pipes were upsized until the “Full flow” capacity in the pipe report exceeded the “total flow” in the model at that location. Resulting pipe upsizing requirements are shown in Table 3, and associated modeling results are shown in Attachment 5. As results indicate, the majority of pipe segments need to be upsized to achieve this goal. Only four pipe segments remain unchanged. Upon inspection of the profile in Figure 1, the four pipes that do not require upsizing are generally those that have more slope to the pipe.

Each upsized pipe segment’s n-value was adjusted to be 0.013, representative of new pipe. Unchanged pipe segments remained with their current estimated n-values as shown in Table 2. This methodology applies to subsequent analysis of pipe upsizing options as well.

Results do show that there is some minor surcharging of manholes from GT-23 to GT-11 even though all pipes have sufficient capacity for the flow to be by free surface. The reason for the surcharging shown is the boundary condition at the Cable St. pump station wet well. The capacity of the Cable St. pump station is addressed in the subsequent section of this report.

Table 3: Pipe Upsizing Required to provide capacity to flow with free surface under build-out sewer loading without use of detention basin

Pipe ID	Current Diameter (inch)	Upsized Diameter (inch)
30-29	10	12
29-28	10	12
28-27A	10	12
27A-27	10	12
27-26	10	12
26-25	10	12
25-24	14	16
24-23	14	18
23-22	14	16
22-21	14	16
21-20	14	16
20-19	14	16
19-18	14	18
17-16	14	20
16-15	14	18
15-14	14	18
14-13	14	16
13-12	14	18
12-11	14	24

Scenario 6: Working backward from Scenario 5, Scenario 6 has the intermediate goal of achieving a sufficient number of pipe segment upsizings to prevent sewer overflows under full build-out sewer loading. Because the goal is less stringent than in Scenario 5, fewer pipe segments will need to be upsized. All pipes that are to be upsized in Scenario 6 will be upsized as shown in Scenario 5 so that they are sufficiently upsized to meet the ultimate goal once all pipe segments are upsized.

Table 4: Pipe Upsizing Required to provide intermediate goal of preventing sewer overflows under build-out sewer loading without use of detention basin

Pipe ID	Current Diameter (inch)	Upsized Diameter (inch)
30-29	10	12
29-28	10	12
28-27A	10	12
27A-27	10	12
27-26	10	12
26-25	10	12
25-24	14	16
24-23	14	18
23-22	14	16
22-21	14	16
21-20	14	16
20-19	14	16
19-18	14	18
17-16	14	20
16-15	14	18
12-11	14	24

Scenario 6 results indicate that the goal of Scenario 6 to prevent sewer overflows under full build-out conditions can be achieved with three fewer pipe segments being upsized as compared to Scenario 5.

Scenario 7: Working backward again from Scenario 6, Scenario 5 has the more modest intermediate goal of achieving a sufficient number of pipe segment upsizings to prevent sewer overflows under current ERU sewer loading. Because the goal is less stringent than in Scenario 6, fewer pipe segments will need to be upsized. All pipes that are to be upsized in Scenario 7 will be upsized as shown in Scenario 5 so that they are sufficiently upsized to meet the ultimate goal once all pipe segments are upsized.

Table 5: Pipe Upsizing Required to provide intermediate goal of preventing sewer overflows under current ERU sewer loading without use of detention basin

Pipe ID	Current Diameter (inch)	Upsized Diameter (inch)
29-28	10	12
28-27A	10	12
27-26	10	12
26-25	10	12
25-24	14	16
24-23	14	18
23-22	14	16
22-21	14	16
19-18	14	18
17-16	14	20

Scenario 7 results indicate that the goal of Scenario 7 to prevent sewer overflows under current ERU sewer loading conditions can be achieved with six fewer pipe segments being upsized as compared to Scenario 6.

The pipe upsizing shown in Table 5 makes up the first ten priority pipe upsizing projects that should be undertaken. Performing these upsizing projects will result in a LWBI sewer capacity such that it can convey current peak hourly flow without sewer overflows without needing the detention basin to flatten the peak flows.

The second priority is to implement the additional pipe upsizing segments in Table 4 (six additional pipe segments beyond those shown in Table 5), which will result in the LWBI being able to convey full build-out peak hourly flow without sewer overflows without needing the detention basin to flatten the peak flows.

The third priority is to implement the final three pipe upsizing segments shown in Table 3. This will result in all LWBI gravity pipe having capacity to convey full build-out peak hourly flow.

This grouping of priority pipe segment replacements is summarized in the executive summary in Table 1 and is depicted in Figure 3.

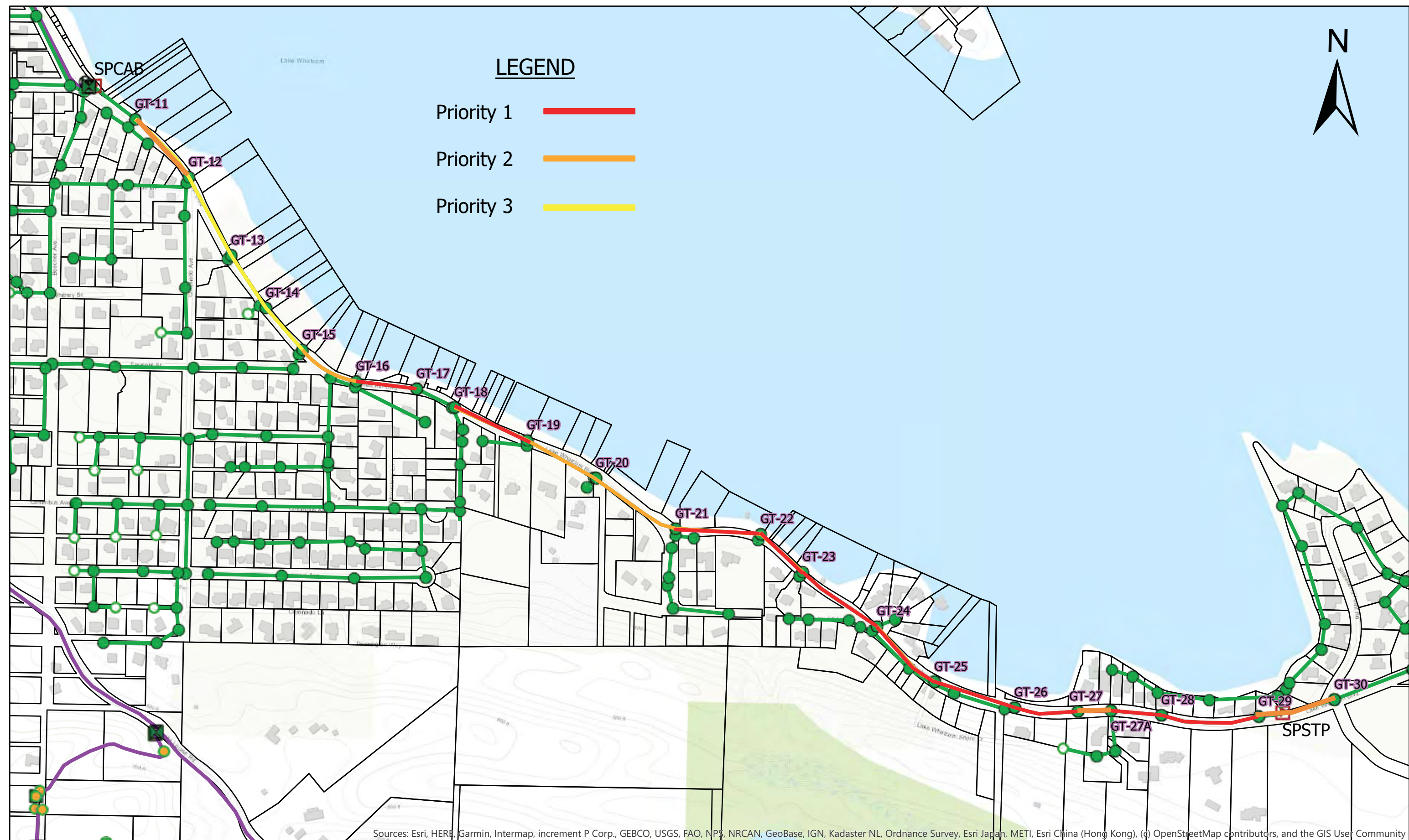


Figure 3 - Priority Pipe Replacement
Hydraulic Analysis of the Lake Whatcom Boulevard Interceptor

Other Considerations

The pipe upsizing results only quantify how much pipe upsizing is required. It does not address construction techniques for performing this pipe upsizing work. Upsizing more than one pipe size may not be feasible with the pipe bursting method. Also, upsizing one or more pipe sizes with the pipe bursting method may have challenges related to achieving the required invert elevations, especially within the very low-slope pipe sections.

In considering any pipe upsizing projects that would have roadway surface impacts (even pipe bursting would require entrance and exit pits), LWWSD should coordinate with Whatcom County to see if the County is planning any repaving projects along Lake Whatcom Boulevard and plan the sewer projects to occur prior to the repaving projects.

Along with increasing capacity in LWBI, the capacity of the Cable St pump station should be analyzed in-depth to determine its capacity limitations. Preliminary investigations have found that the design report for the 2009 Cable St pump station improvements show a pump station capacity of 900 gpm with one pump running and 1,150 gpm with two pumps running. However, operational data indicates that this pump station's flow rate with one pump running is approximately 750 – it is thought that this is due to a restriction in the Cable St. force main. So Cable St. pump station capacity may be less than anticipated. The current report looked at a location-specific peaking factor for the gravity main portion of the LWBI and shows that current sewer loading leads to a peak hour flow from LWBI of 1,093 gpm and a full build-out peak hour flow of 1,339 gpm. This is solely from the LWBI and does not include the additional flow from the Cable St. and Geneva sewer basins that also flow to the Cable St. pump station. Based on this data, it appears that improvements to the Cable St. pump station / force main may be high priority as well. This should be investigated further. Cable St. pump station / force main improvements may end up being higher priority than the “Priority 2” and “Priority 3” pipe upsizing shown in Table 1.

Video inspection of the gravity pipes did show some problem areas. There are some sections of pipe with low points between manholes where flow is backing up and solids can settle out. Pipe bursting may not entirely fix these areas. One verified problem area is between GT-30 and GT-29, from approximately 243 ft to 270 ft downstream of GT-30. There appear to be others. This is another next step in investigation and prioritization of improvements.

In addition to increasing the capacity of the LWBI, the District should continue (and potentially increase) its ongoing efforts to reduce I&I. Given that finding the proverbial I&I “mother-load” has been elusive, the District could develop an ongoing program to start targeting areas for CIPP pipe rehabilitation.

Pipe materials selected for the replacement should consider the history of the current pipe deterioration and utilize the District’s ongoing database of video and performance records to select the optimum pipe type for the conditions and maximum useful life.

Following an upsizing project, the District should develop a stringent flushing program to deter pipe build-ups.

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	805.484	Free Surface	7.321	0.460	0.433	0.384	0.601	2.375	1,858.342	Yes	0.490	5.384
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	805.484	Free Surface	8.459	0.412	0.356	0.344	0.601	2.931	2,261.493	Yes	0.610	4.192
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	10.000	372.870	0.011	805.484	Free Surface	4.093	0.750	0.911	0.625	0.601	0.926	883.952	Yes	0.833	3.290
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	10.000	479.630	0.006	851.176	Pressurized	3.477	1.000	1.909	0.833	0.443	0.671	445.862	Yes	0.833	3.477
5	<input type="checkbox"/>	28-27A_	GT-28	GT-27A	10.000	213.000	0.006	851.176	Pressurized	3.477	1.000	1.815	0.833	0.455	0.671	468.964	Yes	0.833	3.477
6	<input type="checkbox"/>	27A-27_	GT-27A	GT-27	10.000	170.000	0.007	851.176	Pressurized	3.477	1.000	1.784	0.833	0.459	0.671	477.109	Yes	0.833	3.477
7	<input type="checkbox"/>	27-26	GT-27	GT-26	10.000	313.420	0.007	859.599	Pressurized	3.511	1.000	1.681	0.833	0.476	0.678	511.377	Yes	0.833	3.511
8	<input type="checkbox"/>	26-25	GT-26	GT-25	10.000	385.400	0.005	859.599	Pressurized	3.511	1.000	1.813	0.833	0.457	0.678	474.207	Yes	0.833	3.511
9	<input type="checkbox"/>	25-24	GT-25	GT-24	14.000	401.940	0.002	859.599	Pressurized	1.792	1.000	1.172	1.167	0.518	0.292	733.620	Yes	1.167	1.792
10	<input type="checkbox"/>	24-23	GT-24	GT-23	14.000	437.990	0.001	872.637	Pressurized	1.819	1.000	1.976	1.167	0.398	0.297	441.638	Yes	1.167	1.819
11	<input type="checkbox"/>	23-22	GT-23	GT-22	14.000	269.000	0.001	877.252	Pressurized	1.828	1.000	1.279	1.167	0.500	0.298	685.911	Yes	1.167	1.828
12	<input type="checkbox"/>	22-21	GT-22	GT-21	14.000	404.000	0.002	877.252	Pressurized	1.828	1.000	1.183	1.167	0.521	0.298	741.838	Yes	1.167	1.828
13	<input type="checkbox"/>	21-20	GT-21	GT-20	14.000	472.110	0.002	884.752	Pressurized	1.844	1.000	1.037	1.167	0.560	0.301	853.189	Yes	1.167	1.844
14	<input type="checkbox"/>	20-19	GT-20	GT-19	14.000	372.650	0.002	889.367	Pressurized	1.854	1.000	1.049	1.167	0.559	0.302	848.037	Yes	1.167	1.854
15	<input type="checkbox"/>	19-18	GT-19	GT-18	14.000	384.240	0.001	895.944	Pressurized	1.867	1.000	1.377	1.167	0.486	0.305	650.430	Yes	1.167	1.867
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	900.559	Pressurized	3.108	0.582	0.641	0.679	0.576	0.731	1,405.336	Yes	1.167	1.877
17	<input type="checkbox"/>	17-16	GT-17	GT-16	14.000	292.200	0.000	900.559	Pressurized	1.877	1.000	2.214	1.167	0.381	0.306	406.684	Yes	1.167	1.877
18	<input type="checkbox"/>	16-15	GT-16	GT-15	14.000	321.460	0.001	1,029.211	Pressurized	2.145	1.000	1.694	1.167	0.469	0.350	607.462	Yes	1.167	2.145
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	1,029.211	Pressurized	2.145	1.000	1.378	1.167	0.523	0.350	747.020	Yes	1.167	2.145
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	1,036.710	Pressurized	2.161	1.000	1.319	1.167	0.537	0.353	785.809	Yes	1.167	2.161
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	1,039.480	Pressurized	2.166	1.000	1.353	1.167	0.530	0.353	768.072	Yes	1.167	2.166
22	<input type="checkbox"/>	12-11	GT-12	GT-11	14.000	374.280	0.000	1,081.479	Pressurized	2.254	1.000	3.773	1.167	0.318	0.368	286.650	Yes	1.167	2.254
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,092.671	Pressurized	3.183	0.673	0.794	0.785	0.638	0.671	1,376.489	Yes	1.167	2.277

Manhole Report, Current ERUs, PF = 7.5, n as shown in Table 2, existing pipe sizes and conditions

Attachment 1
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		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	805.484	377.100	Not Full	No	-0.324	4.630
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.570	Not Full	No	-0.364	3.950
3	<input type="checkbox"/>	GT-30	334.390	0.000	329.921	Not Full	Yes	-0.083	4.469
4	<input type="checkbox"/>	GT-29STP	329.780	45.691	329.780	Full	No	3.767	0.000
5	<input type="checkbox"/>	GT-28	329.160	0.000	329.160	Full	No	6.217	0.000
6	<input type="checkbox"/>	GT-27A	332.080	0.000	328.245	Not Full	No	6.682	3.835
7	<input type="checkbox"/>	GT-27	324.460	8.423	324.460	Full	No	4.037	0.000
8	<input type="checkbox"/>	GT-26	321.400	0.000	321.400	Full	No	3.177	0.000
9	<input type="checkbox"/>	GT-25	319.390	0.000	319.390	Full	No	2.943	0.000
10	<input type="checkbox"/>	GT-24	319.800	13.038	319.800	Full	No	4.143	0.000
11	<input type="checkbox"/>	GT-23	319.200	4.615	319.200	Full	No	3.823	0.000
12	<input type="checkbox"/>	GT-22	319.530	0.000	319.530	Full	No	4.523	0.000
13	<input type="checkbox"/>	GT-21	318.870	7.500	318.870	Full	No	4.513	0.000
14	<input type="checkbox"/>	GT-20	320.040	4.615	318.229	Not Full	No	4.763	1.811
15	<input type="checkbox"/>	GT-19	319.980	6.577	317.515	Not Full	No	4.658	2.465
16	<input type="checkbox"/>	GT-18	319.630	4.615	316.768	Not Full	No	4.282	2.862
17	<input type="checkbox"/>	GT-17	319.380	0.000	316.364	Not Full	No	4.757	3.016
18	<input type="checkbox"/>	GT-16	319.600	128.651	315.780	Not Full	No	4.284	3.820
19	<input type="checkbox"/>	GT-15	319.890	0.000	314.947	Not Full	No	3.721	4.943
20	<input type="checkbox"/>	GT-14	320.100	7.500	314.245	Not Full	No	3.358	5.855
21	<input type="checkbox"/>	GT-13	319.700	2.769	313.438	Not Full	No	2.981	6.262
22	<input type="checkbox"/>	GT-12	320.020	41.999	312.370	Not Full	No	2.464	7.650
23	<input type="checkbox"/>	GT-11	318.770	11.192	311.309	Not Full	No	1.473	7.461

Date: Thursday, July 23, 2020

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustmen t	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	805.484	Free Surface	8.135	0.425	0.376	0.354	0.601	2.770	2,144.241	Yes	0.462	5.781
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	805.484	Free Surface	9.390	0.381	0.309	0.318	0.601	3.406	2,609.415	Yes	0.833	3.290
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	10.000	372.870	0.011	805.484	Pressurized	4.618	0.670	0.790	0.559	0.601	1.155	1,019.945	Yes	0.833	3.290
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	10.000	479.630	0.006	851.176	Pressurized	3.477	1.000	1.079	0.833	0.595	0.671	788.833	Yes	0.833	3.477
5	<input type="checkbox"/>	28-27A_	GT-28	GT-27A	10.000	213.000	0.006	851.176	Pressurized	3.477	1.000	1.073	0.833	0.597	0.671	793.631	Yes	0.833	3.477
6	<input type="checkbox"/>	27A-27_	GT-27A	GT-27	10.000	170.000	0.007	851.176	Pressurized	3.477	1.000	1.054	0.833	0.602	0.671	807.415	Yes	0.833	3.477
7	<input type="checkbox"/>	27-26	GT-27	GT-26	10.000	313.420	0.007	859.599	Pressurized	3.511	1.000	1.041	0.833	0.609	0.678	826.070	Yes	0.833	3.511
8	<input type="checkbox"/>	26-25	GT-26	GT-25	10.000	385.400	0.005	859.599	Pressurized	3.511	1.000	1.178	0.833	0.572	0.678	729.549	Yes	0.833	3.511
9	<input type="checkbox"/>	25-24	GT-25	GT-24	14.000	401.940	0.002	859.599	Pressurized	2.484	0.678	0.802	0.791	0.563	0.521	1,072.214	Yes	1.167	1.792
10	<input type="checkbox"/>	24-23	GT-24	GT-23	14.000	437.990	0.001	872.637	Pressurized	1.819	1.000	1.427	1.167	0.471	0.297	611.499	Yes	1.167	1.819
11	<input type="checkbox"/>	23-22	GT-23	GT-22	14.000	269.000	0.001	877.252	Pressurized	2.131	0.801	0.978	0.934	0.569	0.379	896.960	Yes	1.167	1.828
12	<input type="checkbox"/>	22-21	GT-22	GT-21	14.000	404.000	0.002	877.252	Pressurized	2.290	0.745	0.904	0.869	0.569	0.440	970.096	Yes	1.167	1.828
13	<input type="checkbox"/>	21-20	GT-21	GT-20	14.000	472.110	0.002	884.752	Pressurized	2.453	0.703	0.843	0.821	0.571	0.498	1,050.079	Yes	1.167	1.844
14	<input type="checkbox"/>	20-19	GT-20	GT-19	14.000	372.650	0.002	889.367	Pressurized	2.311	0.748	0.909	0.873	0.573	0.443	978.505	Yes	1.167	1.854
15	<input type="checkbox"/>	19-18	GT-19	GT-18	14.000	384.240	0.001	895.944	Pressurized	1.867	1.000	1.194	1.167	0.524	0.305	750.496	Yes	1.167	1.867
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	900.559	Pressurized	3.468	0.532	0.555	0.621	0.576	0.867	1,621.541	Yes	1.167	1.877
17	<input type="checkbox"/>	17-16	GT-17	GT-16	14.000	292.200	0.000	900.559	Pressurized	1.877	1.000	1.919	1.167	0.410	0.306	469.251	Yes	1.167	1.877
18	<input type="checkbox"/>	16-15	GT-16	GT-15	14.000	321.460	0.001	1,029.211	Pressurized	2.145	1.000	1.468	1.167	0.506	0.350	700.918	Yes	1.167	2.145
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	1,029.211	Pressurized	2.145	1.000	1.194	1.167	0.563	0.350	861.946	Yes	1.167	2.145
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	1,036.710	Pressurized	2.161	1.000	1.143	1.167	0.578	0.353	906.702	Yes	1.167	2.161
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	1,039.480	Pressurized	2.166	1.000	1.173	1.167	0.572	0.353	886.237	Yes	1.167	2.166
22	<input type="checkbox"/>	12-11	GT-12	GT-11	14.000	374.280	0.000	1,081.479	Pressurized	2.254	1.000	3.270	1.167	0.342	0.368	330.750	Yes	1.167	2.254
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,092.671	Pressurized	3.568	0.609	0.688	0.711	0.638	0.812	1,588.257	Yes	1.167	2.277

