

City of Lake Stevens

Stormwater Rate Study

FINAL REPORT
September 2018

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FCS GROUP
Solutions-Oriented Consulting

September 6, 2018

Barbara Stevens, Finance Director
City of Lake Stevens
1812 Main St.
Lake Stevens, WA 98258

Subject: Stormwater Rate Study

Dear Ms. Stevens:

FCS GROUP is pleased to submit this report summarizing the results of the Stormwater Utility Rate Study for the City of Lake Stevens. The proposed summary-level rate needs are shown below for each level of service (LOS) considered. Rates shown are per equivalent service unit (ESU) after 2018. The detailed methodology used to arrive at these results is covered within this report.

Single Family Annual Rate	2018 Rate	2019 Rate	2019 Total	2024 Forecast	2024 Total
LOS 1	\$104	\$167	\$167	\$193	\$193
LOS 2	+\$0	+\$33	\$200	+\$56	\$250
LOS 3	+\$0	+\$20	\$220	+\$15	\$265
LOS 4	+\$0	+\$32	\$252	+\$32	\$296
LOS 1 + 2 + 3 + 4	\$104	\$252		\$296	

These overall increases provide the utility with the revenue necessary to cover anticipated increases in operating costs and generate funding for capital projects. In addition to the overall revenue needs, we recommend the City update the rate structure to an ESU based rate. Our analysis shows this is consistent with industry best practice and the City's policy goals.

The proposed rate structure incorporates these changes beginning in 2019.

In addition, we have prepared a LOS 5 scenario where the City would take on the maintenance of several HOA ponds. This analysis is included as Appendix F.

It has been a pleasure to work with you and other City of Lake Stevens staff on this effort. Please let me know if you have any questions or need additional information. I can be reached at (425) 867-1802 ext. 225.

Yours very truly,



John Ghilarducci
Principal



Tage Aaker
Project Manager



Melanie Hobart
Project Consultant

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Section I. INTRODUCTION

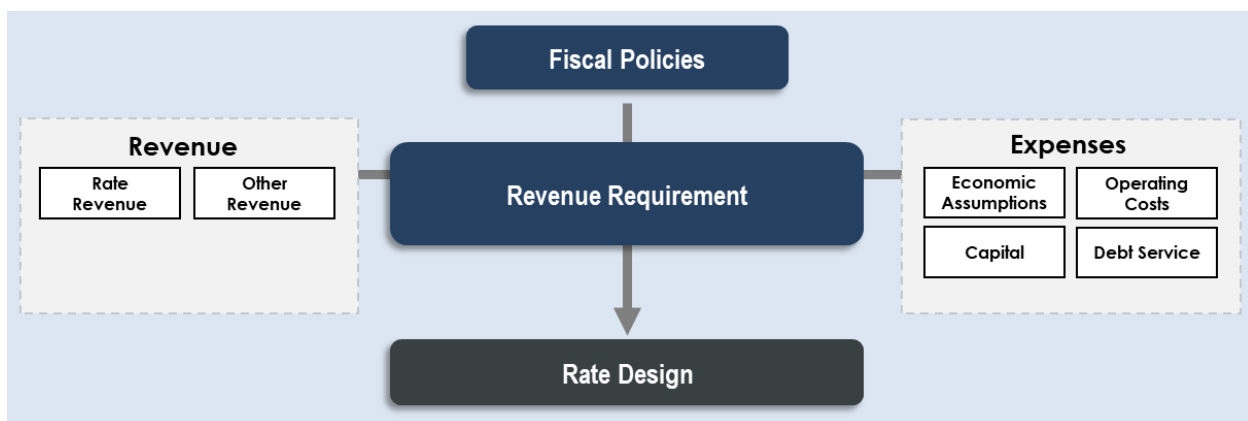
The City of Lake Stevens contracted with FCS GROUP to perform a stormwater utility rate study.

The City's Stormwater Utility manages all stormwater on public lands, streets, and right-of-ways. Storm drains redirect stormwater runoff from streets and parking lots into stormwater facilities and nearby bodies of water. This process is essential to water quality and flood prevention in developed areas because of runoff generating impervious surfaces, like asphalt roads and sidewalks.

The purpose of this analysis is to develop a funding plan ("revenue requirement") for the City's utility—to enable it to achieve the desired level of service. The revenue requirement identifies the total revenue needed to fully fund the utility on a standalone basis, considering operating and maintenance expenditures, capital funding needs identified in the comprehensive plan, any potential debt requirements, and identified fiscal policies.

Exhibit 1 shows the general methodology of the revenue requirement process.

Exhibit 1: Revenue Requirement Process



Section II. RATE DESIGN

The City of Lake Stevens imposes annual surface water rates on parcels within its City limits, in order to fund the Surface Water Utility's operations, maintenance, and projects identified in the Capital Improvement Plan (CIP). Stormwater charges are billed by Snohomish County on the annual property tax statement.

The City's current rate structure is applied using percent impervious surface area and parcel size for non-residential customers, and parcels/units for residential customers. A more detailed layout of the structure and rates is provided below in Exhibit 2. The City's stormwater rates have not been increased since 2008 when they were increased from \$65 per year to \$104 per year.

Exhibit 2: Existing (2018) Stormwater Rates

Class	Impervious Surface %	Monthly Rate	Annual Rate
Single Family	NA	\$8.67 per parcel	\$104.00 per parcel
Condominium	NA	\$7.17 per unit	\$86.02 per unit
Undeveloped Lot	NA	Exempt	Exempt
Exempt	Less than 1%	No Charge	No Charge
Very Light	1% to 19%	\$2.38 per ¼ acre	\$28.61 per ¼ acre
Light	20% to 39%	\$8.00 per ¼ acre	\$96.00 per ¼ acre
Moderate	40% to 59%	\$13.28 per ¼ acre	\$159.36 per ¼ acre
Heavy	60% to 79%	\$18.06 per ¼ acre	\$216.77 per ¼ acre
Very Heavy	80% to 100%	\$23.90 per ¼ acre	\$286.85 per ¼ acre
City Roads	NA	Set in accordance with RCW 90.03.525	
State Highways	NA		
Low Income Senior & Disabled Exemption		Set in accordance with Snohomish County guidelines	

The City's current rate structure is a defensible rate structure but does have a material drawback. It perpetuates inequities among customers at the extreme ends of each class range. For example, a non-residential property that is 39% impervious would pay significantly less than a similarly sized property that is 41% impervious, even though they have comparable amounts of impervious area. Meanwhile, a non-residential property that is 21% impervious would pay the same as a similarly sized property that is 39% impervious. An example of the inequity concerns for bills in this structure is shown below in Exhibit 3.

Exhibit 3: Example Inequitable Bills

Gross Parcel Size	Impervious %	Impervious Square Feet	2018 Annual Charge	\$ Per Imp. Square Foot
1/4 Acre	39% "Light"	4,247	\$96.00	\$0.023
1/4 Acre	40% "Moderate"	4,356	\$159.36	\$0.037

Recognizing this inequity, it is recommended that the City consider a fee structure that is based on actual, measured impervious surface area for nonresidential customers, using the equivalent service unit (ESU) approach.

II.A. RATE STRUCTURE

II.A.1. Rate Structure Options

As part of the rate study, the City asked FCS GROUP to evaluate and compare different stormwater rate structures to determine if the existing structure is most appropriate given the City's policy objectives. A full evaluation of the most prominent and feasible options is included in "Issue Paper #1: Rate Structures." In this evaluation five different rate structures were considered and discussed with the City, summarized below.

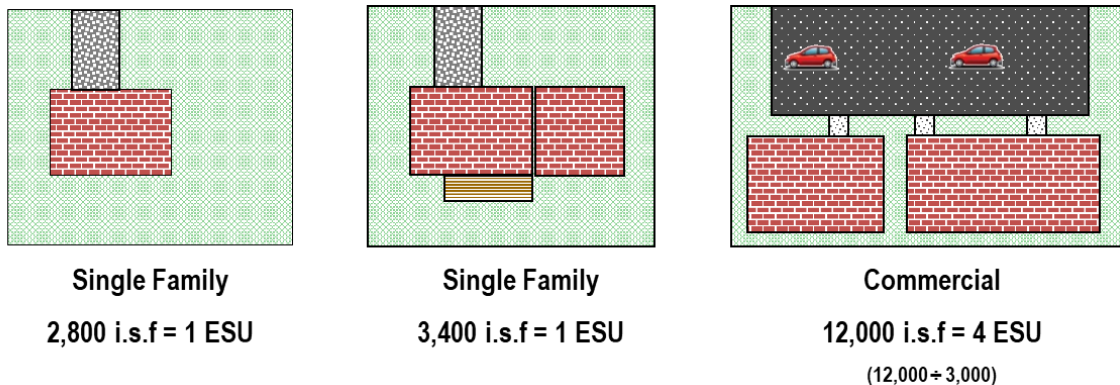
- *Impervious Surface Area:* The most common approach in the industry is to charge customers based on impervious surface area, the hard surface area that prevents or impedes the permeation of water into the ground. Impervious surface area is often expressed in ESUs.
- *Density of Development:* This approach adjusts charges depending on the percentage of the parcel covered by hard surface, which is the City's current rate structure.
- *Runoff Coefficients:* This approach adjusts a parcel's charge based on its runoff characteristics closely associated with a parcel's physical properties.
- *Land Use:* This approach links runoff characteristics to land use.
- *Trip Generation:* This approach attempts to relate automobile traffic to non-point-source pollution contributed by properties.

Based on this evaluation, it was determined that an ESU based rate structure is most aligned with the City's policy goals and industry best practices. The impervious surface area fee basis creates a standard of charging that quantifies how the amount of impervious surface area impacts the environment through flooding, changes in water quality, and habitat degradation. The fee structure basis proportionately charges customers their share of the system's cost burden and provides an equitable and defensible means of cost recovery.

II.A.2. Recommended Rate Structure

The proposed ESU rate approach and an illustration of how it applies to different properties is shown below in Exhibit 4.

Exhibit 4: Proposed ESU Rate Approach



Non-Residential

Under this approach, the charge basis for non-residential customer types is actual measured impervious surface area, expressed as a number of ESUs. The county already has records of the impervious area for each non-single family parcel within the City limits — that is how each parcel's percent impervious amount is calculated. The rate itself is calculated as a dollar amount per ESU. This rate structure would improve rate equity over that of the City's existing rate structure — and the data is already available to develop this alternative.

Residential

For residential customers, an approach based purely on measured impervious area that varies by parcel can be administratively burdensome. The implementation of such an approach would require the creation and maintenance of a comprehensive database of impervious surface area for all single family residential properties. Additions and alterations to properties (e.g. patios, decks, driveways, etc.) would need to be tracked and maintained.

As a simplification, it would be possible to group single family residences into rate tiers. For example, single family parcels could be grouped into "Small", "Medium", "Large", and "Measured" impervious footprints. Parcels with comparatively large impervious footprints, the "Measured" tier, would be charged like other developed property — based on the measured amount of impervious surface area. However, implementation of even such a hybrid approach would require the same initial data collection to determine tier placement for each property, without significantly improving equity among rate payers.

To minimize administrative and data collection costs, it is recommended that the City charge a uniform rate for single family residential customers based on the average amount of impervious surface area per developed residential parcel (based on a relevant sample size within the City). In summary, all single family parcels would have the same, flat charge per ESU.

II.A.3. Setting an ESU Value

An ESU is typically defined as the average impervious surface area of single family residential properties in the service area. However, no impervious data for single family parcels was available at the time of the analysis. Based on industry experience, FCS GROUP recommended an ESU of 3,000 square feet of impervious area. For the rate structure, as discussed above, each residential property or

account is considered 1 ESU. The summary of system ESUs is shown below in Exhibit 5 (Note: ISF = Impervious Surface Area).

Exhibit 5: ESUs by Customer Type

Customer Grouping	I.S.F.	I.S.F. per ESU	ESUs
Residential Parcels*	NA		10,320
Non-Single Family	10,423,398	3,000	3,474
Total			13,795

*Duplex = 2 ESUs, Triplex = 3 ESUs, Fourplex = 4 ESUs, Condo Unit = 0.83 ESUs

II.A.4. Rate Design

Once the total systemwide ESUs are determined, the rate design process simply divides the total revenue requirement by the total ESUs to determine the rate per ESU, as shown below in Exhibit 6.

Exhibit 6: ESU 2019 Rate Design

Rate Design - LOS 1 for 2019	
Revenue Requirement under Level of Service 1 (2019)	\$ 2,298,810
Total Equivalent Service Units (ESU)	13,795
Annual Rate per ESU	\$166.64
Annual Rate per Single Family Parcel (Under existing structure)	\$169.02

Of note, the sample ESU rate calculated above is for Level of Service 1, and not the recommended level of service. A further discussion of LOS and recommended rates follows in Section V.

II.A.4.a Lake Management Benefit Assessment

In addition to the City-wide stormwater fee, the City charges a Lake Management Benefit Assessment (LMBA) to lakefront properties. FCS GROUP was asked to evaluate the existing LMBA, and propose alternatives (eliminate charge, recalculate charge, maintain existing charge). Following this analysis, City staff decided to maintain the existing LMBA at this time.

II.A.4.b Rate Credits

In addition to a review of the rate structure, the City requested that FCS GROUP evaluate the existing rate credits or adjustments offered by the utility. A full analysis of the rate credits offered by and recommended to the City can be found in "Issue Paper #2: Rate Credits." Only one existing customer takes advantage of the stormwater credit program.

City staff has determined that at this time they wish to discontinue the available stormwater rate credits, citing administrative burden and lack of participation. We recommend the City revisit this in the future once the new ESU rate structure is firmly in place. However, it is important to note that the City is not required to offer any rate credits at all.

Section III. FINANCIAL POLICIES

The basic framework for evaluating utility revenue needs includes sound fiscal policies. There are several policy topics that are important to consider further as part of managing the finances of the Stormwater Utility, including: Cash Reserves, Capital Funding, and System Reinvestment (Preservation) Funding.

When evaluating reserve levels and objectives, it is important to recognize that the value of reserves lies in their potential use. A reserve strategy that deliberately avoids any use of reserves negates their purpose. Fluctuation of reserve levels merely indicates that the system is working, while lack of variation over many years strongly suggests that the reserves are, in fact, unnecessary.

III.A. OPERATING RESERVES

An operating reserve is designed to provide a liquidity cushion; it protects the utility from the risk of short-term variation in the timing of revenue collection or payment of expenses. Like other types of reserves, operating reserves also serve another purpose: they can help smooth rate increases over time. Target balances for an operating reserve are generally expressed as a certain number of days of operating and maintenance (O&M) expenses, with the minimum requirement varying with the expected revenue volatility. Industry practice for utility operating reserves typically range from 30 days (8%) to 120 days (33%) of O&M expenses, with the lower end more appropriate for utilities with stable revenue streams and the higher end of the range more appropriate for utilities with significant seasonal or consumption-based fluctuations or annual billing.

Stormwater utility customers are charged once per year, on their property tax bill from Snohomish County. This billing method creates a cash flow surplus after the April and October payment deadlines and corresponding cash flow deficits in other months. For this reason, the operating reserve target for the City's stormwater program is set at a high level relative to other public utilities.

In a typical financial forecast, the operating reserve target is based on December 31 of each calendar year, with the balance expected to vary during the course of the year. In any year where operating reserves exceed the maximum days (i.e. 60 days) of O&M expenses at year-end, it is assumed that the excess cash is "swept" into the capital reserve to help pay for capital projects.

This can be accomplished by calculating the target balance at year end and comparing it against the actual ending cash balance. If the actual balance is greater than the target, the difference can be designated as a capital resource.

Recommended Policy: Achieve a year-end minimum balance target of 120 days (33%) of total annual operating expenditures. This equates to \$700,000 based on the 2017 operating budget of nearly \$1.5 million. This target is most appropriate given the City's annual billing schedule.

III.B. CAPITAL RESERVES

The capital reserve consists of cash that has been set aside for capital purposes. Resources include connection charges (if applicable), grants, and debt proceeds among others. This fund provides a source of emergency funding for unexpected asset failures or other unanticipated capital needs. It can also help the utility address cash flow issues related to capital projects – for example, grants that the utility relies on to meet its capital needs may have a local cash matching requirement.

Given these different purposes, there are a variety of potential benchmarks for setting a minimum balance for this fund—options include a percentage (commonly 1 – 2%) of the original cost of fixed assets, a rolling multi-year average of capital improvement program (CIP) costs, or an amount determined sufficient to fund an equipment failure. However, this capital reserve policy is not intended to guard against catastrophic system failure or extreme acts of nature. Where the original cost of the system is unavailable or unknown, a utility can base their capital fund target balance on the cost of a piece of equipment most likely to fail, or a fixed dollar amount, based on what the utility staff judgement.

Recommended Policy: As the complete original cost of the system is not available, achieve a year-end target of \$200,000.

III.C. DEBT RESERVE

The debt reserve is most often required as a condition of bond issuance, though some loan programs also require a reserve. The intent of the reserve is to protect bondholders (or the agency issuing loans) from the risk of the borrower defaulting on their payments. Typically specified in the related bond or loan agreement, the minimum balance for this reserve is often linked to either average annual debt service or the maximum annual debt service.

Recommended Policy: Should be dictated by terms outlined in contracts for debt obligations.

The City's stormwater utility has one existing debt obligation of \$10,700 annually for the Parkway Crossing project. There is also a projected need for debt in the study period, in select levels of service.

III.D. SYSTEM REINVESTMENT FUNDING

The concept of system reinvestment funding entails funding long-term infrastructure replacement needs through a regular and predictable rate provision. A system reinvestment funding program can be structured to take into account the defined funding source (rates), accumulation of funds when funding exceeds near-term needs, and augmentation of funds (e.g. through debt) when replacement needs exceed available cash resources. Many municipal utilities incorporate a system reinvestment funding provision based on depreciation expense.

Most commonly, utilities that have addressed replacement funding needs have used historical (original cost) depreciation expense as the basis for a reasonable level of reinvestment in the system. This strategy and level of funding satisfies several standards for reasonable rates:

- It avoids decline in system asset value (financial integrity);
- It charges customers commensurate with their consumption of facility useful lives and avoids the possibility of charging customers more than the current cost to provide service (rate equity); and
- It provides a substantial source of funding for replacement (capital funding adequacy).

However, it is important to recognize that funding system reinvestment based on original cost depreciation will generally not fully meet future replacement needs (especially for mature systems that are just beginning to address or fund those needs). In such cases, debt or use of other City cash resources would be required to cover the resulting funding gap.

