

City of Ferndale

COMPREHENSIVE WATER, WASTEWATER AND STORMWATER UTILITIES RATE AND CONNECTION FEE STUDY

FINAL REPORT
April, 2020

Washington

7525 166th Avenue NE, Ste. D215
Redmond, WA 98052
425.867.1802

Oregon

4000 Kruse Way Pl., Bldg. 1, Ste 220
Lake Oswego, OR 97035
503.841.6543

Colorado

1320 Pearl St, Ste 120
Boulder, CO 80302
719.284.9168

www.fcsgroup.com

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FCS GROUP
Solutions-Oriented Consulting

April 29, 2020

Kevin Renz, Public Works Director
City of Ferndale, WA
2095 Main St.
Ferndale, WA 98248

Subject: Comprehensive Water, Wastewater and Stormwater Utilities Connection Fee and Rate Study

Dear Kevin:

FCS GROUP is pleased to submit this report summarizing the results of the Comprehensive Water, Wastewater, and Stormwater Utilities Rate and Connection Fee Study. The City Council approved ordinances 2119, 2121 and 2122 on December 16, 2019, adopting water, sewer and stormwater rates for the 2020-2022 calendar years. The detailed methodology used to arrive at these results are covered within this report.

It has been a pleasure to work with you and other City of Ferndale staff on this effort. Please let me know if you have any questions or need additional information on this report. I can be reached at (425) 274 – 2853.

Yours very truly,



Martin Chaw, Project Manager

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Section I. EXECUTIVE SUMMARY

I.A. INTRODUCTION

In 2019, the City of Ferndale (“City”) contracted with FCS GROUP to conduct a Comprehensive Water, Wastewater, and Stormwater Utilities Rate and Connection Fee Study. The study reviewed each utility’s financial needs over the 2019 through 2028 planning period with specific emphasis on the three-year rate-setting period of 2020, 2021 and 2022. The overall objective of the study was to establish a financial plan for each utility (revenue requirements analysis) that will inform future financial decisions and their impacts, maintain equitable rates and promote long-term sustainability of each system (cost of service analysis), and update each utility’s connection fees.

The methods used to establish user rates are based on principles that are generally accepted and widely followed throughout the industry. These principles are designed to produce rates that equitably recover costs from each customer or class of customers based upon the unique demands each class places upon the respective utility. This is accomplished by setting the appropriate level of revenue to be collected from rate payers and establishing a rate structure to equitably collect those revenues.

The key analyses completed as part of the rate study include:

- **Revenue Requirement.** This analysis identifies the total revenue requirement to fully fund each utility on a standalone basis, considering operating and maintenance expenditures, capital funding needs, debt requirements and fiscal policy objectives. This analysis was completed for each utility, water, wastewater and stormwater.
- **Cost of Service.** This analysis equitably distributes costs to customer classes based on their proportional demand and use of the system. This analysis was limited to the water and wastewater utilities only.
- **Rate Design.** This analysis includes the development of rate structures that generate sufficient revenue to meet each system’s revenue requirement forecast and to address the City’s pricing objectives. This analysis was limited to the water and wastewater utilities only.
- **Connection and Mitigation Fees.** This analysis includes an update of existing connection fees (water and wastewater) and mitigation fees (stormwater) which are assessed upon new connections to the utility system or existing connections that impose increased demands upon the utility system. This analysis was completed for the water and wastewater utilities. Due to data needs, the analysis for the stormwater utility will be completed in the first half of 2020.

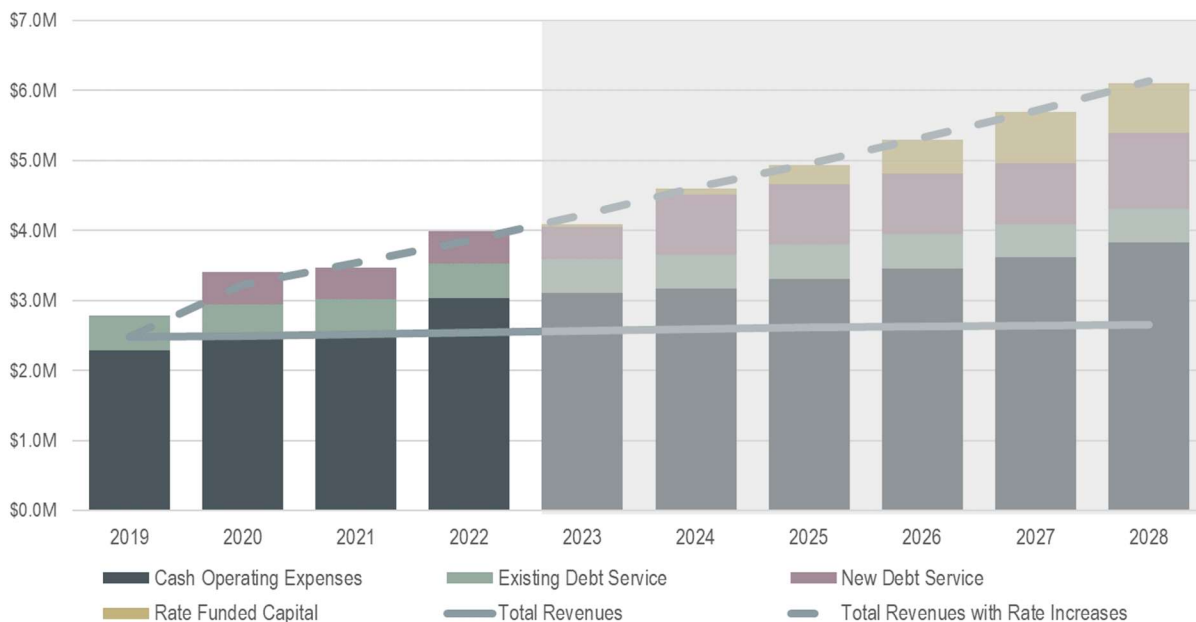
The utility rate and connection fee study was completed and study results were presented to the Ferndale City Council in late August 2019 (revenue requirements) and October 2019 (cost of service, rate design, and connection fees). The City Council subsequently adopted Ordinances 2119, 2121, and 2122, establishing revised utility rates and connection charges effective February 28, 2020 through February 28, 2022.

I.B. WATER UTILITY

The City of Ferndale owns and operates its water system, which is responsible for treating and distributing clean drinking water to single-family residential, multi-family residential, commercial, and irrigation customers within the City's 3,000 acre service area. The City derives its drinking water from two groundwater wells, the Shop Well and the Douglas Well. The City's existing water distribution facilities include 73 miles of water main, four pump stations, two water reservoirs, 23 pressure reducing valves, and one water treatment plant capable of treating 410 million gallons of water annually.

A revenue requirement analysis forms the basis for a long-range operating and capital financial plan and multi-year rate management strategy. The analysis is developed by completing an operating forecast that identifies future annual operating costs and a capital funding plan that defines a strategy for funding the capital improvement needs of the City. The operating forecast was developed for the 2019 through 2028 time period with the focus on the 2020-2022 rate-setting period. **Exhibit 1.1** provides a summary of the water system revenue requirement findings.

Exhibit 1.1: Water Utility Revenue Requirement Summary



Summary of water utility revenue requirement:

- In 2019, current rate levels are slightly deficient to meet existing annual financial obligations.
- During the 2020 – 2022 rate setting period, without any adjustment to current rates, the deficiency of existing operating revenue will grow from \$800,000 in 2020 to \$1.3 million by 2022. This growing deficiency is a result of:
 - » Operating costs increasing by an average of approximately 2.9 percent annually.
 - » New annual debt service payments totaling \$450,000 beginning in 2020 to fund capital projects (i.e., the construction of an emergency intertie, an upgrade to the water treatment plant, etc.).
 - » Additional operating expenditures of nearly \$250,000 for electricity, supplies, and an additional 0.55 FTEs upon completion of the water treatment plant upgrade project.

- To meet the projected financial obligations of the water utility, rate increases are proposed at 30.9 percent in 2020, 9.0 percent in 2021, 8.5 percent in 2022, and 8.5 to 7.0 percent thereafter. The large initial increase in 2020 is primarily due to several large water capital improvement projects and the associated debt service costs.
- The City will continue to revisit the proposed rate increases to re-evaluate the financial standing of the utility once rate increases have been implemented and major capital projects have been constructed or are underway.

The cost of service for the water utility determines equitable cost recovery in proportion to the demands each customer class places on the system based on functions of service and known or assumed cost causation. The functions of service reviewed for the water utility include:

- **Customer Costs:** associated with establishing, maintaining, and serving water customers.
- **Meters & Services Costs:** associated with the installation, maintenance, and repair of meters and services.
- **Base Costs:** related to the average level of service provided to meet demand on a year-round basis and are essentially correlated with year-round water consumption.
- **Peak Costs:** related to peak demand service typically associated with the ability of the system to provide capacity to customers with higher than average volume, which usually occurs during the summer months.
- **Fire Protection Costs:** associated with the ability of the system to provide adequate capacity and water flow corresponding to minimum fire safety standards required to serve its customer demographic.

Exhibit 1.2 provides a summary of the water utility's revenue distribution based on the cost of service analysis (COSA) conducted as part of this study.

Exhibit 1.2: Comparison of Water Current Revenue Distribution to Cost of Service Distribution

Class	Existing 2020	COSA 2020	Difference	
	Revenue	Revenue	\$	%
Residential	\$ 1,579,933	\$ 2,124,423	\$ 544,489	34.46%
Multi-Family	270,045	274,616	4,571	1.69%
Commercial	405,500	556,312	150,813	37.19%
Irrigation	105,000	134,514	29,515	28.11%
Total	\$ 2,360,478	\$ 3,089,865	\$ 729,388	30.90%

Costs fluctuate each year, meaning the necessary increase by class can also fluctuate each year. Because of this, interclass rate changes are not suggested unless the class's existing revenue is over 5.0 percent above or below the calculated cost of service. The COSA results indicate that revenues for the residential, commercial, and irrigation classes are within or very near to being within their cost of service. While the multi-family cost of service fell below the system average increase of 30.9 percent, due to the class' relatively small size and the forthcoming rate design adjustments for the class, **no interclass cost of service adjustments were suggested**. The 2020 rate increase, as well as all future rate increases, will be applied equally to each rate class. The City should periodically update the cost of service analysis to determine if a future interclass cost of service adjustment is needed.

In addition to assessing interclass equity, the City looked to evaluate intraclass equity through an evaluation of the existing water rate structure and tier thresholds.

Currently, each class is charged for water consumption based on the same rates with the same tier thresholds. To determine whether a change in tier thresholds is warranted, a bill frequency analysis was developed for the **single-family residential** and **irrigation classes** to begin evaluating customer usage patterns in each of the current tiers. For the single-family residential class, it was found that fewer than one percent (<1.0%) of all customer bills in 2018 contained usage in the third or fourth tier. The findings for the irrigation customer class were similar to the single-family residential class. A bill frequency analysis was not prepared for multi-family and commercial classes as usage patterns for these customers can vary significantly from other customers within the same class (i.e., a five-unit apartment complex as compared to a 40-unit complex). To address these findings, the current tiered system was eliminated, and all multi-family and commercial consumption will be charged at a single uniform rate.

Exhibit 1.3 provides the proposed tier changes for the water utility. Proposed rates by tier are included in **Exhibit 1.5**.