Manhole Report, Current ERUs, PF = 7.5, all n = 0.013, existing pipe sizes

Attachment 2
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		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	805.484	377.070	Not Full	No	-0.353	4.660
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.544	Not Full	No	-0.389	3.976
3	<input type="checkbox"/>	GT-30	334.390	0.000	332.405	Not Full	No	2.402	1.985
4	<input type="checkbox"/>	GT-29STP	329.780	45.691	329.780	Full	Yes	3.767	0.000
5	<input type="checkbox"/>	GT-28	329.160	0.000	327.085	Not Full	No	4.141	2.075
6	<input type="checkbox"/>	GT-27A	332.080	0.000	325.350	Not Full	No	3.786	6.730
7	<input type="checkbox"/>	GT-27	324.460	8.423	323.936	Not Full	No	3.513	0.524
8	<input type="checkbox"/>	GT-26	321.400	0.000	321.400	Full	No	3.177	0.000
9	<input type="checkbox"/>	GT-25	319.390	0.000	319.216	Not Full	No	2.769	0.174
10	<input type="checkbox"/>	GT-24	319.800	13.038	318.668	Not Full	No	3.011	1.132
11	<input type="checkbox"/>	GT-23	319.200	4.615	318.056	Not Full	No	2.679	1.144
12	<input type="checkbox"/>	GT-22	319.530	0.000	317.661	Not Full	No	2.654	1.869
13	<input type="checkbox"/>	GT-21	318.870	7.500	317.088	Not Full	No	2.731	1.782
14	<input type="checkbox"/>	GT-20	320.040	4.615	316.413	Not Full	No	2.946	3.627
15	<input type="checkbox"/>	GT-19	319.980	6.577	315.866	Not Full	No	3.009	4.114
16	<input type="checkbox"/>	GT-18	319.630	4.615	315.295	Not Full	No	2.809	4.335
17	<input type="checkbox"/>	GT-17	319.380	0.000	314.981	Not Full	No	3.375	4.399
18	<input type="checkbox"/>	GT-16	319.600	128.651	314.533	Not Full	No	3.036	5.067
19	<input type="checkbox"/>	GT-15	319.890	0.000	313.894	Not Full	No	2.667	5.996
20	<input type="checkbox"/>	GT-14	320.100	7.500	313.353	Not Full	No	2.466	6.747
21	<input type="checkbox"/>	GT-13	319.700	2.769	312.733	Not Full	No	2.276	6.967
22	<input type="checkbox"/>	GT-12	320.020	41.999	311.918	Not Full	No	2.011	8.102
23	<input type="checkbox"/>	GT-11	318.770	11.192	311.106	Not Full	No	1.269	7.664

Date: Thursday, July 23, 2020

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	429.589	Free Surface	6.174	0.327	0.231	0.273	0.434	2.443	1,858.342	Yes	0.295	5.534
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	429.589	Free Surface	7.108	0.295	0.190	0.246	0.434	2.977	2,261.493	Yes	0.364	4.183
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	10.000	372.870	0.011	429.589	Free Surface	3.585	0.492	0.486	0.410	0.434	1.116	883.952	Yes	0.723	1.905
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	10.000	479.630	0.006	453.958	Pressurized	1.854	1.000	1.018	0.833	0.443	0.358	445.862	No	0.833	1.854
5	<input type="checkbox"/>	28-27A_	GT-28	GT-27A	10.000	213.000	0.006	453.958	Free Surface	2.183	0.792	0.968	0.660	0.447	0.465	468.964	Yes	0.695	2.082
6	<input type="checkbox"/>	27A-27_	GT-27A	GT-27	10.000	170.000	0.007	453.958	Free Surface	2.218	0.779	0.951	0.649	0.447	0.481	477.109	Yes	0.673	2.143
7	<input type="checkbox"/>	27-26	GT-27	GT-26	10.000	313.420	0.007	458.450	Free Surface	2.363	0.739	0.897	0.616	0.449	0.542	511.377	Yes	0.679	2.148
8	<input type="checkbox"/>	26-25	GT-26	GT-25	10.000	385.400	0.005	458.450	Free Surface	2.207	0.791	0.967	0.659	0.449	0.470	474.207	Yes	0.690	2.117
9	<input type="checkbox"/>	25-24	GT-25	GT-24	14.000	401.940	0.002	458.450	Free Surface	1.613	0.573	0.625	0.668	0.405	0.384	733.620	Yes	0.945	1.102
10	<input type="checkbox"/>	24-23	GT-24	GT-23	14.000	437.990	0.001	465.403	Pressurized	0.970	1.000	1.054	1.167	0.398	0.158	441.638	No	1.167	0.970
11	<input type="checkbox"/>	23-22	GT-23	GT-22	14.000	269.000	0.001	467.865	Free Surface	1.538	0.606	0.682	0.707	0.410	0.352	685.911	No	0.707	1.538
12	<input type="checkbox"/>	22-21	GT-22	GT-21	14.000	404.000	0.002	467.865	Free Surface	1.635	0.576	0.631	0.672	0.410	0.387	741.838	No	0.672	1.635
13	<input type="checkbox"/>	21-20	GT-21	GT-20	14.000	472.110	0.002	471.865	Free Surface	1.823	0.531	0.553	0.620	0.412	0.457	853.189	Yes	0.633	1.775
14	<input type="checkbox"/>	20-19	GT-20	GT-19	14.000	372.650	0.002	474.326	Free Surface	1.817	0.535	0.559	0.624	0.413	0.453	848.037	Yes	0.695	1.592
15	<input type="checkbox"/>	19-18	GT-19	GT-18	14.000	384.240	0.001	477.834	Free Surface	1.482	0.637	0.735	0.743	0.414	0.326	650.430	Yes	0.798	1.366
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	480.295	Free Surface	2.653	0.403	0.342	0.470	0.415	0.787	1,405.336	Yes	1.167	1.001
17	<input type="checkbox"/>	17-16	GT-17	GT-16	14.000	292.200	0.000	480.295	Pressurized	1.001	1.000	1.181	1.167	0.381	0.163	406.684	Yes	1.167	1.001
18	<input type="checkbox"/>	16-15	GT-16	GT-15	14.000	321.460	0.001	548.909	Pressurized	1.434	0.744	0.904	0.868	0.445	0.276	607.462	Yes	1.167	1.144
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	548.909	Pressurized	1.702	0.637	0.735	0.743	0.445	0.375	747.020	Yes	1.167	1.144
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	552.909	Pressurized	1.774	0.619	0.704	0.722	0.447	0.399	785.809	Yes	1.167	1.152
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	554.386	Pressurized	1.743	0.629	0.722	0.734	0.447	0.387	768.072	Yes	1.167	1.155
22	<input type="checkbox"/>	12-11	GT-12	GT-11	14.000	374.280	0.000	576.785	Pressurized	1.202	1.000	2.012	1.167	0.318	0.196	286.650	Yes	1.167	1.202
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	582.754	Pressurized	2.750	0.454	0.423	0.530	0.459	0.760	1,376.489	Yes	1.167	1.215

Manhole Report, Current ERUs, PF = 4.0, n as shown in Table 2, existing pipe sizes and conditions

Attachment 3
pg 2/2

		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	429.589	376.898	Not Full	No	-0.525	4.832
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.382	Not Full	No	-0.551	4.138
3	<input type="checkbox"/>	GT-30	334.390	0.000	329.616	Not Full	No	-0.388	4.774
4	<input type="checkbox"/>	GT-29STP	329.780	24.369	326.180	Not Full	Yes	0.166	3.600
5	<input type="checkbox"/>	GT-28	329.160	0.000	322.810	Not Full	No	-0.133	6.350
6	<input type="checkbox"/>	GT-27A	332.080	0.000	321.419	Not Full	No	-0.144	10.661
7	<input type="checkbox"/>	GT-27	324.460	4.492	320.247	Not Full	No	-0.176	4.213
8	<input type="checkbox"/>	GT-26	321.400	0.000	318.090	Not Full	No	-0.133	3.310
9	<input type="checkbox"/>	GT-25	319.390	0.000	315.959	Not Full	No	-0.488	3.431
10	<input type="checkbox"/>	GT-24	319.800	6.954	315.700	Not Full	No	0.044	4.100
11	<input type="checkbox"/>	GT-23	319.200	2.461	314.928	Not Full	No	-0.449	4.272
12	<input type="checkbox"/>	GT-22	319.530	0.000	314.523	Not Full	No	-0.484	5.007
13	<input type="checkbox"/>	GT-21	318.870	4.000	313.821	Not Full	No	-0.536	5.049
14	<input type="checkbox"/>	GT-20	320.040	2.461	312.935	Not Full	No	-0.531	7.105
15	<input type="checkbox"/>	GT-19	319.980	3.508	312.445	Not Full	No	-0.412	7.535
16	<input type="checkbox"/>	GT-18	319.630	2.461	312.161	Not Full	No	-0.325	7.469
17	<input type="checkbox"/>	GT-17	319.380	0.000	312.046	Not Full	No	0.440	7.334
18	<input type="checkbox"/>	GT-16	319.600	68.614	311.880	Not Full	No	0.384	7.720
19	<input type="checkbox"/>	GT-15	319.890	0.000	311.643	Not Full	No	0.417	8.247
20	<input type="checkbox"/>	GT-14	320.100	4.000	311.444	Not Full	No	0.557	8.656
21	<input type="checkbox"/>	GT-13	319.700	1.477	311.214	Not Full	No	0.757	8.486
22	<input type="checkbox"/>	GT-12	320.020	22.399	310.910	Not Full	No	1.004	9.110
23	<input type="checkbox"/>	GT-11	318.770	5.969	310.609	Not Full	No	0.772	8.161

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		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	982.596	Free Surface	7.698	0.517	0.529	0.431	0.662	2.321	1,858.342	Yes	0.595	5.253
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	982.596	Free Surface	8.913	0.461	0.434	0.384	0.662	2.889	2,261.493	Yes	0.833	4.014
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	10.000	372.870	0.011	982.596	Pressurized	4.014	1.000	1.112	0.833	0.629	0.775	883.952	Yes	0.833	4.014
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	10.000	479.630	0.006	1,031.980	Pressurized	4.216	1.000	2.315	0.833	0.443	0.814	445.862	Yes	0.833	4.216
5	<input type="checkbox"/>	28-27A_	GT-28	GT-27A	10.000	213.000	0.006	1,031.980	Pressurized	4.216	1.000	2.201	0.833	0.455	0.814	468.964	Yes	0.833	4.216
6	<input type="checkbox"/>	27A-27_	GT-27A	GT-27	10.000	170.000	0.007	1,031.980	Pressurized	4.216	1.000	2.163	0.833	0.459	0.814	477.109	Yes	0.833	4.216
7	<input type="checkbox"/>	27-26	GT-27	GT-26	10.000	313.420	0.007	1,045.018	Pressurized	4.269	1.000	2.044	0.833	0.476	0.824	511.377	Yes	0.833	4.269
8	<input type="checkbox"/>	26-25	GT-26	GT-25	10.000	385.400	0.005	1,045.018	Pressurized	4.269	1.000	2.204	0.833	0.457	0.824	474.207	Yes	0.833	4.269
9	<input type="checkbox"/>	25-24	GT-25	GT-24	14.000	401.940	0.002	1,045.018	Pressurized	2.178	1.000	1.424	1.167	0.518	0.355	733.620	Yes	1.167	2.178
10	<input type="checkbox"/>	24-23	GT-24	GT-23	14.000	437.990	0.001	1,060.825	Pressurized	2.211	1.000	2.402	1.167	0.398	0.361	441.638	Yes	1.167	2.211
11	<input type="checkbox"/>	23-22	GT-23	GT-22	14.000	269.000	0.001	1,065.441	Pressurized	2.221	1.000	1.553	1.167	0.500	0.362	685.911	Yes	1.167	2.221
12	<input type="checkbox"/>	22-21	GT-22	GT-21	14.000	404.000	0.002	1,065.441	Pressurized	2.221	1.000	1.436	1.167	0.521	0.362	741.838	Yes	1.167	2.221
13	<input type="checkbox"/>	21-20	GT-21	GT-20	14.000	472.110	0.002	1,075.710	Pressurized	2.242	1.000	1.261	1.167	0.560	0.366	853.189	Yes	1.167	2.242
14	<input type="checkbox"/>	20-19	GT-20	GT-19	14.000	372.650	0.002	1,080.325	Pressurized	2.252	1.000	1.274	1.167	0.559	0.367	848.037	Yes	1.167	2.252
15	<input type="checkbox"/>	19-18	GT-19	GT-18	14.000	384.240	0.001	1,087.825	Pressurized	2.267	1.000	1.672	1.167	0.486	0.370	650.430	Yes	1.167	2.267
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	1,097.171	Pressurized	3.239	0.665	0.781	0.776	0.639	0.690	1,405.336	Yes	1.167	2.287
17	<input type="checkbox"/>	17-16	GT-17	GT-16	14.000	292.200	0.000	1,097.171	Pressurized	2.287	1.000	2.698	1.167	0.381	0.373	406.684	Yes	1.167	2.287
18	<input type="checkbox"/>	16-15	GT-16	GT-15	14.000	321.460	0.001	1,258.475	Pressurized	2.623	1.000	2.072	1.167	0.469	0.428	607.462	Yes	1.167	2.623
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	1,258.475	Pressurized	2.623	1.000	1.685	1.167	0.523	0.428	747.020	Yes	1.167	2.623
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	1,269.667	Pressurized	2.646	1.000	1.616	1.167	0.537	0.432	785.809	Yes	1.167	2.646
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	1,274.283	Pressurized	2.656	1.000	1.659	1.167	0.530	0.433	768.072	Yes	1.167	2.656
22	<input type="checkbox"/>	12-11	GT-12	GT-11	14.000	374.280	0.000	1,324.589	Pressurized	2.761	1.000	4.621	1.167	0.318	0.450	286.650	Yes	1.167	2.761
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,339.474	Pressurized	3.269	0.796	0.973	0.929	0.710	0.585	1,376.489	Yes	1.167	2.792

Manhole Report, Future (build-out) ERUs, PF = 7.5, n and pipe diameters as shown in Table 2

Attachment 4
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		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	982.596	377.208	Not Full	No	-0.215	4.522
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.672	Not Full	No	-0.261	3.848
3	<input type="checkbox"/>	GT-30	334.390	0.000	334.390	Full	Yes	4.387	0.000
4	<input type="checkbox"/>	GT-29STP	329.780	49.384	329.780	Full	No	3.767	0.000
5	<input type="checkbox"/>	GT-28	329.160	0.000	329.160	Full	No	6.217	0.000
6	<input type="checkbox"/>	GT-27A	332.080	0.000	330.024	Not Full	No	8.460	2.056
7	<input type="checkbox"/>	GT-27	324.460	13.038	324.460	Full	No	4.037	0.000
8	<input type="checkbox"/>	GT-26	321.400	0.000	321.400	Full	No	3.177	0.000
9	<input type="checkbox"/>	GT-25	319.390	0.000	319.390	Full	No	2.943	0.000
10	<input type="checkbox"/>	GT-24	319.800	15.807	319.800	Full	No	4.143	0.000
11	<input type="checkbox"/>	GT-23	319.200	4.615	319.200	Full	No	3.823	0.000
12	<input type="checkbox"/>	GT-22	319.530	0.000	319.530	Full	No	4.523	0.000
13	<input type="checkbox"/>	GT-21	319.140	10.269	319.140	Full	No	4.783	0.000
14	<input type="checkbox"/>	GT-20	320.040	4.615	320.040	Full	No	6.573	0.000
15	<input type="checkbox"/>	GT-19	319.980	7.500	319.980	Full	No	7.123	0.000
16	<input type="checkbox"/>	GT-18	319.630	9.346	319.630	Full	No	7.143	0.000
17	<input type="checkbox"/>	GT-17	319.380	0.000	319.370	Not Full	No	7.763	0.010
18	<input type="checkbox"/>	GT-16	319.600	161.305	318.504	Not Full	No	7.007	1.096
19	<input type="checkbox"/>	GT-15	319.890	0.000	317.259	Not Full	No	6.032	2.631
20	<input type="checkbox"/>	GT-14	320.100	11.192	316.208	Not Full	No	5.321	3.892
21	<input type="checkbox"/>	GT-13	319.700	4.615	314.998	Not Full	No	4.541	4.702
22	<input type="checkbox"/>	GT-12	320.020	50.307	313.393	Not Full	No	3.487	6.627
23	<input type="checkbox"/>	GT-11	318.770	14.884	311.802	Not Full	No	1.965	6.968

Date: Thursday, July 23, 2020

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	982.596	Free Surface	7.698	0.517	0.529	0.431	0.662	2.321	1,858.342	Yes	0.595	5.253
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	982.596	Free Surface	8.913	0.461	0.434	0.384	0.662	2.889	2,261.493	Yes	0.608	5.133
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	12.000	372.870	0.011	982.596	Free Surface	4.903	0.554	0.592	0.554	0.633	1.289	1,658.553	Yes	0.712	3.661
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	12.000	479.630	0.006	1,031.980	Free Surface	4.047	0.679	0.805	0.679	0.649	0.914	1,282.737	Yes	0.778	3.508
5	<input type="checkbox"/>	28-27A_	GT-28	GT-27A	12.000	213.000	0.006	1,031.980	Free Surface	4.067	0.676	0.800	0.676	0.649	0.922	1,290.540	Yes	0.772	3.534
6	<input type="checkbox"/>	27A-27_	GT-27A	GT-27	12.000	170.000	0.007	1,031.980	Free Surface	4.125	0.668	0.786	0.668	0.649	0.945	1,312.954	Yes	0.767	3.558
7	<input type="checkbox"/>	27-26	GT-27	GT-26	12.000	313.420	0.007	1,045.018	Free Surface	4.211	0.663	0.778	0.663	0.653	0.970	1,343.289	Yes	0.798	3.464
8	<input type="checkbox"/>	26-25	GT-26	GT-25	12.000	385.400	0.005	1,045.018	Free Surface	3.798	0.729	0.881	0.729	0.653	0.806	1,186.334	Yes	0.836	3.320
9	<input type="checkbox"/>	25-24	GT-25	GT-24	16.000	401.940	0.002	1,045.018	Free Surface	2.629	0.606	0.683	0.808	0.598	0.562	1,530.836	Yes	1.141	1.830
10	<input type="checkbox"/>	24-23	GT-24	GT-23	18.000	437.990	0.001	1,060.825	Free Surface	1.702	0.733	0.888	1.100	0.582	0.293	1,195.229	Yes	1.460	1.347
11	<input type="checkbox"/>	23-22	GT-23	GT-22	16.000	269.000	0.001	1,065.441	Pressurized	2.286	0.697	0.832	0.929	0.604	0.438	1,280.620	Yes	1.333	1.700
12	<input type="checkbox"/>	22-21	GT-22	GT-21	16.000	404.000	0.002	1,065.441	Pressurized	2.438	0.658	0.769	0.877	0.604	0.490	1,385.038	Yes	1.333	1.700
13	<input type="checkbox"/>	21-20	GT-21	GT-20	16.000	472.110	0.002	1,075.710	Pressurized	2.602	0.627	0.718	0.836	0.607	0.543	1,499.233	Yes	1.333	1.717
14	<input type="checkbox"/>	20-19	GT-20	GT-19	16.000	372.650	0.002	1,080.325	Pressurized	2.461	0.660	0.773	0.880	0.608	0.493	1,397.044	Yes	1.333	1.724
15	<input type="checkbox"/>	19-18	GT-19	GT-18	18.000	384.240	0.001	1,087.825	Pressurized	2.025	0.641	0.742	0.962	0.589	0.391	1,466.911	Yes	1.500	1.372
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	1,097.171	Pressurized	3.239	0.665	0.781	0.776	0.639	0.690	1,405.336	Yes	1.167	2.287
17	<input type="checkbox"/>	17-16	GT-17	GT-16	20.000	292.200	0.000	1,097.171	Pressurized	1.405	0.744	0.903	1.240	0.574	0.226	1,214.736	Yes	1.667	1.120
18	<input type="checkbox"/>	16-15	GT-16	GT-15	18.000	321.460	0.001	1,258.475	Pressurized	1.960	0.755	0.919	1.132	0.636	0.328	1,370.006	Yes	1.500	1.587
19	<input type="checkbox"/>	15-14	GT-15	GT-14	18.000	267.680	0.001	1,258.475	Pressurized	2.329	0.644	0.747	0.967	0.636	0.448	1,684.751	Yes	1.500	1.587
20	<input type="checkbox"/>	14-13	GT-14	GT-13	16.000	305.940	0.001	1,269.667	Pressurized	2.355	0.803	0.981	1.070	0.662	0.390	1,294.529	Yes	1.333	2.026
21	<input type="checkbox"/>	13-12	GT-13	GT-12	18.000	409.600	0.001	1,274.283	Pressurized	2.387	0.638	0.736	0.956	0.640	0.463	1,732.230	Yes	1.500	1.607
22	<input type="checkbox"/>	12-11	GT-12	GT-11	24.000	374.280	0.000	1,324.589	Pressurized	1.124	0.779	0.951	1.558	0.599	0.157	1,392.288	Yes	2.000	0.939
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,339.474	Pressurized	3.269	0.796	0.973	0.929	0.710	0.585	1,376.489	Yes	1.167	2.792