Recommended Policy: Given other system needs and additional upcoming costs, no explicit system reinvestment funding is recommended at this time. We recommend the City reevaluate this policy in the future. However, depending on the LOS, a reasonable level of cash-funding capital is assumed. In these cases, the resource is referred to as “savings for capital.”

III.E. SUMMARY OF FISCAL POLICIES

The following outlines the recommended reserve policies for the City’s stormwater utility:

- **Operating reserve:** 120 days (33%) of total annual operating expenditures.
 - The resulting dollar target should increase as operating expenditures increase.
- **Capital reserve:** Achieve a year-end minimum balance target of \$200,000.
- **System reinvestment policy:** The level of cash funded capital is unique to each level of service, and the corresponding amount of capital spending planned within each LOS.

Section IV. REVENUE REQUIREMENT

The stormwater utility is its own unique enterprise fund meaning it is a self-sufficient entity fully supported by the rates and fees collected. The City controls the rates and has the legal authority to adjust them as necessary to meet the financial obligations of the utility. The City has set up and maintains fund structures and implements financial policies that target management of a financially viable and fiscally responsible stormwater utility.

IV.A. ECONOMIC AND INFLATION FACTORS

The operating and maintenance expenditure forecast relies on the City's 2018 adopted budget for the Stormwater Fund (Fund 410). The line items in the budget are inflated each year by utilizing one of the following applicable factors:

- General Cost Inflation – assumed to be 2.50% per year based on historical data from the Consumer Price Index Urban Consumers - Seattle / Tacoma / Bremerton (CPI - U).
- Construction Cost Inflation – assumed to be 3.00% per year based on historical data from the ENR Construction Cost Index (CCI) - 20 City Average index.
- Taxes: State B&O Tax: 1.50% of revenues.
- Wage and Benefits Cost Inflation – assumed to be 6.00% per year based on input from City staff.
- Fund Earnings – 1.0% based on Local Government Investment Pool rate at the time of analysis.
- Customer Account Growth – assumed to be 1.00% per year based on the Snohomish County target population for the City of 39,340 in 2035. This would be a 1.2% annual growth rate. Based on discussions with City staff, it was agreed that 1.0% was an appropriately conservative annual growth rate.
- Revenue Bonds: 20 year maturity, 4.00% interest, 1% issuance cost, 1.25 legal minimum for debt service coverage. The interest rate assumption is based upon relevant Bond Buyer Indices.
- Annexation. The City is planning to annex roughly 1,200 residential properties by 2020. At the current rate, this will generate approximately \$127,000 per year, assumed to be first collected the year after annexation in 2021.

IV.B. FUND BALANCES

The annual revenue requirement takes into account cash reserves in order to ensure the forecast achieves the recommended financial policies. For this study, the starting balance for the Stormwater Utility Fund (410) is the ending 2017 actual working capital balance, approximately \$1.3 million. After \$1.0 million is set aside to cover the existing deficit and 2018 operating needs, approximately \$340,000 remains for capital.

IV.C. EXISTING DEBT OBLIGATIONS

The City has only one existing debt obligations related to the stormwater utility. The Parkway Crossing debt is a principal only payment of \$10,700 annually, ending in 2021.

IV.D. REVENUE REQUIREMENT METHODOLOGY

The revenue requirement analysis evaluates the sufficiency of the utility's revenues against its financial obligations, in the context of two sufficiency tests, detailed below. In determining the annual revenue requirement, the test with the greatest deficiency generally drives the rate increase in any given year. It is worth noting that the City can temporarily waive the requirements of the cash flow test as part of a conscious decision to phase in rate increases, as long as its operating reserve balance is sufficient to absorb the resulting cash flow deficit. If the City has revenue bonds outstanding, the coverage test must always be met, as failure to do so may result in a downgrading of the City's credit rating.

- **Cash Flow Sufficiency Test.** The cash flow test determines whether or not the utility's annual revenues are sufficient to cover the known cash requirements for each year of the planning period. These cash requirements typically include O&M expenses, debt service payments, rate-funded capital outlays, and any additions to reserve balances.
- **Coverage Test.** The coverage test evaluates the utility's ability to meet applicable bond coverage requirements, as specified by typical bond covenants. For any debt issues assumed in the forecast, this analysis assumes a bond coverage requirement of 1.25 times annual debt service. In other words, the City must have enough revenue to cover all expenses plus 1.25 times debt service as a minimum legal level. As this test focuses on annual financial performance, it precludes the use of reserves to cover shortfalls.

The coverage test is not applicable for the City's stormwater utility at this time. However, debt is forecasted to fund a portion of the capital plan in the forecast. To be financially conservative, revenue bonds are assumed. The forecast ensures that the utility would be able to make the payments as well as meet the coverage requirements.

Section V. LEVELS OF SERVICE

The City asked FCS GROUP to perform a level of service (LOS) analysis to assist in developing an appropriate rate strategy. FCS GROUP prepared a level of service (LOS) matrix summarizing the rate impacts of four LOS options, each with unique operating and capital requirements. The four options considered were:

- LOS 1: Existing Operations;
- LOS 2: Meets National Pollutant Discharge Elimination System (NPDES) Requirements;
- LOS 3: High Priority Capital; and
- LOS 4: Medium Priority Capital.

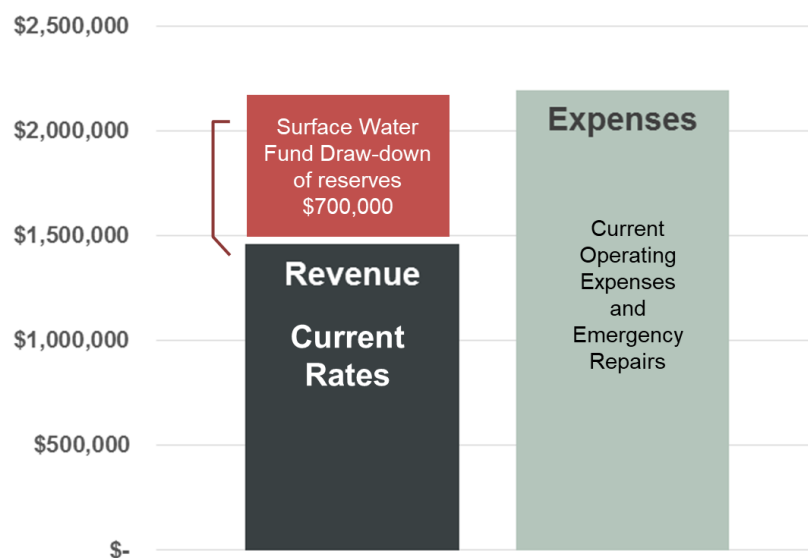
Each level is cumulative, adding to the operating and capital included in the preceding level. For example, LOS 3 funds existing operations, NPDES requirements, and high priority capital. The full LOS matrix, detailing the components of each level is included in Appendix A.

V.A. BACKGROUND

The City's stormwater utility is facing changes and cash flow pressures from several areas:

- **Operating Deficit.** The City's stormwater utility is currently operating at a deficit – with current revenues the utility is unable to cover current budgeted expenses. Existing fund balances allow for the utility to cover its existing needs this year, but this is not a sustainable approach. In addition, the utility is unable to fund capital projects without outside funding or drawing down reserves. This is shown below in Exhibit 7.

Exhibit 7: 2018 Expenditures vs Revenues



- **Regulatory Requirements.** Additional staff and equipment are needed to comply with NPDES regulatory requirements. These expenses create ongoing, additional costs above the current 2018 budget.
- **Necessary Capital Investments.** There are a number of high and medium priority capital projects that need to be constructed to continue to provide services. These projects must be funded either through cash and/or debt, resulting in annual debt service payments.

The LOS analysis incorporates these priorities and the ongoing utility needs, producing distinct rate impacts associated with different levels of service.

A revenue requirement and rate impact for each LOS is included in the discussion below.

V.B. LOS 1: EXISTING OPERATIONS

LOS 1 covers the most necessary and basic costs of operating the stormwater utility, with minimal capital investment. While this level can maintain existing operations, it is not recommended as it does not meet many of the additional upcoming needs discussed above.

V.B.1. Operating Costs

LOS 1 will allow the utility to:

- Correct the existing operating deficit of \$700,000 in 2019;
- Provide an additional \$12,000 for street cleaning costs;
- Fund an increase to \$250,000 per year for lake treatment costs;
- Cover the stormwater utility's share of a new senior engineer and a public works operating manager (totaling an additional \$116,000 in 2019); and
- Pay for the stormwater utility's contribution to the diking district (\$25,000 per year).

Each of these expenses is increased annually with inflation throughout the forecast period.

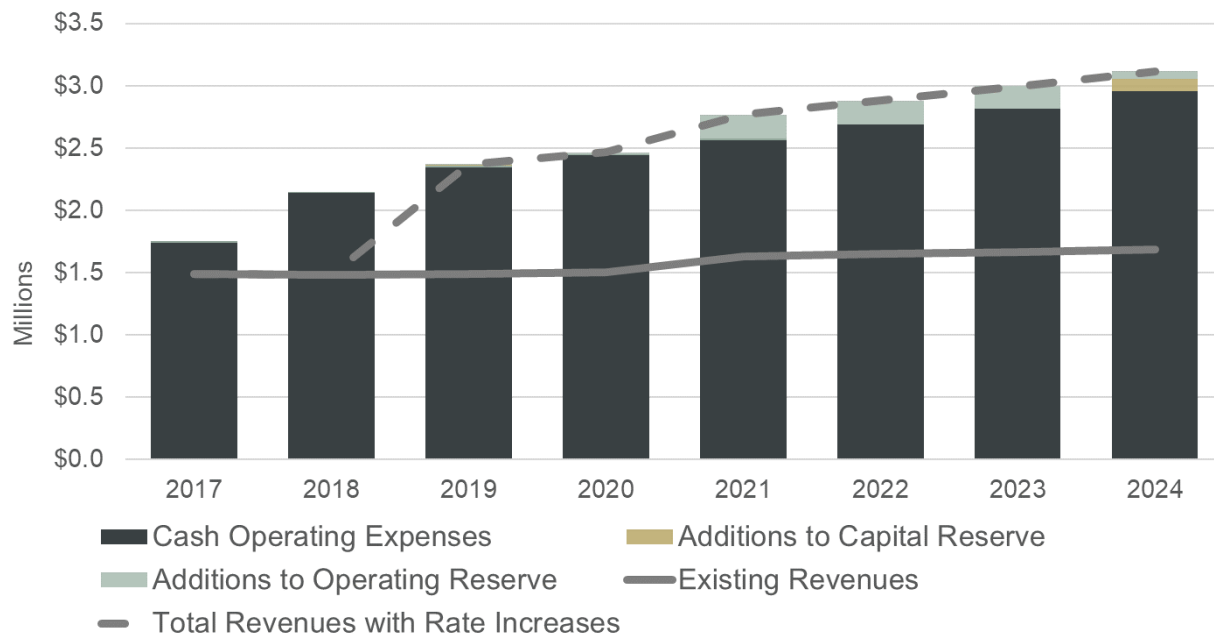
V.B.2. Capital Investments

LOS 1 includes no planned or budgeted capital expenses beyond 2018. Any unexpected or necessary capital investments would be funded through outside sources or have to draw down the existing capital reserve.

V.B.3. Revenue Requirement

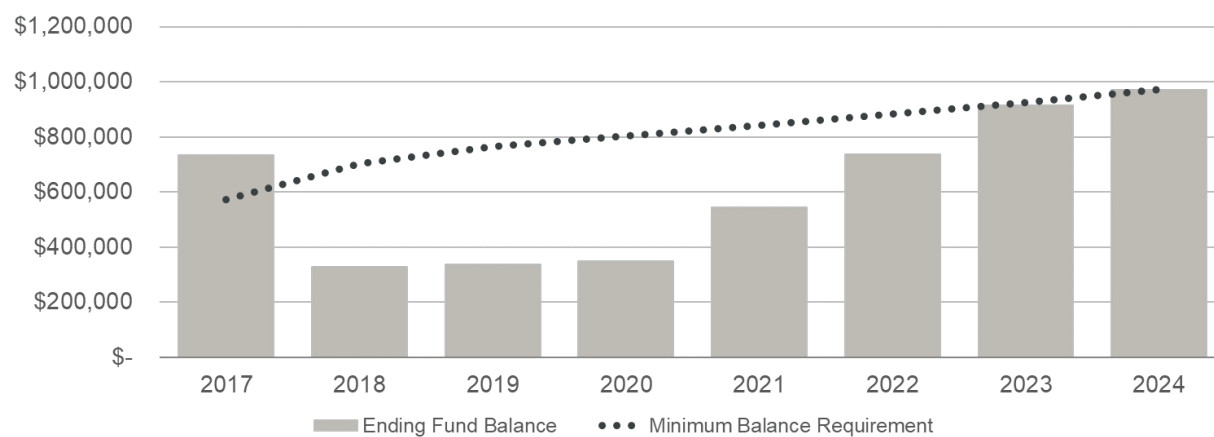
The revenue requirement for LOS 1 is shown below in Exhibit 8. The navy bar shows the increasing operating expenses the utility is facing over time, with significant increases in 2018 and 2019, as discussed above.

Exhibit 8: LOS 1 Revenue Requirement



This forecast includes one 62.5% rate increase in 2019, with 3.0% inflationary increases in following years. The projected rate revenue is enough to cover the base operating needs of the stormwater utility. Operating fund balance targets are not met by these rate increases until 2024, as shown in Exhibit 9 below.

Exhibit 9: LOS 1 Operating Fund Balance



V.B.4. Rate Impact

Exhibit 10 shows the rate impact on the new ESU rate structure of providing LOS 1.

Exhibit 10: LOS 1 Rate Impact

Single Family Annual Rate	2018 Rate	2019 Rate	2024 Forecast
LOS 1	\$104	\$167	\$193

Due to the low operating fund balance and the lack of capital funding, we do not recommend LOS 1. It is included primarily as a baseline for the following levels.

V.C. LOS 2: MEETS NPDES REQUIREMENTS

Level of Service 2 adds operating and capital costs sufficient to cover NPDES requirements.

V.C.1. Operating Costs

The NPDES permit requires additional facility maintenance above existing levels. City staff noted that to meet these requirements, the utility must hire five additional staff members, including vector truck operators (3), an inspector (1), and a GIS technician (1), totaling roughly \$450,000 per year for salaries and benefits.

V.C.2. Capital Investments

LOS 2 includes a total of \$1.68 million in capital costs in today's dollars (\$1.83 million inflated). As shown below in Exhibit 11, the capital costs are primarily for vehicles and equipment to support the additional staffing requirements mentioned above.

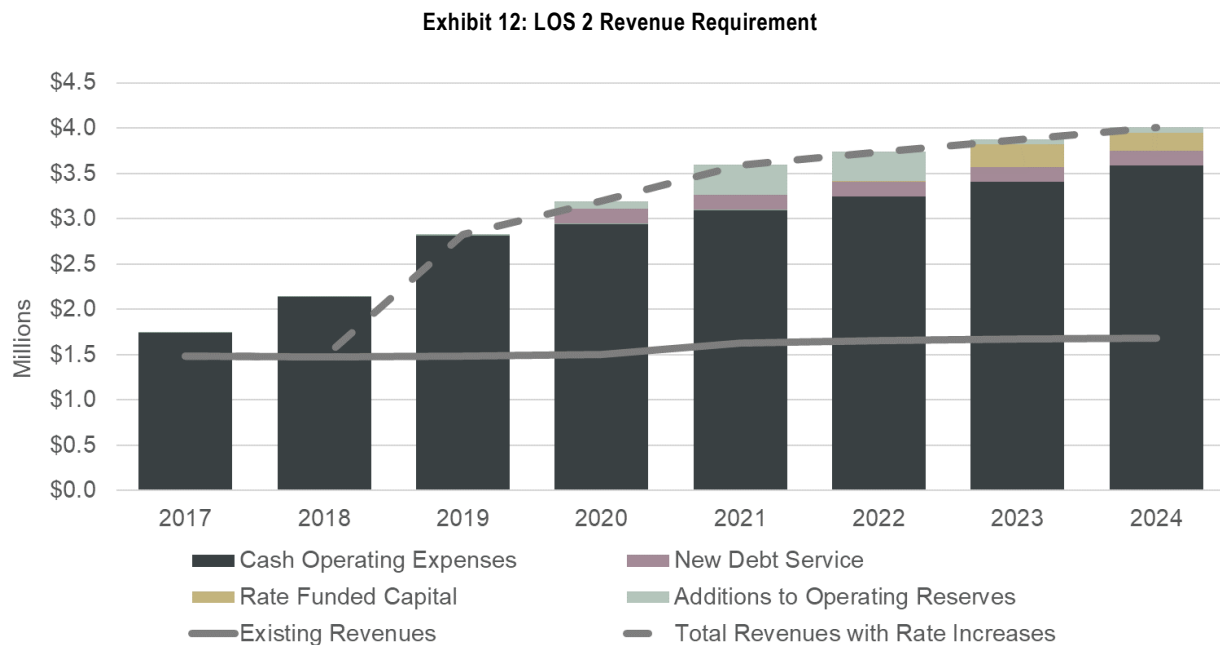
Exhibit 11: LOS 2 Capital Schedule

Stormwater Maintenance Equipment Acquisition Schedule - 2018 Dollars								
Equipment	2018	2019	2020	2021	2022	2023	2024	Total
Vactor Truck	\$ -	\$ -	\$650,000	\$ -	\$ -	\$ -	\$ -	\$ 650,000
PW Truck	-	50,000	-	-	-	-	-	\$ 50,000
Sweeper	-	-	-	-	-	-	350,000	\$ 350,000
Hand Tools	-	50,000	-	-	-	-	-	\$ 50,000
Three Axle Trailer with Tilt	-	30,000	-	-	-	-	-	\$ 30,000
10 YD Dump Truck with Pup Trailer	-	-	-	350,000	-	-	-	\$ 350,000
Trommel/Screen for Sweeping Spoils	-	50,000	-	-	-	-	-	\$ 50,000
Eco-Blocks and Tent Domes for Sifted Spoils	-	50,000	-	-	-	-	-	\$ 50,000
Storage/Equipment Shed	-	100,000	-	-	-	-	-	\$ 100,000
Total	\$ -	\$330,000	\$650,000	\$350,000	\$ -	\$ -	\$350,000	\$ 1,680,000

To meet these capital needs, LOS 2 assumes a combination of cash funding and a \$1.20 million equipment loan in 2020. The terms are assumed to be a 10-year loan with 6.0% issuance cost. Revenue bonds were not assumed for these assets, which have relatively short useful lives.