Exhibit 1.3: Proposed Tier Changes

Customer Class	Existing Structure Bimonthly usage	Proposed Structure Bimonthly usage
Single-Family		
Tier 1	0-25 ccf	0-10 ccf
Tier 2	26-50 ccf	11-15 ccf
Tier 3	51-150 ccf	16-30 ccf
Tier 4	151+ ccf	31+ ccf
Multi-Family		
Tier 1	0-25 ccf	All Consumption
Tier 2	26-50 ccf	N/A
Tier 3	51-150 ccf	N/A
Tier 4	151+ ccf	N/A
Commercial		
Tier 1	0-25 ccf	All Consumption
Tier 2	26-50 ccf	N/A
Tier 3	51-150 ccf	N/A
Tier 4	151+ ccf	N/A
Irrigation		
Tier 1	0-25 ccf	0-6 ccf
Tier 2	26-50 ccf	7-40 ccf
Tier 3	51-150 ccf	41-116 ccf
Tier 4	151+ ccf	117+ ccf

In addition to examining the consumption structure for each class, changes to the fixed portion of the charge were considered. Currently, all single-family customers are charged the same fixed charge regardless of meter size. Multi-family, commercial and irrigation customers with a 3/4" meter are charged at the same rate as a single-family customer. Multi-family, commercial and irrigation customers with a 1" or larger meter all pay the same fixed charge, roughly three times the single-family fixed charge. An issue with this structure is that it ignores the fact that a customer with a 6" meter is able to place significantly more demand on the system than a customer with a 1" meter, and the water system must be sized appropriately to deal with that increased demand. The proposed change follows the industry's standard approach of scaling the fixed charge up based on meter size,

using the American Water Works Association's (AWWA) meter capacity equivalents as a multiplier for all meters above 3/4" in size.

Exhibit 1.4 provides the schedule of proposed changes to the fixed charge.

Exhibit 1.4: Proposed Bimonthly Fixed Charge Changes

SFR Fixed Charge		SFR Fixed Charge			
Meter Size	Existing 2019	Meter Size	2020	2021	2022
3/4"	\$ 15.68	3/4"	\$ 20.53	\$ 22.37	\$ 24.27
1"	15.68	1"	34.21	37.29	40.46
1 1/2"	15.68	1 1/2"	68.42	74.57	80.91
2"	15.68	2"	109.47	119.32	129.46
3"	15.68	3"	218.93	238.64	258.92
4"	15.68	4"	342.09	372.87	404.57
6"	15.68	6"	684.17	745.75	809.13

MFR, COM, IRR Fixed Charge		MFR, COM, IRR Fixed Charge			
Meter Size	Existing 2019	Meter Size	2020	2021	2022
3/4"	\$ 15.68	3/4"	\$ 20.53	\$ 22.37	\$ 24.27
1"	49.17	1"	34.21	37.29	40.46
1 1/2"	49.17	1 1/2"	68.42	74.57	80.91
2"	49.17	2"	109.47	119.32	129.46
3"	49.17	3"	218.93	238.64	258.92
4"	49.17	4"	342.09	372.87	404.57
6"	49.17	6"	684.17	745.75	809.13

Exhibit 1.5 provides the schedule of existing and proposed variable water rates for the years 2019-2022, as approved under Ordinance 2119.

Exhibit 1.5: Proposed Bimonthly Consumption Rates (2019-2022)

SFR Variable (per ccf)			SFR Variable (per ccf)			
Consumption	Existing 2019		Consumption	2020	2021	2022
Tier 1 - 0-25 ccf	\$ 3.68		Tier 1 - 0-10 ccf	\$ 4.50	\$ 4.91	\$ 5.32
Tier 2 - 26-50 ccf	4.06		Tier 2 - 11-15 ccf	4.96	5.41	5.87
Tier 3 - 51-150 ccf	4.80		Tier 3 - 16-30 ccf	5.87	6.40	6.94
Tier 4 - 151+ ccf	4.06		Tier 4 - 31+ ccf	6.93	7.55	8.19

MFR Variable (per ccf)			MFR Variable (per ccf)			
Consumption	Existing 2019		Consumption	2020	2021	2022
Tier 1 - 0-25 ccf	\$ 3.68		Tier 1 - All Consumption	\$ 5.28	\$ 5.75	\$ 6.24
Tier 2 - 26-50 ccf	4.06		Tier 2 - N/A	N/A	N/A	N/A
Tier 3 - 51-150 ccf	4.80		Tier 3 - N/A	N/A	N/A	N/A
Tier 4 - 151+ ccf	4.06		Tier 4 - N/A	N/A	N/A	N/A

COM Variable (per ccf)			COM Variable (per ccf)			
Consumption	Existing 2019		Consumption	2020	2021	2022
Tier 1 - 0-25 ccf	\$ 3.68		Tier 1 - All Consumption	\$ 4.76	\$ 5.19	\$ 5.63
Tier 2 - 26-50 ccf	4.06		Tier 2 - N/A	N/A	N/A	N/A
Tier 3 - 51-150 ccf	4.80		Tier 3 - N/A	N/A	N/A	N/A
Tier 4 - 151+ ccf	4.06		Tier 4 - N/A	N/A	N/A	N/A

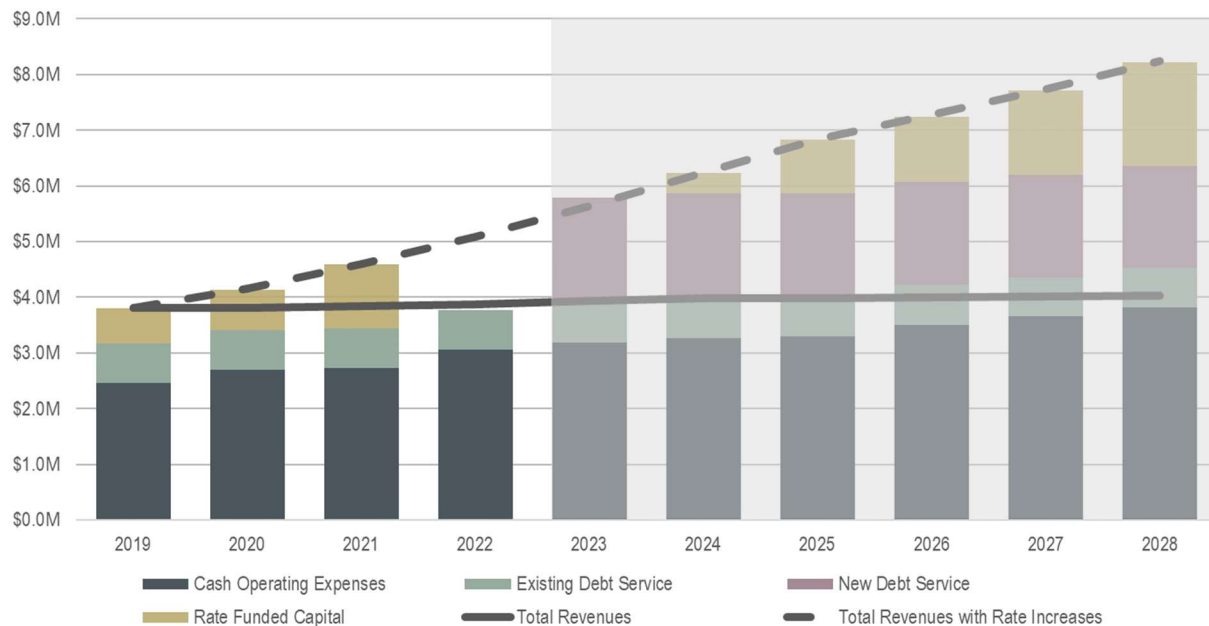
IRR Variable (per ccf)			IRR Variable (per ccf)			
Consumption	Existing 2019		Consumption	2020	2021	2022
Tier 1 - 0-25 ccf	\$ 3.68		Tier 1 - 1-6 ccf	\$ 4.10	\$ 4.47	\$ 4.85
Tier 2 - 26-50 ccf	4.06		Tier 2 - 7-40 ccf	4.52	4.93	5.35
Tier 3 - 51-150 ccf	4.80		Tier 3 - 41-116 ccf	5.35	5.83	6.32
Tier 4 - 151+ ccf	4.06		Tier 4 - 117+ ccf	6.18	6.73	7.31

I.C. WASTEWATER UTILITY

The City of Ferndale operates a wastewater utility responsible for collecting, transporting and treating residential, commercial and industrial wastewater. Wastewater that has been processed and treated is conveyed and released into the Nooksack River. The City's wastewater treatment plant processes approximately 643 million gallons of wastewater annually. The City wastewater collection, conveyance and treatment facilities include: one wastewater treatment plant, 18 wastewater pump stations, and over 58 miles of wastewater conveyance pipes.

Similar to the water utility, a revenue requirement was completed for the wastewater utility and forms the basis for the long-range financial plan and multi-year financial management strategy. The operating forecast was developed for the 2019 through 2028 time period with the focus on the 2020 – 2022 rate-setting period. **Exhibit 1.6** provides a summary of the wastewater system revenue requirement findings.

Exhibit 1.6: Wastewater Utility Revenue Requirement Summary



Summary of wastewater revenue requirement:

- In 2019, current rate revenue levels are sufficient to meet existing annual financial obligations.
- During the 2020-2022 rate setting period, existing revenue levels will remain sufficient to meeting existing financial obligations, however, little revenue will remain to fund capital projects.
- Beginning in 2023, the City will begin payments on a \$28.6 million DOE loan used to fund the Phase III Wastewater Treatment Plant Improvements, resulting in annual debt service payments of \$1.9 million.
- To prepare for the forthcoming debt service, annual rate increases of 9.55 percent will be required starting in 2020.
- The City will continue to revisit the proposed rate increases to re-evaluate the standing of the utility once rate increases have been implemented and major capital projects have been constructed.

The cost of service for the wastewater utility determines equitable cost recovery in proportion to the demands each customer class places on the system based on functions of service and known or assumed cost causation. The functions of service reviewed for the wastewater utility include:

- **Customer Costs:** associated with providing service to customers.
- **Wastewater Flow Costs:** related to actual and estimated wastewater volume processed within the system in a year.
- **Strength Costs:** related to the strength of sewage processed. Strength is tracked by two measurements – biochemical oxygen demand (BOD) and total suspended solids (TSS). BOD is the parameter used to characterize the organic strength of sewage and TSS is the parameter that measures the amount of particles suspended in water that will not pass through a filter and require treatment.

Exhibit 1.7 provides a summary of the wastewater utility’s revenue distribution based on the cost of service analysis (COSA) conducted as part of this study.

Exhibit 1.7: Comparison of Wastewater Current Revenue Distribution to Cost of Service Distribution

Class	Existing 2020	COSA 2020	Difference	
	Revenue	Revenue	\$	%
Single Family	\$ 2,661,935	\$ 2,792,499	\$ 130,564	4.90%
Multi Family	380,576	432,055	51,479	13.53%
Commercial	701,691	877,219	175,528	25.02%
Total	\$ 3,744,202	\$ 4,101,773	\$ 357,571	9.55%

The COSA results indicate that the revenues for the single-family and multi-family classes are within the 5.0 percent threshold of their cost of service. The commercial class is approximately 15.5 percent over the system average increase of 9.55 percent, suggesting there is some subsidization occurring. As a result, it is recommended that interclass adjustments be made to correct this inequity. The adjustments will be phased in over a three-year period, meaning multi-family and commercial customers will see an increase in rates above the system average for the next three years, and single-family customers will see increases lower than the system average increase.

In addition to assessing interclass equity, the City looked to evaluate intraclass equity through an evaluation of the existing wastewater rate structure and tier thresholds.

Currently, and similar to the water utility, each class is charged for wastewater usage based on the same rate with the same tier thresholds. Furthermore, each customer’s bill is based on their total water consumption, meaning single-family customers will be billed for outdoor water usage which does not burden the wastewater system. To address these inequities, the proposed rate structure will charge a uniform rate for all consumption. In addition, the **single-family** customer bills will be based on each customer’s average consumption during winter months in the previous year, as a proxy to determine indoor water usage. The **multi-family** and **commercial** classes will not be based on winter average consumption, considering the consumption of these customers generally is not outdoor usage, or to a very limited extent. **Exhibit 1.8** shows the proposed rate structure for the 2019-2022 time period. The rate schedule includes the three-year phase in of cost of service adjustments.