Manhole Report, Future (build-out) ERUs, PF = 7.5, pipe upsizing as shown in Table 3

Attachment 5
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		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	982.596	377.208	Not Full	No	-0.215	4.522
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.672	Not Full	No	-0.261	3.848
3	<input type="checkbox"/>	GT-30	334.390	0.000	329.814	Not Full	No	-0.356	4.576
4	<input type="checkbox"/>	GT-29STP	329.780	49.384	325.959	Not Full	Yes	-0.221	3.821
5	<input type="checkbox"/>	GT-28	329.160	0.000	322.886	Not Full	No	-0.224	6.274
6	<input type="checkbox"/>	GT-27A	332.080	0.000	321.498	Not Full	No	-0.232	10.582
7	<input type="checkbox"/>	GT-27	324.460	13.038	320.356	Not Full	No	-0.234	4.104
8	<input type="checkbox"/>	GT-26	321.400	0.000	318.221	Not Full	No	-0.169	3.179
9	<input type="checkbox"/>	GT-25	319.390	0.000	316.121	Not Full	No	-0.492	3.269
10	<input type="checkbox"/>	GT-24	319.800	15.807	315.932	Not Full	No	-0.058	3.868
11	<input type="checkbox"/>	GT-23	319.200	4.615	315.689	Not Full	No	0.146	3.511
12	<input type="checkbox"/>	GT-22	319.530	0.000	315.398	Not Full	No	0.224	4.132
13	<input type="checkbox"/>	GT-21	319.140	10.269	314.977	Not Full	No	0.454	4.163
14	<input type="checkbox"/>	GT-20	320.040	4.615	314.482	Not Full	No	0.848	5.558
15	<input type="checkbox"/>	GT-19	319.980	7.500	314.080	Not Full	No	0.890	5.900
16	<input type="checkbox"/>	GT-18	319.630	9.346	313.853	Not Full	No	1.367	5.777
17	<input type="checkbox"/>	GT-17	319.380	0.000	313.253	Not Full	No	1.146	6.127
18	<input type="checkbox"/>	GT-16	319.600	161.305	313.148	Not Full	No	1.318	6.452
19	<input type="checkbox"/>	GT-15	319.890	0.000	312.890	Not Full	No	1.330	7.000
20	<input type="checkbox"/>	GT-14	320.100	11.192	312.669	Not Full	No	1.616	7.431
21	<input type="checkbox"/>	GT-13	319.700	4.615	312.205	Not Full	No	1.415	7.495
22	<input type="checkbox"/>	GT-12	320.020	50.307	311.876	Not Full	No	1.136	8.144
23	<input type="checkbox"/>	GT-11	318.770	14.884	311.802	Not Full	No	1.965	6.968

Date: Thursday, July 23, 2020

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	982.596	Free Surface	7.698	0.517	0.529	0.431	0.662	2.321	1,858.342	Yes	0.595	5.253
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	982.596	Free Surface	8.913	0.461	0.434	0.384	0.662	2.889	2,261.493	Yes	0.608	5.133
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	12.000	372.870	0.011	982.596	Free Surface	4.903	0.554	0.592	0.554	0.633	1.289	1,658.553	Yes	0.712	3.661
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	12.000	479.630	0.006	1,031.980	Free Surface	4.047	0.679	0.805	0.679	0.649	0.914	1,282.737	Yes	1.000	2.928
5	<input type="checkbox"/>	28-27A	GT-28	GT-27A	12.000	213.000	0.006	1,031.980	Pressurized	4.067	0.676	0.800	0.676	0.649	0.922	1,290.540	Yes	1.000	2.928
6	<input type="checkbox"/>	27A-27	GT-27A	GT-27	12.000	170.000	0.007	1,031.980	Pressurized	4.125	0.668	0.786	0.668	0.649	0.945	1,312.954	Yes	1.000	2.928
7	<input type="checkbox"/>	27-26	GT-27	GT-26	12.000	313.420	0.007	1,045.018	Pressurized	4.211	0.663	0.778	0.663	0.653	0.970	1,343.289	Yes	1.000	2.964
8	<input type="checkbox"/>	26-25	GT-26	GT-25	12.000	385.400	0.005	1,045.018	Pressurized	3.798	0.729	0.881	0.729	0.653	0.806	1,186.334	Yes	1.000	2.964
9	<input type="checkbox"/>	25-24	GT-25	GT-24	16.000	401.940	0.002	1,045.018	Pressurized	2.629	0.606	0.683	0.808	0.598	0.562	1,530.836	Yes	1.333	1.668
10	<input type="checkbox"/>	24-23	GT-24	GT-23	18.000	437.990	0.001	1,060.825	Pressurized	1.702	0.733	0.888	1.100	0.582	0.293	1,195.229	Yes	1.500	1.337
11	<input type="checkbox"/>	23-22	GT-23	GT-22	16.000	269.000	0.001	1,065.441	Pressurized	2.286	0.697	0.832	0.929	0.604	0.438	1,280.620	Yes	1.333	1.700
12	<input type="checkbox"/>	22-21	GT-22	GT-21	16.000	404.000	0.002	1,065.441	Pressurized	2.438	0.658	0.769	0.877	0.604	0.490	1,385.038	Yes	1.333	1.700
13	<input type="checkbox"/>	21-20	GT-21	GT-20	16.000	472.110	0.002	1,075.710	Pressurized	2.602	0.627	0.718	0.836	0.607	0.543	1,499.233	Yes	1.333	1.717
14	<input type="checkbox"/>	20-19	GT-20	GT-19	16.000	372.650	0.002	1,080.325	Pressurized	2.461	0.660	0.773	0.880	0.608	0.493	1,397.044	Yes	1.333	1.724
15	<input type="checkbox"/>	19-18	GT-19	GT-18	18.000	384.240	0.001	1,087.825	Pressurized	2.025	0.641	0.742	0.962	0.589	0.391	1,466.911	Yes	1.500	1.372
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	1,097.171	Pressurized	3.239	0.665	0.781	0.776	0.639	0.690	1,405.336	Yes	1.167	2.287
17	<input type="checkbox"/>	17-16	GT-17	GT-16	20.000	292.200	0.000	1,097.171	Pressurized	1.405	0.744	0.903	1.240	0.574	0.226	1,214.736	Yes	1.667	1.120
18	<input type="checkbox"/>	16-15	GT-16	GT-15	18.000	321.460	0.001	1,258.475	Pressurized	1.960	0.755	0.919	1.132	0.636	0.328	1,370.006	Yes	1.500	1.587
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	1,258.475	Pressurized	2.623	1.000	1.685	1.167	0.523	0.428	747.020	Yes	1.167	2.623
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	1,269.667	Pressurized	2.646	1.000	1.616	1.167	0.537	0.432	785.809	Yes	1.167	2.646
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	1,274.283	Pressurized	2.656	1.000	1.659	1.167	0.530	0.433	768.072	Yes	1.167	2.656
22	<input type="checkbox"/>	12-11	GT-12	GT-11	24.000	374.280	0.000	1,324.589	Pressurized	1.124	0.779	0.951	1.558	0.599	0.157	1,392.288	Yes	2.000	0.939
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,339.474	Pressurized	3.269	0.796	0.973	0.929	0.710	0.585	1,376.489	Yes	1.167	2.792

Manhole Report, Future (build-out) ERUs, PF = 7.5, pipe upsizing shown in Table 4

Attachment 6
pg 2/2

		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	982.596	377.208	Not Full	No	-0.215	4.522
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.672	Not Full	No	-0.261	3.848
3	<input type="checkbox"/>	GT-30	334.390	0.000	329.814	Not Full	No	-0.356	4.576
4	<input type="checkbox"/>	GT-29STP	329.780	49.384	325.959	Not Full	Yes	-0.221	3.821
5	<input type="checkbox"/>	GT-28	329.160	0.000	324.168	Not Full	No	1.058	4.992
6	<input type="checkbox"/>	GT-27A	332.080	0.000	323.182	Not Full	No	1.452	8.898
7	<input type="checkbox"/>	GT-27	324.460	13.038	322.374	Not Full	No	1.784	2.086
8	<input type="checkbox"/>	GT-26	321.400	0.000	320.934	Not Full	No	2.544	0.466
9	<input type="checkbox"/>	GT-25	319.390	0.000	319.186	Not Full	No	2.572	0.204
10	<input type="checkbox"/>	GT-24	319.800	15.807	318.783	Not Full	No	2.793	1.017
11	<input type="checkbox"/>	GT-23	319.200	4.615	318.540	Not Full	No	2.997	0.660
12	<input type="checkbox"/>	GT-22	319.530	0.000	318.249	Not Full	No	3.076	1.281
13	<input type="checkbox"/>	GT-21	319.140	10.269	317.828	Not Full	No	3.305	1.312
14	<input type="checkbox"/>	GT-20	320.040	4.615	317.333	Not Full	No	3.700	2.707
15	<input type="checkbox"/>	GT-19	319.980	7.500	316.931	Not Full	No	3.741	3.049
16	<input type="checkbox"/>	GT-18	319.630	9.346	316.705	Not Full	No	4.218	2.925
17	<input type="checkbox"/>	GT-17	319.380	0.000	316.104	Not Full	No	3.998	3.276
18	<input type="checkbox"/>	GT-16	319.600	161.305	316.000	Not Full	No	4.170	3.600
19	<input type="checkbox"/>	GT-15	319.890	0.000	315.741	Not Full	No	4.514	4.149
20	<input type="checkbox"/>	GT-14	320.100	11.192	314.690	Not Full	No	3.804	5.410
21	<input type="checkbox"/>	GT-13	319.700	4.615	313.480	Not Full	No	3.023	6.220
22	<input type="checkbox"/>	GT-12	320.020	50.307	311.876	Not Full	No	1.136	8.144
23	<input type="checkbox"/>	GT-11	318.770	14.884	311.802	Not Full	No	1.965	6.968

Date: Thursday, July 23, 2020

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (gpm)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Froude Number	Full Flow (gpm)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	<input type="checkbox"/>	32-31	GT-32	GT-31	10.000	412.100	0.047	805.530	Free Surface	7.320	0.460	0.433	0.384	0.601	2.374	1,858.342	Yes	0.490	5.384
2	<input type="checkbox"/>	31-30	GT-31	GT-30	10.000	398.770	0.070	805.530	Free Surface	8.459	0.412	0.356	0.344	0.601	2.932	2,261.493	Yes	0.610	4.193
3	<input type="checkbox"/>	30-29	GT-30	GT-29STP	10.000	372.870	0.011	805.530	Free Surface	4.093	0.750	0.911	0.625	0.601	0.926	883.952	Yes	0.707	3.638
4	<input type="checkbox"/>	29-28	GT-29STP	GT-28	12.000	479.630	0.006	851.224	Free Surface	3.892	0.595	0.664	0.595	0.587	0.973	1,282.737	Yes	1.000	2.415
5	<input type="checkbox"/>	28-27A	GT-28	GT-27A	12.000	213.000	0.006	851.224	Pressurized	3.910	0.593	0.660	0.593	0.587	0.981	1,290.540	Yes	1.000	2.415
6	<input type="checkbox"/>	27A-27	GT-27A	GT-27	10.000	170.000	0.007	851.224	Pressurized	3.477	1.000	1.784	0.833	0.459	0.671	477.109	Yes	0.833	3.477
7	<input type="checkbox"/>	27-26	GT-27	GT-26	12.000	313.420	0.007	859.647	Pressurized	4.043	0.581	0.640	0.581	0.590	1.028	1,343.289	Yes	1.000	2.439
8	<input type="checkbox"/>	26-25	GT-26	GT-25	12.000	385.400	0.005	859.647	Pressurized	3.668	0.631	0.725	0.631	0.590	0.879	1,186.334	Yes	1.000	2.439
9	<input type="checkbox"/>	25-24	GT-25	GT-24	16.000	401.940	0.002	859.647	Pressurized	2.514	0.536	0.562	0.715	0.540	0.585	1,530.836	Yes	1.333	1.372
10	<input type="checkbox"/>	24-23	GT-24	GT-23	18.000	437.990	0.001	872.686	Pressurized	1.645	0.634	0.730	0.951	0.525	0.320	1,195.229	Yes	1.500	1.100
11	<input type="checkbox"/>	23-22	GT-23	GT-22	16.000	269.000	0.001	877.301	Pressurized	2.201	0.608	0.685	0.810	0.546	0.470	1,280.620	Yes	1.333	1.400
12	<input type="checkbox"/>	22-21	GT-22	GT-21	16.000	404.000	0.002	877.301	Pressurized	2.339	0.578	0.633	0.770	0.546	0.518	1,385.038	Yes	1.333	1.400
13	<input type="checkbox"/>	21-20	GT-21	GT-20	14.000	472.110	0.002	884.802	Pressurized	1.844	1.000	1.037	1.167	0.560	0.301	853.189	Yes	1.167	1.844
14	<input type="checkbox"/>	20-19	GT-20	GT-19	14.000	372.650	0.002	889.417	Pressurized	1.854	1.000	1.049	1.167	0.559	0.302	848.037	Yes	1.167	1.854
15	<input type="checkbox"/>	19-18	GT-19	GT-18	18.000	384.240	0.001	895.994	Pressurized	1.941	0.565	0.611	0.847	0.533	0.411	1,466.911	Yes	1.500	1.130
16	<input type="checkbox"/>	18-17	GT-18	GT-17	14.000	195.760	0.004	900.610	Pressurized	3.108	0.582	0.641	0.679	0.576	0.731	1,405.336	Yes	1.167	1.877
17	<input type="checkbox"/>	17-16	GT-17	GT-16	20.000	292.200	0.000	900.610	Pressurized	1.358	0.641	0.741	1.068	0.518	0.249	1,214.736	Yes	1.667	0.920
18	<input type="checkbox"/>	16-15	GT-16	GT-15	14.000	321.460	0.001	1,029.269	Pressurized	2.145	1.000	1.694	1.167	0.469	0.350	607.462	Yes	1.167	2.145
19	<input type="checkbox"/>	15-14	GT-15	GT-14	14.000	267.680	0.001	1,029.269	Pressurized	2.145	1.000	1.378	1.167	0.523	0.350	747.020	Yes	1.167	2.145
20	<input type="checkbox"/>	14-13	GT-14	GT-13	14.000	305.940	0.001	1,036.769	Pressurized	2.161	1.000	1.319	1.167	0.537	0.353	785.809	Yes	1.167	2.161
21	<input type="checkbox"/>	13-12	GT-13	GT-12	14.000	409.600	0.001	1,039.538	Pressurized	2.167	1.000	1.353	1.167	0.530	0.353	768.072	Yes	1.167	2.167
22	<input type="checkbox"/>	12-11	GT-12	GT-11	14.000	374.280	0.000	1,081.540	Pressurized	2.254	1.000	3.773	1.167	0.318	0.368	286.650	Yes	1.167	2.254
23	<input type="checkbox"/>	11-SPCAB	GT-11	7	14.000	299.120	0.004	1,092.732	Pressurized	3.183	0.673	0.794	0.785	0.638	0.671	1,376.489	Yes	1.167	2.277

Manhole Report, Current ERUs, PF = 7.5, pipe upsizing shown in Table 5

Attachment 7
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		ID	Rim Elevation (ft)	Total Flow (gpm)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	<input type="checkbox"/>	GT-32	381.730	805.530	377.100	Not Full	No	-0.324	4.630
2	<input type="checkbox"/>	GT-31	361.520	0.000	357.570	Not Full	No	-0.364	3.950
3	<input type="checkbox"/>	GT-30	334.390	0.000	329.921	Not Full	Yes	-0.083	4.469
4	<input type="checkbox"/>	GT-29STP	329.780	45.694	325.843	Not Full	No	-0.337	3.937
5	<input type="checkbox"/>	GT-28	329.160	0.000	325.661	Not Full	No	2.551	3.499
6	<input type="checkbox"/>	GT-27A	332.080	0.000	324.989	Not Full	No	3.426	7.091
7	<input type="checkbox"/>	GT-27	324.460	8.423	321.204	Not Full	No	0.614	3.256
8	<input type="checkbox"/>	GT-26	321.400	0.000	320.229	Not Full	Yes	1.839	1.171
9	<input type="checkbox"/>	GT-25	319.390	0.000	319.046	Not Full	No	2.433	0.344
10	<input type="checkbox"/>	GT-24	319.800	13.039	318.774	Not Full	No	2.784	1.026
11	<input type="checkbox"/>	GT-23	319.200	4.616	318.609	Not Full	No	3.066	0.591
12	<input type="checkbox"/>	GT-22	319.530	0.000	318.412	Not Full	No	3.239	1.118
13	<input type="checkbox"/>	GT-21	318.870	7.500	318.127	Not Full	No	3.770	0.743
14	<input type="checkbox"/>	GT-20	320.040	4.616	317.125	Not Full	No	3.658	2.915
15	<input type="checkbox"/>	GT-19	319.980	6.577	316.410	Not Full	No	3.220	3.570
16	<input type="checkbox"/>	GT-18	319.630	4.616	316.256	Not Full	No	3.770	3.374
17	<input type="checkbox"/>	GT-17	319.380	0.000	315.852	Not Full	No	3.745	3.528
18	<input type="checkbox"/>	GT-16	319.600	128.659	315.781	Not Full	No	4.284	3.819
19	<input type="checkbox"/>	GT-15	319.890	0.000	314.948	Not Full	No	3.721	4.942
20	<input type="checkbox"/>	GT-14	320.100	7.500	314.245	Not Full	No	3.359	5.855
21	<input type="checkbox"/>	GT-13	319.700	2.769	313.438	Not Full	No	2.982	6.262
22	<input type="checkbox"/>	GT-12	320.020	42.002	312.371	Not Full	No	2.464	7.649
23	<input type="checkbox"/>	GT-11	318.770	11.193	311.309	Not Full	No	1.473	7.461

Date: Thursday, July 23, 2020



**AGENDA
BILL
Item 7.B**

**Lakeview Street Reservoir
Demolition Contract Close-out**

DATE SUBMITTED:	July 22, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Bill Hunter, Assist. GM/District Engineer		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. None		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input checked="" type="checkbox"/>	INFORMATIONAL /OTHER <input type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

The Board of Commissioners approved the contract award of the Lakeview Street Reservoir Demolition (District Capital Project #C2001) to Premium Services, Inc. during its regularly scheduled meeting on March 25, 2020. Premium Services, Inc. has completed all contract requirements and punch list items. Staff recommends accepting the Lakeview Street Reservoir Demolition project as complete.

FISCAL IMPACT

Original Construction Contract (Premium Services, Inc.) \$42,300.00

No change orders were incurred

Total Construction Cost \$42,300.00

8.5% Sales Tax \$3,595.50

Grand Total Including Sales Tax \$45,895.50

RECOMMENDED BOARD ACTION

Staff recommends that the Board accept the project as complete.