V.C.3. Revenue Requirement

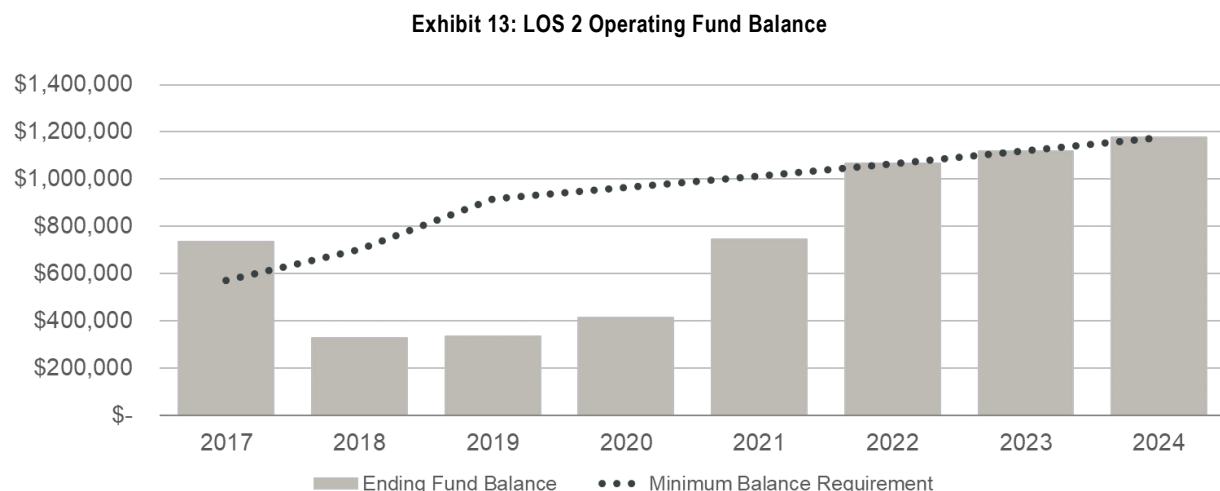
The revenue requirement for LOS 2 is shown below in Exhibit 12.



The primary impacts of the NPDES permitting requirements on the forecast are:

- the new debt service payments to cover capital costs, beginning in 2020 of \$163,000 per year;
- operating minimum balance target achievement in 2023 due to higher initial increases, as shown below in Exhibit 13; and
- rate funded capital available beginning in 2023.

These operating and capital additions result in a 95.0% rate increase in 2019, 12.0% increase in 2020, and inflationary increases in the remaining forecast.



V.C.4. Rate Impact

The following table shows the additional rate impact of LOS 2, and the cumulative rates after LOS 1 and 2.

Exhibit 14: LOS 2 Rate Impact

Single Family Annual Rate	2018 Rate	2019 Rate	2019 Total	2024 Forecast	2024 Total
LOS 1	\$104	\$167	\$167	\$193	\$193
LOS 2	+\$0	+\$33	\$200	+\$56	\$250
LOS 1 + 2	\$104	\$200		\$250	

V.D. LOS 3: HIGH PRIORITY CAPITAL

Level of Service 3 adds high priority capital projects included in the utility's capital plan.

V.D.1. Operating Costs

LOS 3 has no additional operating costs, including only those costs discussed above in LOS 1 and 2.

V.D.2. Capital Investments

The capital costs in LOS 3 represent the “critical” or high priority capital projects shown below in Exhibit 15.

Exhibit 15: LOS 3 Capital Schedule

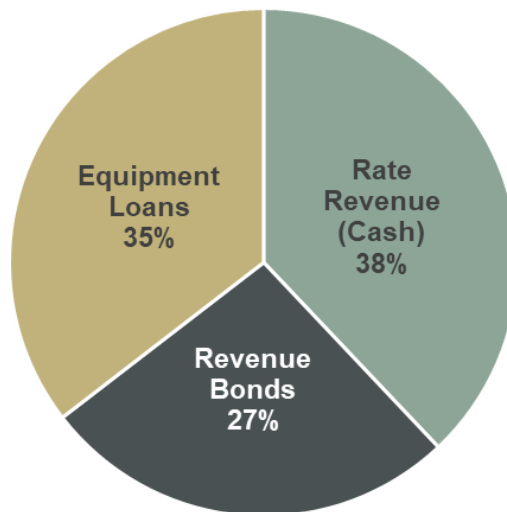
High Priority Capital Project Schedule - 2018 Dollars										
Project Description	2018	2019	2020	2021	2022	2023	2024	Total SWM	Other Funding Sources	Total Project Cost
Catherine Creek 36th Street Bridge Repair	\$ -	\$ -	\$ 45,000	\$105,000	\$ -	\$ -	\$ -	\$ 150,000	\$ -	\$ 150,000
Replace/install Pipe: Southwest corner of 8th St., 83rd to 79th St.	-	-	-	-	-	-	100,000	\$ 100,000	\$ -	\$ 100,000
Replace/install pipe: 10th St from 79th St. to 74th St.	-	-	-	54,000	126,000	-	-	\$ 180,000	\$ -	\$ 180,000
New Drainage Pipe on Callow Road	30,000	-	-	-	-	-	-	\$ 30,000	\$ -	\$ 30,000
8th Street CMP – Install 60' from intersection on 91st heading west	-	-	-	30,000	-	-	-	\$ 30,000	\$ -	\$ 30,000
Hydraulic study on Lake Stevens Outfall – funding via grant, approximately \$300k	-	-	75,000	-	-	-	-	\$ 75,000	\$ 225,000	\$ 300,000
Main Street box culvert for outfall project, stream channel restoration. Outfall restoration project. Grant funded at 95%.	-	-	-	-	112,500	112,500	-	\$ 225,000	\$ 4,275,000	\$ 4,500,000
Stormwater System in cul-de-sac: 17th Place/114th	-	32,000	48,000	-	-	-	-	\$ 80,000	\$ -	\$ 80,000
Culvert under 20th St., east of 79th	-	-	-	40,000	-	-	-	\$ 40,000	\$ -	\$ 40,000
Public Works Shop Remodel	-	150,000	150,000	-	-	-	-	\$ 300,000	\$ 300,000	\$ 600,000
Decant Facility Plans and Construction	-	38,448	98,865	-	-	-	-	\$ 137,313	\$ 411,938	\$ 549,250
Fuel station at Public Works Shop	-	50,000	-	-	-	-	-	\$ 50,000	\$ 50,000	\$ 100,000
Bridge on West End of Vernon Road	-	-	-	50,000	-	-	-	\$ 50,000	\$ -	\$ 50,000
Total	\$ 30,000	\$270,448	\$416,865	\$279,000	\$238,500	\$112,500	\$100,000	\$ 1,447,313	\$ 5,261,938	\$ 6,709,250

The total cost to the stormwater utility of the high priority projects is \$1.45 million in today's dollars, or \$1.81 million with inflation. An additional \$5.26 million is projected to be funded through grants

and other sources, primarily from other City funds' share of these capital projects. If these other sources do not materialize, projects may need to be delayed until there are available cash resources.

To cover the additional 2019 costs, \$900,000 in revenue bond proceeds are projected in 2019. A summary of the capital funding sources during the forecast period is shown below in Exhibit 16.

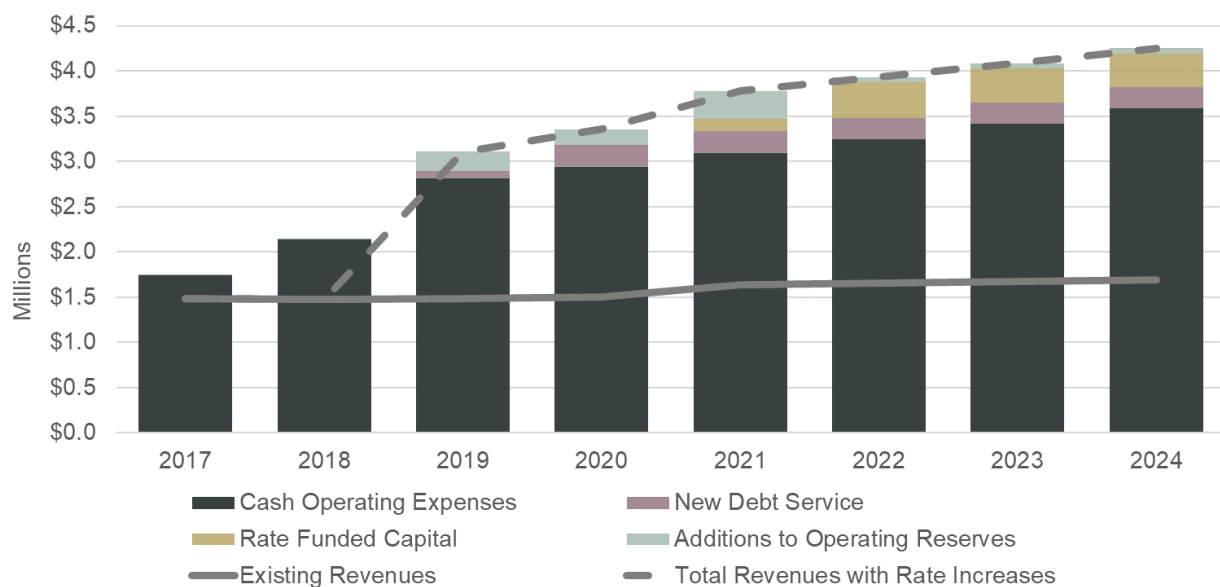
Exhibit 16: LOS 3 Capital Funding Strategy



V.D.3. Revenue Requirement

The resulting revenue requirement for LOS 3 is shown below in Exhibit 17.

Exhibit 17: LOS 3 Revenue Requirement

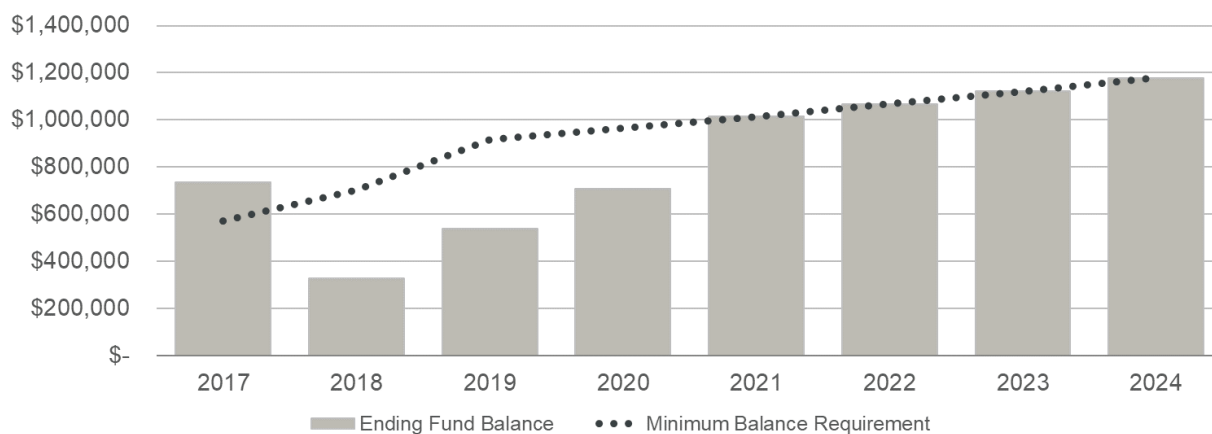


The addition of the critical capital projects impacts the revenue requirement in a few key areas:

- the new debt service payments for the \$900,000 of revenue bonds, beginning in 2019 of \$72,000 per year;
- operating minimum balance target achievement in 2021 due to higher initial increases, as shown below in Exhibit 18; and
- rate funded capital available beginning in 2021.

To cover these changes, there is a necessary 114.6% rate increase in 2019, 7.0% increase in 2020, and inflationary increases in the remaining forecast.

Exhibit 18: LOS 3 Operating Fund Balance



V.D.4. Rate Impact

The following table shows the rate impact of LOS 3, and the cumulative rates after LOS 1, 2, and 3.

Exhibit 19: LOS 3 Rate Impact

Single Family Annual Rate	2018 Rate	2019 Rate	2019 Total	2024 Forecast	2024 Total
LOS 1	\$104	\$167	\$167	\$193	\$193
LOS 2	+\$0	+\$33	\$200	+\$56	\$250
LOS 3	+\$0	+\$20	\$220	+\$15	\$265
LOS 1 + 2 + 3	\$104	\$220		\$265	

V.E. LOS 4: MEDIUM PRIORITY CAPITAL

LOS 4 covers all operating and capital through LOS 3, as well as additional medium priority capital needs.

V.E.1. Operating Costs

There are no additional operating costs above those included in LOS 1 and 2.

V.E.2. Capital Investments

The capital costs in LOS 4 represent the medium priority capital projects shown below in Exhibit 20.

Exhibit 20: LOS 4 Capital Schedule

Medium Priority Capital Project Schedule - 2018 Dollars										
Project Description	2018	2019	2020	2021	2022	2023	2024	Total SWM	Other Funding Sources	Total Project Cost
36th Street Box Culvert Installation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 225,000	\$ 1,275,000	\$ 1,500,000	\$ -	\$ 1,500,000
20th Street NE Regional Pond – Nursery Property	-	150,000	-	850,000	-	-	-	\$ 1,000,000	\$ -	\$ 1,000,000
Catherine Creek Bridge Construction – in conjunction with Sound Salmon	-	100,000	-	-	-	-	-	\$ 100,000	\$ -	\$ 100,000
91st and 24th Storm improvements for street projects	-	-	-	-	-	-	-	\$ -	\$ 1,000,000	\$ 1,000,000
Additional Decant Facility	-	141,553	411,135	-	-	-	-	\$ 552,688	98,063	\$ 650,750
20th Street SE Phase II Stormwater Improvements	-	-	-	-	-	-	-	\$ -	\$ 1,500,000	\$ 1,500,000
Total	\$ -	\$ 391,553	\$ 411,135	\$ 850,000	\$ -	\$ 225,000	\$ 1,275,000	\$ 3,152,688	\$ 2,598,063	\$ 5,750,750
Plus High Priority Capital Projects	\$ 30,000	\$ 270,448	\$ 416,865	\$ 279,000	\$ 238,500	\$ 112,500	\$ 100,000	\$ 1,447,313	\$ 5,261,938	\$ 6,709,250
Grand Total	\$ 30,000	\$ 662,000	\$ 828,000	\$ 1,129,000	\$ 238,500	\$ 337,500	\$ 1,375,000	\$ 4,600,000	\$ 7,860,000	\$12,460,000

The total cost to the stormwater utility of the medium priority projects is \$3.15 million in today's dollars, \$3.55 million with inflation. An additional \$2.70 million is projected to be funded through grants and other sources. If these other sources do not materialize, the "91st and 24th Storm Improvements for street project" and the "20th Street SE Phase II Stormwater Improvements" would not be executed. The decant facility will be constructed without outside funding, but a larger capacity facility would be constructed if outside funds become available.

To cover the additional capital costs, two revenue bond issues are assumed:

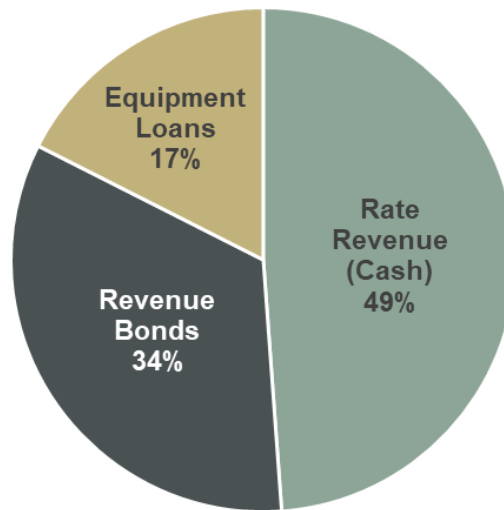
- \$1.1 million in 2019
- \$1.2 million in 2021

The total debt service obligations assumed through LOS 4 would be:

- \$163,000 per year for the equipment loan in 2019;
- \$88,000 per year for the revenue bond in 2019; and
- \$96,000 per year for the revenue bond in 2021.

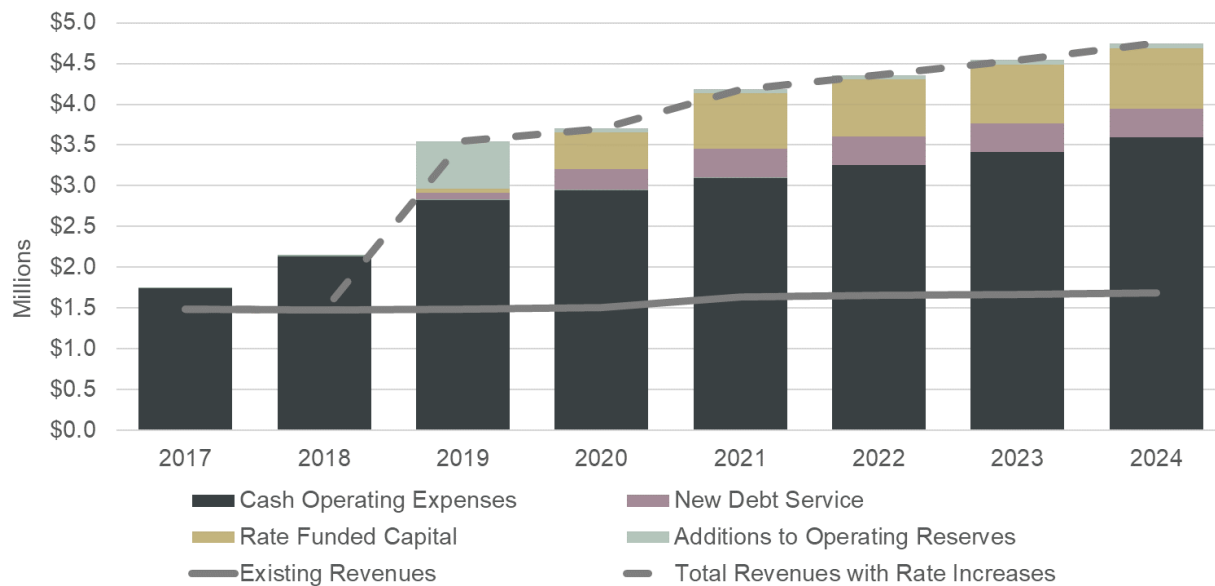
A summary of the projected combined capital funding strategy is shown below in Exhibit 21.