Exhibit 1.8: Proposed Bimonthly Wastewater Rate Schedule

Single-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 34.54	\$ 37.28	\$ 40.20	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Single-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 34.54	\$ 37.28	\$ 40.20	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Single-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 34.54	\$ 37.28	\$ 40.20	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Multi-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 35.43	\$ 39.27	\$ 43.52	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Multi-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 35.43	\$ 39.27	\$ 43.52	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Multi-Family		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 35.43	\$ 39.27	\$ 43.52	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

Commercial		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 36.65	\$ 42.01	\$ 48.16	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

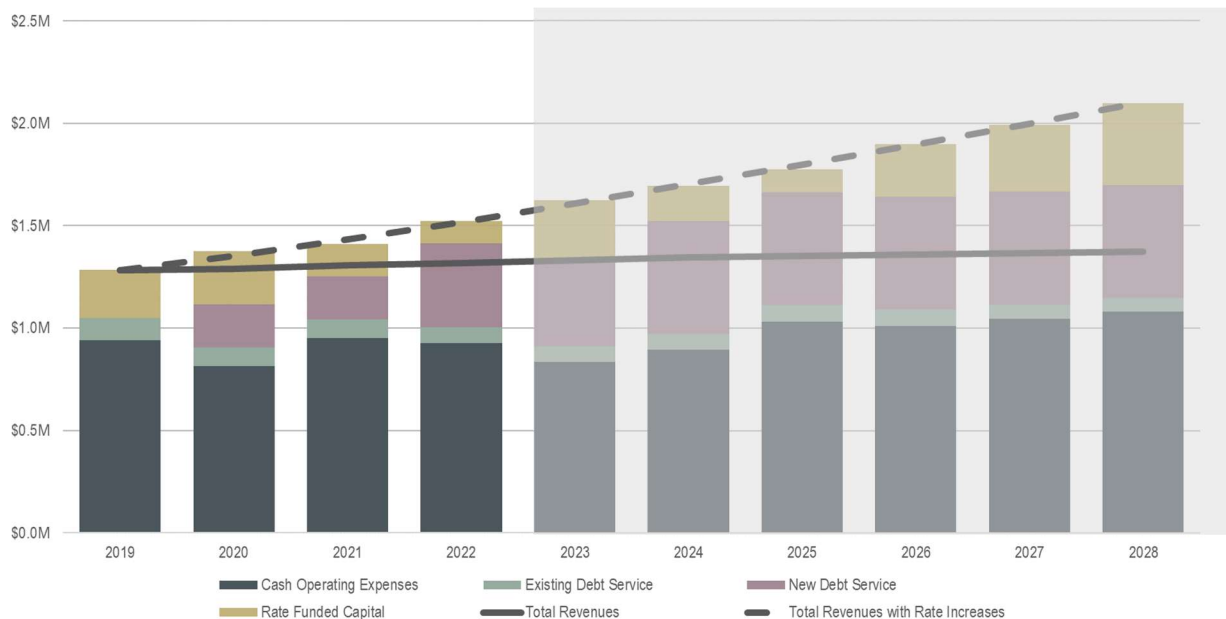
Commercial		Existing 2019	Proposed			
			2020	2021	2022	
Fixed		\$ 31.97	\$ 36.65	\$ 42.01	\$ 48.16	
Consumption (per ccf)						
0-25 ccf		\$ 7.24				
26-50 ccf		8.08				
51-150 ccf		9.51				
151+ ccf		8.08				

I.D. STORMWATER UTILITY

The City of Ferndale operates a stormwater utility responsible for managing stormwater runoff throughout the City. The City stormwater management system consists of 70 miles of stormwater pipeline, 453 culverts, 23 retention and detention ponds, and 50 miles of open ditches to maintain.

Similar to the water and wastewater utility, a revenue requirement was completed for the stormwater utility and forms the basis for the long-range financial plan and multi-year financial management strategy. The operating forecast was developed for the 2019 through 2028 time period with the focus on the 2020-2022 rate-setting period. **Exhibit 1.9** provides a summary of the stormwater system revenue requirement findings.

Exhibit 1.9: Stormwater Utility Revenue Requirement Summary



Summary of stormwater revenue requirement:

- In 2019, current revenue levels are sufficient to meet existing annual financial obligations
- During the 2020-2022 rate setting period, existing revenue levels will become deficient by 2022. This deficiency is a result of:
 - » Operating expenses increasing by an average of nearly 3.3 percent in 2021 and 2022; and
 - » Debt service obligations increasing to nearly \$500,000 annually by 2022 to fund various culvert replacements and other capital projects.
- To meet the total projected financial obligations of the stormwater utility, rate increases are proposed at 5.0 percent annually from 2020 through 2022.

As mentioned earlier, a cost of service assessment was not prepared for the stormwater utility. As such, rate increases will be applied across the board (equal adjustments to each class and each rate component) against the existing rate structure. Should the City begin to track impervious surface area by customer, it is recommended that the City re-examine the charges for each class by conducting a cost of service study at that time. **Exhibit 1.10** provides a schedule of proposed rates through 2022.

Exhibit 1.10: Proposed Bimonthly Stormwater Rates

Class	Existing	2020	2021	2022
Single-Family	\$ 31.53	\$ 33.11	\$ 34.76	\$ 36.50
Multi-Family (per unit)	15.76	16.55	17.38	18.24
Com. (Opt #1)	31.53	33.11	34.76	36.50
Com. (Opt #2)	63.06	66.21	69.52	73.00

Opt. #1: per 10,000 square feet of parcel

Opt. #2: per 10,000 square feet of impervious surface

I.E. SUMMARY

The rate studies completed for the water, wastewater and stormwater utilities indicate a need for future rate increases to address forecasted increases in operating costs and to satisfy all financial obligations of the utilities. No cost of service adjustments are warranted for the water utility at this time and the suggested overall increases will be applied equally to each class. In order to address intraclass customer equity, water rate design changes were identified to be necessary. Interclass cost of service adjustments were found to be warranted for the wastewater utility, shifting costs away from the single-family class which is currently subsidizing the multi-family and commercial classes. In addition, wastewater rate design changes were also identified to be necessary to address intraclass customer equity.

We recommend that the City revisit the results of the rate study annually and view the study findings as a living document by continuously comparing study outcomes to actual revenues and expenses. Any significant or unexpected changes may require adjustments to the rate strategy proposed.

Section II. RATE SETTING PRINCIPLES AND METHODOLOGY

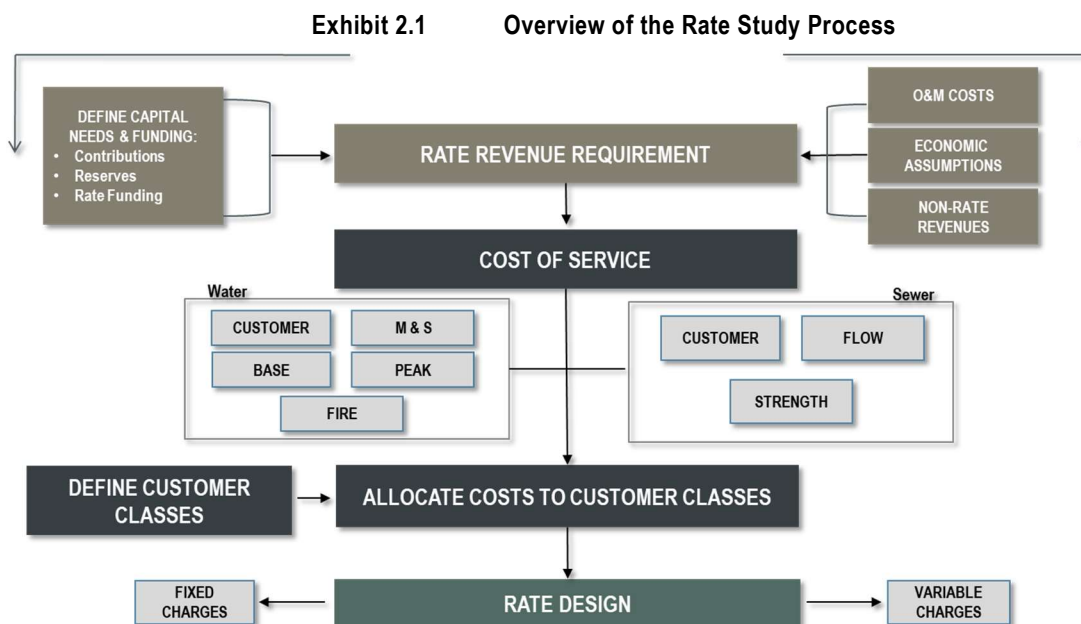
II.A. OVERVIEW

The methods used to establish user rates are based on principles that are generally accepted and widely followed throughout the industry. These principles are designed to produce rates that equitably recover costs from each class of customer by setting the appropriate level of revenue to be collected from ratepayers and establishing a rate structure to collect those revenues.

The three key analyses completed as part of the rate study process are listed below:

- **Revenue Requirement.** This analysis identifies the total revenue requirement to fully fund each utility on a standalone basis, considering operating and maintenance expenditures, capital funding needs, debt requirements and fiscal policy objectives.
- **Cost of Service.** This analysis equitably distributes costs to customer classes based on their proportional demand and use of the system.
- **Rate Design.** This analysis includes the development of rate structures that generate sufficient revenue to meet each system's revenue requirement forecast and to address the City's pricing objectives.

Exhibit 2.1 illustrates the entire rate study process.



II.B. FISCAL POLICIES

The basic framework for evaluating utility revenue needs consists of a set of fiscal policies. These policies, which can address a variety of topics including cash management, capital funding strategy, financial performance, and rate equity, are intended to promote long-term financial viability for the City's utilities. The City's fiscal policies are formalized in a document named City of Ferndale Financial Management Policies, which can be found in the appendix. Topics addressed in the fiscal policy resolution include reserves, capital improvement plan management, debt management, revenue sufficiency, rate equity, and more.

II.B.1. Utility Reserves

Reserves are a key component of any utility financial strategy, as they provide the flexibility to manage variations in costs and revenues that could otherwise have an adverse impact on ratepayers. Our financial modeling included the following reserve categories:

- **Operating Reserve** – Operating reserves are designed to provide a liquidity cushion to ensure that adequate cash will be maintained to deal with significant cash balance fluctuations such as seasonal fluctuations in billings and receipts, unanticipated cash expenses, or lower than expected revenue collections. Industry standard is to maintain a minimum balance in the operating reserve equal to between 60 to 90 days of operations and maintenance (O&M) expenses for a water utility; 45 to 60 days for a sewer utility and 30 to 45 days for a stormwater utility. These, of course, are guidelines and actual levels should be established based upon each jurisdiction's unique needs and tolerance for risk. It is assumed that any operating funds above the upper range are available for capital purposes and will be transferred to the capital reserve.
- **Capital Reserve** – A capital contingency reserve is an amount of cash set aside in case of an emergency should a piece of equipment or a portion of the utility's infrastructure fail unexpectedly. The reserve also could be used for other unanticipated capital needs including capital project cost overruns. Industry practices range from maintaining a balance equal to one to two percent of fixed assets, an amount equal to a five-year rolling average of Capital Improvement Program (CIP) costs, or an amount determined sufficient to fund equipment failure (other than catastrophic failure). The final target level should balance industry standards with the risk level of the City.

Reserves should fluctuate above and below targets, and such experience does not reflect on the quality of budgeting or management. In fact, if a reserve remains static for extended periods of time without use, this may indicate that it is not set appropriately, or is unnecessary. Utility reserves are intended to absorb fluctuation in revenues or expenditures without abrupt rate impacts. As reserve levels vary, a policy structure can define the mechanisms for regulating those levels and returning them to intended targets.