PROPOSED MOTION


A recommended motion is:

"I move to accept the Lakeview Street Reservoir Demolition Project as complete and authorize staff to close-out the public works project."



**AGENDA
BILL
Item 7.C**

**District Customer Assistance
Programs Review**

DATE SUBMITTED:	July 10, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. COVID-19 Utility Customer Support Program Guidance—District Compliance Review 2. 2020.07.23 Past Due Account Data		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

The Lake Whatcom Water and Sewer District currently provides assistance to its customers in the form of reduced rates (40% reduction) for qualifying low-income seniors and disabled customers, and a payment program that allows customers enter into an agreement with the District to pay-off outstanding balances over up to six months without incurring additional late fees or having water service terminated. The rate reduction and payment plan programs are codified in sections 2.10.9 and 2.8, respectively, of the District Administrative Code.

The COVID-19 pandemic and the economic impacts that have followed have created a tremendous strain on some District customers. To alleviate this strain, the District Board of Commissioners adopted Resolution No. 865 during its regular business meeting on March 25, 2020, that temporarily suspended late fees and shut-offs for delinquent accounts. The resolution is in effect through July 31, 2020. On a related note, 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. Several subsequent revisions to this proclamation have since been issued, including 20-23.3 on May 5 that prohibited water utilities from charging late fees or shut-off services for failure to pay utility bills (effective through May 31), and 20-23.4 issued on May 29 that extended the prohibition through July 28.

On July 2, 2020, Governor Inslee issued Proclamation No. 20-23.6, which extended the service termination prohibition through August 1, which largely aligns with the expiration of the District's Resolution No. 865 (July 31). On July 6, Governor Inslee's Office issued guidance for public utilities to consider for customer support programs through the economic recovery from the COVID-19 pandemic once Proclamation 20-23.6 expires on August 2. District staff have reviewed the guidance document to ensure District compliance

with all provisions related to District services. Attached is the guidance document, including District actions taken to comply with each component. District staff wishes to review the District's actions relative the guidance document with the Board, and determine if there are additional customer assistance measures that the Board may wish to undertake.

FISCAL IMPACT

Dependent upon Board action, if no changes to existing customer assistance programs or no new programs are identified, no fiscal impact is anticipated.

RECOMMENDED BOARD ACTION

Staff recommends that the Board review the District's existing customer assistance programs and actions for compliance with Governor Inslee's guidance and discuss if there are additional programs it wishes to implement.

PROPOSED MOTION

Dependent upon the outcome of Board discussion.

COVID-19 Utility Customer Support Program Guidance

Issued by the Office of the Governor on July 6, 2020

All utilities have a general obligation to provide safe, reliable, and affordable essential services to their customers. On April 20th, Governor Inslee announced Washington's Recovery Plan, which includes ensuring access to essential services during the state's recovery from the COVID-19 pandemic. On May 1, Governor Inslee announced the "Safe Start" approach for Washington state to begin reopening some businesses safely and continue essential businesses. On July 2nd, Governor Inslee issued Proclamation 20-23.6, extending, and amending Proclamation 20-23, pertaining to Rate Payer Assistance and Preservation of Essential Services through August 1st, 2020. Proclamation 20-23.6 extended prohibitions on utilities disconnecting service, refusing to reconnect service, and charging late fees.

This document provides a framework for ensuring that customers experiencing economic hardship as a direct result of the COVID-19 pandemic maintain access to essential services after Proclamation 20-23.6 expires; by adopting consumer protections, customer support programs, and notification protocols, and participating in public information requests. This guidance applies to residential energy, water, and landline telephone services.

This guidance does not relieve customers from the obligation to pay for utility services.

General Guidance for all Utilities

Beginning immediately, utilities covered by the guidance should review existing policies concerning disconnection of service, reconnection of service, payment arrangements, and suspension of other fees and charges, and update those policies as appropriate and necessary to assist vulnerable individuals and households to maintain essential services during the economic recovery.

The public should have access to reliable and accurate information about assistance that may be available from their utilities and their local community to help them recover from the economic impacts of COVID-19. Utilities are trusted sources of information and assistance; their communications with customers are essential to this effort. Customers who are having trouble paying their bill should first contact their utility. Utilities should proactively reach out to customers with accounts in arrears to encourage customers to enter into payment arrangements.

COVID-19 Consumer Protections:

Many utilities have existing consumer protection policies in place, and have adopted additional protections to keep customers connected to essential services during the COVID-19 pandemic. In order to assist vulnerable individuals and households with maintaining access to essential services during the economic recovery, energy utilities should consider, at a minimum, the following consumer protections:

1. Prohibit disconnections for low-income and vulnerable households through a date certain;
2. Waive fees associated with late payments, disconnection, and reconnection of service; and
3. Establish protections for customers under any pre-paid meter plans to ensure continued provision of essential services.

District actions:

- *Not applicable; the requirements stipulated in this section are specific to energy utilities.*

COVID-19 Customer Support Program Principles:

Each utility providing residential energy, water, or telecommunications services will offer COVID-19 Customer Support programs. These programs may include existing services provided to customers experiencing economic hardship and/or additional programs for the purpose of supporting those directly affected by COVID-19.

The COVID-19 customer support programs should follow these principles:

1. All programs must be reviewed subject to the public process, or approval by the governing body of the utility, consistent with the utility's standard practice, and prominently posted on a public website, if available. Utilities should also notify customers of their COVID-19 Customer Support Programs in a bill insert, mailing, or other appropriate method of communication.

District actions:

- *The District has in-place a rate reduction program for qualifying low income seniors and disabled individuals, as codified in District Administrative Code Section 2.10.9 (Resolution Nos. 807, 834, and 861). Information pertaining to this program is included on every utility bill.*
- *District Administrative Code Section 2.8 grants authority to the Finance Manager to negotiate payment plans with customers with outstanding balances (Resolution No. 766). Information pertaining to this program is included on every utility bill.*
- *Since March 25, 2020, the District has notified all customers of the available customer relief programs via an alert on the main page of the District website that provides a link to a page providing details relative to available customer assistance programs.*
- *The District issued a press release associated with its support programs on March 25, 2020.*
- *The District posted information regarding its customer assistance programs on its Facebook page on March 25 and June 12, 2020.*
- *The District will include information regarding its customer assistance programs as a bill insert with paper bills or an email to customers that use the Express Bill Pay option during the August and September utility bill cycles.*

2. Utility programs should encourage customers with arrearages to contact the utility to help coordinate assistance programs and make efforts to contact these customers directly by phone, email, door tags or premise visits, if necessary. Contact information should be provided on all customer bills and notifications.

District actions:

- *The District issued a letter on June 24, 2020 to all customers with account balances that were 30 or more days overdue. The letter referred customers with past due balances to the Washington State bill assistance information as well as recommends customers make payment plan arrangements as allowed under District Administrative Code Section 2.8.*
- *Following expiration of Proclamation 20-23.6 on August 1, 2020, the District will place door hangers on all residential customers with an account balance 60 or more days overdue. The door hanger will provide notice of the expiration of the cessation of imposition of late fees and shut-offs, and request they pay their bill in full or contact the District to enter into a payment plan agreement.*

3. Utility programs should be designed to ensure that customers maintain access to essential services during the economic recovery from the COVID-19 pandemic.

District actions:

- *District programs allow for reduced rates for qualifying low income senior and disabled customers, and to develop long-term payment plans for customers with account balances 30 or more days overdue; both of*

these programs allow for continued access to essential water and sewer service, as long as the customer adheres to the applicable program(s).

4. Utilities should take active steps to review current customer assistance programs, and modify them, as appropriate, to address the needs of all customers.

District actions:

- *The District Board of Commissioners reviewed the existing customer assistance programs during its regularly scheduled July 29, 2020 meeting. The Board determined [to be updated based upon Board discussion during its July 29, 2020 meeting].*

5. Utilities should offer long-term payment arrangements for those directly affected by COVID-19 to allow customers to recover successfully from the unexpected economic impacts of the pandemic. Six to eighteen months, or longer may be appropriate, considering the customer's unique circumstances.

District actions:

- *The District currently offers long-term (up to six months) payment plans, as codified under District Administrative Code Section 2.8.*

6. Utilities should work with state and local agencies to help identify customers experiencing economic hardship as a direct result of the COVID-19 pandemic, and help those customers gain access to bill assistance.

District actions:

- *The page on the District website dedicated to detailing District customer assistance programs also includes links to public agencies and non-profits that may assist customers struggling to pay their utility bill.*

Additional customer support efforts and outreach are encouraged and are not limited based on these set of recommendations. The UTC, for utilities under its jurisdiction, and local governing boards of consumer owned utilities are encouraged to adopt policies and procedures focused on the unique needs of their customers.

Guidance for Energy Utilities

Text associated with this section has not been included as it is not applicable to the Lake Whatcom Water and Sewer District.

Guidance for Water Utilities

The following guidance applies to community water systems, including municipal utilities, public utility districts, and water and sewer districts authorized under Title 35RCW, Title 54 RCW, and Title 57 RCW; water companies regulated by the Utilities and Transportation Commission under Title 80 RCW; and mutual corporations or association formed under Chapter 24.06 RCW.

Water Utility COVID-19 Customer Support Programs:

Community water systems have a multitude of customer assistance programs already established, many smaller system may have more informal programs that help their neighbors. And others may still need to create or update their program. Currently the most readily available option for water utilities is to offer payment plans that allow the utility and the customer to reach an agreement on a reduced payment method.

Because of the severity of the COVID-19 pandemic and economic crisis, community water systems with more than 1,000 customers should establish at a minimum Customer Assistance programs that

ensure customers impacted by experiencing hardship due to the COVID-19 pandemic maintain access to essential services after Proclamation 20-23 expires. Options to consider for a customer assistance plan include, but are not limited to:

1. Bill arrearage forgiveness; or
2. Payment plan where shut offs do not occur if the customer consistently pays an agreed to amount of their arrearages accrued monthly; or
3. Provide a combination of the above.

District actions:

- *District Administrative Code Section 2.8 allows for customers with overdue account balances to enter into a payment plan agreement with the District consistent with Option No. 2 above.*

Water Utility COVID-19 Customer Notification Guidance:

The public should have access to reliable and accurate information about assistance that may be available from their utilities and their local community to help them recover from the economic impacts of COVID-19. Utilities are trusted sources of information and assistance; their communications with customers are essential to this effort.

1. Water systems should inform customers about their customer assistance programs and how to receive assistance. Customers with accounts in arrears should be contacted directly. All customers should be notified of available assistance programs by one of the following methods:
 - Notify all customers that a customer assistance program is available and provide a direct URL for the customer assistance program web page (if one exists) either by mail or email.
 - Direct email providing a copy of customer assistance programs.
 - Electronic or hard copy customer bills and notifications.
 - Hard copy special announcement delivered through the U.S. Mail.

District actions:

- *Information pertaining to the District's rate reduction and payment plan programs is included on every utility bill.*
 - *The District issued a letter on June 24, 2020 to all customers with account balances that were 30 or more days overdue. The letter referred customers with past due balances to the Washington State bill assistance information as well as recommends customers make payment plan arrangements as allowed under District Administrative Code Section 2.8.*
 - *Following expiration of Proclamation 20-23.6 on August 1, 2020, the District will place door hangers on all residential customers with an account balance 60 or more days overdue. The door hanger will provide notice of the expiration of the cessation of imposition of late fees and shut-offs, and request they pay their bill in full or contact the District to enter into a payment plan agreement.*
 - *All utility bills issued during the August and September billing cycles will include the URL link to the page on the District's website that summarizes the District's customer assistance programs.*
2. The Department of Health will serve as the single point of contact within state government for information sharing, guidance, and technical assistance for community water systems and their customers. The Department will:
 - a. Review sample policies, and customer assistance programs, and develop templates, and best practices;
 - b. Create and post guidance and frequently asked questions documents for water utility customers; and

- c. Continue to provide email updates to community water systems during the crisis.

District actions:

- *Not applicable.*

To contact the Department of Health for technical assistance or concerns on customer assistance programs:

Phone: (360) 236-2100

Water Utility Information Requests:

Each community water system should respond to the Department of Health's Utility Economic Impact and Infrastructure Needs Survey, and any subsequent updates. Subsequent updates may include information on customer assistance programs, as requested by the Department of Health.

District actions:

- *The District completed the online survey on July 7, 2020, and will respond to any future updates requested by the Department of Health.*

General Guidance for Telecommunications Companies

Text associated with this section has not been included as it is not applicable to the Lake Whatcom Water and Sewer District.

PAST DUE ACCOUNTS 7/23/2020

		CURRENT BILL DUE 7/20		30 DAYS PAST DUE DUE 5/20		60 DAYS PAST DUE DUE 3/20		90+ DAYS PAST DUE		TOTAL
CYCLE	LAST BILL DATE	NUMBER	AMOUNT	NUMBER	AMOUNT	NUMBER	AMOUNT	NUMBER	AMOUNT	
SV	6/1/2020	70	19,451.78	65	16,084.20	17	5,194.33	4	2,115.29	\$ 42,845.60


		CURRENT BILL DUE 8/20		30 DAYS PAST DUE DUE 6/20		60 DAYS PAST DUE DUE 4/20		90+ DAYS PAST DUE		TOTAL
CYCLE	LAST BILL DATE	NUMBER	AMOUNT	NUMBER	AMOUNT	NUMBER	AMOUNT	NUMBER	AMOUNT	
GENEVA	7/1/2020	61	16,234.76	55	13,485.16	13	3,116.36	5	1,338.83	\$ 34,175.11

GRAND TOTAL DUE \$ 77,020.71



**AGENDA
BILL
Item 7.D**

**General Manager Job
Description Update**

DATE SUBMITTED:	July 1, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Draft Revision to the General Manager Job Description		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input checked="" type="checkbox"/>	INFORMATIONAL /OTHER <input type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

Up-to-date descriptions of each District position are crucial in ensuring staff understand their duties and functions, in assisting management in evaluating employee performance, and for recruiting for vacant positions. Many of the District's job descriptions have not been updated for several years. Therefore, the general manager identified the comprehensive review of all job descriptions that have not been updated in the past three years as an executive initiative for 2020. While review and update of most District job descriptions is an administrative function, the general manager position reports directly to the Board of Commissioners. Therefore, it is appropriate that review and approval of that job description be completed by the Board. Attached is a draft update to the general manager job description (last updated in 2011) provided in track changes mode for ease of review of staff-proposed revisions. The Board will note that many revisions are editorial in nature. Significant revisions include new sections to the description to bring the description consistent with the format of other District job descriptions. Of additional note, the *Knowledge of*, *Skill in*, and *Ability to* sections have largely been pulled from the general manager job description for a neighboring water and sewer district.

FISCAL IMPACT

No impact is anticipated.

RECOMMENDED BOARD ACTION

Staff recommends that the Board approve the revised job description.

PROPOSED MOTION

A recommended motion is:

"I move to approve the job description for the District position of General Manager as presented."



Lake Whatcom Water & Sewer District Job Description

Job Title: General Manager

FLSA Status: Exempt

Reports To: Board of Commissioners

Revision Date: ~~May 9, 2011~~ July 29, 2020

POSITION PURPOSE:

The General Manager ~~is responsible~~ reports to the Board of Commissioners (Board) and is responsible for overall leadership and management of ~~the District's operations, including its~~ water and sewer services, community relations, environmental compliance, engineering, finance, contracting, personnel, field, office, customer service, and other functions; for attending and providing policy advice at Commission Board meetings and workshops; ~~for and~~ facilitating implementation of Commission District policies and Board directions; and for ~~liaison and~~ coordinating District objectives with City, County, State and other agency representatives, as well as District consulting engineers, contractors, legal counsel, financial, and other contracted advisors.

ESSENTIAL DUTIES AND RESPONSIBILITIES include but are not limited to the following:

- Attends meetings and workshops of the Board ~~of Commissioners~~; facilitates and implements Commission Board directions and policies; and provides staff support and policy advice to Commissioners the Board;
- Leads and facilitates, in conjunction with the Board ~~of Commissioners~~, the District's short near-term and long long-range planning, community relations, environmental, financial, personnel, budget, and implementation plans; ~~Also~~
- Responsible for standards, organization, management philosophy, contracting and compliance with state, federal, and local laws and regulations;
- Appoints, directs, and dismisses District managers ~~and supervisors, and in conjunction with the Board of Commissioners~~, coordinates work with the District's legal counsel, consulting engineer, financial advisor, and other resources; and is responsible for hiring and firing of all District personnel;
- Directs and supervises the Finance Manager/Treasurer who is responsible for supervision of Finance Department ~~customer service, billing, accounting, and front desk~~ staff, and for management and liaison with banking, finance, investment, audit, administrative, and other functions;
- Directs and supervises the District Engineer/Assistant General Manager who is responsible for supervision ~~of the Maintenance Supervisor, Water Treatment Plant Operator and District specialists and other workers~~ of Engineering Department staff, and for management ~~and liaison with~~ of the District's capital improvement program, contractors, utilities, field engineers, testing design and construction of capital projects, management of the District's IT system, and other functions;
- Directs and supervises the Operations & Maintenance Manager, who is responsible for supervision of Operations Department staff, and for the operations and maintenance of District infrastructure;
- Directs and supervises the Administrative Assistant who is responsible for office, administrative, and project services ~~to supporting~~ the Board ~~of Commissioners~~, General Manager, District Engineer/Assistant General Manager, and other persons District staff;
- ~~Leads in d~~ Develops ~~ment of~~ positive, productive, employee and union relations, and guides overall ~~personnel-personnel~~-related activities;
- ~~Works to e~~ Establishes effective professional relations with federal, and state and local government agencies, including the City of Bellingham and Whatcom County ~~and other~~ elected officials and departments, other districts, industry associations, and the public and other organizations;
- Directs emergency services in coordination with District Engineer/Assistant General Manager, engineering, legal, and District staff and legal counsel, and oversees contingency planning;

- Prepares and presents reports to the ~~Commissioners~~**Board**; oversees preparation of agendas and meeting information; and participates in evaluation and review activities;
- Ensures integrity of the safety program by periodically reviewing various aspects of the program to ensure compliance with all District policies and relevant laws and regulations;
- ~~Completes continuing education-related assignments, and serves as a resource to staff on projects and day-to-day activities; and~~
- Performs other duties as required or assigned.

ADDITIONAL WORK PERFORMED:

- ~~Completes continuing education-related assignments, and serves as a resource to staff on projects and day-to-day activities.~~

MINIMUM QUALIFICATIONS:

Knowledge of:

- Modern principles and practices of management and supervision;
- Public finance with a concentration on public water and sewer financing; and
- Fiscal and budget principles, practices, and procedures.

Skill in:

- Analysis, planning, and organization;
- Interpersonal and written communication and ability to work effectively at all levels in a collaborative team environment;
- Motivating others to initiate action to meet the goals and objectives of the District;
- Working with multiple complex, highly visible and politically sensitive projects;
- Organizing resources and establishing priorities;
- Budget preparation and fiscal management; and
- Workflow analysis and management.

Ability to:

- Operate a personal computer with Microsoft Office suite;
- Work with the public and with other members of the organization in a positive and fair manner;
- Empathize with differing points of view and mediate conflicts among employees;
- Develop and implement work rules and safety procedures, ensuring consistency within the District;
- Handle difficult citizen and staff complaints and concerns;
- Interpret complex guidelines, codes, regulations, policies, and procedures that apply to the District;
- Recognize organizational, operational, and training needs and implement effective changes;
- Make decisions under difficult and demanding circumstances involving legal or financial liability and sensitive community issues;
- Work efficiently and effectively with other departments, customers, developers, consultants, contractors, agencies, and the general public; and
- Communicate verbally and in writing and written reports.

Experience/Education:

- ~~Experience:~~ Five to ten years of progressively responsible business and/or public administration management, supervisory, contracting, and ~~board-elected body~~-related experience, ~~or equivalent.~~
- ~~Completion of a four-year college degree, or equivalent~~**Education:** Bachelor's degree in business administration, public administration, engineering, or related field.

Licenses and Certifications:

Possess and maintain:

- Valid Washington State Driver's License

DESIRABLE QUALIFICATIONS:

- Strong board, management, and supervisory accomplishments with experience in business, public administration, and water/sewer services with ability to identify organization needs and implement responsive programs, strong community and intergovernmental communication and facilitation skills.

WORKING CONDITIONS:

Primarily performs duties in an office working at a desk using a computer. This position may require work hours in excess of 8 hours per day or 5 days per week and call-back for emergency situations. Attending meetings after business hours is required as is travel for training purposes and to commute to other government agencies.

PHYSICAL REQUIREMENTS:

This position typically requires climbing, balancing, stooping, kneeling, crouching, reaching, standing, walking, pushing, pulling, lifting, finger dexterity, grasping, talking, hearing, seeing, and repetitive motions.