Exhibit 21: LOS 4 Capital Funding Strategy



V.E.3. Revenue Requirement

Exhibit 22: LOS 4 Revenue Requirement

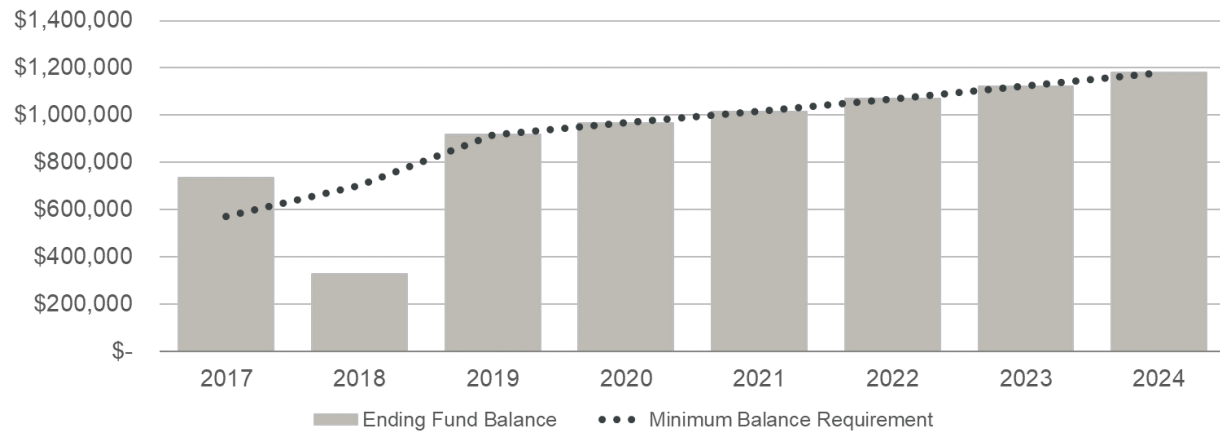


The additional of the medium priority projects impacts the revenue requirement in a few key areas:

- the new debt service payments for the \$2.3 million of revenue bonds, beginning in 2019;
- operating minimum balance target achievement in 2021 due to higher initial increases, as shown below in Exhibit 23; and
- rate funded capital available beginning in 2019.

To cover these capital needs and associated funding sources, there is a 145.8% rate increase in 2019, and inflationary increases in the remaining forecast.

Exhibit 23: LOS 4 Operating Fund Balance



V.E.4. Rate Impact

Exhibit 24: LOS 4 Rate Impact

Single Family Annual Rate	2018 Rate	2019 Rate	2019 Total	2024 Forecast	2024 Total
LOS 1	\$104	\$167	\$167	\$193	\$193
LOS 2	+\$0	+\$33	\$200	+\$56	\$250
LOS 3	+\$0	+\$20	\$220	+\$15	\$265
LOS 4	+\$0	+\$32	\$252	+\$32	\$296
LOS 1 + 2 + 3 + 4	\$104	\$252		\$296	

V.F. LOS COMPARISON

In conclusion, the revenue requirement for each level of service increases to cover the cumulative operating and capital expenses. At existing rates, the utility is collecting \$1.40 million in rate revenue. Exhibit 25 below shows how this revenue would need to increase in each level of service to cover the forecasted needs.

Exhibit 25: LOS Revenue Requirement Comparison

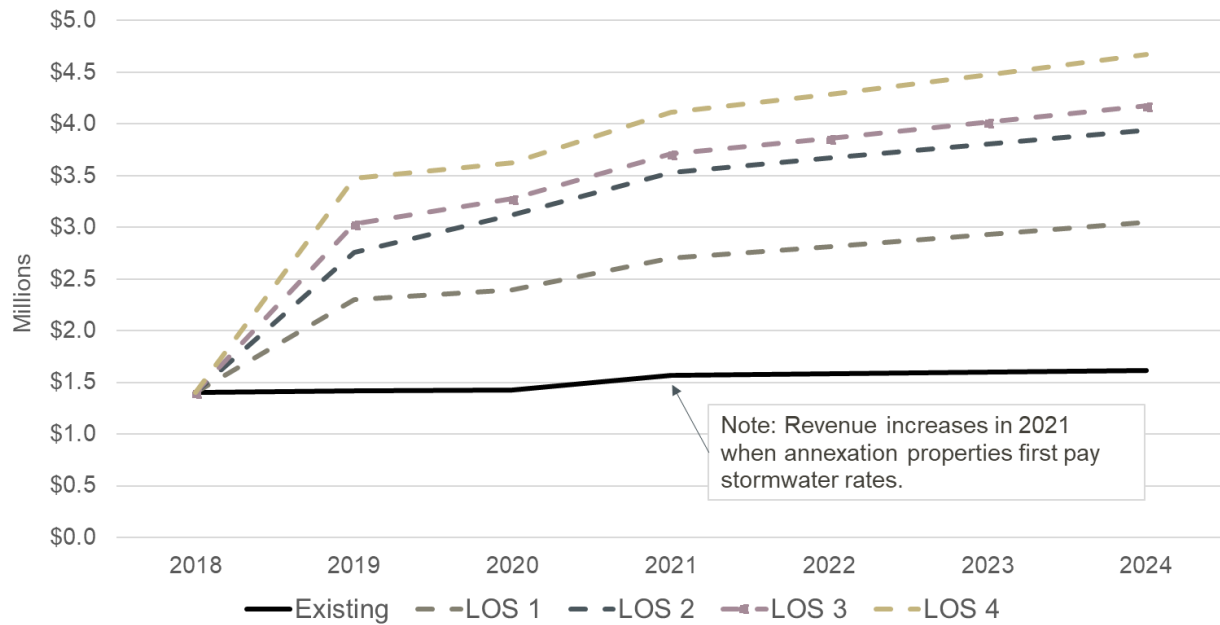


Exhibit 25 shows how rate revenue is the same in all levels in 2018, but with each level of service the annual need increases. All levels of service have one large initial increase in 2019, with lower, often inflationary, increases beginning in 2020. The initial rate increases, to cover the needs discussed for each level of service above, range from 63% to 146%.

A summary of the ESU rate by LOS throughout the forecast period can be seen below in Exhibit 26. Full detailed rate schedules for each LOS are included in the Appendix.

Exhibit 26: ESU Rate Forecast by LOS

Annual ESU Rate	2018	2019	2020	2021	2022	2023	2024
LOS 1	\$104	\$167	\$172	\$177	\$182	\$188	\$193
LOS 2	\$104	\$200	\$224	\$231	\$238	\$244	\$250
LOS 3	\$104	\$220	\$235	\$242	\$250	\$257	\$265
LOS 4	\$104	\$252	\$260	\$269	\$277	\$286	\$296

V.G. SAMPLE BILL IMPACT

The impact of the different levels of service on different types of customers can be seen below in Exhibit 27.

Exhibit 27: Sample Bill Impacts for ESU Structure

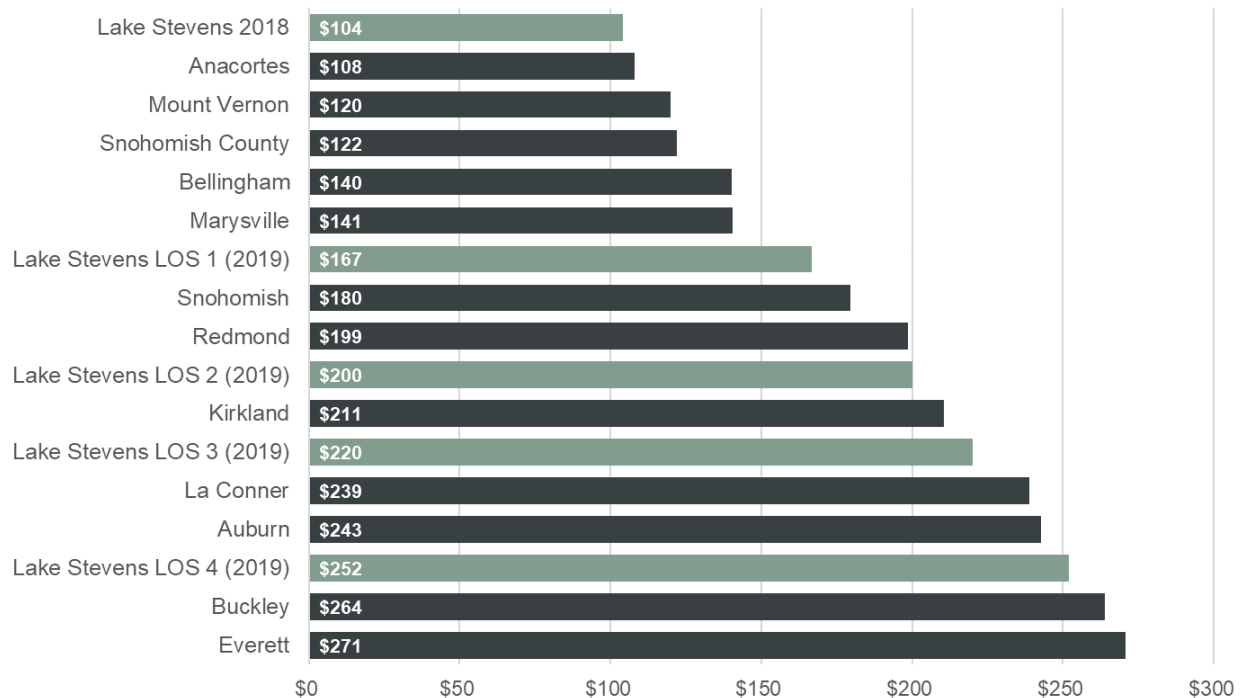
2018 Current Structure			2019 Proposed ESU Structure				
<i>Lot Size</i>	<i>% Impervious</i>	Existing Bill	<i>ESUs</i>	LOS 1	LOS 2	LOS 3	LOS 4
Non-Residential	25%	\$192	1.8	\$300	\$360	\$396	\$454
	100%	\$574	7.3	\$1,216	\$1,460	\$1,606	\$1,840
	50%	\$1,275	14.5	\$2,416	\$2,899	\$3,190	\$3,655
	10%	\$458	5.8	\$967	\$1,160	\$1,276	\$1,462
	75%	\$3,468	43.6	\$7,266	\$8,718	\$9,593	\$10,990
Single Family Residential		\$104	1	\$167	\$200	\$220	\$252

Under the proposed ESU structure, a small largely undeveloped commercial property (1/4 acre with 25% impervious) would see an increase of \$108 or 156%. In comparison, a different but similarly sized property that is 100% developed, such as a parking lot, would see an increase of 212%. Also of note, a much larger property that is sparsely developed (4 acres with 10% impervious surface area), will pay a lower bill than the smaller but fully impervious lot. This increases equity as lots that are more impervious have an increased impact on the environment through flooding, changes in water quality, and habitat degradation.

V.H. SINGLE FAMILY RESIDENTIAL RATE COMPARISON

As a resource to the City and its customers, a rate survey of other similar utilities was performed. The results of the survey can be used as a comparison and benchmark for reasonableness of rates. Exhibit 28 shows the 2018 annual single family residential stormwater bills of twelve jurisdictions, as well as Lake Stevens' 2018 existing and 2019 proposed LOS rates per ESU.

Exhibit 28: Annual Single Family Stormwater Charges



Section VI. SUMMARY

The analysis herein concludes the stormwater rate study. Within this analysis four different levels of service were developed and evaluated. There are several drivers for this rate increase including operational deficit, additional NPDES compliance costs, and critical capital improvements.

In addition to the rate increase, there are two proposed changes to the rate structure:

- Convert to an ESU based rate structure, beginning in 2019. The analysis of rate structure alternatives concluded that it is more in line with industry standards and the City's policy goals than the current rate structure.
- Eliminate the existing rate credits offered by the City. Consider replacing it with an analytically based calculation in future years, once the ESU rate structure has been implemented.

These two adjustments are proposed to increase the equity and reduce the administrative burden of the stormwater rate structure.

APPENDIX A – ISSUE PAPER #1: RATE STRUCTURES

ISSUE PAPER #1

STORMWATER RATE STRUCTURE ALTERNATIVES

Issue

The City of Lake Stevens imposes annual surface water charges on parcels within its City limits, in order to fund the Surface Water Utility's operations, maintenance, and projects identified in the Capital Improvement Plan (CIP). Stormwater charges are billed by Snohomish County on the annual property tax statements.

City's Existing Rate Structure

The City's current rate structure is calculated using percent impervious surface area and parcel size for non-residential customers, and parcels/units for residential customers. A more detailed layout of the structure and rates is provided below:

Class	Impervious Surface %	Monthly Rate	Annual Rate
Single Family	NA	\$8.67 per parcel	\$104.00 per parcel
Condominium	NA	\$7.17 per unit	\$86.02 per unit
Undeveloped Lot	NA	Exempt	Exempt
Exempt	Less than 1%	No Charge	No Charge
Very Light	1% to 19%	\$2.38 per ¼ acre	\$28.61 per ¼ acre
Light	20% to 39%	\$8.00 per ¼ acre	\$96.00 per ¼ acre
Moderate	40% to 59%	\$13.28 per ¼ acre	\$159.36 per ¼ acre
Heavy	60% to 79%	\$18.06 per ¼ acre	\$216.77 per ¼ acre
Very Heavy	80% to 100%	\$23.90 per ¼ acre	\$286.85 per ¼ acre
City Roads	NA	Set in accordance with RCW 90.03.525	
State Highways	NA	Set in accordance with RCW 90.03.525	
Low Income Senior & Disabled Exemption		Set in accordance with Snohomish County guidelines	

In addition to the general stormwater rate, the City also charges a Lakefront Management Benefit Assessment for properties abutting the lake.

Lakefront Management Benefit Assessment	Monthly Rate	Annual Rate
Lakefront Lot	\$16.00 per parcel	\$192.00 per parcel
Split Lot	\$11.33 per parcel	\$136.00 per parcel

The City has requested an evaluation to determine whether or not the current rate structure is optimal, given the City's policy objectives.

Alternatives

There are number of rate structure options that are often considered as potential bases for recovering the costs of surface water management:

- ◆ **Impervious Surface Area:** The most common approach is to charge customers based on impervious surface area, the hard surface area that prevents or impedes the permeation of water into the ground. Impervious surface area is widely accepted as an appropriate measure of a property's contribution of runoff, providing a rational nexus to service received from a stormwater program. Given the diversity that exists among non-single-family residential properties, it is common to charge these customers based on actual measured impervious surface area.

Utilities often follow a different procedure for single-family residences, as tracking parcel-specific measurements of impervious area for these customers would add considerable administrative effort and complexity to the rate structure. The more

common practice is to impose a uniform rate on single-family residences based on an estimated average amount of impervious surface area. Though this approach may overcharge smaller residences and undercharge larger residences, it is widely considered to be an acceptable compromise between equity and practicality.

- ◆ **Density of Development:** An alternative measurement of runoff contribution involves applying “density factors” to adjust charges depending on the percentage of the parcel covered by hard surface. This approach can acknowledge that, for example, 3,000 square feet of impervious area on a 5,000 square-foot lot more directly impacts the public system than an equivalent impervious area on a one-acre lot. As with the approach based on impervious surface area, this approach is an appropriate charge basis because it adequately quantifies the relationship between the rate paid and the level of service received.
- ◆ **Runoff Coefficients:** This approach is similar to the “density of development” approach in that it can be used to adjust a parcel’s charge based on its runoff characteristics – however, it is more closely associated with a parcel’s physical properties. When applied to lot size, runoff coefficients are generally accepted as a measure of runoff contribution (and service received). Implementing this approach requires information relating to the basic characteristics of land (e.g. slope and soil type), land use, and lot size. Depending on slope variables and soil characteristics, undeveloped parcels may also be subject to charges under this approach.
- ◆ **Land Use:** Alternatively, runoff characteristics can be linked to types of land use. For example, empirical analysis may find that an industrial land use has a more significant contribution to water quality problems from stormwater runoff than undeveloped land (justifying a proportionately higher industrial stormwater rate to equitably recover program costs).
- ◆ **Trip Generation:** While most rate structure options focus on runoff contribution, a structure based on trip generation would attempt to relate automobile traffic to non-point-source pollution contributed by properties. The Institute of Transportation Engineers’ Trip Generation Manual assigns a number of daily trips to specific categories of land use – this information could be used to recover the costs of water quality activities within the stormwater program. Customer land uses and lot sizes would also be required in order to calculate equitable rates. **Note: We are aware of only one utility that has implemented stormwater rates based on trip generation.**

Analysis

General Stormwater Rate Structure Background

A rate may be found legally valid if the services that it funds generally benefit those who pay it – a property-specific link between fees paid and level of service received is generally not required. In fact, case law in Washington, notably *Teter v. Clark County*, has supported the stance that an indirect linkage is adequate justification for a rate.

Throughout the United States, impervious surface area is a widely accepted measure of runoff contribution, providing the basis for rates in most stormwater utilities. In addition, the functional nexus among impervious surface area, runoff contribution, and increased flooding / water quality degradation / damage to habitat is “scientifically” strong and supportable.

The following selection from *Stormwater Strategies: Community Responses to Runoff Pollution* describes this nexus clearly:

“The problem of polluted stormwater runoff has two main components: the increased volume and rate of runoff from impervious surfaces and the concentration of pollutants in the runoff. Both components are highly related to development in urban and urbanizing areas. When impervious cover (roads, highways, parking lots, and rooftops) reaches 10 and 20 percent of the area of a watershed, ecological stress becomes clearly apparent. Everyday activities, including driving and maintaining vehicles, maintaining lawns and parks, disposing of waste, and even walking pets, often cover these impervious surfaces with a coating of various harmful materials. Construction sites, power plants, failed septic systems, illegal discharges, and improper sewer connections also contribute substantial amounts of pollutants to runoff. Sediments, toxic metal particles, pesticides and fertilizers, oil and grease, pathogens, excess nutrients, and trash are common stormwater pollutants. Many of these constituents end up on roads and parking lots during dry weather only to be washed into waterbodies when it rains or when snow melts.

Together, these pollutants and the increased velocity and volume of runoff cause dramatic changes in hydrology and water quality that result in a variety of problems. These include increased flooding, stream channel degradation, habitat loss, changes in water temperature, contamination of water resources, and increased erosion and sedimentation. These changes affect ecosystem functions, biological diversity, public health, recreation, economic activity, and general community well-being. Urban stormwater is not alone in causing these impacts. Industrial and agricultural runoff are equal or greater contributors. But the environmental, aesthetic, and public health impacts of diffuse pollution will not be eliminated until urban stormwater pollution is controlled.”¹

Supporting scientific research shows that in addition to increasing the deposition of pollutants, impervious surfaces greatly increase peak flows to streams while decreasing base flows. Higher peak flows cause flooding and erosion, increasing sediment deposition and damage to aquatic habitats; lower base flows can also impact habitats.