- **Debt Reserve** – Bond covenants often establish reserve requirements as a means of protecting against the risk of nonpayment and are typically specified as a part of these covenants. A common reserve requirement is one year's debt service payment and a debt service coverage ratio of 1.25 to 2.00 times. The balance held in reserve for a particular debt instrument may be used to make the final payment on that debt instrument. The City must continue to fully fund such reserves as required by bond covenant or loan agreement. Since the debt reserve provides a static reserve against inability to pay, it is unnecessary to maintain operating reserves against debt

repayment. This study specified a reserve requirement equal to one year's debt service payment and a debt service coverage ratio of 1.25.

II.B.2. System Reinvestment

System reinvestment funding promotes long-term system integrity. Target system reinvestment funding levels are commonly linked to annual depreciation expense in the absence of a formal asset management plan. Depreciation expense is a measure of the decline in asset value associated with routine use of the system. Particularly for utilities that do not already have an explicit system reinvestment policy in place, implementing a funding level based on full depreciation expense could significantly impact rates. A common alternative benchmark is annual depreciation expense less annual debt service expenses. This approach recognizes that customers are still paying for certain assets through the debt component of their rate and intends to avoid simultaneously charging customers for an asset and its future replacement. The specific benchmark used to set system reinvestment funding targets is a matter of policy that must balance various objectives including managing rate impacts, keeping long-term costs down, and promoting "generational equity" (i.e. not excessively burdening current customers with paying for facilities that will serve a larger group of customers in the future).

II.B.3. Debt Management

Debt issuance is a valuable tool for the City to use to finance certain costs, as it allows the City to spread a relatively large cost over multiple years. Debt repayment structures can be quite flexible (e.g. deferred principal repayment), allowing the City to "shape" its cost structure and facilitate a stable progression of moderate rate adjustments.

When developing its capital funding strategy, the City must weigh the pros and cons of issuing debt to pay for a project. On one hand, debt issuance comes with interest and issuance costs that increase the overall cost borne by the utilities; on the other hand, it may mitigate rate impacts and enhance "generational equity," given that the City would generally issue debt to fund infrastructure that is oversized to serve future growth. Too much debt issuance may limit the City's ability to manage its rates, as the debt service payments and related requirements (such as revenue bond coverage) are "rigid" costs that generally cannot be deferred or scaled back; it may also impact the City's credit rating and ability to secure low-cost debt. Excessive aversion to issuing debt can also create problems, as it shifts the burden of funding capital investment to existing customers and may require maintaining higher reserve levels to manage cash flow needs related to capital investment.

It is prudent to consider policies related to debt management as part of a broader utility financial policy structure. Common debt management policies may include the level of acceptable outstanding debt, debt repayment terms, bond coverage and total debt coverage targets.

II.C. REVENUE REQUIREMENT

A revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy for each system. It also enables the City to set utility rate structures which fully recover the total cost of operating each system: capital improvement and replacement, operations, maintenance, general administration, fiscal policy attainment, cash reserve management, and debt repayment. Linking rate levels to a financial plan such as this helps to enable not only sound financial performance for the City's utility funds, but also establishes a clear and reasonable

relationship between the costs imposed on utility customers and the costs incurred to provide the service.

A revenue requirement analysis establishes the total annual financial obligations of the utility by bringing together the following core elements:

- **Fiscal Policy Analysis.** Identifies formal and informal fiscal policies of the City to ensure that current policies are maintained, including reserve levels, rate funded capital and debt service coverage.
- **Capital Funding Plan.** Defines a strategy for funding the City's capital improvement program, including an analysis of available resources from rate revenues, debt financing, and any special resources that may be readily available (e.g., grants, outside contributions, etc.).
- **Operating Forecast.** Identifies future annual non-capital costs associated with the operation, maintenance, and administration of the system.
- **Sufficiency Testing.** Evaluates the sufficiency of revenues in meeting all financial obligations, including any coverage requirements associated with long-term debt.
- **Strategy Development.** Designs a forward-looking strategy for adjusting rates to fully fund all financial obligations on a periodic or annual basis over the projection period.

II.D. COST OF SERVICE

The purpose of a cost of service analysis is to provide a rational basis for distributing the full costs of each utility service to each class of customers in proportion to the demands they place on the system. Detailed cost allocations, along with appropriate customer class designations, help to sharpen the degree of equity that can be achieved in the resulting rate structure design. The key analytical steps of the cost of service analysis are as follows:

- **Functional Cost Allocation.** Apportions the annual revenue requirement to the major functions of the system:
 - » Water: base (average use), peak (highest use), meters & services (reading and servicing meters), fire protection (fire specific costs) and customer (general customer costs).
 - » Wastewater: flow (collection), strength (treatment) and customer (general customer costs).
- **Customer Class Designation.** Identifies the customer classes that will be evaluated as part of the study. Existing as well as new or revised customer classes or class definitions may be considered. It is appropriate to group customers that exhibit similar usage characteristics and service requirements.
- **Cost Allocation.** Allocates the costs from the functional cost allocation to different customer classes based on their unique demands for each service as defined by system planning documents, industry standards, and recorded user history (from billing data). The results identify shifts in cost recovery by customer class from that experienced under the existing rate structure.

II.E. RATE DESIGN

The principal consideration of rate design is for the rate structure to generate sufficient revenues for the system which are reasonably commensurate with the cost of providing service. The pricing structure is largely dictated by the objectives of the system. Most rate designs consist of fixed and

variable charges. Fixed costs typically attempt to cover costs of the system that do not vary while variable costs will fluctuate with a change in user demand.

Other considerations include understandability by the rate payer; administrative ease; revenue stability; interclass and intraclass customer equity; and affordability.

Section III. WATER UTILITY

III.A. INTRODUCTION

The City of Ferndale owns and operates its water system, which is responsible for treating and distributing clean drinking water to residential, multi-family residential, commercial, and irrigation customers within the City's 3,000 acre service area. The City derives its drinking water from two groundwater sources, the Shop Well and Douglas Well. The City's existing water distribution facilities include 73 miles of water main, four pump stations, two water reservoirs, 23 pressure reducing valves, and one water treatment plant capable of treating 410 million gallons of water annually.

III.B. REVENUE REQUIREMENT

A revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy. The analysis is developed by completing an operating forecast that identifies future annual operating costs and a capital funding plan that defines a strategy for funding the capital improvement needs of the City.

III.B.1. Operating Forecast

The purpose of the operating forecast is to determine whether the existing rates and charges are sufficient to recover the costs the City incurs to operate and maintain the water system. The 2019 budget formed the baseline for this forecast. The operating forecast was developed for the 2019 through 2028 time period. This study focused on establishing water rates for the 2020 – 2022 rate-setting period. The following list highlights some of the key assumptions used in the development of the water utility operating forecast.

III.B.1.a Operating Revenue

- **Retail Rate Revenue** was based on actual detailed customer accounts and usage statistics from the City's billing system. Usage data from 2018 was used to project 2019 revenue. Rate revenue was forecast for each customer class.
- **Non-Rate Revenue** consists of late fees, meter read fees, meter installation fees, and other miscellaneous service revenues. These revenues, which represent less than five percent of total revenues, were forecast with minimal to no increase due to their unpredictable nature.
- **Customer Growth** was forecast to be 1.0 percent annually from 2019 to 2024, and 0.5 percent annually for all years thereafter, based on discussions with City staff. Demand growth was also forecast to be 1.0 percent annually from 2019 to 2024, and 0.5 percent annually for all years thereafter. When demand is growing at the same rate as customer accounts, the assumption is that user profiles will remain constant and no conservation-based declines in use per account are forecast.
- **Interest Earnings** was forecasted at 2.0 percent per year for all years of the forecast period (based on recent Washington LGIP earnings).

III.B.1.b O&M Expenses

- **General Cost Inflation** was set at 3.0 percent based on the Washington State Economic & Revenue Forecast Council Projections for Seattle CPI.
- **Construction Cost Inflation (CCI)** was assumed to be 3.0 percent for all years in the study period based on feedback from the City.
- **Labor Cost Inflation** was set to be 4.0 percent for all years in the study period based on feedback from the City.
- **Benefit Cost Inflation** was set to be 5.0 percent for all years in the study period based on feedback from the City.
- **State Excise Taxes** was set to be 5.029 percent on all water rate revenue based on the prevailing tax rate.
- **State B&O Tax** was set to be 1.5 percent on all non-rate revenue based on the prevailing tax rate.
- **City Utility Tax** was set to be 9.0 percent based on the prevailing City tax rate.
- **Additional O&M Expenses** - while the 2019 budgeted expenses were used as the basis to forecast future expenses, the following incremental expenses were added for the study period:
 - » Professional Services - \$50,000 (unescalated) every third year for a review of the utility's financial standing.
 - » Additional Water Treatment Plant Operation Expenditures – When the water treatment plant upgrade has been completed in 2022, the City expects to spend an additional \$250,000 on electricity, supplies, and an additional 0.55 FTEs.
 - » Equipment Maintenance and Replacement – Average of nearly \$90,000 annually throughout the study period, based on the City's equipment replacement schedule.

III.B.1.c Debt Service

- **Existing Debt Service** is approximately \$490,000 annually. The City has four outstanding loans:
 - » One revenue bond (issued 2011) with payments of nearly \$400,000 annually will be paid off in full in 2031.
 - » Two small equipment loans with payments totaling approximately \$10,000 annually
 - » One Water Booster loan with payments totaling approximately \$80,000 annually will be paid off in full in 2028.
- **New Debt Service** - A total of \$12.9 million of new debt issuances have been forecasted throughout the study period. These issuances have conservatively been assumed to be revenue bonds, with an interest rate of 4.0 percent, an issuance cost of 1.0 percent, term of 20 years, and coverage requirement of 1.25. Annual new debt service payments are forecasted to be \$1.1 million in 2028.

III.B.1.d Rate-funded Capital

- Rate-funded capital is a way to ensure system integrity through reinvestment in the system. Ideally, the minimum funding would be an amount equal to or greater than the annual depreciation expense. A formal rate-funded capital policy was not recommended as a part of this study, due to the large impact on rates which would be necessary to fund the policy. Once the City has completed the large capital projects that are scheduled during the first several years of the study period, the feasibility of a rate-funded capital policy should be re-examined.

III.B.2. Capital Funding Plan

The water utility is anticipating \$20.2 million in capital costs from 2019 through 2028 (escalated to year of construction). Major projects include: the design and construction of an emergency intertie (2020-21; \$3.0 million), construction of a new Bakerview storage reservoir (2025; \$4.0 million), various distribution upgrades and a major treatment plant upgrade (2020; \$1.7 million).

Funding for the capital plan comes from a number of different sources:

- **Cash balances (including interest) and rate-funded capital** – Cash balances and rate-funded capital include the beginning capital fund balance available after meeting the capital fund reserve target, any cash flow from the operating fund above what is needed to meet the operating fund reserve target as well as developer and inspection capital contributions. Cash balances and rate funded capital are forecast to fund \$2.6 million of the capital plan, about 13.0 percent of total expenditures.
- **Revenue bond proceeds** – Three revenue bond issuances are forecasted, \$5.7 million in 2020, \$4.6 million in 2024, and \$2.6 million in 2028 for a total issuance of \$12.9 million. Revenue bond proceeds are forecasted to fund 63.8 percent of the capital plan.
- **Connection Fee revenue** – Connection fee revenues are forecast at the existing fee levels and are based on the assumed customer growth rate of 1.0 to 0.5 percent resulting in between 50 and 100 new connections annually. Connection fee revenue is anticipated to total \$4.7 million over the study period and fund approximately 23.2 percent of the capital plan.

Exhibit 3.1 provides a summary of the funding sources for the capital expenditures. A detailed capital plan can be found in the Technical Appendix.