Light Work: Exerting up to 20 pounds of force occasionally and/or a negligible amount of force frequently or constantly to lift, carry, push, pull or otherwise move objects including the human body. Light/Sedentary work involves sitting most of the time.

This job description does not constitute an employment agreement and may be changed or amended at any time to meet the needs of the District.


Approved: ~~May 9, 2011~~ July 29, 2020

~~Patrick Sorensen, General Manager~~ Laura Abele, Board President



**AGENDA
BILL
Item 7.E**

**On-site Sewage Disposal
System-to-Sewer Conversion
Program Policy**

DATE SUBMITTED:	July 10, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. On-site Sewage Disposal System-to-Sewer Conversion Program Policy Analysis dated April 7, 2020		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

The District's current policy requiring the abandonment of on-site sewage disposal systems (septic systems) and connection to District sewers is codified in District Administrative Code Section 5.1.3. In November 2019, the District Board indicated a desire to conduct a holistic review of its current policy pertaining to septic-to-sewer connections. Staff issued a memorandum analyzing that policy on April 7, 2020 (attached), and a work session was held by the Board on July 8, 2020. During the work session, the Board requested that this topic be included for discussion during its next regular business meeting.

FISCAL IMPACT

No fiscal impact is anticipated if no changes are made to the policy.

RECOMMENDED BOARD ACTION

Staff recommends no revisions be made to the current policy; if the Board concurs, no action is warranted.

PROPOSED MOTION

Dependent upon the outcome of Board discussion.



LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

To: Board of Commissioners
From: Justin Clary, General Manager

Date: April 7, 2020

RE: On-site Sewage Disposal System-to-Sewer Conversion Program Policy Analysis

The Lake Whatcom Water and Sewer District (District) was founded in 1968 to facilitate the conversion to public sewer of on-site sewage disposal systems (OSDS or septic systems) serving county residents within the Lake Whatcom watershed. A fundamental reason for connecting residents to a public sewage system was to address deteriorating water quality in the lake attributed to failing OSDSs. The District's mission remains aligned with its founding purpose ("*...in a way that contributes to protecting Lake Whatcom's water quality*"). Section 5.1.3 of the District's Administrative Code defines District requirements specific to abandonment of existing OSDSs and connection to the District's sewage system:

5.1.3 Sewer Connections Required

When the public sewer collector and transmission lines have sufficient capacity, all property within the District boundaries shall be deemed capable of being served by a public sewer when such property has a sewer collector line located within 200 feet of the property and it is inside a UGA or LAMIRD, or within 150 feet elsewhere, and on an abutting alley, street, easement, or right of way. Appropriate connection and other charges shall be required.

The owner of each lot or parcel located within the District's boundaries, upon which lot or parcel there is situated any building or structure with interior plumbing fixtures that discharge liquid waste or liquid-borne solid waste, and said lot or parcel is capable of being served by the District's public sewer in accordance with this section, shall install suitable toilet facilities therein and shall connect such facilities, together with all other facilities in use therein which results in the existence of sewage, to the public sewer system, at his/her own expense. [Resolution Nos. 785, 834]

A lot or parcel that has been developed with on-site sewage disposal system (OSSDS) is required to abandon OSSDS systems and connect to the District sewer within 60 months after a District public sewer collector or transmission line adjoins the property in a public right-of-way or easement benefitting the District, and within eighteen months after the date of mailing or personal service of written notice to the lot or parcel owner that a public sewer collector or transmission line has sufficient capacity and is available for such lot or parcel. The District shall compel such connection under the provisions of [RCW 57.08.005](#) should

the property owner refuse to connect within eighteen months after the date of mailing or personal service of such written notice.

If a lot or parcel is capable of being served by the District's public sewer in accordance with this section and if a Health Officer finds that an existing onsite septic system has failed, that parcel must connect to the District sewer immediately. [Resolution Nos. 146, 683, 732, 785, 828, 846]

Historically, as OSDSs within the defined proximity to District sewer mains are identified, the District requires abandonment and connection to District sewer. The owners of one such OSDS noticed for connection to District sewer in February 2019 presented a proposal to the District Board of Commissioners (Board) in November 2019 for creation of a program to financially assist future OSDS-served properties in connecting to District sewer. While the Board elected not to create such a program, it did indicate that it wishes to conduct a holistic review of the District's OSDS conversion policy. The purpose of this memorandum is to summarize the current policy and its history, to identify exceptions to or nuances of the current policy through evaluation of each known OSDS within relative proximity to District sewer, and to facilitate Board discussion regarding potential policy revisions.

Current Policy

District Administrative Code Section 5.1.3 (cited above) provides current District policy pertaining to conversion of OSDS-served properties to District sewer. In addition, District Administrative Code Sections 3.4.2.1 and 3.4.3.1 provide further clarification specific to connection to District sewers for residential and non-residential development, respectively. Regardless of development type, connection requirements to District sewers vary depending on whether or not the subject development is located within or outside of a Whatcom County-adopted *urban growth area* (UGA) or *limited area of more intense rural development* (LAMIRD). Within the District's boundaries are the city of Bellingham's Geneva UGA and the Sudden Valley LAMIRD.

Inside UGA or LAMIRD:

- Residential Development. District sewer adjacent to or within 200-feet of property—connection required.
- Residential Development. District sewer greater than 200-feet from property—District may extend sewer to within 200-feet of property and require connection.
- Non-residential Development. Connection required, regardless of distance to District sewer.

Outside UGA or LAMIRD:

- All Development. District sewer within 150-feet of property—connection required.
- All Development. District sewer greater than 150-feet from property—development may be served by OSDS, subject to recording a covenant binding the property to future water/sewer service (condition of new development).

Policy History

As stated above, the District was originally founded based on protecting Lake Whatcom water quality through the conversion of OSDs to connection to the District's public sewer system that conveys sewage out of the watershed for treatment. Since its founding, the District has through adoption of resolutions and/or administrative code amendments, refined its sewer connection policy.

- Resolution No. 146 (1974). Required improved property to connect to public sewer if within 200 feet of property line and sufficient capacity existed, within 12 months of notice.
- Resolution No. 171 (1976). Amended connection requirements to 300 feet.
- Resolution No. 495 (1989). Cited Revised Code of Washington (RCW) in providing the District authority to compel connection to District sewer for any unconnected property within a District utility local improvement district (ULID).
- Resolution No. 683 (2001). During a sewer connection moratorium (1992-2003), the District adopted this resolution requiring improved properties within the sewer connection moratorium area to connect to District sewer within 60 months from the time of District notification that capacity was available.
- 2005 Notice. District sent notice to ULID No. 18 property owners reminding them to connect to District sewer, with a deadline for connection of January 30, 2008.
- Resolution No. 732 (2007). Added that for property owners that fail to connect within 60 months of sewer mains with sufficient capacity becoming available within 200 feet of property or within 12 months of receiving notice to connect, that property would be subject to sewer charges. The District began collecting sewer service charges on applicable properties within ULID No. 18 on February 1, 2008, regardless of whether or not they were connected to District sewer.
- Resolution No. 785 (2011). Refined connection requirements to within 200 feet of the property line if inside UGA or LAMIRD, or 150 feet of property line elsewhere. The resolution also amended Administrative Code Section 5.1.3 to compel connection if the owner refuses to connect, consistent with Resolution No. 495 (1989).
- Resolution No. 828 (2016). Revised Administrative Code Section 5.1.3 to define connection timeline of 12 months from time of notice, consistent with Resolution Nos. 146 and 732. The resolution also referenced 11 unconnected properties located within ULID No. 18 meeting proximity requirements that had not connected, and reaffirmed the District's requirement to connect.
- Resolution No. 846 (2018). Revised connection requirements from 12 to 18 months from receipt of notice to connect for applicable properties.

Recent District Actions Requiring Connection

The 11 unconnected OSDS-served properties cited in Resolution No. 828 have since connected to District sewer with the final three properties connected by the District at the owners' expense in 2018 (costs of each of those connections ranged from approximately \$25,000 to \$50,000).

In February 2019, the District provided notice to three additional OSDS-served properties that were identified as meeting the connection requirements. One of those properties has since connected (through order of the Whatcom County Health Department). At its December 11, 2019 meeting, the Board extended the requirement to connect for the remaining two properties by 12 months to allow time to holistically reconsider the OSDS-to-sewer conversion policy.

Land Use Considerations

Following are state- and District-adopted land use policies/actions that have implications relative to the District's OSDS conversion policy:

- Washington State Growth Management Act (GMA)
The GMA is a series of state statutes, first adopted in 1990, that guides qualifying counties (of which Whatcom County is one) and their urban areas in the management of growth through comprehensive plan development and implementation. Codified under [Chapter 36.70A RCW](#), the GMA establishes a series of 13 goals and policies that form the basis of all county-wide planning policies, comprehensive land use plans, and development regulations. A key element of the GMA applicable to the District is utilities. The GMA provides that, "[i]n general, it is not appropriate that urban governmental services be extended to or expanded in rural areas except in those limited circumstances shown to be necessary to protect basic public health and safety and the environment and when such services are financially supportable at rural densities and do not permit urban development." [RCW 36.70A.110\(4\)](#). "Urban governmental services" include sewer service. [RCW 36.70A.030\(24\)](#). This means that the District may provide sewer service to properties located within a UGA or LAMIRD, which are areas of urban development, but is constrained in its ability to provide sewer service outside of a UGA or LAMIRD. Of note specific to the OSDS conversion policy, the District may not extend publicly-owned sewer service to serve existing and/or future development located outside of a UGA or LAMIRD, unless it is determined to be "necessary to protect basic public health and safety and the environment," is financially supportable at rural densities, and will not lead to urban-style growth in the rural area. This statute ([RCW 36.70A.110\(4\)](#)) was affirmed under the 2002 *Thurston County v. Cooper Point Association, et. al.* Washington State Supreme Court decision. Whatcom County also requires a conditional use permit to make use of this exception. [WCC 20.82.030\(4\)](#). The GMA does not prevent the District from providing sewer service to rural properties that were already connected to its sewers when the GMA was enacted.
- Interpretation of Sewer Line Extension Definition
Under [RCW 90.48.110](#), the Washington State Department of Ecology (Ecology) must approve sewer comprehensive plans. The review includes review of GMA compliance; Ecology may not approve a sewer comprehensive plan that it determines violates the

GMA. [Chapter 173-240 of the Washington Administrative Code](#) (WAC) specifies how Ecology will review sewer comprehensive plans. [Section 173-240-020\(13\)](#) defines a “sewer line extension” as “any pipe added or connected to an existing sewerage system, together with any pump stations: Provided, That the term does not include gravity side sewers that connect individual building or dwelling units to the sewer system when these side sewers are less than one hundred fifty feet in length and not over six inches in diameter.” As extension of public sewers outside of UGAs and LAMIRDs is generally not permitted under the GMA (unless allowed for reasons cited in the preceding bullet), this WAC has implications specific to requiring connection of properties outside of the Geneva UGA or Sudden Valley LAMIRD. Ecology’s interpretation of the GMA under this WAC is that any pressure (e.g., grinder pump-served) system connecting to District sewer outside of a UGA/LAMIRD is a *sewer line extension* that is not allowed under GMA. For gravity connections, under the WAC, regardless of the distance between sewer main and property line, if the distance between the property line and the *structure* to be served is greater than 150 feet (i.e., side sewer length), then it is considered a *sewer line extension* that is not allowed under GMA. The District administrative code requirement for connection of any *properties* within a specific distance to a sewer main, without regard to whether it is a pressure line or its length, is not consistent with a combined reading of the GMA and this WAC.

- **ULID No. 18**
In 2001, the District formed a utility local improvement district (ULID No. 18) to finance the Lake Louise Road Interceptor project (95% of the project cost was assessed against benefiting properties: vacant parcels and developed parcels with existing OSDSs). Owners of undeveloped properties had the option to “opt out” of inclusion in the ULID, subject to filing a restrictive covenant against the property that prohibited development for 25 years (the restrictive covenants expire December 31, 2027). A total of 50 properties are subject to the restrictive covenant that may develop following covenant expiration. While these properties are not relevant to the OSDS conversion policy, there may be implications on connection to District sewer once the covenant sunsets. On the other hand, owners of OSDS-served properties within the ULID were required to connect to District sewer. As stated earlier, all known OSDS-served properties located in ULID No. 18 have since connected to District sewer (with exception to the two properties noticed in February 2019).
- **ULID No. 18 Abutting Properties**
Creation of a ULID through the Resolution of Intention method (method used in the creation of ULID No. 18) allows for a 30-day protest period, where if the protest level is 40% or greater of the benefitting properties (percentage is based upon acreage), the public agency is divested from forming the ULID. To ensure creation of ULID No. 18, blocks of larger parcels abutting the planned interceptor (e.g., certain parcels along Lake Louise Road) were excluded from the ULID. As a result, there are existing OSDS-served properties that may meet the District’s connection proximity criteria that have not been required to connect. These connections would be pressure connections and therefore are considered *sewer line extensions* not allowed under the GMA.

Connection Feasibility Considerations

In considering revisions to the OSDS conversion policy, there are other factors that the Board may wish to consider, along with how those factors may be applied on a case by case basis, and the degree of flexibility that may be afforded.

- **Environmental Constraints** (critical areas, e.g., wetlands, streams, geologically hazardous areas). Under strict interpretation of the current policy, all OSDS-served properties are required to connect to District sewer if they meet the proximity (distance from sewer main to property line) requirement. However, other land use regulations may render actual construction of a connection infeasible. For example, a property may directly abut a sewer main; however, a stream, wetland, or geologically hazardous area (typically steep slope) may be located on the property that separates the OSDS-served structure from the main. Under current land use regulations, permitting and construction of a side sewer through the wetland or on a steep slope may not be allowed. Therefore, the Board may wish to specifically define the District's policy for requiring connections when environmental constraints are present.
- **Legal Constraints.** It is possible that an OSDS-served property meeting the proximity requirement may be landlocked by an easement through which the OSDS-served property owner does not have authorization to extend a side sewer through. For such a scenario, the current policy makes no accommodation other than to force acquisition to use the easement to secure a constructible alignment. And there is no guarantee that the easement owner will grant extension of a side sewer through the easement. Notwithstanding the foregoing, it is likely under such a scenario that the side sewer length would exceed 150 feet in length, thus making it a *sewer line extension* that is not allowed under GMA.

Financial Relief Program Considerations

During consideration of the proposal regarding creation of an assistance program during its December 11, 2019 meeting, the Board recognized the significant cost of self-financing the abandonment of an existing OSDS and connecting to District sewer, and indicated an interest in exploring the creation of a program that provides some level of relief for future OSDS-required connections. To facilitate the Board's discussion, following are considerations for creating a financial relief program:

- **Funding Source**
Although the program would be related to connection of properties to the District's sewer system, the public benefit nexus for facilitating the connection could be protection of the District's drinking water source (Lake Whatcom). Therefore, a financial relief program could require funding by the District's water utility (similar to the District's funding of the Lake Whatcom Management Program tributary monitoring program and aquatic invasive species program). In addition, the connection of the property to public sewer could also be viewed as a benefit to the sewer utility (e.g., additional sewer utility fees would enhance the predictability of revenue streams and better allow for system maintenance, and spread the cost of operating the utility over a larger customer base). As a result, the Board could set policy that the water and/or sewer utility revenues are appropriate to

fund a financial relief program. Regardless, future rate studies would need to accommodate the program costs in development of water and/or sewer utility rates.

- Financial Relief Options
 - General Facility Charge (GFC) Waiver. The District charges a GFC, which is developed to cover the equitable share of the cost of the existing system to which a property connects, as well as future system improvements (the 2020 sewer GFC for a single-family residence is \$8,117) required based upon the connection. Other public agencies, including the city of Lynden, provide a GFC waiver for connection of OSDS-served properties to the city's sewer system, if completed within two years of receiving notice from the city.
 - Construction Cost Relief. The proposal presented to the Board in November 2019 by the affected property owner for creation of a financial relief program contained two options: 1) the District equally reimburse all required connections in that calendar year the total budgeted to the program (proposed at \$50,000); or 2) the District reimburse up to 50% of the connection costs for each compelled connection up to that calendar year's total program budget (proposed at \$50,000). Another option could be to set a flat rate (e.g., \$10,000) that would be reimbursed per required connection, regardless of actual construction costs.
- Past Compelled Connections

Historically, and as recently as January, the District has required connections to bear the full cost of connection to the District's sewer system (design, permitting, GFC and other fees, and construction costs). As indicated earlier, these are significant costs. While the District has the legal authority to create a financial relief program, it could not retroactively reimburse those that were required to connect prior the policy revision because this would be a gift of public funds. This could put the District at some risk of legal challenges from unreimbursed property owners previously required to connect (one that District legal counsel is confident could be successfully defended), but that could create financial and administrative obligations if a challenge was filed.
- Future Compelled Connections

While recent history reflects a relatively minor number of required connections per year (e.g., up to three per year), if the Board wishes to create a financial relief program, it should consider potential budgetary impacts if a large number of properties were required to connect in a given year (e.g., if a sewer line was constructed along the north shore of Lake Whatcom). Under such a scenario, if a budgetary cap was in place, either a relatively small percentage of the overall connections may receive financial relief (such as under a first come-first served basis), or else the financial relief may be a lesser amount distributed over a larger potential group. On the other hand, if there is no budgetary cap, the District could be faced with significant costs to fully administer the financial relief program.

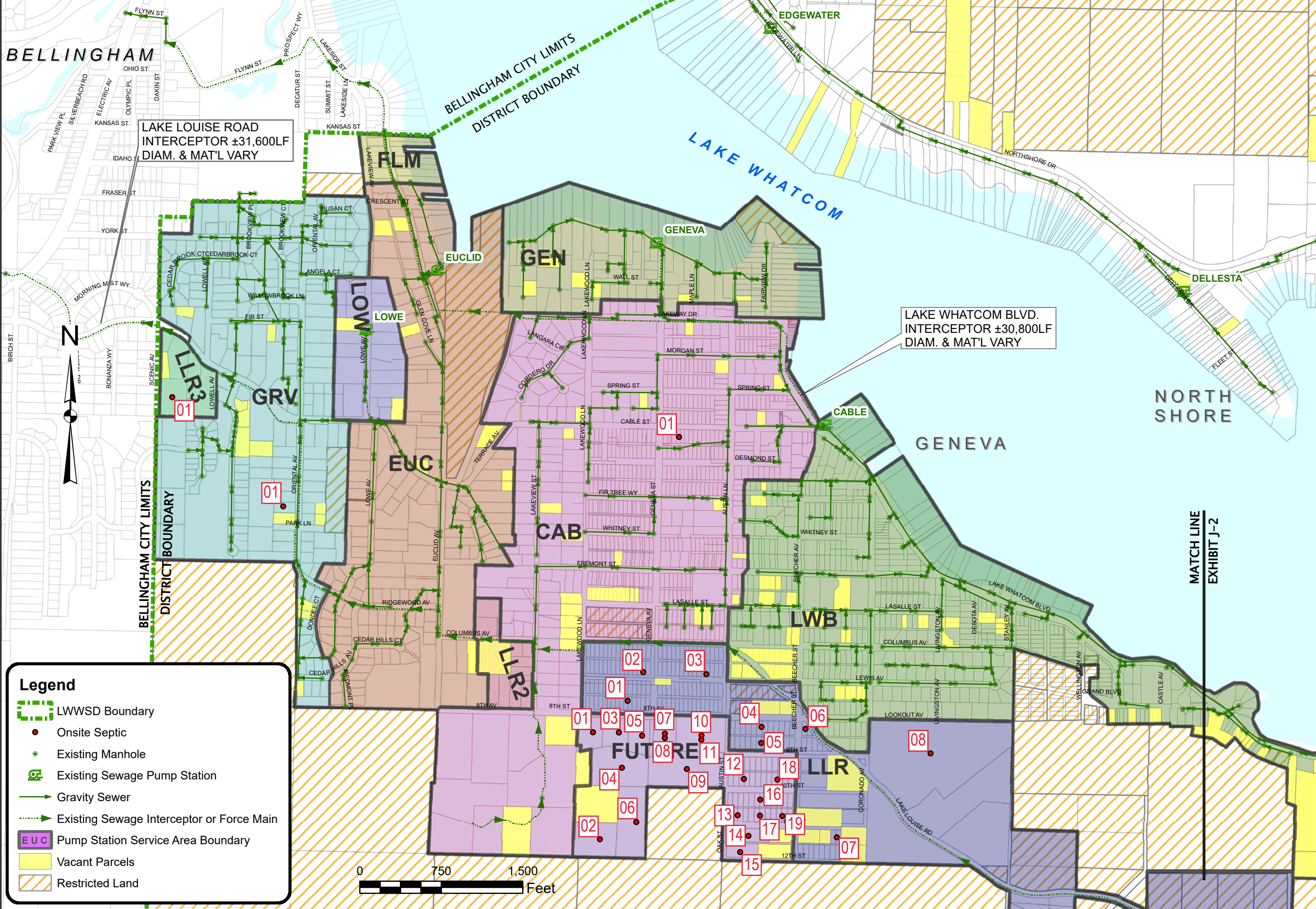
Analysis of Specific OSDS-served Properties

While any revisions to the OSDS conversion policy should be holistic in considering present day implications as well as potential future scenarios, the relatively few existing OSDSs within the

District's Sewer Comprehensive Plan-defined current and future service areas allows for an analysis of each OSDS relative to current District policy. Attached is a set of four figures depicting the District's potential sewer growth map. Within the figures are known OSDSs, which have been assigned specific identifying numbers relative to each sewer pump station service area. The attached table then evaluates each OSDS relative to current state and District connection requirements/allowances. As can be seen, aside from the two outstanding OSDSs that received notice to connect in February 2019 (identified as GRV-01 and CAB-01), there is only one other OSDS-served property (AGB-06) that *may* meet state and District connection requirements—District staff are confirming that distance requirements specific to the property and the structure meet the requirements for connection; once confirmed, the District will proceed with noticing the property owner of the need to connect.