Analysis of Rate Structure Alternatives

- ◆ ***Impervious Surface Area:*** The City could consider a fee structure that administers charges based on actual, measured impervious surface area rather than using tiers of percent impervious surface area.
- ◆ ***Density of Development:*** While the density of development rate basis (currently utilized by the City) is widely used, it is still worthwhile to examine how it has been applied and what other options may be available to the City.
- ◆ ***Runoff Coefficients:*** This approach would be more difficult to administer than the existing structure based on the percent impervious surface area, as it would require a relatively extensive data collection effort on the part of the City. It is also less defensible as a fee basis because it incorporates physical land characteristics over which the customer has minimal control.
- ◆ ***Land Use:*** While administratively simple compared to an impervious-area approach, an approach based on land use is typically used only when property-specific impervious area measurements are unavailable.
- ◆ ***Trip Generation:*** While a supportable means of recovering costs related to water quality, provides little if any advantage over impervious surface area at greater administrative effort and associated cost.

¹ Peter H. Lehner, George P. Aponte Clarke, Diane M. Cameron, and Andrew G. Frank, Stormwater Strategies Community Responses to Runoff Pollution (Natural Resources Defense Council, May 1999), xi.

Lake Management Benefit Assessment

The lake management assessment poses a different set of challenges. What differentiates a tax from a fee is that there must be a rational nexus between a fee and the services provided. Therefore, the utility must show that lakefront properties put an additional burden on the system compared to non-lakefront properties. This can be difficult to determine. For example, while there may be runoff from the lakefront properties into the lake, it is challenging, if not impossible, to prove that the exact source of the runoff is the lakefront properties and not uphill properties. On the other hand, the closer the origin of runoff to the lake, the less natural features there are to filter the stormwater before it enters the lake. By this logic, any stormwater runoff from a lakefront property may have a larger impact on the resulting lake water quality than a property further from the lake.

Single Family Residential Tiers

For residential customers, the approach based purely on measured impervious area that varies by parcel can be administratively burdensome. The implementation of this approach requires the creation and maintenance of a comprehensive database of impervious surface area for all residential properties. Additions and alterations to properties (e.g. patios, decks, driveways, etc.) would need to be tracked and maintained.

As a simplification, it would be possible to group single family residences into rate tiers. For example, single family parcels could be grouped into “Small”, “Medium”, “Large”, and “Measured” impervious footprints. Parcels with comparatively large impervious footprints, the “Measured” tier, would be charged like other developed property – based on the measured amount of impervious surface area. However, implementation of even this hybrid approach would require the same initial data collection to determine tier placement for each property, without significantly improving equity among rate payers.

Additionally, by creating tiers, an inequity would be developed for those parcels that are on the low or high-end of each tier, just as exists in the current structure. For example, consider a hypothetical “Medium” tier that contained residential parcels from 1,500 to 2,500 impervious square feet. There could be a “Small” parcel that has 1,490 impervious square feet and a “Medium” parcel that has 1,510 impervious square feet. Even though these parcels have very similar impervious areas, the “Medium” parcel would have a much larger charge, simply because of the tier cutoff parameters.

Recommendation It is recommended the City consider the following rate structure changes:

- Implement a rate structure based on impervious square feet.
- Discontinue the Lake Management Benefit Assessment. Incorporate the recovery of those costs into the general rate base.

Non-Residential impacts. The City’s current rate structure is based on the density of development (the percent impervious surface area). While it is a defensible rate structure, it does have a material drawback. It perpetuates inequities among customers at the extreme ends of each class range. For example, a non-residential property that is 39% impervious would pay significantly less than a similarly sized property that is 40% impervious, even though they have comparable amounts of impervious area. Meanwhile, a non-residential property that is 20% impervious would pay the same as a similarly sized property that is 39% impervious, even though they have about half the impervious surface area.

Recognizing this inequity, it is recommended that the City consider a fee structure that is based on actual, measured impervious surface area. The charge basis for all non-residential customer types is generally actual measured impervious surface area. The county already has records of the impervious area for each non-single family parcel within the City's limits—that is how each parcel's percent impervious amount is calculated. The rate itself is most commonly calculated as a dollar amount per impervious square foot. This rate structure would improve the equity over that of the City's existing rate structure and the data is already available to develop this alternative.

Residential impacts. To minimize administrative and data collection costs, it is recommended that the City continue charging a *uniform* rate for single family residential customers using an average amount of assumed impervious surface area per developed residential parcel (based on a relevant sample size within the City). All single family parcels would have the same, flat charge.

Lake Management Benefit Assessment. Given the challenges of calculating an analytically-based assessment or fee, we recommend that the City discontinue the additional lakefront property charge. Based on the 2017 customer billing data, only 336 out of 11,763 parcels, or 2.9% of customers, are assessed a lake management fee. The majority of these customers are residential. The impact of the fee on these individual customers is large, but the revenue collected is less than 4% of the utility's annual rate revenue. If the City were to no longer charge the lake management assessment, the regular rates would need to increase to cover the difference.

APPENDIX B – ISSUE PAPER #2: RATE CREDITS

ISSUE PAPER #2

STORMWATER RATE CREDITS & ADJUSTMENTS

Issue

This paper discusses when is it reasonable (or required) to provide rate credits or adjustments for surface water utility customers who mitigate their stormwater impacts and the rational basis for such credits. The City of Lake Stevens currently grants the following credits and exemptions, according to the City's municipal code, 11.04.070 Credits Allowed:

- ◆ **Open Space.** Any non-residential parcel that classifies as an open space, according to the definition in RCW 84.34, shall be charged for only the area of impervious surface and at the rate which the parcel is classified under using the total parcel acreage.
- ◆ **On-Site Retention/Detention Facility Discount.** Any non-residential parcel in the moderate, heavy or very heavy rate category that has onsite retention/detention facilities qualifies to be charged one rate category lower than classified by percent impervious area. To qualify, the property must prove that the facilities meet or surpass City standards, and they must be maintained at the owner's expense.
- ◆ **Public School District.** Parcels owned by public school districts that provide activities which directly benefit the City's stormwater management utility shall be eligible for a discount up to the cost of providing the programs.
- ◆ **Senior Citizen and Low Income Discount.** The parcel is owned and is the residence of a low-income senior or low-income disabled person as defined under RCW 84.36.381.

The analysis in this issue paper will primarily focus on those credits and adjustments related to water quantity and water quality features or facilities.

Alternatives

A review of potential credit bases / approaches reveals a number of alternatives.

- ◆ **On-site retention / detention.** Many residential subdivisions and commercial developments provide on-site retention / detention facilities as a condition of development, often maintaining such facilities as well. There are several ways to structure a potential rate credit for on-site retention / detention, the following among them:
 - ◆ **Performance against current standards.** Rate credits may be structured to reward customers who provide mitigation that exceeds current development standards, while offering lesser or no credits for mitigation that does not exceed current development standards.
 - ◆ **Low-impact development, green building, and rainwater harvesting.** Low-impact development (LID) techniques, such as rainwater harvesting, permeable pavement, open space retention, bio-retention swales and rain gardens could also be worthy of credits. Other aspects of LID, such as green (vegetated) roofs, may change the effective impervious area of a development or home if properly maintained because they reduce and filter runoff.
- Green building techniques include site planning to take greater advantage of natural site features, achieving LEED or Built Green certification, planting drought-resistant native landscaping, amending soils with compost, reducing impervious surface area, minimizing site disturbance during development, and previously noted low-impact development features. Implementing these techniques will result in increased natural resource conservation, lower home operating costs, and better stewardship of the City's natural environment. Other than its LID aspects, green building techniques are not strongly linked to a reduction in surface water utility costs. Aspects that could be directly related to smaller service requirements are the minimization of impervious surface area and improved water quality.

A credit for low-impact development would recognize the fact that effective impervious area can be much smaller than the impervious surface area that is measured from aerial photographs (due to roof rainwater collection systems, permeable paving, vegetated roofs, etc.). An LID credit may be further supported by the fact that even when the effective impervious area of such a development is the same as other, conventional residential developments, other LID practices such as vegetation replacement typically result in reduced runoff from the property.

- ◆ **Dedicated open space.** Developments may incorporate design techniques that concentrate residences or other buildings in a compact area of the development site (lot clustering) and provide open space and natural areas elsewhere, protected by an easement. Such techniques can reduce runoff and mitigate stormwater quality issues.

Open space developments have many benefits in comparison to the conventional subdivisions that they replace: they can reduce impervious surface area (ISA), stormwater pollutants, construction costs, grading, and the loss of natural areas. In addition to the minimization of ISA, the preserved natural areas and tree canopy can significantly mitigate the stormwater runoff created by the buildings onsite. Therefore, although affected by the slope characteristics of the property, the preserved portion of the site acts to reduce the effective impervious area of the development and provides a meaningful benefit to the public system when runoff is adequately dispersed.

Credit Analysis

When considering how to charge or credit different types of customers, it is important to remember that a surface water rate is a fee for service, not a tax. As such, the level of a customer's charge must somewhat relate to that customer's proportionate share of the utility's costs. Credit policies have the potential to move a utility away from the rational linkage between service delivered and the fee amount, so the utility should bear in mind the equity and legal defensibility of any existing or proposed credits.

A surface water utility's service to its customers and the community it serves can be analyzed in two functional categories: controlling and reducing stormwater runoff (i.e. water quantity), and controlling and managing pollutants (i.e. water quality). The broader questions to address in establishing credits are (1) whether a rate payer helps the utility reduce its costs, or to avoid additional costs, by providing certain mitigation measures in these two functional areas, and (2) if yes, how much of a cost savings is provided.

Comparatively, properties with onsite mitigation have a reduced effect on the public system than similar property lacking this mitigation. Therefore, it might be argued that to the extent that such facilities reduce costs to the City utility, they may warrant a rate credit.

However, simply meeting the City's development standards may not reduce costs for the utility, but only keep the utility whole. As a result, granting a rate credit for such activities could actually reduce the amount of resources available for basic services to the remainder of the customer base. In fact, it could be argued that the cost of meeting City standards and constructing on-site mitigation should be considered a "cost of doing business," since on-site mitigation only partially neutralizes the impact of developing the property in the first place.

On the other hand, exceeding standards – that is, providing capacity in addition to that needed by developing (or developed) property – in theory does reduce cost to the utility by, in effect, reducing the net utility service area. How much of a credit to grant can then be sized according to the extent to which on-site controls exceed the standards.

Therefore, the two criteria to check for could be (1) effectiveness in reducing stormwater runoff and (2) whether these on-site systems are designed to handle greater amount of stormwater than would be required as a condition of development approval. The additional capacity provided by the new development then may become the basis for the service charge credit amount.

Recommendation Many of the surface water management program’s costs are essentially “fixed” and do not decrease no matter what services customers provide on-site. As a first step, we recommend that the City work in coordination with FCS GROUP to determine the portion of program costs which can be reduced by the on-site activities of the customer base. We further recommend that the City classify the portion of those variable or use related costs as either attributable to managing water quantity or to managing water quality.

Once an allocation of program revenue requirements between fixed, or “base,” program costs, and variable, or “use,” program costs has been made, these component shares of the surface water utility charge can be determined. We recommend that the City consider a single analytically based credit, representing the “use” portion of program costs, and that the credit be granted for meeting or exceeding the requirements of the most recent City-adopted edition of the Department of Ecology’s Storm Water Management Manual for the Puget Sound Basin.

The above recommendations ensure that properties subject to surface water rate credits would be reducing the average cost of utility operations, as well as possibly allowing the City to delay capital projects. As a result, the utility would be able to reduce its costs by implementing the recommended credit policies.

APPENDIX C – LEVEL OF SERVICE MATRIX

City of Lake Stevens: Surface Water Utility Level of Service Matrix	Single Family Annual Rate			Operations & Staffing	Capital
	2018 (existing)	2019	2024		
LOS 1: Fix Operating Deficit	\$104	\$167	\$193	- Fund Existing Operating & Staffing - Current operating deficit (\$600k). - Additional Street Cleaning (add'l \$12k/yr.) - Total of \$24k/yr. - Additional Lake Treatment (add'l \$50k/yr.) - Total of \$250k/yr. - Senior Engineer (\$56k/yr for Storm). - PW OPs Manager (\$60k/yr for Storm).	Minimal; outside funding dependent.
LOS 2: Additional Stormwater Facility Maintenance to Meet NPDES Requirements	\$0	\$33	\$56	Required as Part of NPDES Permit - Vactor crew (3) - Inspector (1) - GIS tech (1)	\$1.6 million equipment (vactor truck, street sweeper, dump truck, truck, tool shed, misc. tools & equipment) \$1.2 million in loans.
Subtotal (LOS 1 + 2)	\$104	\$200	\$250		
LOS 3: High Priority Capital	\$0	\$20	\$15	No additional.	\$1.4 million in capital \$900,000 in loans/financing.
Subtotal (LOS 1 + 2 +3)	\$104	\$220	\$265		
LOS 4: Medium Priority Capital	\$0	\$32	\$32	No additional.	\$3.2 million in capital \$2.3 million in revenue bonds.
Grand Total	\$104	\$252	\$296		

APPENDIX D –PROJECTED RATE SCHEDULES BY LOS

LOS 1: ESU Rate Structure

[illegible]

LOS 2: ESU Rate Structure

[illegible]

LOS 3: ESU Rate Structure

[illegible]

LOS 4: ESU Rate Structure

[illegible]

APPENDIX E – RATE MODEL

Lake Stevens
Utility Rate Study: Stormwater Utility
Summary

Revenue Requirement	2017	2018	2019	2020	2021	2022	2023	2024
Revenues								
Rate Revenues Under Existing Rates	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,569,613	\$ 1,585,309	\$ 1,601,162	\$ 1,617,174
Non-Rate Revenues	41,154	77,784	71,076	77,836	68,340	69,796	70,320	70,863
Existing Revenues	\$ 1,485,004	\$ 1,478,289	\$ 1,485,585	\$ 1,506,490	\$ 1,637,953	\$ 1,655,106	\$ 1,671,483	\$ 1,688,037
Expenses								
Cash Operating Expenses	1,739,903	2,138,417	2,788,750	2,911,222	3,059,104	3,213,277	3,375,931	3,547,555
Existing Debt Service	10,763	10,700	10,700	10,700	10,700	-	-	-
New Debt Service	-	-	88,322	251,364	347,715	347,715	347,715	347,715
Additions Required to Meet Reserves	-	-	-	-	-	-	-	-
Total Expenses	\$ 1,750,666	\$ 2,149,117	\$ 2,887,772	\$ 3,173,285	\$ 3,417,519	\$ 3,560,992	\$ 3,723,646	\$ 3,895,269
Net Surplus (Deficiency)	\$ (265,662)	\$ (670,828)	\$ (1,402,186)	\$ (1,666,795)	\$ (1,779,566)	\$ (1,905,886)	\$ (2,052,163)	\$ (2,207,232)
Additions to Meet Coverage	-	-	(8,368)	-	-	-	-	-
Total Surplus (Deficiency)	\$ (265,662)	\$ (670,828)	\$ (1,410,555)	\$ (1,666,795)	\$ (1,779,566)	\$ (1,905,886)	\$ (2,052,163)	\$ (2,207,232)
Annual Rate Increase		0.00%	145.82%	3.25%	3.25%	3.25%	3.25%	3.50%
Cumulative Rate Increase		0.00%	145.82%	153.81%	162.05%	170.57%	179.37%	189.14%
Revenues After Rate Increases	\$ 1,443,850	\$ 1,400,505	\$ 3,477,107	\$ 3,626,014	\$ 4,113,249	\$ 4,289,399	\$ 4,473,092	\$ 4,675,947
Additional Taxes from Rate Increase	-	-	30,939	32,960	38,155	40,561	43,079	45,882
Net Cash Flow After Rate Increase	\$ (265,662)	\$ (670,828)	\$ 629,472	\$ 497,605	\$ 725,915	\$ 757,642	\$ 776,687	\$ 805,659
Coverage After Rate Increase: Bonded Debt	n/a	n/a	8.28	8.65	5.90	6.03	6.15	6.33
Coverage After Rate Increase: Total Debt	(22.99)	(61.37)	7.39	2.92	3.04	3.20	3.27	3.36
Annual Single Family Charge	\$ 104.00	\$104.00	\$255.65	\$263.96	\$272.54	\$281.39	\$290.54	\$300.71
Annual Increase (\$)		\$0.00	\$151.65	\$8.31	\$8.58	\$8.86	\$9.15	\$10.17

Checks

Fund Balance	2017	2018	2019	2020	2021	2022	2023	2024
Operating Reserve								
Beginning Balance	\$ 1,000,000	\$ 1,000,000	\$ 329,172	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230
plus: Net Cash Flow after Rate Increase	(265,662)	(670,828)	629,472	497,605	725,915	757,642	776,687	805,659
less: Transfer of Surplus to Capital Fund	-	-	(41,795)	(447,168)	(676,632)	(705,248)	(722,421)	(748,407)
Ending Balance	\$ 734,338	\$ 329,172	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
Actual Days of O&M	154 days	56 days	120 days	120 days	120 days	120 days	120 days	120 days
Minimum Balance Requirement	\$ 572,023	\$ 703,041	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
Maximum Balance Requirement	\$ 572,023	\$ 703,041	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
Capital Reserve								
Beginning Balance	\$ 746,837	\$ 343,804	\$ 301,242	\$ 424,289	\$ 493,987	\$ 759,416	\$ 1,203,823	\$ 1,547,027
plus: Transfers from Operating Fund	-	-	41,795	447,168	676,632	705,248	722,421	748,407
plus: Revenue Bond Proceeds	-	-	1,100,000	-	1,200,000	-	-	-
plus: Interest Earnings	7,468	3,438	3,012	4,243	4,940	7,594	12,038	15,470
Total Funding Sources	\$ 754,305	\$ 347,242	\$ 1,446,049	\$ 2,300,700	\$ 2,375,559	\$ 3,160,520	\$ 1,938,282	\$ 2,310,905
less: Capital Expenditures	(127,668)	(46,000)	(1,021,761)	(1,806,713)	(1,616,143)	(1,956,697)	(391,255)	(2,059,740)
Ending Capital Fund Balance	\$ 626,637	\$ 301,242	\$ 424,289	\$ 493,987	\$ 759,416	\$ 1,203,823	\$ 1,547,027	\$ 251,164
Minimum Target Balance	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000
Combined Beginning Balance	\$ 1,746,837	\$ 1,343,804	\$ 630,414	\$ 1,341,138	\$ 1,461,273	\$ 1,775,985	\$ 2,272,787	\$ 2,670,258
Combined Ending Balance	\$ 1,360,975	\$ 630,414	\$ 1,341,138	\$ 1,461,273	\$ 1,775,985	\$ 2,272,787	\$ 2,670,258	\$ 1,431,647
Ending Total Days of Operating Expenditures	286 days	108 days	174 days	181 days	209 days	255 days	285 days	145 days
Combined Minimum Target Balance	772,023	903,041	1,116,849	1,167,286	1,216,569	1,268,964	1,323,230	1,380,482