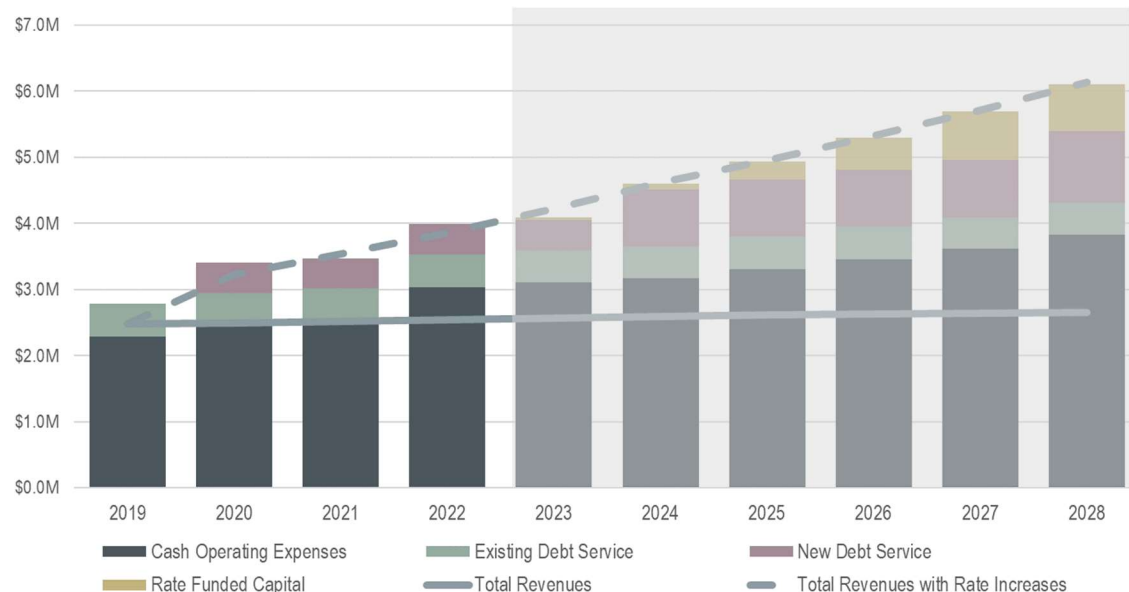
Exhibit 3.1 Water Capital Funding Summary

Funding Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
Total Capital Costs	\$ 713,223	\$ 4,323,326	\$ 2,778,057	\$ 276,722	\$ 411,700	\$ 2,061,542	\$ 4,502,120	\$ 1,086,624	\$ 392,084	\$ 3,671,334	\$ 20,216,731
Funding Sources											
Cash Balances & Rate Funded Capital	\$ 65,223	\$ -	\$ 123,997	\$ -	\$ -	\$ -	\$ 948,896	\$ 744,418	\$ 48,168	\$ 695,698	\$ 2,626,399
Revenue Bond Proceeds	-	3,675,372	1,999,628	-	-	1,387,279	3,212,721	-	-	2,630,000	12,905,000
Connection Fee Revenue	648,000	647,954	654,433	276,722	411,700	674,263	340,503	342,205	343,916	345,636	4,685,332
Total Capital Funding	\$ 713,223	\$ 4,323,326	\$ 2,778,057	\$ 276,722	\$ 411,700	\$ 2,061,542	\$ 4,502,120	\$ 1,086,624	\$ 392,084	\$ 3,671,334	\$ 20,216,731

III.B.3. Summary of Revenue Requirement

The operating forecast components of O&M expenses, debt service and rate-funded capital come together to form the multi-year revenue requirement. The revenue requirement compares the overall revenue available to the water system to the expenses to evaluate the sufficiency of rates on an annual basis. **Exhibit 3.2** provides a summary of the water system revenue requirement findings.

Exhibit 3.2 Water Utility Revenue Requirement Summary



Summary of water utility revenue requirement:

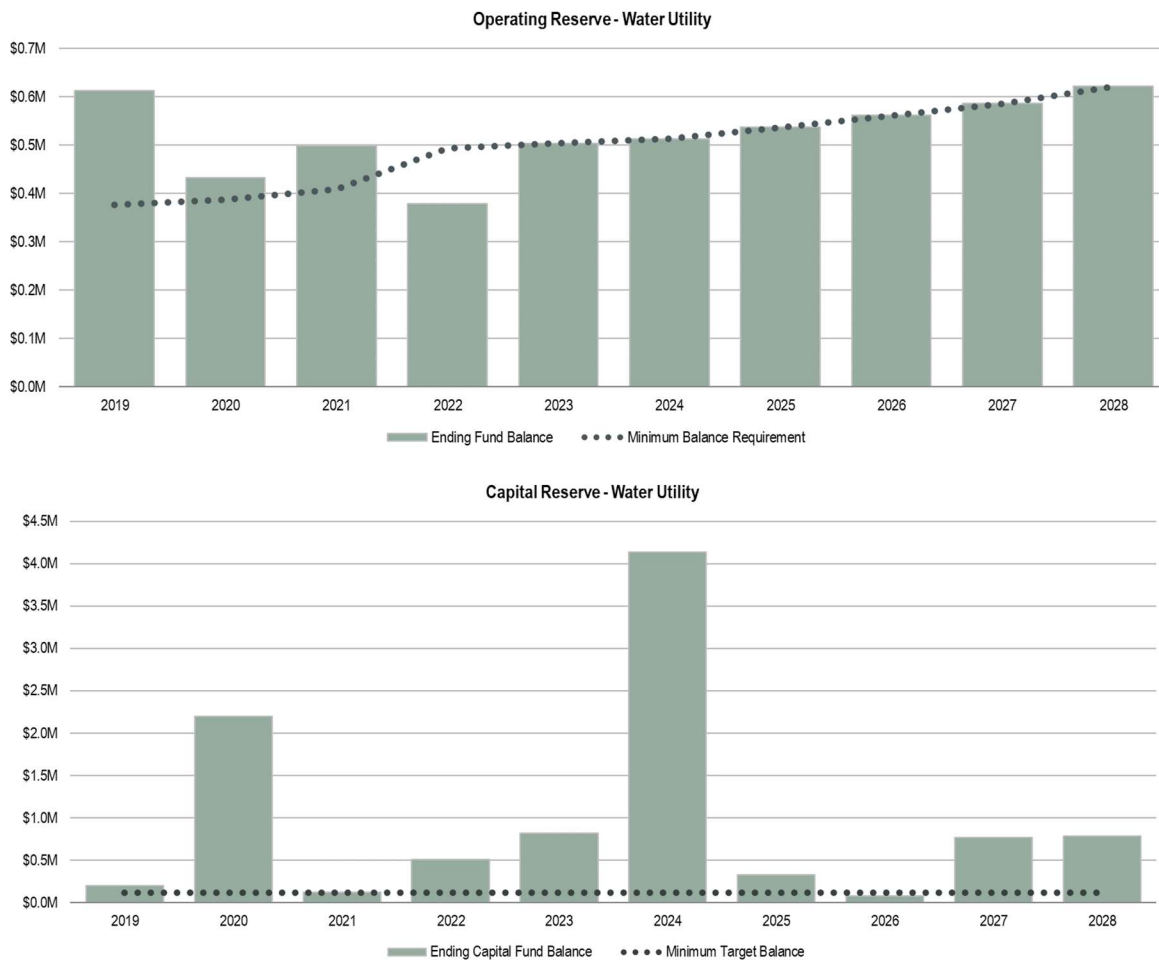
- In 2019, current rate levels are slightly deficient to meet existing annual financial obligations.
- During the 2020 – 2022 rate setting period, the deficiency of existing operating revenue will grow from \$800,000 in 2020 to \$1.3 million by 2022. This growing deficiency is a result of:
 - » Operating costs increasing an average of approximately 2.9 percent annually.
 - » New annual debt service totaling \$450,000 beginning in 2020 to fund near-term capital projects (i.e., the construction of an emergency intertie, an upgrade to the water treatment plant, etc.).
 - » Additional operating expenditures of nearly \$250,000 for electricity, supplies, and an additional 0.55 FTEs upon completion of the water treatment plant upgrade project.
- To meet the projected financial obligations of the water utility, rate increases are proposed at 30.9 percent in 2020, 9.0 percent in 2021, 8.5 percent in 2022, and 8.5 to 7.0 percent thereafter.
- It is recommended that the City evaluate the standing of the utility once the initial rate increases have been implemented and major capital projects have been constructed.

III.B.4. Reserves

Exhibit 3.3 shows a summary of the projected Operating Reserve and Capital Reserve through 2028 based on the rate forecasts presented above. The Operating Reserve has a minimum balance target of approximately 16.5 percent, or 60 days, of operating and maintenance (O&M) expenses (\$375,000 to \$620,000). The Capital Reserve has a minimum of 30 days of average forecasted capital expenditures, with a target of 60 days of average forecasted capital.

Both the Operating and Capital Reserves maintain their minimum target balances, with the exceptions of the Operating Reserve in 2022 and the Capital Reserve in 2026, where each reserve falls to 70-75 percent of the minimum target. Both the operating and capital reserves are forecast to recover to full reserve levels in the year following the dip below target.

Exhibit 3.3 Operating and Capital Fund Balances



III.C. COST OF SERVICE

A cost of service analysis determines the equitable recovery of costs from customers according to unique demands each customer class places on the system. There are three fundamental steps to allocating the annual revenue requirement to customer classes and developing the final rates – 1) allocate utility assets and total utility costs by function, 2) develop customer-specific allocation factors and 3) allocate costs to customer classes. The methodology used conforms to industry standards as identified by the American Water Works Association (AWWA) Principles of Water Rates, Fees and Charges, M1 Manual.

III.C.1. Allocation of Utility Assets by Function

The City's water utility assets in service were reviewed to identify what infrastructure assets are in use and relate to providing water service. This allocation assigns value and costs to functional categories based on documented system requirements, including engineering criteria, (e.g. average demand, peak demand, etc.) and industry standard practice based on the relationship of each class of asset and their function in the system. Assets are allocated to the functions of service according to

known or assumed cost “causation”. The functions of service to which the City’s assets were allocated are discussed below.

- **Customer costs:** associated with establishing, maintaining, and serving water customers and tend to include administrative, billing, and customer service costs. These costs are generally uniform by customer regardless of their meter size or demand placed on the water system.
- **Meters & Services costs:** associated with the installation, maintenance, and repairs of meters and services. These costs are typically allocated based on number of connections and meter size.
- **Base costs:** related to average service provided on demand and are essentially correlated with year-round water consumption.
- **Peak costs:** related to peak demand service typically associated with the ability of the system to provide capacity to customers with higher than average volume, which usually occurs during the summer months.
- **Fire Protection costs:** associated with the ability of the system to provide adequate capacity and water flow corresponding to minimum fire safety standards required to serve its customer demographic. These are mostly incremental costs related to providing storage, distribution capacity, and hydrants for fire protection.