Staff Recommendation

With the remaining number of OSDS-served properties that the District could legally compel to connect being limited to three (two of which have already received notice to connect), to maintain consistency with past District action and to mitigate any further impacts to District resources through further policy analysis, staff recommends that the District not consider any revisions to its current OSDS conversion policy.



LAKE LOUISE ROAD
INTERCEPTOR ±31,600LF
DIAM. & MAT'L VARY

LAKE WHATCOM BLVD.
INTERCEPTOR ±30,800LF
DIAM. & MAT'L VARY

Legend

- LWWSD Boundary
- Onsite Septic
- Existing Manhole
- Existing Sewage Pump Station
- Gravity Sewer
- Existing Sewage Interceptor or Force Main
- Pump Station Service Area Boundary
- Vacant Parcels
- Restricted Land

CIVIL

STRUCTURAL

SURVEY

WILSON
ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY
MMM

DRAWN BY
JMR

CHECKED BY
MMM

LAKE WHATCOM WATER & SEWER DISTRICT

WASHINGTON

BELLINGHAM

EXHIBIT J-1
SUDDEN VALLEY - GENEVA
POTENTIAL SEWER GROWTH MAP

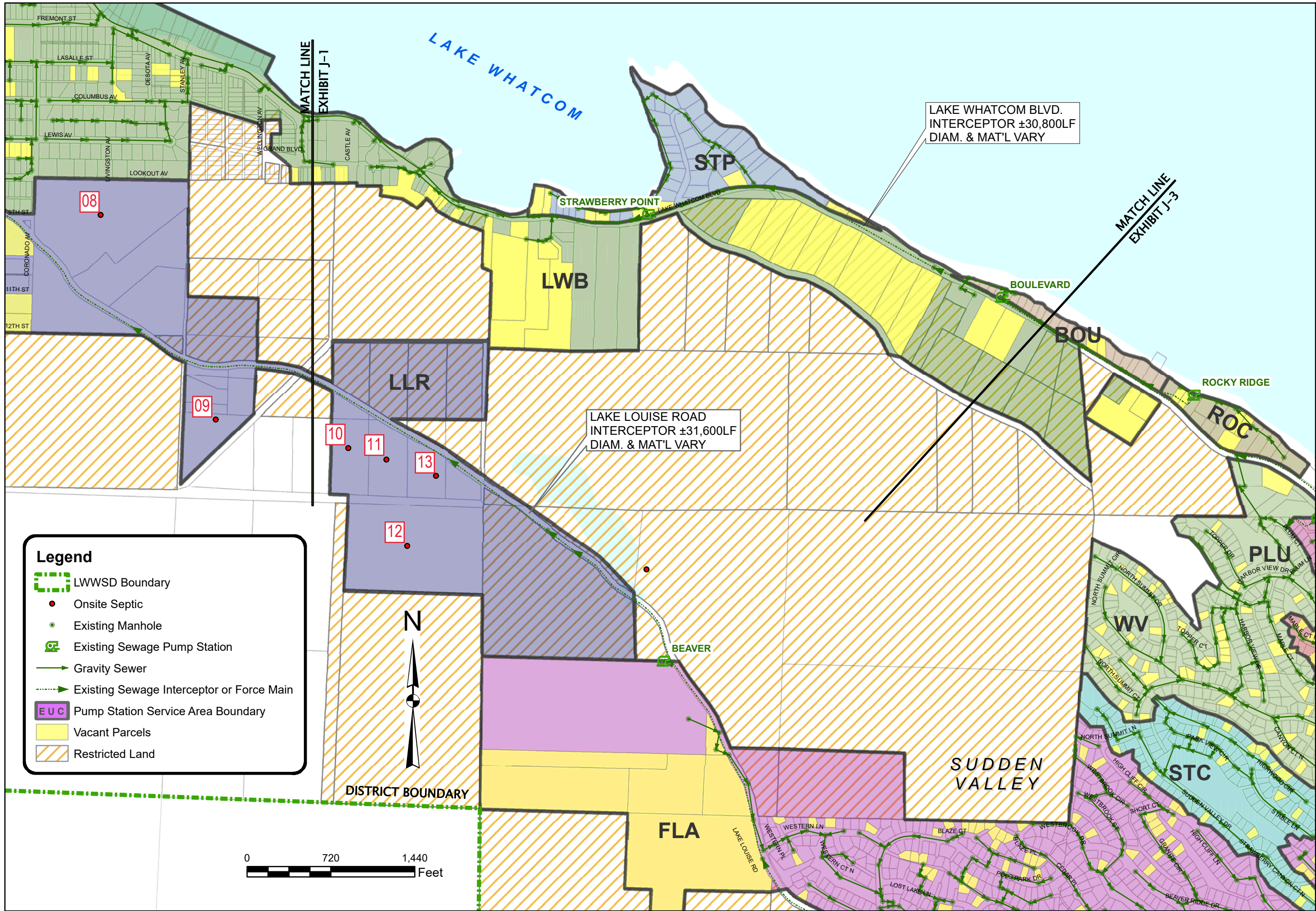
DATE
NOV. 2019

SCALE
AS SHOWN

PROJECT
2019-077


SHEET
1

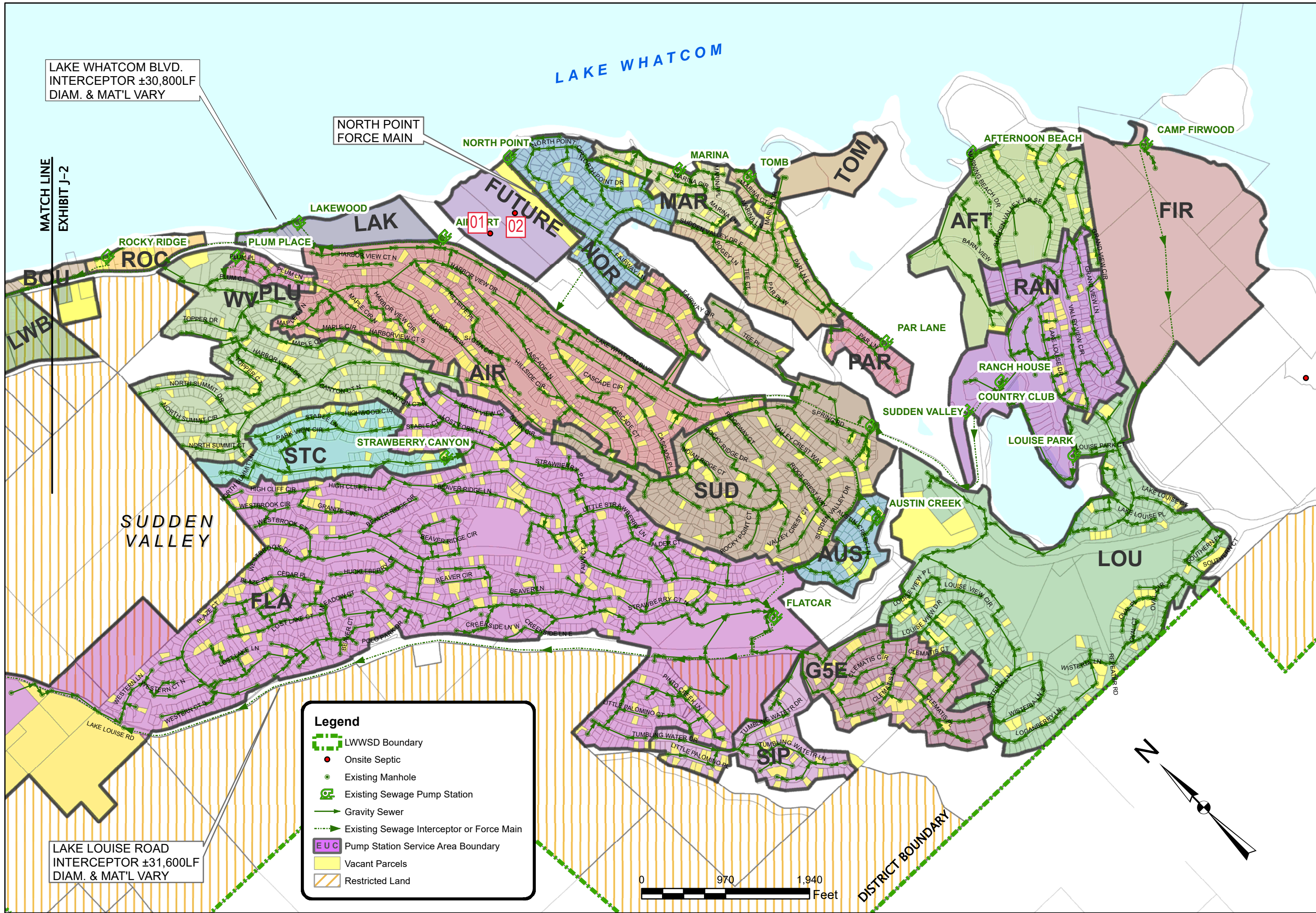
OF
4




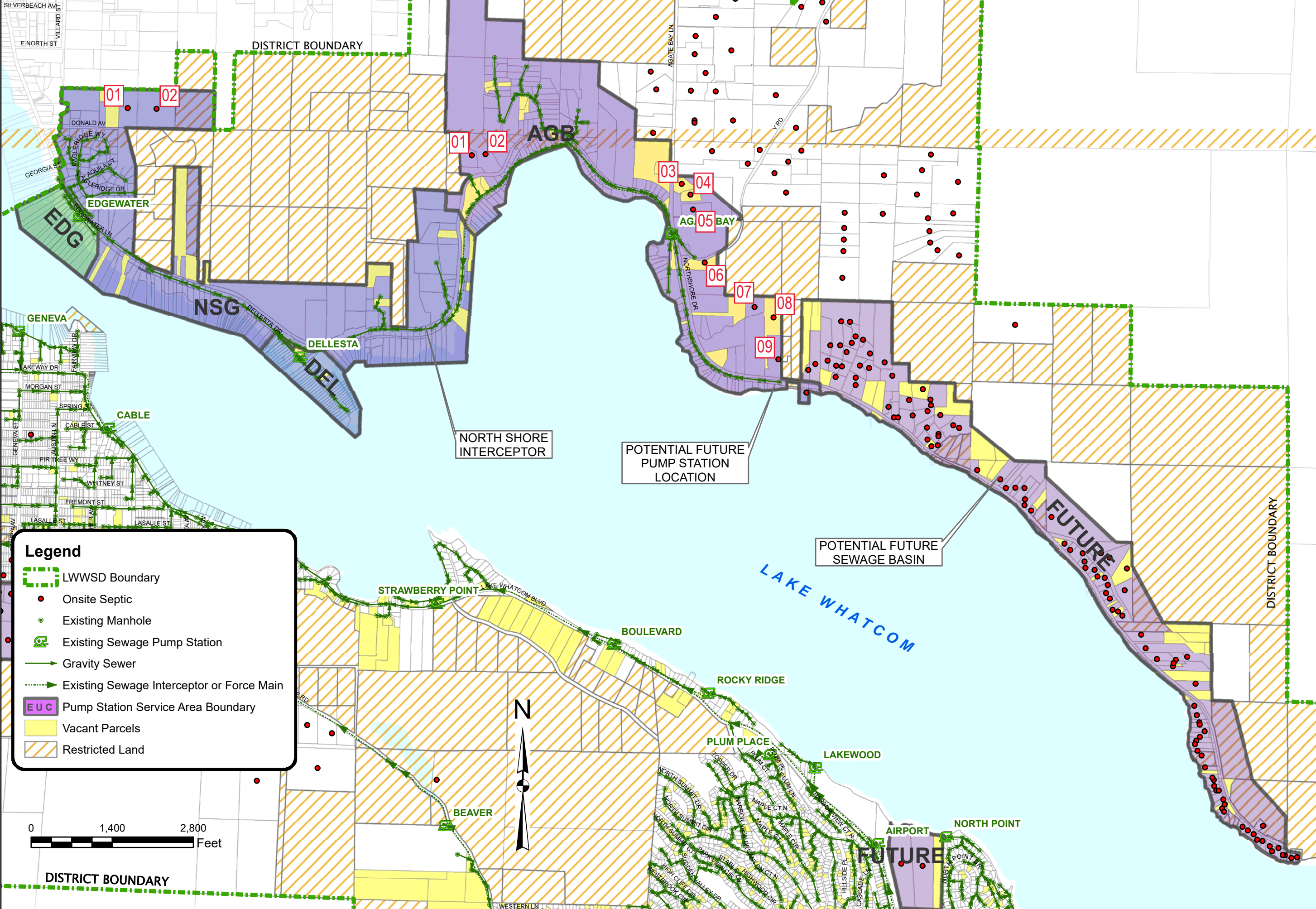
Legend

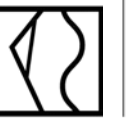
- LWWSD Boundary
- Onsite Septic
- Existing Manhole
- Existing Sewage Pump Station
- Gravity Sewer
- Existing Sewage Interceptor or Force Main
- Pump Station Service Area Boundary
- Vacant Parcels
- Restricted Land

SHEET 2		DATE NOV. 2019	LAKE WHATCOM WATER & SEWER DISTRICT			DESIGNED BY MMM	<div><div><div>CIVIL STRUCTURAL SURVEY</div><div>WILSON ENGINEERING</div><div>WILSONENGINEERING.COM</div></div></div>	
			WASHINGTON					
OF 4		SCALE AS SHOWN	EXHIBIT J-2			DRAWN BY JMR	CHECKED BY MMM	
		PROJECT 2019-077	SUDDEN VALLEY – GENEVA POTENTIAL SEWER GROWTH MAP					



CIVIL WILSON ENGINEERING		STRUCTURAL SURVEY	
		WILSONENGINEERING.COM	
DESIGNED BY MMM	DRAWN BY JMR	CHECKED BY MMM	
LAKE WHATCOM WATER & SEWER DISTRICT			
EXHIBIT J-3 SUDDEN VALLEY - GENEVA POTENTIAL SEWER GROWTH MAP			
DATE NOV. 2019	SCALE AS SHOWN	PROJECT 2019-077	
SHEET 3	OF 4		



 WILSON ENGINEERING WILSONENGINEERING.COM		CIVIL STRUCTURAL SURVEY		
		DESIGNED BY MMM		
LAKE WHATCOM WATER & SEWER DISTRICT		WASHINGTON		
BELLINGHAM		EXHIBIT J-4 NORTH SHORE POTENTIAL SEWER GROWTH MAP		
DATE NOV. 2019	SCALE AS SHOWN	PROJECT 2019-077		
SHEET 4	OF 4			

On-site Sewage System-to-Sewer System Connection Analysis
Lake Whatcom Water and Sewer District

ID No.	Parcel No.	Abuts Sewer Main ¹	UGA/ LAMIRD ²	Sewer <200' from property line ¹	Sewer <150' from property line ¹	Sewer Type ³	Structure <150' from property line ³
LLR3-01	380327-013010-0000	No	Yes	-	NA	NA	NA
GRV-01	380334-120485-0000	Yes	Yes	Yes (noticed 02.2019)	NA	NA	NA
CAB-01	380334-514558-0000	Yes	Yes	Yes (noticed 02.2019)	NA	NA	NA
GV-FUTURE-01	380334-409248-0000	No	No	NA	-	-	-
GV-FUTURE-02	380334-417149-0000	No	No	NA	-	-	-
GV-FUTURE-03	380334-432249-0000	No	No	NA	-	-	-
GV-FUTURE-04	380334-437216-0000	No	No	NA	-	-	-
GV-FUTURE-05	380334-453246-0000	No	No	NA	-	-	-
GV-FUTURE-06	380334-450166-0000	No	No	NA	-	-	-
GV-FUTURE-07	380334-455250-0000	No	No	NA	-	-	-
GV-FUTURE-08		No	No	NA	-	-	-
GV-FUTURE-09	380334-494211-0000	No	No	NA	-	-	-
GV-FUTURE-10	380334-510250-0000	No	No	NA	-	-	-
GV-FUTURE-11		No	No	NA	-	-	-
GV-FUTURE-12	380335-019213-0000	No	No	NA	-	-	-
GV-FUTURE-13	380335-013172-0000	No	No	NA	-	-	-
GV-FUTURE-14	380335-024154-0000	No	No	NA	-	-	-
GV-FUTURE-15	380335-020138-0000	No	No	NA	-	-	-
GV-FUTURE-16	380335-034186-0000	Yes	No	NA	Yes	Pressure	-
GV-FUTURE-17	380335-034172-0000	No	No	NA	-	-	-
GV-FUTURE-18	380335-048213-0000	Yes	No	NA	Yes	Pressure	-
GV-FUTURE-19	380335-056172-0000	Yes	No	NA	Yes	Pressure	-
LLR-01	380334-477316-0000	No	No	NA	-	-	-
LLR-02	380334-495334-0000	Yes	No	NA	Yes	Pressure	-
LLR-03	380334-543334-0000	Yes	No	NA	Yes	Pressure	-
LLR-04	380335-034253-0000	Yes	No	NA	Yes	Pressure	-
LLR-05	380335-034239-0000	No	No	NA	-	-	-

On-site Sewage System-to-Sewer System Connection Analysis
Lake Whatcom Water and Sewer District

ID No.	Parcel No.	Abuts Sewer Main ¹	UGA/ LAMIRD ²	Sewer <200' from property line ¹	Sewer <150' from property line ¹	Sewer Type ³	Structure <150' from property line ³
LLR-06	380335-073253-0000	Yes	No	NA	Yes	Pressure	-
LLR-07	380335-105152-0000	Yes	No	NA	Yes	Pressure	-
LLR-08	380335-195230-0000	Yes	No	NA	Yes	Pressure	-
LLR-09	380335335078-0000	Yes	No	NA	Yes	Pressure	-
LLR-10	380335-449038-0000	Yes	No	NA	Yes	Pressure	-
LLR-11	380335-480038-0000	Yes	No	NA	Yes	Pressure	-
LLR-12	370302-455490-0000	No	No	NA	-	-	-
LLR-13	380335-530019-0000	Yes	No	NA	Yes	Pressure	-
SV-FUTURE-01	370406-476370-0000	No	Yes	-	NA	NA	NA
SV-FUTURE-02	370406-510365-0000	No	Yes	-	NA	NA	NA
NSG-01	380323-120030-0000	No	No	NA	-	-	-
NSG-02	380323-170030-0000	No	No	NA	-	-	-
AGB-01	380325-161523-0000	No	No	NA	-	-	-
AGB-02	380325-194519-0000	No	No	NA	-	-	-
AGB-03	380430-017437-0000	No	No	NA	-	-	-
AGB-04	380430-032418-0000	No	No	NA	-	-	-
AGB-05	380430-106444-0000	No	No	NA	-	-	-
AGB-06	380430-062306-0000	Yes	No	NA	Yes	Gravity	Yes (confirming distances)
AGB-07	380430-153248-0000	No	No	NA	-	-	-
AGB-08	380430-176233-0000	No	No	NA	-	-	-
AGB-09	380430-178167-0000	Yes	No	NA	Yes	Gravity	Yes (connected 11.2017)
NS-FUTURE	97 OSDSSs-none abut existing sewer		No	NA	-	-	-

¹ District Administrative Code Section 5.1.3


² State Growth Management Act (36.70A Revised Code of Washington)

³ Washington Administrative Code Section 173-240-020(13)



**AGENDA
BILL
Item 9.A**

**General Manager's
Report**

DATE SUBMITTED:	July 23, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. General Manager's Report		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

Updated information from the General Manager in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.



LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager's Report

Upcoming Dates & Announcements

Regular Meeting – Wednesday, July 29, 2020 – 8:00 a.m.

Important Upcoming Dates (Note—all meetings are tentative due to COVID-19)

Lake Whatcom Water & Sewer District			
Board Work Session	Wed Aug 12, 2020	5:30 p.m.	Remote Attendance
Regular Board Meeting	Wed Aug 12, 2020	6:30 p.m.	Remote Attendance
Employee Staff Meeting	Thu Aug 13, 2020	8:00 a.m.	Remote Attendance Commissioner McRoberts to attend
Investment Comm. Meeting	Wed Jul 29, 2020	10:00 a.m.	Remote Attendance
Safety Committee Meeting	Tue Jul 30, 2020	8:00 a.m.	Remote Attendance
Lake Whatcom Management Program			
Data Group Meeting	Thu Aug 13, 2020	9:00 a.m.	Remote Attendance
Policy Group Meeting	Wed Sep 23, 2020	3:00 p.m.	City of Bellingham Fireplace Room 625 Halleck Street
Joint Councils Meeting	2020 Meeting Cancelled	-	-
Other Meetings			
WASWD Section III Meeting	Tue Aug 11, 2020	7:00 p.m.	Remote Attendance
Whatcom Water Districts Caucus Meeting	Wed Aug 19, 2020	1:00 p.m.	Remote Attendance
Whatcom County Council of Governments Board Meeting	Wed Oct 14, 2020	3:00 p.m.	Council of Governments Offices 314 E Champion Street

Committee Meeting Reports

Safety Committee:

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

Investment Committee:

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

Upcoming Important Board Meeting Topics

- Nooksack River Basin Adjudication Update
- Division 7 Reservoir Pre-design Update
- Lake Whatcom Boulevard Sewer Main Cleaning/Renovation Analysis Presentation
- Interlocal Agreement with the City of Bellingham for Emergency Intertie Use
- Sudden Valley Area Z Developer Extension Agreement Project Acceptance

2020 Initiatives Status

Administration and Operations

Level-of-Service Analysis

- Facilitate Board development of level-of-service standards for District operations.
The initial step in completing the Effective Utility Management process is to conduct a self-assessment at varying levels of the organization. The self-assessment has been completed by the management team and staff as of June 10. The self-assessment by the board will be completed during a work session on August 12.

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.
To be initiated following completion of the Effective Utility Management self-assessment.

Rate Study

- Conduct rate study for the water and sewer utilities for the five-year planning horizon.
To be initiated following completion of the 2020 Comprehensive Sewer Plan, the Sudden Valley Water Treatment Plant Facility Improvement Plan, and the Six-Year Business Plan.

Biennial Budget

- Facilitate Board consideration of shifting from an annual to a biennial budget.
Staff plans to complete in summer.

Bond Rating Review

- Pursue a higher bond rating.
Staff plans to complete in fall.

Staffing Succession Plan

- Develop a staffing succession plan to address anticipated retirements over the next five years.
The plan is under development.

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 and Engineering department descriptions are 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 part of the AWIA Risk and Resilience Assessment, staff have begun mapping the District's IT system.

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, and one summarizing the results of the District's 2018-19 audit was issued May 20.

Intergovernmental Relations

- *J. Clary attended the Whatcom Water Districts Caucus virtual meeting on July 15.*
- *J. Clary attended Whatcom County Council Public Works & Health Committee meeting and County Council meeting on July 21.*

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 (virtual) meeting July 9; printed copies of the updated Lake Whatcom Watershed Stewardship Guide to be mailed to all watershed residents by month end.

Onsite Septic System Impact Assessment

- Lead effort in water quality monitoring to assess the impacts of septic systems on the lake.
Herrera has conducted all five scoped monitoring events (on March 3 and 24, April 27, May 11, and June 2). Data evaluation and report preparation are underway.


Onsite Septic System Conversion Program

- Pursue connection of septic-served parcels within 200 feet of District sewer system.
*Of the three properties noticed in 2019, two have connected (January 7 and July 2); owners of the remaining property have been in contact with the District. Based upon Board authorization, that property has until August 2021 to connect.
A white paper to facilitate analysis of the District's septic conversion policy was issued to the Board on April 9; a work session (virtual) was conducted on July 8.*



**AGENDA
BILL
Item 9.B**

**Engineering Department
Report**

DATE SUBMITTED:	July 23, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Bill Hunter, District Engineer		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Engineering Department Report		
	2. Summary of District Projects		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

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 July 29, 2020 Board Meeting
Data Compiled 07/21/20 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	3865	70	44	2
Remaining Capacity (ERUs)	**	15	13	0
Permitted ERUs Under Construction	30	0	0	0
Pre-paid Connection Certificates & Expired Permit	15	0	5	0
Water Availabilities (trailing 12 months)	55	0	0	0
Subtotal - Commitments not yet connected	100	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		Prior to Final Acceptance	
<input checked="" type="checkbox"/> 1. District Engineer approves design <input checked="" type="checkbox"/> 2. Reimbursement of District Engineer review costs <input checked="" type="checkbox"/> 3. Copy of insurance policy <input checked="" type="checkbox"/> 4. Copies of recorded easement <i>n/a: to be recorded prior to final acceptance, property owned by Sudden Valley Community Association</i> <input checked="" type="checkbox"/> 5. Copies of permits <input checked="" type="checkbox"/> 6. Pay Developer Conformance Deposit <i>Receipt #16291 8/14/18</i> <input checked="" type="checkbox"/> 7. Developer delivers performance bond <i>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</i> <input checked="" type="checkbox"/> 8. Pays 25% of total amount of general facilities connection fees due to District <i>n/a: no new connection</i> <input checked="" type="checkbox"/> 9. Pays District Administration, Legal Services, and Inspection Deposit <i>Receipt #16291 8/14/18</i> <input checked="" type="checkbox"/> 10. District Issues Notice to Proceed w/Construction		<input checked="" type="checkbox"/> 1. District inspects & approves facilities as complete <input type="checkbox"/> N/A 2. District receives water meters for each service <input checked="" type="checkbox"/> 3. District accepts record drawings <input checked="" type="checkbox"/> 4. District accepts easements & title insurance <input type="checkbox"/> 5. District receives warranty bond or like security <input type="checkbox"/> 6. District receives maintenance bond <input checked="" type="checkbox"/> 7. District receives and approves Bill of Sale <input type="checkbox"/> N/A 8. District receives a copy of recorded plat or legal description <input checked="" type="checkbox"/> 9. District receives legal description of property <input type="checkbox"/> N/A 10. District receives Latecomers Reimbursement fees due to other Developers (if applicable) <input checked="" type="checkbox"/> 11. Developer pays any applicable Supplemental DEA Processing/General Administrative fees <input type="checkbox"/> N/A 12. District receives signed and notarized Latecomers Reimbursement Agreement (when applicable) <input type="checkbox"/> 13. Developer has reimbursed the District for all incurred costs associated with DEA <input type="checkbox"/> 14. Developer has met and completed all local, state, and federal permit requirements <input checked="" type="checkbox"/> 15. Copies of recorded easement on file with District	
Tasks/Notes			
<ul style="list-style-type: none"> 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)	
<ul style="list-style-type: none"> • 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 7/22/2020

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
-16	C1708	Ball Check Valves at Austin and Beaver Sewer Pump Stations	\$8,519	\$8,519	\$0												
-14	C1716B	Geneva Booster Station - PRV's, Backflow, Roof	\$40,000	\$38,596	\$1,404												
-12	A1901	Whatcom County Region GIS Imagery Partnership 2019 Flight	\$1,000	\$1,000	\$0												
-11	C1904	Comprehensive Sewer Plan Update	\$79,832	\$80,143	\$311												
-10	C2001	Demolish Old Concrete Reservoir at 1010 Lakeview St	\$55,000	\$45,997	\$9,003												
-9	C2004	Quick Connect Fitting Kit for CAT Backhoe	\$4,000	\$3,343	\$657												
-8	C2005	Used Forklift	\$20,000	\$0	\$20,000												
-7	C2008	Tool Truck with Snowplow and Sander Attachments	\$86,300	\$0	\$86,300												
-6	C2009	Flush-Vac Truck	\$525,000	\$0	\$525,000												
-5	A2020	Design and Construction Standards Update	\$8,175	\$6,613	\$1,562												
-4	A2022	Onsite Records Management Assessment	\$5,952	\$5,952	\$0												
-3	M2023	District Facilities Pavement Striping	\$2,476	\$0	\$2,476												
2	C1716A	Dead End Blowoffs	\$20,000	\$18,518	\$1,482												
4	C1802	Dellesta, Edgewater & Euclid Sewer Pump Stations	\$1,057,472	\$302,306	\$755,166												
15.5	M1811	North Shore FM Stream Crossing Protection (FIX WASHOUT)	\$0	\$2,542	\$2,542												
16	C1814	Agate Heights WTP and Opal Booster Upgrades	\$124,320	\$55,102	\$69,218												
20	A1902	Compulsory Sewer Connections	\$20,000	\$563	\$19,438												
22	C1908	Fire Flow Improvements - Hydraulic Model Calibration	\$15,000	\$4,557	\$10,444												
23	C1909	Little Strawberry Bridge Water Main Predesign & Estimate	\$20,000	\$0	\$20,000												
24	C1910	SVWTP and AHWTP Misc Component Replacement	\$72,000	\$60,262	\$11,738												
25	C1913	SVWTP 20-Year Facility Plan	\$159,710	\$29,912	\$129,798												
26	M1917	AB PLC-5 Replacements and UPS Improvements	\$100,000	\$0	\$100,000												
27	A1919	OSS Impact Assessment	\$100,000	\$79,706	\$20,294												
29	C2002	Johnson Well Storage Building - New Siding and Paint	\$27,500	\$0	\$27,500												
30	C2003	Sewer System Rehab and Replacement Projects	\$71,460	\$29,667	\$41,793												
33	C2006	SCADA Telemetry - Managed Ethernet Switches	\$20,000	\$0	\$20,000												
34	C2007	Administrative Server Hardware	\$25,000	\$0	\$25,000												
37	C2010	Beaver, Flat Car, SVPS Motor Leads	\$18,000	\$0	\$18,000												
38	C2011	Convert Eagleridge Booster to Metering Station	\$30,000	\$0	\$30,000												
39	C2012	Austin-Fremont PRV Rebuild	\$10,000	\$0	\$10,000												
40	C2013	Geneva and Div 22 Res Impressed Current Cathodic Protection	\$40,000	\$0	\$40,000												
41	C2014	Water Meters and Registers	\$13,000	\$4,230	\$8,770												
42	C2015	Fire Hydrant Flow Testing Kit	\$3,500	\$0	\$3,500												
43	C2016	SVWTP Misc Component Replacement	\$40,000	\$0	\$40,000												
44	C2017	Fire Hydrant Stortz Adapters	\$12,000	\$180	\$11,820												
45	M2018	Annual Asphalt Patching	\$35,000	\$0	\$35,000												
46	M2019	Annual Tree Trimming	\$10,000	\$0	\$10,000												
48	A2021	AWIA Risk Assessment and Emergency Response Plans	\$10,000	\$0	\$10,000												
NOTATION LEGEND																	
A	Administrative Project					p											
C	Capital Project					a											
M	Maintenance Project					c											
	Sewer Project (Green Font)					t											
	Water Project (Blue Font)																
	Sewer and Water Project (Black Font)																



**AGENDA
BILL
Item 9.C**

**Finance Department
Report**

DATE SUBMITTED:	July 23, 2020	MEETING DATE:	July 29, 2020
TO: BOARD OF COMMISSIONERS	FROM: Debi Denton, Finance Manager		
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Monthly Budget Report & Investment Report		
	2. Monthly Adjustment Report		
	3. Quarter 2 2020 Financial Report		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

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	1,307,705	2,218,514	-	3,526,219
2020 EXPENDITURES	(1,265,713)	(1,614,848)	-	(2,880,561)
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	\$1,489,264	\$2,754,129	\$772,335	\$5,015,728
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	\$509,264	\$1,538,041	\$772,335	\$2,819,640

LAKE WHATCOM WATER AND SEWER DISTRICT				
	Description	Budget 2020	6/30/2020	50%
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	1,216,924	46.22%
401-343-41-10	Permits (15 new connection permits) \$6,000	90,000	57,871	64.30%
401-343-81-10	Combined Fees (Increase in Lien and Lock fees)	35,000	8,143	23.27%
401-359-90-00	Late fees	55,000	14,484	26.33%
401-361-11-00	Investment Interest	30,000	9,970	33.23%
401-369-10-00	Sale of scrap metal and surplus	3,000	69	0.023
401-369-10-01	Miscellaneous	1,000	244	24.40%
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	1,307,705	45.30%
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT				
	Description	Budget 2020	6/30/2020	50%
SEWER - 402				
REVENUES				
402-343-41-10-02	Permits (15 new connection permits) \$9,000	135,000	78,413	58.08%
402-343-50-11	Sewer Service Residential (2.5% rate increase) *	4,186,946	2,121,543	50.67%
402-343-50-19	Sewer Service Other	4,500	2,391	53.13%
402-343-50-80	Latecomer's Fees	-	-	0
402-361-11-00-02	Investment Interest	30,000	8,219	27.40%
402-361-40-00-80	ULID 18 Interest/Penalties	4,000	2,636	65.90%
402-368-10-00-80	ULID 18 Principal Payments	15,000	858	5.72%
402-369-10-00-02	Sale of scrap metal and surplus	3,000	69	0.023
402-369-10-00-02	Miscellaneous	1,000	244	24.40%
402-369-40-02	Judgements and Settlements	-	4,141	0
402-395-10-00-02	Sale of Capital Assets	-	-	0
402-395-20-02	Insurance Recoveries	-	-	0
	TOTAL REVENUES	4,379,446	2,218,514	50.66%
	* Per Resolution 844 effective 1/1/2020			
	Scheduled annual rate increase			

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	6/30/2020	50%
<i>WATER - 401</i>	<i>OPERATING EXPENDITURES</i>			
401-534-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	173,164	48.93%
401-534-10-20	Admin Personnel Benefits	174,250	74,948	43.01%
401-534-10-31	Gen Admin Supplies/Equipment (Master Meter Software)	35,000	15,092	43.12%
401-534-10-31-01	Meetings/Team building	2,000	708	35.40%
401-534-10-40	Merchant Services Fees	10,000	5,483	54.83%
401-534-10-40-01	Bank Fees		501	
	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	63,829	
	Mutt Mits	5,000	5,575	
401-534-10-41	Water Quality Assurance Programs (TOTAL)	165,000		
	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		
	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		

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	6/30/2020	50%
	IT Pipes	750		
	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)	116,250	66,942	57.58%
401-534-10-41-02	Water Engineering Services	5,000	11,793	235.86%
401-534-10-41-03	Water Legal Services	20,000	11,151	55.76%
401-534-10-41-04	DEA expenditures		2,200	
401-534-10-42	Communication	30,000	14,760	49.20%
401-534-10-45	Admin Lease (copy/printers)	5,000	2,352	47.04%
401-534-10-46	Property Insurance	72,000	-	0.00%
401-534-10-49	Admin Misc.	500	25	5.00%
401-534-10-49-01	Memberships/Dues/Permits	10,000	12,564	125.64%
401-534-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	51,911	45.14%
401-534-40-43	Training & Travel	17,500	4,705	26.89%
401-534-40-43-01	Tuition reimbursement	500	-	0.00%
401-534-50-31	Operations/Maintenance Supplies	75,000	85,673	114.23%
401-534-50-31-01	Small Assets/tools	25,000	26,687	106.75%
401-534-50-48	Operations Repair/Maint contracted work	60,000	26,140	43.57%
401-534-50-49	Insurance Claims	2,500	-	0.00%
401-534-60-41	Operations Contracted (water testing)	7,500	5,746	76.61%
401-534-60-47	Water City of Bellingham	45,000	-	0.00%
401-534-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	575,561	291,337	50.62%
401-534-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	124,196	50.16%
401-534-80-32	Fuel	15,000	4,761	31.74%
401-534-80-35	Safety Supplies (Ergonomic Assessment)	10,000	2,804	28.04%
401-534-80-35-01	Safety Supplies Boots	1,250	296	23.68%
401-534-80-35-02	Emergency Preparedness	5,000	2,478	49.56%
401-534-80-43-00	Water - Operatoins Training/Travel/Certification		211	
401-534-80-47	General Utilities (Electric, gas, water, garbage)	110,000	60,736	55.21%
401-534-80-49	Laundry	2,000	772	38.60%
	WATER OPERATING EXPENDITURES	2,313,301	1,205,816	52.13%

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	6/30/2020	50%
<i>DEBT SERVICE</i>				
401-591-34-77-01	Redemption of Long Term Debt Geneva AC Mains	119,938		
401-591-34-77-02	Redemption of Long Term Debt Div 22 Reservoir	65,475		
401-592-34-83-01	Debt Service Interest Geneva AC Mains	28,785		
401-592-34-83-02	Debt Service Interest Div 22 Reservoir	17,678		
<i>SYSTEM REINVESTMENT</i>				
	2019 System Reinvestment Projects	105,000		
	2020 System Reinvestment Projects	397,400		
401-534-10-41-20	20 Year Plan for SVWTP C19-13		20,744	
401-594-34-62-01	Water Structures		13,147	
401-594-34-63-01	Water System		12,448	
401-594-34-64-01	Water Equipment		13,558	
WATER FUND	TOTAL WATER REVENUES	2,886,739	1,307,705	
	TOTAL WATER EXPENDITURES	(3,047,577)	(1,265,713)	
	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	306,434	509,264	

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	6/30/2020	50%
SEWER - 402				
OPERATING EXPENDITURES				
402-535-10-10	Admin Payroll (2.2% cola plus step increases - 2020)	353,900	173,163	48.93%
402-535-10-20	Admin Personnel Benefits	174,250	74,946	43.01%
402-535-10-31	Gen Admin Supplies/Equipment	20,000	15,738	78.69%
402-535-10-31-01	Meetings/Team building	2,000	913	45.65%
402-535-10-40	Merchant Services Fees	10,000	5,482	54.82%
402-535-10-40-01	Bank Fees	-	392	
	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		
	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	6/30/2020	50%
	Cyberlock software	500		
	Whatcom County Emergency Management	10,000		
	Misc (Bid notices etc.)	2,500		
402-535-10-41-01	Professional Services (TOTAL)	114,750	66,342	57.81%
402-535-10-41-02	Engineering Services	5,000	7,610	152.20%
402-535-10-41-03	Legal Services	20,000	15,042	75.21%
402-535-10-41-04	DEA expenditures		-	
402-535-10-42	Communication	30,000	14,797	49.32%
402-535-10-45	Admin Lease (copy/printers)	5,000	2,352	47.04%
402-535-10-46	Property Insurance	72,000	-	0.00%
402-535-10-49	Admin Misc.	500	60	12.00%
402-535-10-49-01	Memberships/Dues/Permits	8,000	6,897	86.21%
402-535-10-49-02	WA State Dept of RevenueTaxes/County Stormwater fees	115,000	51,910	45.14%
402-535-40-43	Training & Travel	17,500	3,659	20.91%
402-535-40-43-01	Tuition reimbursement	500	-	0.00%
402-535-50-31	Operations/Maintenance Supplies	75,000	19,873	26.50%
402-535-50-31-01	Small Assets/tools	25,000	14,922	59.69%
402-535-50-48	Operations Repair/Maint contracted work	60,000	57,230	95.38%
402-535-50-49	Insurance Claims	2,500	-	0.00%
402-535-60-41	Operations Contracted (generator load testing)	15,000	985	6.57%
402-535-60-47	Sewer City of Bellingham Treatment Fee	680,000	402,340	59.17%
402-535-80-10	Operations Payroll (2.2% cola plus step increases - 2020)	483,494	234,207	48.44%
402-535-80-20	Operations Personnel Benefits (Medical,Retirement etc)	247,590	99,154	40.05%
402-535-80-32	Fuel	13,000	6,132	47.17%
402-535-80-35	Safety Supplies (Ergonomic Assessment)	10,000	2,615	26.15%
402-535-80-35-01	Safety Supplies Boots	1,250	296	23.68%
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	60,556	60.56%
402-535-80-49	Laundry	2,000	1,166	58.30%
	SEWER OPERATING EXPENDITURES	2,668,234	1,342,108	50.30%