Economic & Financial Factors	Historical	2017	2018	2019	2020	2021	2022	2023	2024
Escalation Rates									
General Cost Inflation		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Construction Cost Inflation		3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Customer Growth		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Wage & Benefits Inflation		6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Capital Contributions		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
[Extra]		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
[Extra]		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
No Escalation		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment Interest		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Tax Rates									
State B&O		1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%

Accounting & Financial Policy Assumptions		2017	2018	2019	2020	2021	2022	2023	2024
Beginning Fund Balances: Fund 410		\$ 1,746,837	\$ 1,343,804	Source: "12.2017 Year End December Financial Report.pdf"					
Operating Reserve	\$ 1,000,000	\$ 1,000,000							
Capital Reserve	\$ 746,837	\$ 343,804							
Debt Reserve	\$ -	\$ -							
	\$ 1,746,837	\$ 1,343,804							
Operating Balance: Minimum & Maximum Target									
Min. Fund Balance Target (days of O&M expense)		120 days	120 days	120 days	120 days	120 days	120 days	120 days	120 days
Max. Fund Balance (days of O&M expense)		120 days	120 days	120 days	120 days	120 days	120 days	120 days	120 days
Capital Balance: Minimum Target									
3 User Input		\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000

Capital Financing Assumptions		2017	2018	2019	2020	2021	2022	2023	2024
Other Funding Sources (Uses)		Capital Grants / Contributions / Other Resources							
Hydraulic study on Lake Stevens Outfall – funding via grant		\$ -	\$ -	\$ -	\$ 225,000	\$ -	\$ -	\$ -	\$ -
20th Street SE Phase II Stormwater Improvements		-	-	-	-	-	1,688,263	-	-
[Extra]		-	-	-	-	-	-	-	-
[Extra]		-	-	-	-	-	-	-	-
[Extra]		-	-	-	-	-	-	-	-
Total		\$ -	\$ -	\$ -	\$ 225,000	\$ -	\$ 1,688,263	\$ -	\$ -
Revenue Bonds									
Term (years)		20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years
Interest Only Payments (years)		0 years	0 years	0 years	0 years	0 years	0 years	0 years	0 years
Interest Cost	5/15/2018: 3.88%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Issuance Cost		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Legal Minimum or Policy Coverage	1.25								
Use Reserves to Pay for Last Payment?	Yes	("Yes" is default)							
Include / Exclude SDCs in Coverage?	Include								
Funding Debt Reserve									
Minimum Reserve Requirement on Existing Revenue Bonds		\$ -	\$ -	\$ 88,322	\$ 88,322	\$ 184,673	\$ 184,673	\$ 184,673	\$ 184,673
Beginning Debt Reserve + Additions from New Issues		\$ -	\$ -	\$ 88,322	\$ 88,322	\$ 184,673	\$ 184,673	\$ 184,673	\$ 184,673
Surplus / (Deficit)		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Manual Additions to Reserves (leave blank to auto calc.)									
Additions to Debt Reserve	Manual	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Loan		Level total payments							
Term (years)		10 years	10 years	10 years	10 years	10 years	10 years	10 years	10 years
Interest Only Payments (years)		0 years	0 years	0 years	0 years	0 years	0 years	0 years	0 years
Interest Cost		6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Issuance Cost		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other Loans 2		Level principal payments							
Term (years)		20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years
Interest Only Payments (years)		0 years	0 years	0 years	0 years	0 years	0 years	0 years	0 years
Interest Cost		1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Issuance Cost		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Other Loans 3		Level principal payments							
Term (years)		20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years
Interest Only Payments (years)		0 years	0 years	0 years	0 years	0 years	0 years	0 years	0 years
Interest Cost		3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

Lake Stevens
Utility Rate Study: Stormwater Utility
Operating Revenue and Expenditure Forecast

Operating Revenues		Escalation	Actuals 2016	Actuals 2017	Budget 2018	2019	2020	2021	2022	2023	2024
Account #	Rate Revenues										
410-000-343-10-00-00	Storm Drainage Charges	Customer Growth	\$ 1,440,307	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,442,941	\$ 1,457,371	\$ 1,471,944	\$ 1,486,664
410-000-343-10-00-00	2020 Annexation Revenue	Customer Growth	-	-	-	-	-	126,672	127,939	129,218	130,510
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-
	Total Rate Revenue		\$ 1,440,307	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,569,613	\$ 1,585,309	\$ 1,601,162	\$ 1,617,174
				0.25%	-3.00%	1.00%	1.00%	9.87%	1.00%	1.00%	1.00%
	Non-Rate Revenues										
410-000-334-03-10-10	DOE Capacity Grant	No Escalation	\$ 6,005	\$ 18,995	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
410-000-345-16-00-00	SnoCo Weed Abate Contrib.	No Escalation	8,948	-	10,000	10,000	10,000	-	-	-	-
410-000-361-10-00-00	Investment Interest	No Escalation	7,393	-	-	-	-	-	-	-	-
410-000-369-91-00-00	Miscellaneous Revenues	No Escalation	-	12,159	-	-	-	-	-	-	-
[Extra]	Lake Management Benefit Assessment	No Escalation	-	-	57,784	57,784	57,784	57,784	57,784	57,784	57,784
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-
	Total Non-Rate Revenues		\$ 22,346	\$ 31,154	\$ 67,784	\$ 67,784	\$ 67,784	\$ 57,784	\$ 57,784	\$ 57,784	\$ 57,784
						0.00%	0.00%	-14.75%	0.00%	0.00%	0.00%
TOTAL OPERATING REVENUES			\$ 1,462,653	\$ 1,475,004	\$ 1,468,289	\$ 1,482,294	\$ 1,496,439	\$ 1,627,397	\$ 1,643,093	\$ 1,658,946	\$ 1,674,958
						0.95%	0.95%	8.75%	0.96%	0.96%	0.97%

Lake Stevens

Utility Rate Study: Stormwater Utility

Operating Revenue and Expenditure Forecast

			Actuals	Actuals	Budget							
Operating Expenses			Escalation	2016	2017	2018	2019	2020	2021	2022	2023	2024
Account #												
410-016-531-10-44-00	State B&O	[Calculated]	21,605	21,840	22,024	22,234	22,447	24,411	24,646	24,884	25,124	
410-015-531-10-31-00	ME-Operating Costs	General Cost Inflation	\$ -	\$ 60	\$ 15,000	\$ 15,375	\$ 15,759	\$ 16,153	\$ 16,557	\$ 16,971	\$ 17,395	
410-016-517-60-31-00	SW-Safety Program	General Cost Inflation	1,872	1,011	2,150	2,204	2,259	2,315	2,373	2,433	2,493	
410-016-531-10-11-00	SW-Salaries	Wage & Benefits Inflation	584,685	592,828	814,468	863,336	915,136	970,044	1,028,247	1,089,942	1,155,338	
410-016-531-10-12-00	SW-Overtime	Wage & Benefits Inflation	1,304	2,419	4,080	4,325	4,584	4,859	5,151	5,460	5,788	
410-016-531-10-20-00	SW-Benefits	Wage & Benefits Inflation	133,093	133,957	200,731	212,775	225,541	239,074	253,418	268,623	284,741	
410-016-531-10-21-00	SW-Social Security	Wage & Benefits Inflation	35,578	34,355	64,587	68,462	72,570	76,924	81,540	86,432	91,618	
410-016-531-10-22-00	SW-Retirement	Wage & Benefits Inflation	50,177	51,077	95,883	101,636	107,734	114,198	121,050	128,313	136,012	
410-016-531-10-24-00	SW-Workmans Compensation	Wage & Benefits Inflation	10,326	9,886	19,327	20,487	21,716	23,019	24,400	25,864	27,416	
410-016-531-10-26-00	SW Clothing-Boot Allowance	Wage & Benefits Inflation	5,220	5,590	4,500	4,770	5,056	5,360	5,681	6,022	6,383	
410-016-531-10-31-00	SW-Clothing	General Cost Inflation	2,522	3,181	3,000	3,075	3,152	3,231	3,311	3,394	3,479	
410-016-531-10-31-01	SW-Office Supplies	General Cost Inflation	557	577	2,000	2,050	2,101	2,154	2,208	2,263	2,319	
410-016-531-10-31-02	SW-Operating Costs	General Cost Inflation	57,754	167,452	171,638	175,929	180,328	184,836	189,457	194,193	199,048	
410-016-531-10-32-00	SW-Fuel	General Cost Inflation	10,834	14,327	10,410	10,670	10,937	11,210	11,491	11,778	12,072	
410-016-531-10-35-00	SW-Small Tools	General Cost Inflation	-	7,403	7,700	7,893	8,090	8,292	8,499	8,712	8,930	
410-016-531-10-41-01	SW-Professional Services	General Cost Inflation	41,085	3,033	26,500	27,163	27,842	28,538	29,251	29,982	30,732	
410-016-531-10-41-03	SW-Street Cleaning	General Cost Inflation	11,224	14,123	24,000	24,600	25,215	25,845	26,492	27,154	27,833	
410-016-531-10-41-04	SW-Software Maint & Support	General Cost Inflation	3,098	4,209	5,000	5,125	5,253	5,384	5,519	5,657	5,798	
410-016-531-10-41-05	SW-Advertising	General Cost Inflation	971	1,396	1,000	1,025	1,051	1,077	1,104	1,131	1,160	
410-016-531-10-42-00	SW-Communications	General Cost Inflation	3,585	4,756	4,516	4,629	4,744	4,863	4,984	5,109	5,237	
410-016-531-10-43-00	SW-Travel & Meetings	General Cost Inflation	496	-	300	308	315	323	331	339	348	
410-016-531-10-45-00	SW-Equipment Rental	General Cost Inflation	1,307	10,880	2,500	2,563	2,627	2,692	2,760	2,829	2,899	
410-016-531-10-45-01	SW-Rentals-Leases	General Cost Inflation	68	9,474	2,000	2,050	2,101	2,154	2,208	2,263	2,319	
410-016-531-10-46-00	SW-Insurance	General Cost Inflation	8,009	6,177	39,002	23,233	23,814	24,410	25,020	25,645	26,286	
410-016-531-10-47-00	SW-Utilities	General Cost Inflation	2,469	2,627	2,960	3,034	3,110	3,188	3,267	3,349	3,433	
410-016-531-10-47-01	SW-Drainage	General Cost Inflation	2,507	2,518	2,518	2,581	2,646	2,712	2,780	2,849	2,921	
410-016-531-10-48-00	SW-Repairs & Maintenance	General Cost Inflation	29,596	20,983	15,000	15,375	15,759	16,153	16,557	16,971	17,395	
410-016-531-10-49-00	SW-Miscellaneous	General Cost Inflation	105	-	300	308	315	323	331	339	348	
410-016-531-10-49-01	SW-Staff Development	General Cost Inflation	414	383	1,800	1,845	1,891	1,938	1,987	2,037	2,087	
410-016-531-10-51-00	SW-Billing Fees	General Cost Inflation	30,028	40,570	45,500	46,638	47,803	48,999	50,223	51,479	52,766	
410-016-531-10-51-01	SW-DOE Annual Permit	General Cost Inflation	53,076	28,533	37,471	38,407	39,368	40,352	41,361	42,395	43,455	
410-016-531-20-41-00	SW-Aerator Monitoring	General Cost Inflation	15,963	11,125	15,363	15,747	16,141	16,545	16,958	17,382	17,817	
410-016-531-20-48-00	SW-Aerator Repairs	General Cost Inflation	15,667	-	-	-	-	-	-	-	-	
410-016-531-50-31-15	DOE EG160393-4 Capacity	No Escalation	14,196	15,113	-	-	-	-	-	-	-	
410-016-597-00-00-00	SW-Contribution Cap. Equipment Fund	Capital Contributions	143,558	334,800	160,000	168,000	176,400	185,220	194,481	204,205	214,415	
410-016-597-00-00-01	SW-Contribution Computer Equipment	Capital Contributions	15,000	12,000	24,000	25,200	26,460	27,783	29,172	30,631	32,162	
410-016-597-00-00-04	SW-Transfer to Aerator Equipment	General Cost Inflation	8,930	12,502	14,288	16,074	-	-	-	-	-	
410-016-589-10-00-00	SWM - Refunds	General Cost Inflation	-	(63)	-	-	-	-	-	-	-	
410-016-531-10-41-02	SW-Milfoil Treatment	General Cost Inflation	44,739	63,287	88,500	90,713	92,980	95,305	97,687	100,130	102,633	
410-016-531-16-48-00	SW-Alum Treatment	General Cost Inflation	95,514	95,514	105,400	108,035	110,736	113,504	116,342	119,250	122,232	
	Additional Lake Treatment Costs	General Cost Inflation	-	-	-	51,253	52,534	53,847	55,193	56,573	57,987	
New Position	PW Operating Manager	Wage & Benefits Inflation	-	-	30,000	60,000	63,600	67,416	71,461	75,749	80,294	
Council Approved PW	Senior Engineer	Wage & Benefits Inflation	-	-	28,000	56,000	59,360	62,922	66,697	70,699	74,941	
Per ILA	Diking District Contribution	General Cost Inflation	-	-	25,000	25,625	26,266	26,922	27,595	28,285	28,992	
Stormwater Facility M	Three FTE Crew	Wage & Benefits Inflation	-	-	-	268,000	284,080	301,125	319,192	338,344	358,644	
Stormwater Facility M	One FTE Inspector	Wage & Benefits Inflation	-	-	-	100,000	106,000	112,360	119,102	126,248	133,823	
Stormwater Facility M	GIS Technician	Wage & Benefits Inflation	-	-	-	90,000	95,400	101,124	107,191	113,623	120,440	
TOTAL CASH OPERATING EXPENSES			\$ 1,457,133	\$ 1,739,903	\$ 2,138,417	\$ 2,788,750	\$ 2,911,222	\$ 3,059,104	\$ 3,213,277	\$ 3,375,931	\$ 3,547,555	
			19.4%	22.9%	30.4%	4.4%	5.1%	5.0%	5.1%	5.1%	5.1%	

Lake Stevens
Utility Rate Study: Stormwater Utility
Existing Debt

Existing Debt Service - Summary		Total	2017	2018	2019	2020	2021	2022	2023	2024
Annual Debt Payments										
Revenue Bonds	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PWTF Loans		-	-	-	-	-	-	-	-	-
Other Loans		53,563	10,763	10,700	10,700	10,700	10,700	-	-	-
Total Debt Payments		53,563	10,763	10,700	10,700	10,700	10,700	-	-	-

Existing Debt Service - Revenue Bonds			2017	2018	2019	2020	2021	2022	2023	2024
TOTAL REVENUE BONDS										
Annual Interest Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment	\$	-	-	-	-	-	-	-	-	-
Total Annual Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Debt Reserve for Debt Service			-	-	-	-	-	-	-	-
Annual Debt Reserve Target on Existing Revenue Bonds			-	-	-	-	-	-	-	-

Existing Debt Service - PWTF Loans			2017	2018	2019	2020	2021	2022	2023	2024
TOTAL PWTF LOANS										
Annual Interest Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment		-	-	-	-	-	-	-	-	-
Total Annual Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Existing Debt Service - Other Loans			2017	2018	2019	2020	2021	2022	2023	2024
Parkway Crossing										
Annual Interest Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment		53,563	10,763	10,700	10,700	10,700	10,700	-	-	-
Total Annual Payment	\$	53,563	\$ 10,763	\$ 10,700	\$ 10,700	\$ 10,700	\$ 10,700	\$ -	\$ -	\$ -
TOTAL OTHER LOANS										
Annual Interest Payment	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment		53,563	10,763	10,700	10,700	10,700	10,700	-	-	-
Total Annual Payment	\$	53,563	\$ 10,763	\$ 10,700	\$ 10,700	\$ 10,700	\$ 10,700	\$ -	\$ -	\$ -

Lake Stevens
Utility Rate Study: Stormwater Utility
Capital Improvement Program

2018 Project Costs in Year

Description	UNESCALATED COSTS									Useful Life (Years)
	Total	2017	2018	2019	2020	2021	2022	2023	2024	
SW-Capital Expenditure: 2018 Budget (Acct 410-016-594-31-60-01): Shop Remodel	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	50.00
	143,668	127,668	16,000	-	-	-	-	-	-	50.00
High Priority - Critical Capital Projects	-	-	-	-	-	-	-	-	-	50.00
Catherine Creek 36th Street Bridge Repair	150,000	-	-	-	45,000	105,000	-	-	-	50.00
Southwest corner of 8th St., 83rd to 79th St – Replace/install pipe	100,000	-	-	-	-	-	-	-	100,000	50.00
10th St from 79th St. to 74th St. – Replace/install pipe	180,000	-	-	-	-	54,000	126,000	-	-	50.00
New drainage pipe on Callow Road	30,000	-	30,000	-	-	-	-	-	-	50.00
8th Street CMP – install 60' from intersection on 91st heading west	30,000	-	-	-	-	30,000	-	-	-	50.00
Hydraulic study on Lake Stevens Outfall – funding via grant, approximately \$300k	300,000	-	-	-	300,000	-	-	-	-	50.00
Main St box culvert for outfall project, stream channel restoration. Grant funded at 95%.	225,000	-	-	-	-	-	112,500	112,500	-	50.00
17th Place/114th Stormwater System in cul-de-sac	80,000	-	-	32,000	48,000	-	-	-	-	50.00
Culvert under 20th St., east of 79th	40,000	-	-	-	-	40,000	-	-	-	50.00
Public Works Shop Remodel	300,000	-	-	150,000	150,000	-	-	-	-	50.00
Decant Facility Plans and Construction	137,313	-	-	38,448	98,865	-	-	-	-	50.00
Build a fuel station at Public Works Shop	50,000	-	-	50,000	-	-	-	-	-	50.00
Bridge on west end of Vernon Road	50,000	-	-	-	-	50,000	-	-	-	50.00
	-	-	-	-	-	-	-	-	-	50.00
Medium Priority - Nice to Have, But Not Critical Projects	-	-	-	-	-	-	-	-	-	50.00
36th Street Box Culvert Installation	1,500,000	-	-	-	-	-	-	225,000	1,275,000	50.00
20th Street NE Regional Pond – Nursery Property	1,000,000	-	-	150,000	-	850,000	-	-	-	50.00
Catherine Creek Bridge Construction – in conjunction with Sound Salmon Solutions	100,000	-	-	100,000	-	-	-	-	-	50.00
Additional Decant Facility	552,688	-	-	141,553	411,135	-	-	-	-	50.00
20th Street SE Phase II Stormwater Improvements	1,500,000	-	-	-	-	-	1,500,000	-	-	50.00
	-	-	-	-	-	-	-	-	-	50.00
Stormwater Facility Maintenance	-	-	-	-	-	-	-	-	-	50.00
Vactor Truck	650,000	-	-	-	650,000	-	-	-	-	50.00
PW Truck	50,000	-	-	50,000	-	-	-	-	-	50.00
Sweeper	350,000	-	-	-	-	-	-	-	350,000	50.00
Hand Tools	50,000	-	-	50,000	-	-	-	-	-	50.00
Three Axle Trailer with Tilt	30,000	-	-	30,000	-	-	-	-	-	50.00
10 YD Dump Truck with Pump	350,000	-	-	-	-	350,000	-	-	-	50.00
Trommel/Screen for Sweeping Spoils	50,000	-	-	50,000	-	-	-	-	-	50.00
Eco-Blocks and Tent Domes for Sifted Spoils	50,000	-	-	50,000	-	-	-	-	-	50.00
Storage/Equipment Shed	100,000	-	-	100,000	-	-	-	-	-	50.00
	-	-	-	-	-	-	-	-	-	50.00
	-	-	-	-	-	-	-	-	-	50.00
Total Capital Projects Before Completion Factor	8,148,669	127,668	46,000	992,001	1,703,000	1,479,000	1,738,500	337,500	1,725,000	
Completion Factor Impact	-	-	-	-	-	-	-	-	-	
Total Capital Projects	\$ 8,148,669	\$ 127,668	\$ 46,000	\$ 992,001	\$ 1,703,000	\$ 1,479,000	\$ 1,738,500	\$ 337,500	\$ 1,725,000	