Exhibit 3.4 Water Utility Functional Plant (Assets) in Service

PLANT IN SERVICE	TOTAL COST	FUNCTIONS OF WATER SERVICE						Total	Allocation Basis
		CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL OTHER		
Supply / Treatment	\$ 8,934,000	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio As Pumping As Storage As T&D - Proportional Methodology As M&S As Fire As All Other
Pumping	4,857,000	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Storage	7,354,000	0.00%	0.00%	31.04%	20.09%	48.87%	0.00%	100.00%	
Transmission and Distribution	88,438,971	0.00%	0.00%	38.03%	27.00%	34.97%	0.00%	100.00%	
Meters & Services	4,527,151	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
Hydrants	2,022,500	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	
General Plant	497,644	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	
Total Plant in Service	\$116,631,266	\$ -	\$ 4,527,151	\$43,980,248	\$31,082,776	\$36,543,447	\$ 497,644	\$ 116,631,266	
% Share		0.00%	3.90%	37.87%	26.76%	31.47%		100.00%	
Allocation of "As All Others"		-	19,399	188,460	133,193	156,592	(497,644)		
Adjusted Total Plant in Service		\$ -	\$ 4,546,550	\$44,168,708	\$31,215,968	\$36,700,039		\$ 116,631,266	
Allocation Percentages		0.00%	3.90%	37.87%	26.76%	31.47%		100.00%	

The allocation basis (shown in **Exhibit 3.4**) used for the major functions of service are as follows:

- **Supply and treatment assets** are allocated based on the 2015 peak demand ratio of maximum day to peak day (1.71 from the Water Comprehensive Plan). Assets were allocated 58 percent to base and 42 percent to peak.
- **Pumping assets** are allocated based on a pumping analysis that evaluated each pump on the system and identified the purpose of the pump as meeting average, peak, fire requirements or a combination. Assets were allocated 58 percent to base and 42 percent to peak.
- **Storage assets** are allocated based on a storage analysis that categorized storage into operating, equalizing, emergency/standby, fire suppression and demand management storage. The storage analysis was based on Section 3.1 of the Water Comprehensive Plan and was used to determine the use of storage facilities to meet average, peak, fire requirements or a combination. Assets were allocated to 31 percent to base, 20 percent to peak, and 49 percent to fire.
- **Transmission and Distribution assets** are allocated based on a pipe analysis of the transmission and distribution network. The proportional method established a methodology for determining the percentage of the water distribution system value related to fire flow in response to the 2008 Washington Supreme Court ruling in Lane v. Seattle. This methodology allocates costs to fire protection by designating those pipes in the distribution network that have been upsized for

additional capacity related to fire. Pipes 6" and below are considered to provide domestic water distribution while all pipes larger than 12" are considered strictly for transmission needs and have no fire related costs. Pipe sizes ranging from 8" to 12" are considered to include capacity to meet fire needs. The proportional approach was used to allocate fire increment costs to those pipes that are between 8" and 12" in diameter. Under this approach, the fire increment is considered to be the area of the pipe that is upsized in order to provide fire protection. For example, for an 8" pipe the allocation considers 6" for domestic purposes and the remainder is allocated to fire. Similarly for a 10" pipe the allocation for domestic is 8" and the remainder allocated to fire. The portion related to this one size increment is calculated by determining the percent of the pipe that is oversized for fire needs by calculating the change in hydraulic capacity. Considering that hydraulic capacity grows exponentially with the diameter of the pipe, this means that the share of hydraulic capacity related to fire for an 8" pipe is 43.75 percent ($6^2 \div 8^2 = 36 \div 64 = 0.5625$; $1 - 0.5625 = 0.4375$). Capacity related to fire for a 10" pipe is 36.0 percent and capacity related to fire for a 12" pipe is 30.56 percent. Under this approach the allocation is 38 percent to base, 27 percent to peak, and 35 percent to fire.

- **Meters & Service assets** are allocated 100 percent to the meters and service function.
- **Hydrant assets** are allocated 100 percent to fire.
- **General assets** are allocated as all other plant assets.

The result of the functional asset allocation is 4 percent allocated to meters & services, 38 percent to base, 27 percent to peak and 31 percent to fire. The resulting asset allocation is referred to as the "plant in service" allocation and is used to allocate annual costs if the cost supports the total utility system.

III.C.2. Allocation of Utility Costs by Function

The annual test period costs (2020 forecast) were also grouped by function. The process included assigning each budget line item account to water functions. The following summarizes the key cost allocation assumptions:

- **Administrative Services**– All expenses related to salaries for administrative or clerical employees were allocated 100 percent to customer, as these employees were assumed to be utility billing and other customer service employees.
- **Maintenance** – Maintenance costs were allocated as plant-in-service – 4 percent to meters & services, 38 percent to base, 27 percent to peak, and 31 percent to fire.
- **Operations** – Costs associated with general operations were also allocated as plant-in-service, 4 percent to meters & services, 38 percent to base, 27 percent to peak, and 31 percent to fire.
- **Treatment Plant Supplies and Utilities**– Purchased electricity and other utilities as well as lab and chlorine supplies were allocated as supply & treatment, resulting in an allocation of 58 percent to base and 42 percent to peak.
- **Taxes** – Allocated as all other expenses.
- **Existing Debt Service** – Allocated as plant-in-service – 4 percent to meters & services, 38 percent to base, 27 percent to peak, and 31 percent to fire.

Total rate revenue requirements are calculated by taking the total expenses, deducting non-rate revenue and adding net cash flow resulting from the proposed annual rate increase. The line by line

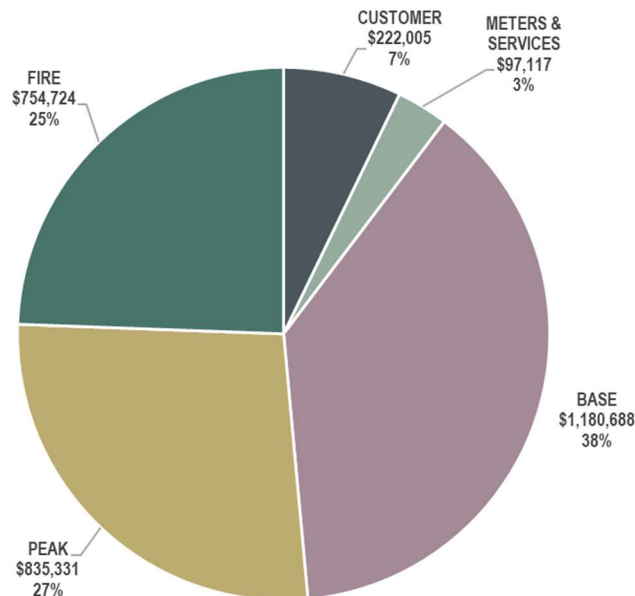
utility cost allocation results in costs being allocated to the functional cost pools identified in **Exhibit 3.5**.

Exhibit 3.5 2020 Water Utility Functional Cost Allocation

REVENUE REQUIREMENT	TOTAL COST	CUSTOMER	M&S	FUNCTIONS OF WATER SERVICE				OTHER	Total	Allocation Basis
Operating & Maintenance Expenses	\$ 2,355,204	12.54%	2.77%	37.22%	26.34%	21.13%	0.00%	0.00%	100.00%	As O&M Expenses
Existing Debt	488,524	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	0.00%	100.00%	As Plant in Service
New Debt	455,661	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	0.00%	100.00%	As Plant in Service
Rate Funded System Reinvestment	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	0.00%	100.00%	As Plant in Service
Total Expenses	\$ 3,299,390									
% Share										
less: Non Rate Revenues										
Cell Phone Tower Rental	\$ (11,200)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Set UP Fees	(2,800)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Reconnection Fees	(25,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Meter Charge	(21,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Hydrant Meter Deposits	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Set UP Fees - New Meter Set	(3,500)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Installation Fee-New Meter Set	(9,000)	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	0.00%	100.00%	As Supply/Treatment
Prop Sale Final Meter Read Fee	(10,000)	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	0.00%	100.00%	As Supply/Treatment
Hydrant Meter Setup Fee	(200)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Hydr Metr Rent/con/permit Fee	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Meter Testing Fee	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Miscellaneous	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Late Fees	(11,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Connections-Utility Billings	(15,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Refundable Deposits	(2,000)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Investment Interest	(20,908)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
plus:										
Net Cash Flow After Rate Increase	\$ (180,242)	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	0.00%	100.00%	As Plant in Service
Adjustment for Partial Year Increase	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	0.00%	100.00%	As Plant in Service
Additional Taxes for Rate Increases	102,326	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As All Other
Revenue Requirement	\$ 3,089,865	\$ 217,118	\$ 94,979	\$ 1,154,697	\$ 816,943	\$ 738,111	\$ 68,017	\$ 3,089,865		
% of Classification		7.18%	3.14%	38.21%	27.03%	24.43%			100.00%	
Allocation of "As All Other"		\$ 4,887	\$ 2,138	\$ 25,991	\$ 18,388	\$ 16,614	\$ (68,017)	\$ -		
TOTAL O&M EXPENSES	\$ 3,089,865	\$ 222,005	\$ 97,117	\$ 1,180,688	\$ 835,331	\$ 754,724	\$ -			
% Share		7.18%	3.14%	38.21%	27.03%	24.43%				

The cost allocation indicates that the largest portion of costs, 38 percent, relate to meeting base (average) water demands, followed by 27 percent related to meeting peak water demands, 25 percent to fire protection, 7 to customer costs, and 3 percent to meters and services. **Exhibit 3.6** provides a summary of the functional cost allocation results.

Exhibit 3.6 Water Utility Functional Cost Allocation Summary (2020 Forecast)



III.C.3. Customer Class Distinctions

The City's current customer classes include a single-family class, a multi-family class (including apartment complexes and mobile home parks), a commercial class, and an irrigation class. The cost of service analysis was completed for each of these classes. One of the main objectives of the cost of service rate study is to evaluate if cost differences exist when serving different customer classes of the system.

III.C.4. Allocation Factors

Once the customer classes were defined, functional cost pools (shown in **Exhibit 3.5**) were then allocated to these customer classes based on the demand each class places on the system. In order to complete this task, the analysis consisted of first developing allocation factors that identified customer characteristics including number of accounts, consumption levels, peak demand patterns, and fire flow requirements. The allocation factors are intended to equitably allocate total functional cost pools to those benefitting from the service. For this study, the water fund costs were allocated based on the following:

- **Customer Costs** - number of customer accounts.
- **Meters & Services Costs** - number of meter service equivalents.
- **Base Costs** - total annual water use.
- **Peak Costs** - the ratio between each class's peak month use to their average total use, multiplied by their total use.
- **Fire Protection Costs** - number of accounts and their associated fire flow gallons per minute and duration requirements (based on Table 3-2 of the Water Comprehensive Plan).

Exhibit 3.7 summarizes the allocation factors used for the customer classes evaluated in the cost of service analysis.

Exhibit 3.7 Water Utility Customer Allocation Factors

Customer Class	Accounts	MSEs	Base Use	Class Peak Mo. To Average Total Month	Total Fire Flow Req. (kgal)
Single-Family	4,683	4,735	306,099	1.37	561,942
Multi-Family	124	258	57,973	1.19	29,741
Commercial	402	906	77,455	1.24	217,309
Irrigation	84	157	20,427	2.88	-
Total	5,294	6,056	461,955	1.39	808,992

Customer Class	Customer	M&S	Base	Peak	Fire
Single-Family	88.46%	78.19%	66.26%	65.30%	69.46%
Multi-Family	2.34%	4.26%	12.55%	10.70%	3.68%
Commercial	7.60%	14.96%	16.77%	14.87%	26.86%
Irrigation	1.59%	2.59%	4.42%	9.13%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

The cost of service by class was calculated by multiplying the functional cost pools by the allocation factor distribution percentages. Ultimately, this element of the analysis defines the total annual revenue that should be generated from each customer class, in order to achieve cost-based recovery from rates.

III.C.5. Water Utility Cost of Service

Exhibit 3.8 provides a comparison of current rate revenue distribution between customer classes and the results of the cost of service analysis.