LAKE WHATCOM WATER AND SEWER DISTRICT

	Description	Budget	6/30/2020	50%
<i>DEBT SERVICE</i>				
402-591-35-72-03	2016 Bond Principal Payments	425,000	-	
402-592-35-83-03	2016 Bond Interest Payments	218,176	109,088	
<i>SYSTEM REINVESTMENT</i>				
	2019 Sewer System Reinvestment Projects	770,000		
	2020 Sewer System Reinvestment Projects	491,500		
	Sewer Comp Plan C19-04		22,779	
402-594-35-62-02	Sewer Structures		108,225	
402-594-35-63-02	Sewer System		10,107	
402-594-35-64-02	Sewer Equipment		22,541	
402-594-35-64-02	Sewer Equipment (Flush/Vac Truck)	525,000		
SEWER FUND	TOTAL SEWER REVENUES	4,379,446	2,218,514	
	TOTAL SEWER EXPENDITURES	(5,097,910)	(1,614,848)	
	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	215,911	1,537,953	



LAKE WHATCOM WATER AND SEWER

INVESTMENTS/CASH AS OF 6/30/2020

Petty Cash	\$	1,600	
Cash	\$	659,067	0.35%
Public Funds Account	\$	502,437	0.10%
LGIP	\$	1,035,131	0.37%

	\$	2,198,235	

			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		\$	5,024,005		

USE OF FUNDS:

Reserved	\$	772,334	
Contingency	\$	1,256,088	
Unrestricted	\$	2,995,583	

	\$	5,024,005	

Jun-20

ADJUSTMENTS

180023054

\$ 515.44 Water Leak Adjustment

TOTAL

\$ 515.44



Quarterly Financial Report Second Quarter 2020

Lake Whatcom Water and Sewer District
Bellingham, Washington

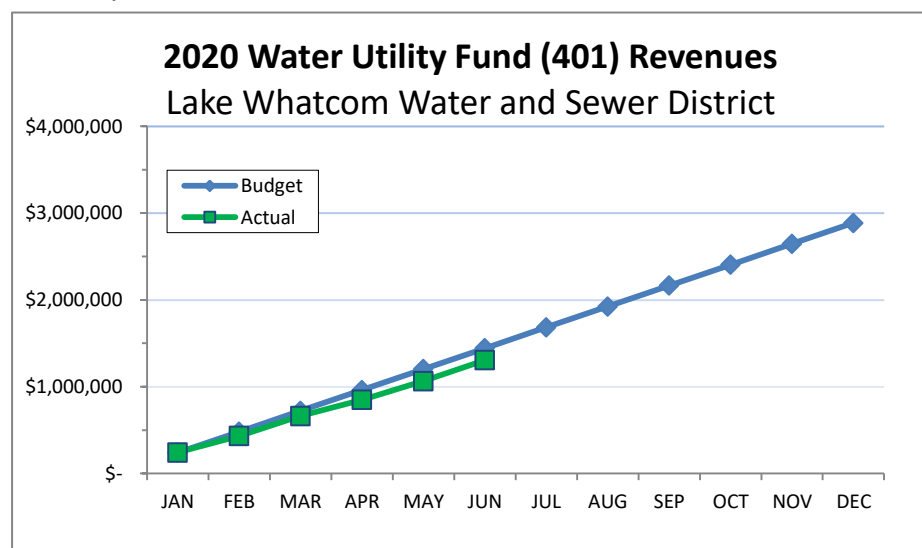
Summary

Through the first half of 2020, the Lake Whatcom Water and Sewer District (District), like the world, has faced many significant and unanticipated challenges resulting from the COVID-19 pandemic. While the pandemic has forced the District to implement many operational and service-related adjustments to ensure continuous function of our infrastructure while protecting both District staff and customers, the District has been fortunate in incurring relatively little impact to its finances. Unlike our general purpose government partners (city, county, and state agencies) that rely heavily on taxes to fund operations, the District's primary revenue stream is from its rates for water and sewer services. Though customer assistance programs have been in-place over the past quarter that could impact revenues (cessation of late fees and shut-offs for failure to pay utility bills), these programs have had limited impact on actual revenues. Whether this is due to the socio-economic makeup of the District, the likelihood that the full economic impacts of the pandemic have yet to be realized, or a combination thereof, only time will tell. As a result, the District remains financially sound, with its operating and contingency reserves associated with both its water and sewer utilities fully funded.

In summary, through the first half of 2020, expenditures and revenues associated with the District's Water Utility Fund (Fund 401) and Sewer Utility Fund (Fund 402), which serve as the primary operational funds for the District's water and sewer utilities, respectively, largely followed financial projections reflected in the 2020 Budget. While both funds' expenditures lagged behind projections, it is anticipated that expenses associated with large capital improvement projects will increase now that construction in the Lake Whatcom Watershed has resumed (the land disturbance window opened June 1). While it is too early to fully assess the pandemic's effects on both revenue and expenditures, staff continue to closely monitor District funds and will make necessary adjustments to expenses, if warranted.

Water Utility Fund (Fund 401)

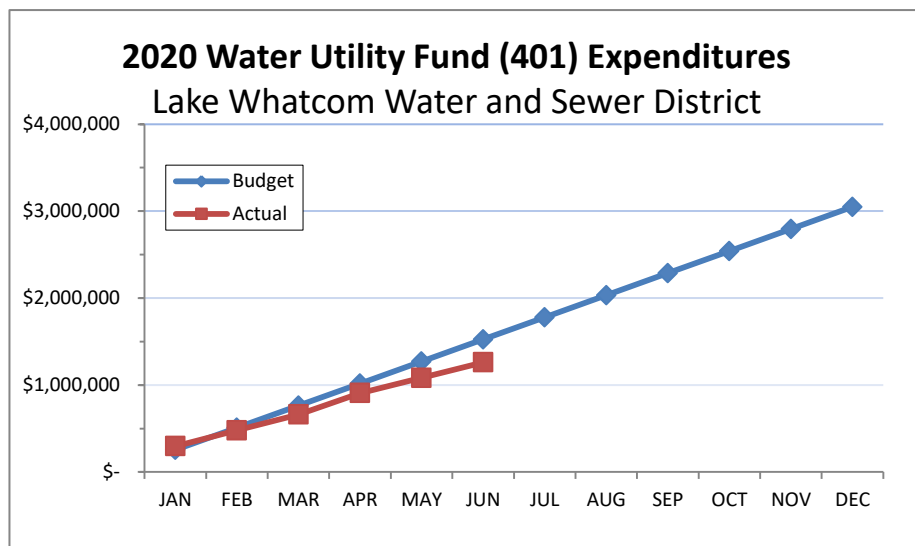
Through June 30, 2020, Water Utility Fund revenues were \$1,307,078, which are approximately \$136,000 less than revenues projected through the first half of the year in the 2020 Budget (\$1,443,372). This is relatively consistent with prior years' revenues, which typically lag projections



through the first half of each year, and then grow significantly during the third quarter due to

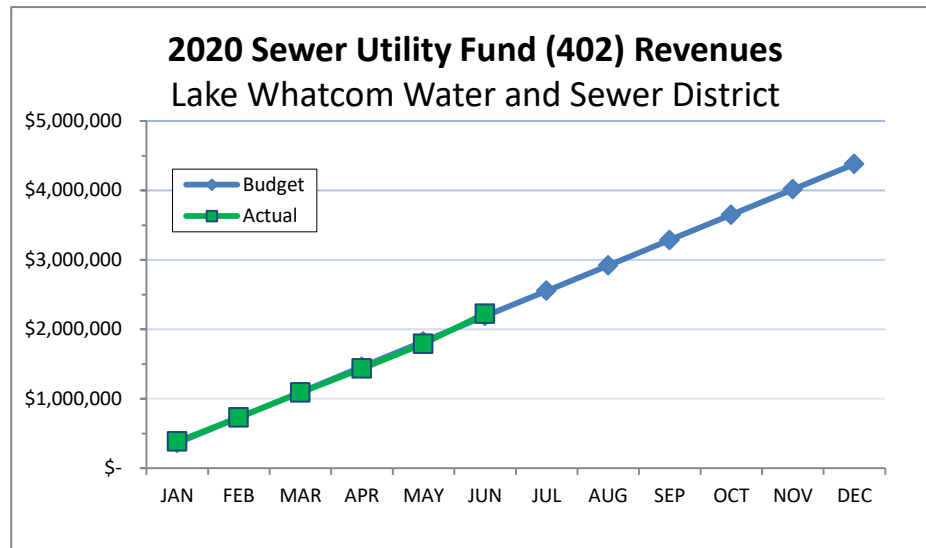
increased water sales (e.g., lawn watering during dry summer months). However, revenues are tracking closer to the linear budget projection than anticipated year-to-date; this may be due to the impacts of higher consumption related to more customers being home during March through June under Governor Inslee's Stay Home—Stay Healthy order and Safe Start Washington program in response to the COVID-19 pandemic (the District's customer base is predominantly residential). In addition, though the District has waived late fees and is not currently shutting off customers for delinquent accounts as a relief measure to economic impacts of the pandemic, late fee revenue is not a significant revenue stream for the District (it makes up less than 2% of the utility's gross revenue) and most customers are remaining current in payment of their account balances; therefore, the District has not seen a significant impact to its water revenue streams as a result of the pandemic.

Water Utility Fund expenditures were about \$260,000 under first half of the year budget projections (41.4% of the budget expended over the first six months). This is consistent with prior years, where expenditures associated with large capital improvement projects are incurred during the Lake Whatcom land disturbance window (June 1 through September 30). In addition, many capital projects (e.g., Lakeview Reservoir demolition) and large equipment purchases (e.g., vac truck and utility truck) that were completed/ordered in the first half of the year, have not yet been billed/delivered. In general, personnel expenditures are tracking with the budget year-to-date, as are services. Expenditures associated with supplies are significantly exceeding the budget projections (94% of the 2020 budget expended through the first six month); this is attributed to a significant increase in spending to bolster the District's parts inventory in the event that there is a supply chain disruption caused by the COVID-19 pandemic, as well as increased spending in equipment and materials (e.g., laptops, personnel protective equipment, etc.) in response to the pandemic. Staff will closely monitor expenditures on supplies relative to the overall Water Utility Fund budget through the remainder of the year.



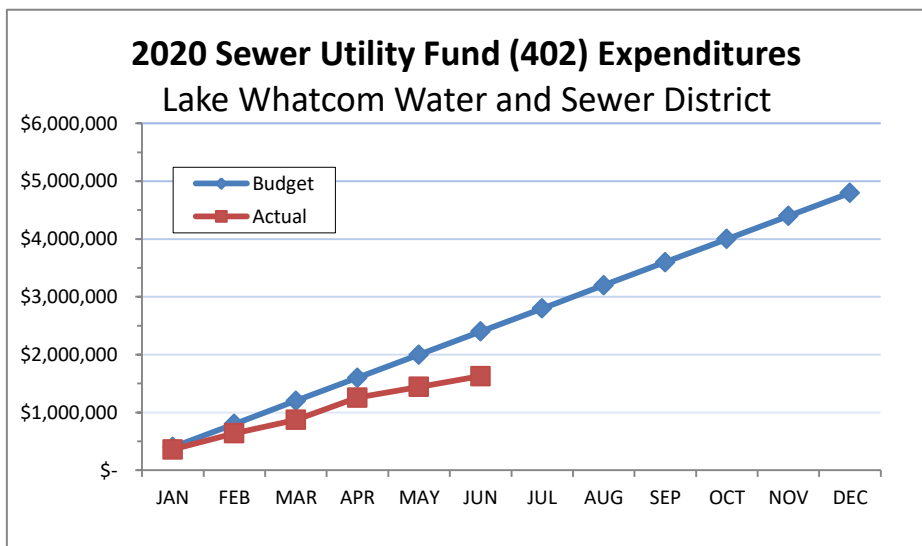
Sewer Utility Fund (Fund 402)

Unlike the seasonal variations in revenues that the Water Utility witnesses, the uniform rate structure for sewer accounts allows for little variation in revenues throughout the year. As anticipated, Sewer Utility Fund revenues were consistent with projections during the first half of 2020 (revenues exceeded



budget projections by approximately \$36,000, which is equivalent to 51% of the total revenue projection for 2020). Of note, in spite of concerns regarding economic impacts resulting from the COVID-19 pandemic, permit fee revenues (associated with new development) are exceeding budget projections year-to-date (by approximately \$11,000) and staff continue to witness significant interest from the development community.

As was reported following the first quarter, Sewer Utility expenditures continue to lag behind projections during the first half of the year (\$1,627,863 in actual expenditures relative to \$2,399,154 budgeted). As presented in the Water Utility Fund expenditures discussion above, Sewer Utility expenditures typically increase significantly during the summer months when expenses associated with large capital improvement projects are incurred. In addition, the costs associated with the vac truck and utility truck (shared with the Water Utility) will not be incurred until vehicle delivery later this year (both vehicles were ordered in January-February). In regards to day-to-day operational costs of the District (personnel salary and benefits, professional services, utilities, etc.), these costs exceeded budget projections by approximately \$27,000, which is down from the \$100,000 exceedance



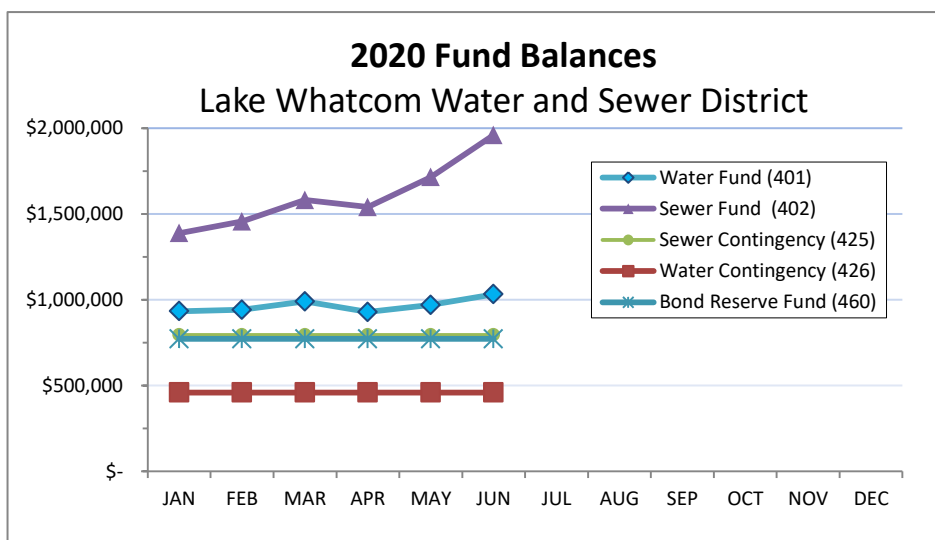
observed after the first quarter that was attributed to a larger payment for sewage treatment to the city of Bellingham than was budgeted; staff anticipates these expenditures to continue to move toward alignment with budget projections as the year progresses.

District Fund Balances

The 2020 Budget marked a shift from prior budgets in the District's overall fund structure for managing District monies. The new structure is comprised of five primary funds: Water Utility Fund, Sewer Utility Fund, Sewer Contingency Reserve Fund, Water Contingency Reserve Fund, and Bond Reserve Fund. To simplify the fund structure, prior system reinvestment funds and debt service funds associated with each utility have been integrated into that utility's primary fund (401 and 402). The following discussion summarizes the activity associated with each fund over the first half of 2020.

Water Utility Fund (Fund 401)

The Water Utility Fund, which serves as the primary operating fund for the District's water utility, derives most of its revenue from rates charged to water customers. Fund expenditures are comprised of general operating expenses (personnel salary and benefits, professional services, utilities, etc.),



payments relative to debt service on past capital improvement projects, and expenditures on water system reinvestment-defined equipment and projects. Also managed within the Water Utility Fund are monies allocated towards an operating reserve, which is equal to the cost of operating the water utility for 90 days (\$520,000). The fund entered 2020 with a balance of \$987,272. Over the first half of the year, fund revenues remained consistent with expenditures, with the June 30 balance being \$1,033,234. As is reflected in the 2020 Budget, there was a significant amount of funds carried over from 2019 that are allocated towards 2020 projects. As a result, the overall Water Utility Fund balance is expected to be drawn down from the starting fund balance by approximately \$160,000 over the course of the year as projects are completed.

Sewer Utility Fund (Fund 402)

Like the Water Utility Fund, the Sewer Utility Fund serves as the primary operating fund for the District's sewer utility. Revenues are comprised primarily of rates charged to sewer customers, and expenditures consist of general operating expenses (personnel salary and benefits, professional

services, utilities, etc.), payments relative to debt service on past capital improvement projects, and expenditures on sewer system reinvestment-defined equipment and projects. Also managed within the fund are monies allocated towards an operating reserve, which is equal to the cost of operating the sewer utility for 60 days (\$420,000). The fund entered 2020 with a balance of \$1,363,375. Over the first six months, fund revenues significantly outpaced expenditures (by approximately \$570,000), with the June 30 balance being \$1,961,067. As is reflected in the 2020 Budget, there was a significant amount of funds carried over from 2019 that are allocated towards 2020 projects. As a result, the overall Sewer Utility Fund balance is expected to be drawn down from the starting fund balance by approximately \$420,000 over the course of the year as projects are completed.

Sewer Contingency Reserve (Fund 425)

A sewer contingency reserve is maintained in accordance with District financial policies at one percent of the sewer utility infrastructure replacement cost (\$796,088). This fund provides for paying for unanticipated costs that may be incurred by the Sewer Utility. The Sewer Contingency Reserve was fully funded throughout the first half of 2020.

Water Contingency Reserve (Fund 426)

A water contingency reserve is maintained in accordance with District financial policies at one percent of the water utility infrastructure replacement cost (\$460,000). This fund provides for paying for unanticipated costs that may be incurred by the Water Utility. The Water Contingency Reserve was fully funded throughout the first half of 2020.

Bond Reserve Fund (Fund 460)

The District's Bond Reserve Fund is a restricted fund associated with covenants of the 2016 bond sale. It was fully funded at \$772,334 through the first half of 2020 with no revenues or expenditures anticipated through yearend.


District Investments

In accordance with its financial policies, the District invests its funds in a manner that provides the highest return with maximum security while meeting daily cash flow demands. Attached is the Investment/Cash Summary as of June 30, 2020.



**AGENDA
BILL
Item 9.D**

**Operations Department
Report**

DATE SUBMITTED:	July 23, 2020	MEETING DATE:	July 29, 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 <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

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

FISCAL IMPACT

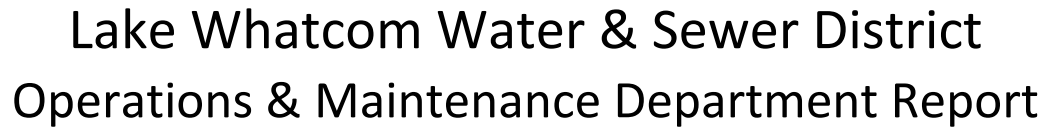
None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.



Prepared for the July 29, 2020 Board Meeting
Data Compiled 07/22/20 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						
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						
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	
2/18/2020	6/18/2020	
3/17/2020		
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: <ul style="list-style-type: none"> • 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
7/29/2020 Board Meeting

Safety Activities	
<ol style="list-style-type: none"> 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." No injuries or near misses. Daily safety reminders directly relevant to the day's tasks. Jobsite tailgate meetings by project lead. 	
Water Utility Activities	
<i>Water Treatment Plants</i> <ol style="list-style-type: none"> Sudden Valley <ol style="list-style-type: none"> Plant is operating well, averaging 0.55 million gallons per day (MGD). Transmission pump control valve and surge anticipator replacement project is 50% complete. Agate Heights <ol style="list-style-type: none"> Plant is operating well, assisting Engineering as needed with Capital Upgrades project. 	
<i>Distribution System</i> <ol style="list-style-type: none"> Installed 2 new water connections this reporting period. Repaired 4 water lateral leaks this reporting period. 	
Sewer Utility Activities	
<i>Lift Stations</i> <ol style="list-style-type: none"> Lift stations are in normal operation. Tri-County Marine is performing scheduled maintenance to six generators. Successfully installed the 10" ball check at the Beaver lift station. 	
<i>Collection System</i> <ol style="list-style-type: none"> Cleaned and televised 5 sections of sewer main on Lake Whatcom Boulevard. Flow data shows that flow has improved since the cleaning. Purchased, and we are installing 50 manhole dishes. Installed 4 new sewer connections this reporting period. 	
Fleet	
<i>Vehicles</i> <ol style="list-style-type: none"> All vehicles are in service. 	
<i>Equipment</i> <ol style="list-style-type: none"> All equipment is in service. New vac truck is on order (October delivery). New service truck is on order (June delivery). 	
Facilities	
<i>Shop Building</i> <ol style="list-style-type: none"> Performing shop and grounds maintenance as fill in work between projects. 	
Development	
<ol style="list-style-type: none"> Inspector is actively involved with nine (15) contractors making connection to our systems. 	