Lake Stevens
Utility Rate Study: Stormwater Utility
Capital Improvement Program

	0.00%	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	Annual
	0.00%	0.00%	3.00%	6.09%	9.27%	12.55%	15.93%	19.41%	Cumulative
	ESCALATED COSTS								
Description	2017	2018	2019	2020	2021	2022	2023	2024	ESCALATED TOTAL
SW-Capital Expenditure: 2018 Budget (Acct 410-016-594-31-60-01): Shop Remodel	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	127,668	16,000	-	-	-	-	-	-	143,668
High Priority - Critical Capital Projects	-	-	-	-	-	-	-	-	-
Catherine Creek 36th Street Bridge Repair	-	-	-	47,741	114,736	-	-	-	162,477
Southwest corner of 8th St., 83rd to 79th St – Replace/install pipe	-	-	-	-	-	-	-	119,405	119,405
10th St from 79th St. to 74th St. – Replace/install pipe	-	-	-	-	59,007	141,814	-	-	200,821
New drainage pipe on Callow Road	-	30,000	-	-	-	-	-	-	30,000
8th Street CMP – install 60' from intersection on 91st heading west	-	-	-	-	32,782	-	-	-	32,782
Hydraulic study on Lake Stevens Outfall – funding via grant, approximately \$300k	-	-	-	318,270	-	-	-	-	318,270
Main St box culvert for outfall project, stream channel restoration.Grant funded at 95%.	-	-	-	-	-	126,620	130,418	-	257,038
17th Place/114th Stormwater System in cul-de-sac	-	-	32,960	50,923	-	-	-	-	83,883
Culvert under 20th St., east of 79th	-	-	-	-	43,709	-	-	-	43,709
Public Works Shop Remodel	-	-	154,500	159,135	-	-	-	-	313,635
Decant Facility Plans and Construction	-	-	39,601	104,886	-	-	-	-	144,487
Build a fuel station at Public Works Shop	-	-	51,500	-	-	-	-	-	51,500
Bridge on west end of Vernon Road	-	-	-	-	54,636	-	-	-	54,636
Medium Priority - Nice to Have, But Not Critical Projects	-	-	-	-	-	-	-	-	-
36th Street Box Culvert Installation	-	-	-	-	-	-	260,837	1,522,417	1,783,253
20th Street NE Regional Pond – Nursery Property	-	-	154,500	-	928,818	-	-	-	1,083,318
Catherine Creek Bridge Construction – in conjunction with Sound Salmon Solutions	-	-	103,000	-	-	-	-	-	103,000
Additional Decant Facility	-	-	145,800	436,173	-	-	-	-	581,973
20th Street SE Phase II Stormwater Improvements	-	-	-	-	-	1,688,263	-	-	1,688,263
Stormwater Facility Maintenance	-	-	-	-	-	-	-	-	-
Vactor Truck	-	-	-	689,585	-	-	-	-	689,585
PW Truck	-	-	51,500	-	-	-	-	-	51,500
Sweeper	-	-	-	-	-	-	-	417,918	417,918
Hand Tools	-	-	51,500	-	-	-	-	-	51,500
Three Axle Trailer with Tilt	-	-	30,900	-	-	-	-	-	30,900
10 YD Dump Truck with Pump	-	-	-	-	382,454	-	-	-	382,454
Trommel/Screen for Sweeping Spoils	-	-	51,500	-	-	-	-	-	51,500
Eco-Blocks and Tent Domes for Sifted Spoils	-	-	51,500	-	-	-	-	-	51,500
Storage/Equipment Shed	-	-	103,000	-	-	-	-	-	103,000
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
Total Capital Projects Before Completion Factor	\$ 127,668	\$ 46,000	\$ 1,021,761	\$ 1,806,713	\$ 1,616,143	\$ 1,956,697	\$ 391,255	\$ 2,059,740	\$ 9,025,977
Completion Factor Impact	-	-	-	-	-	-	-	-	-
Total Capital Projects	\$ 127,668	\$ 46,000	\$ 1,021,761	\$ 1,806,713	\$ 1,616,143	\$ 1,956,697	\$ 391,255	\$ 2,059,740	\$ 9,025,977

Lake Stevens
Utility Rate Study: Stormwater Utility
Capital Improvement Program

Description	DEPRECIATION IMPACTS									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	
SW-Capital Expenditure: 2018 Budget (Acct 410-016-594-31-60-01): Shop Remodel		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
		2,553	320	-	-	-	-	-	-	
High Priority - Critical Capital Projects		-	-	-	-	-	-	-	-	
Catherine Creek 36th Street Bridge Repair		-	-	-	955	2,295	-	-	-	
Southwest corner of 8th St., 83rd to 79th St – Replace/install pipe		-	-	-	-	-	-	-	2,388	
10th St from 79th St. to 74th St. – Replace/install pipe		-	-	-	-	1,180	2,836	-	-	
New drainage pipe on Callow Road		-	600	-	-	-	-	-	-	
8th Street CMP – install 60’ from intersection on 91st heading west		-	-	-	-	656	-	-	-	
Hydraulic study on Lake Stevens Outfall – funding via grant, approximately \$300k		-	-	-	6,365	-	-	-	-	
Main St box culvert for outfall project, stream channel restoration.Grant funded at 95%.		-	-	-	-	-	2,532	2,608	-	
17th Place/114th Stormwater System in cul-de-sac		-	-	659	1,018	-	-	-	-	
Culvert under 20th St., east of 79th		-	-	-	-	874	-	-	-	
Public Works Shop Remodel		-	-	3,090	3,183	-	-	-	-	
Decant Facility Plans and Construction		-	-	792	2,098	-	-	-	-	
Build a fuel station at Public Works Shop		-	-	1,030	-	-	-	-	-	
Bridge on west end of Vernon Road		-	-	-	-	1,093	-	-	-	
Medium Priority - Nice to Have, But Not Critical Projects		-	-	-	-	-	-	-	-	
36th Street Box Culvert Installation		-	-	-	-	-	-	5,217	30,448	
20th Street NE Regional Pond – Nursery Property		-	-	3,090	-	18,576	-	-	-	
Catherine Creek Bridge Construction – in conjunction with Sound Salmon Solutions		-	-	2,060	-	-	-	-	-	
Additional Decant Facility		-	-	2,916	8,723	-	-	-	-	
20th Street SE Phase II Stormwater Improvements		-	-	-	-	-	33,765	-	-	
Stormwater Facility Maintenance		-	-	-	-	-	-	-	-	
Vactor Truck		-	-	-	13,792	-	-	-	-	
PW Truck		-	-	1,030	-	-	-	-	-	
Sweeper		-	-	-	-	-	-	-	8,358	
Hand Tools		-	-	1,030	-	-	-	-	-	
Three Axle Trailer with Tilt		-	-	618	-	-	-	-	-	
10 YD Dump Truck with Pump		-	-	-	-	7,649	-	-	-	
Trommel/Screen for Sweeping Spoils		-	-	1,030	-	-	-	-	-	
Eco-Blocks and Tent Domes for Sifted Spoils		-	-	1,030	-	-	-	-	-	
Storage/Equipment Shed		-	-	2,060	-	-	-	-	-	
		-	-	-	-	-	-	-	-	
		-	-	-	-	-	-	-	-	
Total Capital Projects Before Completion Factor		\$ 2,553	\$ 920	\$ 20,435	\$ 36,134	\$ 32,323	\$ 39,134	\$ 7,825	\$ 41,195	
Completion Factor Impact		-	-	-	-	-	-	-	-	
Total Capital Projects		\$ 2,553	\$ 920	\$ 20,435	\$ 36,134	\$ 32,323	\$ 39,134	\$ 7,825	\$ 41,195	

Lake Stevens

Utility Rate Study: Stormwater Utility

Revenue Requirement Tests

Cash Flow Test	2017	2018	2019	2020	2021	2022	2023	2024
REVENUES								
Rate Revenue	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,569,613	\$ 1,585,309	\$ 1,601,162	\$ 1,617,174
SDC Revenue Towards Debt Service	-	-	-	-	-	-	-	-
Other Non-Rate Revenue	31,154	67,784	67,784	67,784	57,784	57,784	57,784	57,784
Interest Earnings: Operating & Debt Reserve Funds	10,000	10,000	3,292	10,052	10,556	12,012	12,536	13,079
<i>Total Revenue</i>	\$ 1,485,004	\$ 1,478,289	\$ 1,485,585	\$ 1,506,490	\$ 1,637,953	\$ 1,655,106	\$ 1,671,483	\$ 1,688,037
EXPENSES								
Cash Operating Expenses	\$ 1,739,903	\$ 2,138,417	\$ 2,788,750	\$ 2,911,222	\$ 3,059,104	\$ 3,213,277	\$ 3,375,931	\$ 3,547,555
Existing Debt Service	10,763	10,700	10,700	10,700	10,700	-	-	-
New Debt Service	-	-	88,322	251,364	347,715	347,715	347,715	347,715
System Reinvestment Funding	-	-	-	-	-	-	-	-
Additions Required to Meet Min. Debt Reserve	-	-	-	-	-	-	-	-
Additions Required to Meet Min. Operating Reserve	-	-	-	-	-	-	-	-
<i>Total Expenses</i>	\$ 1,750,666	\$ 2,149,117	\$ 2,887,772	\$ 3,173,285	\$ 3,417,519	\$ 3,560,992	\$ 3,723,646	\$ 3,895,269
NET CASH FLOW (DEFICIENCY)	\$ (265,662)	\$ (670,828)	\$ (1,402,186)	\$ (1,666,795)	\$ (1,779,566)	\$ (1,905,886)	\$ (2,052,163)	\$ (2,207,232)

Coverage Test - with SDCs	2017	2018	2019	2020	2021	2022	2023	2024
ALLOWABLE REVENUES								
Rate Revenue	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,569,613	\$ 1,585,309	\$ 1,601,162	\$ 1,617,174
Other Revenue	31,154	67,784	67,784	67,784	57,784	57,784	57,784	57,784
SDC Revenue	-	-	-	-	-	-	-	-
Interest Earnings - All Funds	17,468	13,438	6,304	14,295	15,496	19,607	24,575	28,549
<i>Total Revenue</i>	\$ 1,492,472	\$ 1,481,727	\$ 1,488,598	\$ 1,510,733	\$ 1,642,893	\$ 1,662,700	\$ 1,683,521	\$ 1,703,507
EXPENSES								
Cash Operating Expenses	\$ 1,739,903	\$ 2,138,417	\$ 2,788,750	\$ 2,911,222	\$ 3,059,104	\$ 3,213,277	\$ 3,375,931	\$ 3,547,555
Revenue Bond Debt Service	-	-	88,322	88,322	184,673	184,673	184,673	184,673
Revenue Bond Coverage Requirement at 1.25	-	-	22,081	22,081	46,168	46,168	46,168	46,168
<i>Total Expenses</i>	\$ 1,739,903	\$ 2,138,417	\$ 2,899,152	\$ 3,021,624	\$ 3,289,946	\$ 3,444,118	\$ 3,606,773	\$ 3,778,396
Coverage	n/a	n/a	(14.72)	(15.86)	(7.67)	(8.40)	(9.16)	(9.99)
COVERAGE SURPLUS (DEFICIENCY)	\$ (247,430)	\$ (656,690)	\$ (1,410,555)	\$ (1,510,891)	\$ (1,647,053)	\$ (1,781,419)	\$ (1,923,252)	\$ (2,074,889)

Maximum Revenue Deficiency	2017	2018	2019	2020	2021	2022	2023	2024
Sufficiency Test Driving the Deficiency	Cash	Cash	Coverage	Cash	Cash	Cash	Cash	Cash
Maximum Revenue Deficiency (Surplus)	\$ 265,662	\$ 670,828	\$ 1,410,555	\$ 1,666,795	\$ 1,779,566	\$ 1,905,886	\$ 2,052,163	\$ 2,207,232
plus: Additional Tax Expense	4,046	10,216	21,481	25,383	27,100	29,024	31,251	33,613
less: Incremental Revenue From Prior Rate Increases	-	-	-	(2,083,224)	(2,414,163)	(2,569,072)	(2,731,130)	(2,900,649)
Net Revenue Deficiency (Surplus)	\$ 269,708	\$ 681,044	\$ 1,432,035	\$ (391,046)	\$ (607,497)	\$ (634,162)	\$ (647,716)	\$ (659,804)

Rate Increases	2017	2018	2019	2020	2021	2022	2023	2024
Rate Revenue @ Existing Rates	\$ 1,443,850	\$ 1,400,505	\$ 1,414,510	\$ 1,428,655	\$ 1,569,613	\$ 1,585,309	\$ 1,601,162	\$ 1,617,174
Revenues from Prior Rate Increases	-	-	-	2,083,224	2,414,163	2,569,072	2,731,130	2,900,649
Rate Revenue Before Rate Increase (incl. previous increases)	1,443,850	1,400,505	1,414,510	3,511,878	3,983,776	4,154,381	4,332,293	4,517,823
Required Annual Rate Increase	18.68%	48.63%	101.24%	0.00%	0.00%	0.00%	0.00%	0.00%
Number of Months New Rates Will Be In Effect	12	12	12	12	12	12	12	12
Info: % Increase to Generate Required Revenue	18.68%	48.63%	101.24%	0.00%	0.00%	0.00%	0.00%	0.00%
Policy Induced Rate Increases	0.00%	0.00%	145.82%	3.25%	3.25%	3.25%	3.25%	3.50%
ANNUAL RATE INCREASE	0.00%	0.00%	145.82%	3.25%	3.25%	3.25%	3.25%	3.50%
CUMULATIVE RATE INCREASE	0.00%	0.00%	145.82%	153.81%	162.05%	170.57%	179.37%	189.14%

Lake Stevens
Utility Rate Study: Stormwater Utility
Revenue Requirement Tests

Impacts of Rate Increases	2017	2018	2019	2020	2021	2022	2023	2024
Sufficiency Test Driving the Deficiency	Cash	Cash	Coverage	Cash	Cash	Cash	Cash	Cash
Rate Revenues After Rate Increase	\$ 1,443,850	\$ 1,400,505	\$ 3,477,107	\$ 3,626,014	\$ 4,113,249	\$ 4,289,399	\$ 4,473,092	\$ 4,675,947
Full Year Rate Revenues After Rate Increase	1,443,850	1,400,505	3,477,107	3,626,014	4,113,249	4,289,399	4,473,092	4,675,947
Partial Year Adjustment	-	-	-	-	-	-	-	-
Additional Taxes Due to Rate Increases	-	-	30,939	32,960	38,155	40,561	43,079	45,882
Net Cash Flow After Rate Increase	\$ (265,662)	\$ (670,828)	\$ 629,472	\$ 497,605	\$ 725,915	\$ 757,642	\$ 776,687	\$ 805,659
Coverage After Rate Increase: Bonded Debt	n/a	n/a	8.28	8.65	5.90	6.03	6.15	6.33
Coverage After Rate Increase: Total Debt	(22.99)	(61.37)	7.39	2.92	3.04	3.20	3.27	3.36

Debt Financing Assumptions	2017	2018	2019	2020	2021	2022	2023	2024
Net Revenue Bond Proceeds: Automatic Calculation	\$ -	\$ -	\$ 1,100,000	\$ -	\$ 1,200,000	\$ -	\$ -	\$ -
Net Revenue Bond Proceeds: Override*	\$ -		\$ 1,100,000	\$ -	\$ 1,200,000	\$ -	\$ -	\$ -
Equipment Loan Proceeds				\$ 1,200,000				
Other Loans 2 Proceeds								
Other Loans 3 Proceeds								

*Model will automatically calculate revenue bond debt if 'Revenue Bond Proceeds: Override' is blank. A zero does not equal a "blank."