Exhibit 3.8 Comparison of Water Current Revenue Distribution to Cost of Service Distribution

Class	Existing 2020	COSA 2020	Difference	
	Revenue	Revenue	\$	%
Residential	\$ 1,579,933	\$ 2,124,423	\$ 544,489	34.46%
Multi-Family	270,045	274,616	4,571	1.69%
Commercial	405,500	556,312	150,813	37.19%
Irrigation	105,000	134,514	29,515	28.11%
Total	\$ 2,360,478	\$ 3,089,865	\$ 729,388	30.90%

Because costs fluctuate each year, the needed increase by class can also fluctuate and interclass rate changes are not suggested unless the class's revenue difference is outside of a 5.0 percent threshold. The COSA results indicate that revenues for the residential, commercial, and irrigation classes are within or very near to being within their cost of service. While the multi-family cost of service fell below the system average increase of 30.9 percent, due to the class' relatively small size and the forthcoming rate design adjustments for the class, no interclass cost of service adjustments were suggested. The City should continue to monitor the cost of service results once rate design changes have been implemented and if the gap in rate equity persists, an interclass adjustment may be necessary.

The 2020 rate increase as well as all future rate increases will be applied equally to each rate class. It is recommended that the City review the cost of service again within the next 3 to 5 years (or sooner

if there are large changes to the City's customer profile, in terms of number of customers as well as amount of water used) to evaluate whether a cost of service based shift in water rates is necessary.

III.D. RATE DESIGN

The principal objective of the rate design stage is to implement water rate structures that collect the appropriate level of revenue. Establishing rates is a blend of "Art" and "Science" and especially so when it comes to the rate levels and structures. Several variables must be balanced to arrive at optimal rates and include revenue stability and efficiency of use.

III.D.1. Existing Water Rates

The existing water structure is composed of a fixed bimonthly charge and a variable consumption charge billed per hundred cubic feet (CCF) of water use. For single-family customers, the same fixed rate is charged to each customer regardless of meter size. For all other classes of customers, each customer with a meter 1" or larger is billed the same fixed rate, approximately three times the fixed rate for customers with 3/4" meters. The variable charge is comprised of four tiers. Tier 1 consists of consumption from 0-25 ccf, tier 2 consists of consumption from 26-50 ccf, tier 3 consists of consumption from 51-150 ccf, and tier 4 consists of all consumption over 150 ccf.

Exhibit 3.9 provides a summary of the existing bimonthly water utility rates.

Exhibit 3.9 Existing Bimonthly Water Rates

Meter Size	Fixed	Single-Family			
		Tier 1 (0-25)	Tier 2 (26-50)	Tier 3 (51-150)	Tier 4 (151+)
3/4"	\$ 15.68	\$ 3.68	\$ 4.06	\$ 4.80	\$ 4.06
1"	15.68	3.68	4.06	4.80	4.06
1 1/2"	15.68	3.68	4.06	4.80	4.06
2"	15.68	3.68	4.06	4.80	4.06
3"	15.68	3.68	4.06	4.80	4.06
4"	15.68	3.68	4.06	4.80	4.06
6"	15.68	3.68	4.06	4.80	4.06

Bimonthly charges, consumption charges are per ccf

Meter Size	Fixed	Multi-Family, Commercial, Irrigation			
		Tier 1 (0-25)	Tier 2 (26-50)	Tier 3 (51-150)	Tier 4 (151+)
3/4"	\$ 15.68	\$ 3.68	\$ 4.06	\$ 4.80	\$ 4.06
1"	49.17	3.68	4.06	4.80	4.06
1 1/2"	49.17	3.68	4.06	4.80	4.06
2"	49.17	3.68	4.06	4.80	4.06
3"	49.17	3.68	4.06	4.80	4.06
4"	49.17	3.68	4.06	4.80	4.06
6"	49.17	3.68	4.06	4.80	4.06

Bimonthly charges, consumption charges are per ccf

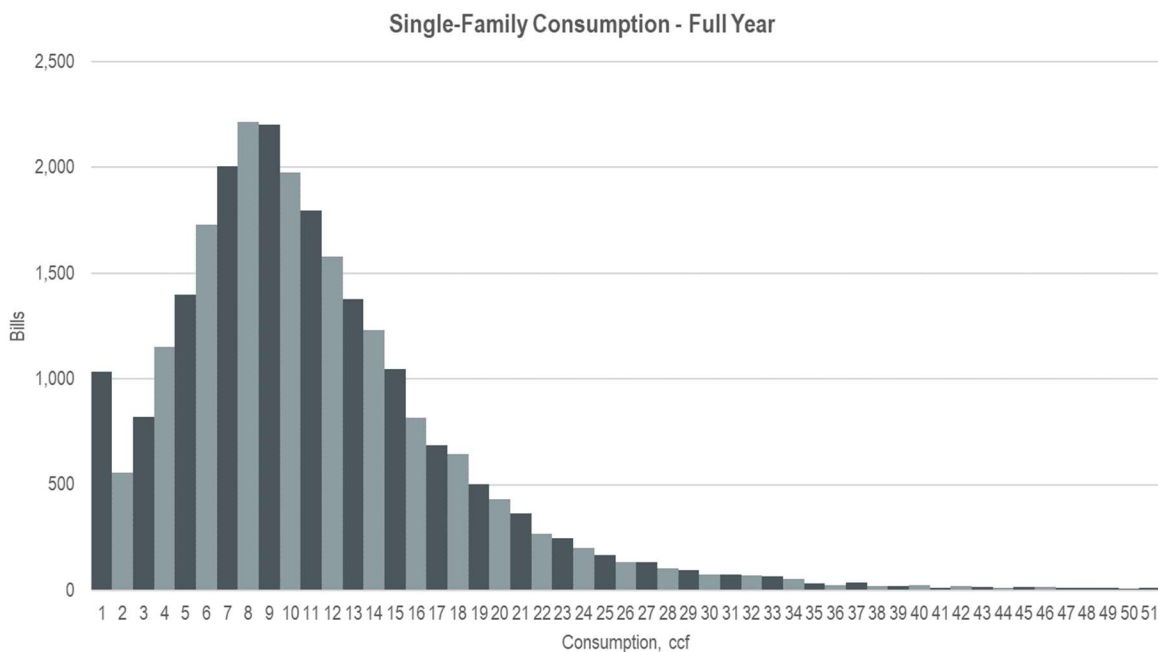
The City offers a rate assistance program for customers whose income is at or above 150 percent of the poverty level guideline. Customers who qualify for the program receive a 25 percent reduction on both the fixed and variable rates. For customers outside of City limits, rates are 150 percent of the fixed and variable rates.

III.D.2. Proposed Water Rates

In addition to assessing interclass equity, the City looked to evaluate intraclass equity through an evaluation of the existing water rate structure and tier thresholds.

Using billing data for calendar year 2018, a bill frequency analysis was developed for the single-family residential and irrigation classes to begin evaluating customer usage patterns in each of the current tiers. For the single-family residential class, it was found that less than one percent of all bills contained usage in the existing third or fourth tiers. **Exhibit 3.10** shows a distribution of the amount of consumption for each single-family customer bill in 2018.

Exhibit 3.10 Bimonthly Average Water Bill Distribution



The proposed structure significantly decreases the allowances within each tier of usage. The objective of this change is to establish the new tier thresholds based upon seasonal average usage levels that is more reflective of how customers use water over the course of any given year. For single-family residential customers, the new tier thresholds were set to approximately the average class winter usage (tier 1), the class summer peak usage (tier 2), double the class summer peak usage (tier 3), and tier four contains any usage above double the summer peak usage. The findings for the irrigation customer class were similar to the single-family residential class, though to a lesser degree and the allowances within each tier were slightly lowered based on the same customer averages. Usage patterns of customers within the multi-family and commercial classes can vary significantly from other customers (i.e., a five-unit apartment complex as compared to a 40-unit complex), so the tiered rate structure was eliminated, and one uniform rate will be charged for all consumption. A uniform volume rate structure for multi-family and commercial classes is a common methodology and is reflective of the diversity in water usage behavior. **Exhibit 3.11** provides a summary of the proposed tier changes. As the City develops a history of usage for multi-family and commercial customers under the new rate structure, the uniform volume structure can be revisited for appropriateness.

Exhibit 3.11 Proposed Tier Changes

Customer Class	Existing Structure Bimonthly usage	Proposed Structure Bimonthly usage
Single-Family		
Tier 1	0-25 ccf	0-10 ccf
Tier 2	26-50 ccf	11-15 ccf
Tier 3	51-150 ccf	16-30 ccf
Tier 4	151+ ccf	31+ ccf
Multi-Family		
Tier 1	0-25 ccf	All Consumption
Tier 2	26-50 ccf	N/A
Tier 3	51-150 ccf	N/A
Tier 4	151+ ccf	N/A
Commercial		
Tier 1	0-25 ccf	All Consumption
Tier 2	26-50 ccf	N/A
Tier 3	51-150 ccf	N/A
Tier 4	151+ ccf	N/A
Irrigation		
Tier 1	0-25 ccf	0-6 ccf
Tier 2	26-50 ccf	7-40 ccf
Tier 3	51-150 ccf	41-116 ccf
Tier 4	151+ ccf	117+ ccf

In addition to examining the consumption structure for each class, changes to the fixed portion of the rate were considered. Currently, all single-family customers are charged the same fixed rate regardless of meter size. Multi-family, commercial and irrigation customers with a 3/4" meter are charged at the same rate as a single-family customer. Multi-family, commercial and irrigation customers with a 1" or larger meter all pay the same fixed rate, roughly three times the single-family fixed rate. The existing structure does not address the fact that a customer with a 6" meter is able to place significantly more demand on the system than a customer with a 1" meter. The proposed change scales the fixed charge based on the AWWA's standard meter capacity equivalents. This approach is a common and accepted industry practice and provides for rate equitability between meter sizes. **Exhibit 3.12** provides a schedule of existing and proposed fixed and volumetric rates for each year 2019 through 2022 for all customer classes.

Exhibit 3.12 Existing and Proposed Bimonthly Water Rates (2019-2022)

SFR Fixed Charge	
Meter Size	Existing 2019
3/4"	\$ 15.68
1"	15.68
1 1/2"	15.68
2"	15.68
3"	15.68
4"	15.68
6"	15.68

SFR Fixed Charge			
Meter Size	2020	2021	2022
3/4"	\$ 20.53	\$ 22.37	\$ 24.27
1"	34.21	37.29	40.46
1 1/2"	68.42	74.57	80.91
2"	109.47	119.32	129.46
3"	218.93	238.64	258.92
4"	342.09	372.87	404.57
6"	684.17	745.75	809.13

MFR, COM, IRR Fixed Charge	
Meter Size	Existing 2019
3/4"	\$ 15.68
1"	49.17
1 1/2"	49.17
2"	49.17
3"	49.17
4"	49.17
6"	49.17

MFR, COM, IRR Fixed Charge			
Meter Size	2020	2021	2022
3/4"	\$ 20.53	\$ 22.37	\$ 24.27
1"	34.21	37.29	40.46
1 1/2"	68.42	74.57	80.91
2"	109.47	119.32	129.46
3"	218.93	238.64	258.92
4"	342.09	372.87	404.57
6"	684.17	745.75	809.13

SFR Variable (per ccf)	
Consumption	Existing 2019
Tier 1 - 0-25 ccf	\$ 3.68
Tier 2 - 26-50 ccf	4.06
Tier 3 - 51-150 ccf	4.80
Tier 4 - 151+ ccf	4.06

SFR Variable (per ccf)			
Consumption	2020	2021	2022
Tier 1 - 0-10 ccf	\$ 4.50	\$ 4.91	\$ 5.32
Tier 2 - 11-15 ccf	4.96	5.41	5.87
Tier 3 - 16-30 ccf	5.87	6.40	6.94
Tier 4 - 31+ ccf	6.93	7.55	8.19

MFR Variable (per ccf)	
Consumption	Existing 2019
Tier 1 - 0-25 ccf	\$ 3.68
Tier 2 - 26-50 ccf	4.06
Tier 3 - 51-150 ccf	4.80
Tier 4 - 151+ ccf	4.06