Fund Balance Impacts	2017	2018	2019	2020	2021	2022	2023	2024
Ending Fund Balance: Operating Reserve	\$ 734,338	\$ 329,172	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
Actual Days of Operations & Maintenance	154 days	56 days	120 days	120 days	120 days	120 days	120 days	120 days
Minimum Target: Operating Reserve	572,023	703,041	916,849	967,286	1,016,569	1,068,964	1,123,230	1,180,482
Minimum Target: Operating Reserve (in Days of O&M)	120 days	120 days	120 days	120 days	120 days	120 days	120 days	120 days
Ending Fund Balance: Capital Reserve	\$ 626,637	\$ 301,242	\$ 424,289	\$ 493,987	\$ 759,416	\$ 1,203,823	\$ 1,547,027	\$ 251,164
Minimum Target: Capital Reserve	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Total Ending Operating and Capital Cash (days)	286 days	108 days	174 days	181 days	209 days	255 days	285 days	145 days
Minimum Target	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days

Applicable Tax Rates (Excise) 1.500% 1.500% 1.500% 1.500% 1.500% 1.500% 1.500% 1.500%

Annual Capital Costs \$ 127,668 \$ 46,000 \$ 1,021,761 \$ 1,806,713 \$ 1,616,143 \$ 1,956,697 \$ 391,255 \$ 2,059,740

Lake Stevens
Utility Rate Study: Stormwater Utility
Fund Activity

1,343,804

Funds	2018	2019	2020	2021	2022	2023	2024
OPERATING RESERVE							
Beginning Balance	\$ 1,000,000	\$ 329,172	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230
plus: Net Cash Flow after Rate Increase	(670,828)	629,472	497,605	725,915	757,642	776,687	805,659
less: Transfer of Surplus to Capital Fund	-	(41,795)	(447,168)	(676,632)	(705,248)	(722,421)	(748,407)
Ending Balance	\$ 329,172	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
<i>Minimum Target Balance: 120 days</i>	\$ 703,041	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
<i>Maximum Funds to be Kept as Operating Reserves: 120 days</i>	\$ 703,041	\$ 916,849	\$ 967,286	\$ 1,016,569	\$ 1,068,964	\$ 1,123,230	\$ 1,180,482
<i>Actual Days of Cash Operating Expenses Achieved</i>	56 days	120 days	120 days	120 days	120 days	120 days	120 days
CAPITAL RESERVE							
Beginning Balance	\$ 343,804	\$ 301,242	\$ 424,289	\$ 493,987	\$ 759,416	\$ 1,203,823	\$ 1,547,027
plus: System Reinvestment Funding	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	-	41,795	447,168	676,632	705,248	722,421	748,407
plus: Capital Grants / Contributions / Other Resources	-	-	225,000	-	1,688,263	-	-
plus: SDC Revenue Towards Capital	-	-	-	-	-	-	-
plus: Revenue Bond Proceeds	-	1,100,000	-	1,200,000	-	-	-
plus: Equipment Loan Proceeds	-	-	1,200,000	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-
plus: Other Loans 3 Proceeds	-	-	-	-	-	-	-
plus: Interest Earnings	3,438	3,012	4,243	4,940	7,594	12,038	15,470
Total Funding Sources	\$ 347,242	\$ 1,446,049	\$ 2,300,700	\$ 2,375,559	\$ 3,160,520	\$ 1,938,282	\$ 2,310,905
less: Capital Expenditures	(46,000)	(1,021,761)	(1,806,713)	(1,616,143)	(1,956,697)	(391,255)	(2,059,740)
Ending Capital Fund Balance	\$ 301,242	\$ 424,289	\$ 493,987	\$ 759,416	\$ 1,203,823	\$ 1,547,027	\$ 251,164
<i>Minimum Target Balance</i>	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000
DEBT RESERVE							
Beginning Balance	\$ -	\$ -	\$ 88,322	\$ 88,322	\$ 184,673	\$ 184,673	\$ 184,673
plus: Reserve Funding from Operations	-	-	-	-	-	-	-
plus: Reserve Funding from New Debt	-	88,322	-	96,351	-	-	-
less: Use of Reserves for Debt Service	-	-	-	-	-	-	-
Ending Balance	\$ -	\$ 88,322	\$ 88,322	\$ 184,673	\$ 184,673	\$ 184,673	\$ 184,673
<i>Minimum Target Balance</i>	\$ -	\$ 88,322	\$ 88,322	\$ 184,673	\$ 184,673	\$ 184,673	\$ 184,673
SUMMARY							
Combined Beginning Balance	\$ 1,343,804	\$ 630,414	\$ 1,429,460	\$ 1,549,595	\$ 1,960,658	\$ 2,457,460	\$ 2,854,931
Plus: Inflows	\$ (667,390)	\$ 1,862,602	\$ 2,374,016	\$ 2,703,838	\$ 3,158,747	\$ 1,511,146	\$ 1,569,536
Less: Outflows	\$ (46,000)	\$ (1,063,555)	\$ (2,253,881)	\$ (2,292,775)	\$ (2,661,945)	\$ (1,113,676)	\$ (2,808,147)
Combined Ending Balance	\$ 630,414	\$ 1,429,460	\$ 1,549,595	\$ 1,960,658	\$ 2,457,460	\$ 2,854,931	\$ 1,616,320
<i>Net Change in Reserves</i>	\$ (713,390)	\$ 799,046	\$ 120,135	\$ 411,063	\$ 496,802	\$ 397,471	\$ (1,238,611)
TOTAL AVAILABLE CASH TEST: DAYS OF O&M							
Actual Operating & Capital Ending Balance	\$ 630,414	\$ 1,341,138	\$ 1,461,273	\$ 1,775,985	\$ 2,272,787	\$ 2,670,258	\$ 1,431,647
Actual Ending Total Days of O&M	108 days	174 days	181 days	209 days	255 days	285 days	145 days
<i>Target: 150 Days of O&M</i>	\$ 878,801	\$ 1,158,776	\$ 1,209,938	\$ 1,272,846	\$ 1,337,194	\$ 1,405,073	\$ 1,476,755

APPENDIX F – LOS 5 ADDENDUM

LOS 5 ADDENDUM

This addendum to the City of Lake Stevens Stormwater Rate Study Report summarizes the analysis of level of service 5. Included below is the definition of LOS 5, as well as updated comparative information and analytical results.

I.A. LOS 5: HOA POND MAINTENANCE

LOS 5 includes the operating and capital costs associated with the City taking over maintenance of several Home Owners Association (HOA) ponds.

I.A.1. Operating Costs

The operating costs of maintaining the HOA ponds is projected to be \$268,000 in 2019. This covers the salary and benefits for three full time maintenance crew members.

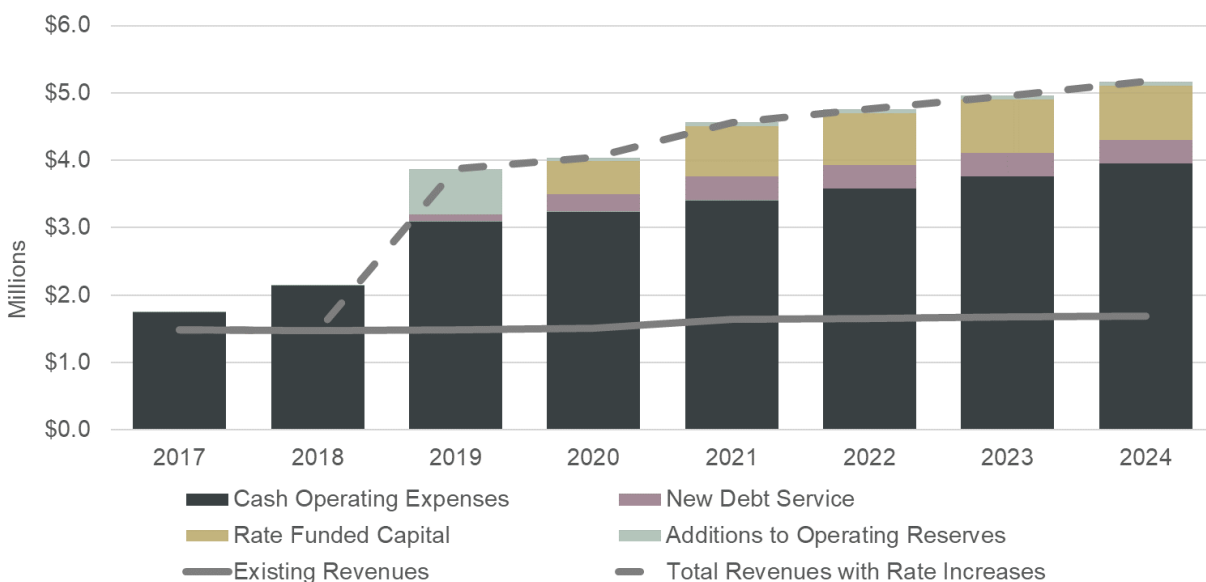
I.A.2. Capital Investments

LOS 5 further includes the cost of two public works trucks and the hand tools necessary to perform the HOA pond maintenance. This additional capital is estimated to cost \$150,000 in current dollars, scheduled for 2019. There are no additional revenue bonds or other grants assumed in LOS 5, as the HOA maintenance capital costs are projected to be cash funded.

I.A.3. Revenue Requirement

The impacts of LOS 5 on the revenue requirement are summarized in Exhibit 1 below.

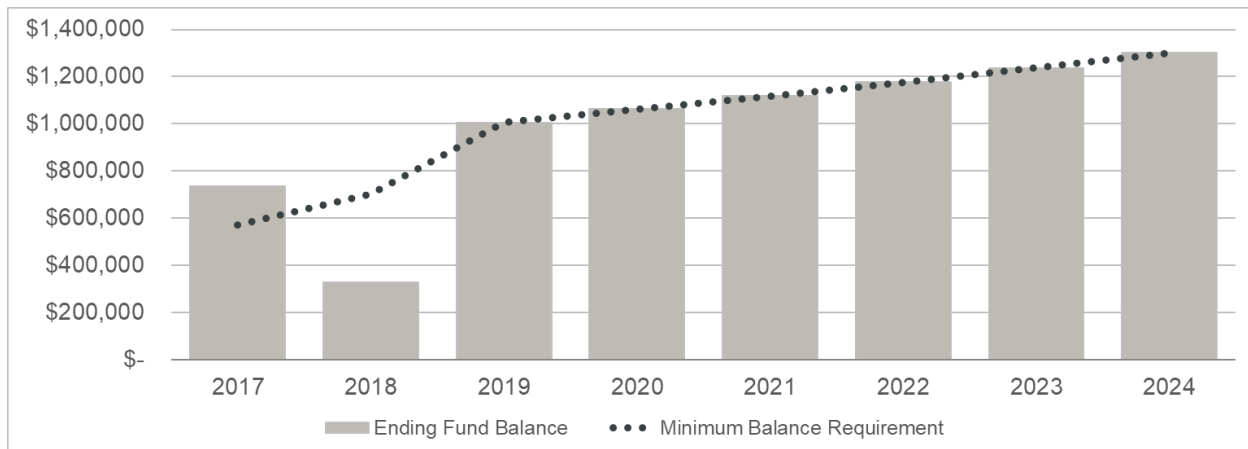
Exhibit 1: LOS 5 Revenue Requirement



The additional cost of the HOA pond maintenance impacts the initial rate adjustment in 2019, raising the initial revenue requirement from \$3.5 million to \$3.8 million in 2019. To cover this increased need, there is a 168.7% rate increase needed in 2019, and inflationary increases in the remaining forecast.

Operating balance targets are achieved in 2020, similar to LOS 4, as shown below in Exhibit 2.

Exhibit 2: LOS 5 Operating Fund Balance



I.A.4. Rate Impact

The impact of LOS 5 on the rate is summarized in Exhibit 3 below.

Exhibit 3: LOS 5 Rate Impact

Single Family Annual Rate	2018 Rate	2019 Rate	2019 Total	2024 Forecast	2024 Total
LOS 1	\$104	\$167	\$167	\$193	\$193
LOS 2	+\$0	+\$33	\$200	+\$56	\$250
LOS 3	+\$0	+\$20	\$220	+\$15	\$265
LOS 4	+\$0	+\$32	\$252	+\$32	\$296
LOS 5	+\$0	+\$23	\$276	+\$27	\$323
LOS 1 + 2 + 3 + 4 + 5	\$104	\$276		\$323	

The inclusion of the HOA pond maintenance results in an additional \$23 added to the single family annual rate in 2019.

I.B. UPDATED LOS COMPARISON

In conclusion, the revenue requirement for each level of service increases to cover the cumulative operating and capital expenses associated with that service level. At existing rates, the utility is collecting \$1.40 million in rate revenue.

Exhibit 4: LOS Revenue Requirement Comparison

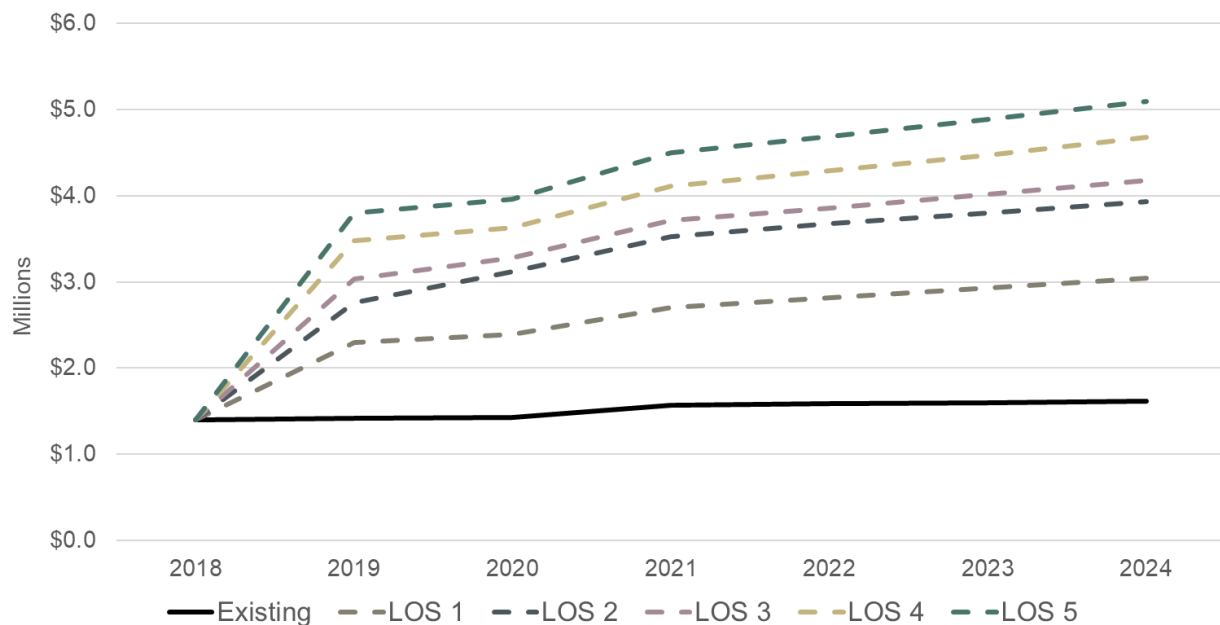


Exhibit 4 shows how the rate revenue is the same in all levels in 2018, but with each level of service the annual need increases. LOS 5 includes the largest initial increase of 168.7% in 2019, with inflationary increases thereafter. The resulting range of increases is 63% to 169% in 2019.

A summary of the ESU rate by LOS throughout the forecast period can be seen below in Exhibit 5.

Exhibit 5: ESU Rate Forecast by LOS

Annual ESU Rate	2018	2019	2020	2021	2022	2023	2024
LOS 1	\$104	\$167	\$172	\$177	\$182	\$188	\$193
LOS 2	\$104	\$200	\$224	\$231	\$238	\$244	\$250
LOS 3	\$104	\$220	\$235	\$242	\$250	\$257	\$265
LOS 4	\$104	\$252	\$260	\$269	\$277	\$286	\$296
LOS 5	\$104	\$276	\$285	\$294	\$303	\$313	\$323

A full detailed schedule of LOS 5 rates is shown below in Exhibit 6.

Exhibit 6: LOS 5 Rate Schedule

		ATB 2018	ATB 2019	ATB 2020	ATB 2021	ATB 2022	ATB 2023	ATB 2024
Annual System-Wide Rate Increase			168.7%	3.3%	3.3%	3.3%	3.3%	3.3%
Stormwater Management Utility								
Single Family	Per Parcel	\$104.00	\$275.55	\$284.50	\$293.75	\$303.30	\$313.15	\$323.33
Single Family - Duplex	Per Parcel	\$208.00	\$551.09	\$569.00	\$587.50	\$606.59	\$626.30	\$646.66
Single Family - Triplex	Per Parcel	\$312.00	\$826.64	\$853.51	\$881.24	\$909.89	\$939.46	\$969.99
Single Family - Fourplex	Per Parcel	\$416.00	\$1,102.19	\$1,138.01	\$1,174.99	\$1,213.18	\$1,252.61	\$1,293.32
Condominium	Per Unit	\$86.02	\$227.91	\$235.32	\$242.96	\$250.86	\$259.01	\$267.43
Non-Residential - No Credit	Per ESU	Varies	\$275.55	\$284.50	\$293.75	\$303.30	\$313.15	\$323.33
Non-Residential - With Credit	Per ESU	Varies	\$275.55	\$284.50	\$293.75	\$303.30	\$313.15	\$323.33
Exempt								
Lake Management Benefit Assessment								
Lakefront Lot	NA	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00
Split Lot	NA	\$136.00	\$136.00	\$136.00	\$136.00	\$136.00	\$136.00	\$136.00

I.C. UPDATED SAMPLE BILL IMPACT

The impact of the different levels of service on different types of customers can be seen below in Exhibit 7.

Exhibit 7: Sample Bill Impacts for ESU Structure

2018 Current Structure			2019 Proposed ESU Structure						
Lot Size		% Impervious	Existing Bill	ESUs	LOS 1	LOS 2	LOS 3	LOS 4	LOS 5
Non-Residential	1/2 Acre	25%	\$192	1.8	\$300	\$360	\$396	\$454	\$496
		100%	\$574	7.3	\$1,216	\$1,460	\$1,606	\$1,840	\$2,011
	2 Acres	50%	\$1,275	14.5	\$2,416	\$2,899	\$3,190	\$3,655	\$3,995
	4 Acres	10%	\$458	5.8	\$967	\$1,160	\$1,276	\$1,462	\$1,598
		75%	\$3,468	43.6	\$7,266	\$8,718	\$9,593	\$10,990	\$12,014
Single Family Residential			\$104	1	\$167	\$200	\$220	\$252	\$276

Under the proposed ESU structure, a small largely undeveloped commercial property (1/2 acre with 25% impervious) would see an increase of \$108 or 56% in the new LOS 1 rate. In comparison, a different but similarly sized property that is 100% developed, such as a parking lot, would see an increase of 112%. Also of note, a much larger property that is sparsely developed (4 acres with 10%

impervious surface area), will pay a lower bill than the smaller but fully impervious lot. This increases equity as lots that are more impervious have an increased impact on the environment through flooding, changes in water quality, and habitat degradation.

I.D. UPDATED SINGLE FAMILY RESIDENTIAL RATE COMPARISON

As an additional resource to the City and its customers, the single family residential rate survey is provided below in Exhibit 8, updated to reflect the LOS 5 ESU rate.

Exhibit 8: Annual Single Family Stormwater Charges