MFR Variable (per ccf)			
Consumption	2020	2021	2022
Tier 1 - All Consumption	\$ 5.28	\$ 5.75	\$ 6.24
Tier 2 - N/A	N/A	N/A	N/A
Tier 3 - N/A	N/A	N/A	N/A
Tier 4 - N/A	N/A	N/A	N/A

COM Variable (per ccf)	
Consumption	Existing 2019
Tier 1 - 0-25 ccf	\$ 3.68
Tier 2 - 26-50 ccf	4.06
Tier 3 - 51-150 ccf	4.80
Tier 4 - 151+ ccf	4.06

COM Variable (per ccf)			
Consumption	2020	2021	2022
Tier 1 - All Consumption	\$ 4.76	\$ 5.19	\$ 5.63
Tier 2 - N/A	N/A	N/A	N/A
Tier 3 - N/A	N/A	N/A	N/A
Tier 4 - N/A	N/A	N/A	N/A

IRR Variable (per ccf)	
Consumption	Existing 2019
Tier 1 - 0-25 ccf	\$ 3.68
Tier 2 - 26-50 ccf	4.06
Tier 3 - 51-150 ccf	4.80
Tier 4 - 151+ ccf	4.06

IRR Variable (per ccf)			
Consumption	2020	2021	2022
Tier 1 - 1-6 ccf	\$ 4.10	\$ 4.47	\$ 4.85
Tier 2 - 7-40 ccf	4.52	4.93	5.35
Tier 3 - 41-116 ccf	5.35	5.83	6.32
Tier 4 - 117+ ccf	6.18	6.73	7.31

III.E. CONNECTION FEE

In addition to reviewing the necessary rate increases and existing rate structures, the water utility's connection fees were reviewed. Connection fees are a one-time charge imposed as a condition of service on new customers connecting to the system. The connection fee is typically based on a blend of historical and planned future capital investments in system infrastructure – its underlying premise is that growth (future customers) will pay for growth-related costs that the utility has incurred (or will incur) to provide system capacity to serve new customers.

The purpose of the connection fee is two-fold: 1) to provide a source for capital financing and 2) to equitably recover a proportionate share of utility plant-in-service costs from new customers. In the absence of connection fees, growth-related costs would be borne in large part by existing customers. The cost of the system to be recovered by connection fees can be defined in two parts:

- Existing cost basis, based on historical investments in existing infrastructure, and
- Future cost basis, which recovers costs related to planned capital projects.

Revenues generated from the connection fees can be used to fund capital projects or debt service incurred to finance capital projects but should not be used to pay for operating and maintenance costs.

Section 35.92.025 of the Revised Code of Washington (RCW) authorizes cities to impose connection fees; however, it does not outline a specific methodology for calculating them. The City has considerable latitude in choosing from a variety of legally defensible approaches used in the industry, but it is important that the City's connection fees are based on an equitable allocation of system capacity costs to new connections. Since the calculated charges represent the maximum allowable charge, the City may choose to implement a charge at any level up to the calculated charge. This study uses an "integrated" approach to compute the connection fees, which is summarized in **Exhibit 3.13**.

Exhibit 3.13 Connection Fee (CF) Methodology

$$\frac{\text{EXISTING COST}}{\text{CURRENT \& FUTURE CAPACITY}} + \frac{\text{FUTURE COST}}{\text{FUTURE CAPACITY}} = \text{CF}$$

This "integrated" approach allocates costs to customers based on who benefits from the related facilities. Because existing assets are built to meet existing demands and oversized to accommodate growth, the cost of the existing system is allocated to both existing and future customers. Costs that are associated with capacity-expanding projects that are necessary to serve growth are allocated exclusively to growth (future customers). The connection fee also reflects an allocation of projects related to upgrading existing assets on the premise that existing and future customers benefit from these projects.

III.E.1. Existing Cost Basis

The existing cost basis is intended to recognize the current ratepayers' net investment in the original cost of the system assets. The existing cost basis includes the following components:

- **Utility Capital Assets:** As the City practices cash-basis accounting, some asset information, such as acquisition date or original cost, has not always been closely tracked. In discussions with City staff, it was determined that the systemwide average acquisition date for the utility's assets was 1970. Estimated replacement costs were deflated using the ENR CCI to arrive at the total original cost of \$16.9 million for the system's assets.
- **Less: Contributed Capital** – The total original cost is reduced to recognize known third party contributions. The outside contributions provide a source of capital at no new cost to the City's ratepayers. Since the connection fee is necessarily cost based, the net investment by the City excludes those contributions. Developer contributions have not always been closely tracked, and in discussions with City staff, it was estimated that 60 percent of the distribution system (pipeline less than 12 inches in diameter) had been contributed by developers. This results in a deduction of \$6.1 million.
- **Plus: Interest on Non-Contributed Plant in Service** – RCW 35.92.025 provides that such charges include interest on an asset at the rate applicable during the time of construction. Using the historical Bond Buyer Index for 20-year term bonds, interest can accumulate for a maximum of ten years from the date of construction for any particular asset and cannot exceed the original cost of the asset or 10 percent for 10 years. Conceptually, this interest provision attempts to account for opportunity costs that the City's customers incurred by supporting investments in infrastructure rather than having it available for investment or other uses. Calculated interest for the water utility results in an addition of \$7.4 million.
- **Plus: Construction Work in Progress** – The costs of construction work in progress is added to the existing cost basis to recognize investments that the City has made in capital projects that are currently underway, despite the fact that these projects have not yet been booked as assets. The utility did not identify any capital projects currently in progress.
- **Less: Outstanding Debt Principal** - Another adjustment to the existing system cost basis is to deduct the net liability of outstanding utility debt, recognizing that new customers will bear a proportionate share of this debt related to existing assets through their utility rates. Therefore, the cost of those assets charged to new development is offset to some degree by the remaining debt liability. Since the utility typically has cash resources that are not included in the system cost basis, the net debt load is defined as total debt minus outstanding cash and investments. The result is a reduction of \$3.4 million.

After factoring in the above adjustments, the existing cost basis will be spread across the total customer base (existing and incremental future growth), as all existing infrastructure will continue to benefit all customers. The existing cost basis is shown below in **Exhibit 3.14**.

Exhibit 3.14 Existing Cost Basis

Existing Cost Basis	
Utility Capital Assets	\$ 16,891,610
less: Contributed Capital	(6,065,501)
plus: Interest on Non-Contributed Plant	7,373,355
plus: Construction-Work-in-Progress	-
less: Net Debt Principal Outstanding	(3,379,435)
Total Existing Cost Basis	\$ 14,820,029

III.E.2. Future Cost Basis

The future cost basis portion of the connection fee is intended to recover a share of the costs associated with planned future capital projects. As provided by RCW 35.92.025, future facilities planned for construction can be included in the connection fee. Consistent with the legal requirement that the costs be borne by the City, funding by developers or special property assessments are not included in the calculation. There are three main types of capital projects, described below.

- **Plus: Upgrade Projects** - Upgrade projects generally involve upgrading the level of service for all customers to comply with regulatory requirements imposed by state and federal agencies.
- **Plus: Expansion Projects** - This type of project will increase system capacity to serve growth and would generally not be needed in the absence of growth.
- **Less: Repair and Replacement Projects** –These are projects related to the repair or replacement of existing infrastructure and are most often needed because existing facilities have deteriorated due to use by existing customers. The integrated approach removes these projects from the future cost basis on the grounds that: (a) these projects are attributable to existing customers; and (b) new customers will pay for their share of these projects through rates when they connect.

The City's 2019 through 2038 capital plan identifies \$22.5 million in capital project costs. City staff allocated \$2.2 million (9.6 percent) of the total cost to repair and replacement projects, which are deducted from the future cost basis as described above. No developer contributions or grants were identified. **Exhibit 3.15** provides a summary of the future cost basis.

Exhibit 3.15 Future Cost Basis

Future Cost Basis	
Total Capital Improvement Program (2019\$)	\$ 22,464,714
less: Repair & Replacement Projects	(2,161,690)
less: Developer Contributions / Grants	-
Total Future Cost Basis	\$ 20,303,024

III.E.3. System Capacity

The customer base is separated into two groups: existing and future capacity. Given that new connections can impose different demands on the water system, the connection fee calculation uses the concept of Equivalent Residential Units (ERUs) to “standardize” connections. An ERU is a measure of equivalent demand, the amount of demand that a non-single family account places on the system in relation to an average single-family account. The purpose of an ERU is to maintain equitable proportions between single-family and other customers, and between existing and future connections. Based on Section S-2 of the City's 2016 Water Comprehensive Plan, an ERU is currently defined as 175 gallons of usage per day, based on bimonthly meter readings from 2012-2015.

- **Existing Capacity** - Table 4-3 of the 2016 Water Comprehensive Plan identified the 2019 system capacity at 1.29 MGD. Applying the ERU definition of 175 gallons of usage per day resulted in existing system capacity in 2019 of 7,371 ERUs.
- **Future Capacity**- The future capacity was based on the growth rate assumed in Table 4-3 of the 2016 Water Comprehensive Plan. It was estimated that the system will add 4,300 ERUs of capacity in the 20-year period.
- **Total System Capacity**- The results of the existing and future calculated capacities are added together to determine the total system capacity of 11,672 ERUs.

III.E.4. Calculation of the Connection Fee

As described previously, the existing cost basis is divided by the total existing and future ERUs while the future cost basis is divided by the future ERUs only. The results are added together to determine the maximum allowable connection fee. **Exhibit 3.16** provides a summary of the connection fee calculation for the City's water system.

Exhibit 3.16 Connection Fee Calculation

Water Connection Fee (CF)	
Existing System Portion	
Existing System Costs	\$ 14,820,029
Total ERUs	11,672
Existing System CF per ERU	\$ 1,270
Future System Portion	
Future System Costs Allocable to Growth	\$ 20,303,024
Future ERUs	4,300
Future Cost Basis Allocable to Growth	\$ 4,721
Total Connection Fee	\$ 5,991

The resulting maximum allowable connection fee is \$5,991 per ERU, \$455 lower than the City's existing charge of \$6,446. Since this calculated fee is the maximum allowable fee, the City must reduce their connection fee to a maximum of \$5,991. This fee may be adjusted annually by inflation, preferably inflation as measured by the ENR index for construction costs. The City is currently working to refine its fixed asset schedule, once more detail becomes available, the calculated water connection fee should be updated.

III.F. SUMMARY

The analysis described above concludes the rate study for the water utility. A water service rate revenue increase of 30.9 percent for 2020, 9.0 percent for 2021, and 8.5 percent for 2022 are recommended to address near-term capital improvement project needs, an increase in overall operating costs and to satisfy all financial obligations of the water utility. Based on the test year analyzed, no cost of service adjustments are warranted for the water utility and the suggested rate increases will be applied equally to each class. In order to address intraclass inequities, rate design changes were made to adjust the consumption tiers for each class and institute meter-based fixed charges utilizing AWWA standard meter equivalencies. The revised maximum connection fee was calculated to be \$5,991; the City will revise their current connection fee to this lower level.

We recommend that the City revisit the study findings during each budget cycle to check that the assumptions used are still appropriate and no significant changes have occurred that would alter the results of the study. The City should use the study findings as a living document, continuously comparing the study outcomes to actual revenues and expenses. Any significant or unexpected changes will require adjustments to the rate strategy proposed.

The detailed technical exhibits developed as part of the water rate study can be found at the end of this report in the Technical Appendix.

Section IV. WASTEWATER UTILITY

IV.A. INTRODUCTION

The City of Ferndale operates a wastewater utility responsible for collecting, transporting and treating residential, commercial and industrial wastewater. Wastewater that has been processed and treated is conveyed and released into the Nooksack River. The City's wastewater treatment plant processes approximately 643 million gallons of wastewater annually. The City wastewater collection, conveyance and treatment facilities include: one wastewater treatment plant, 18 wastewater pump stations, and over 58 miles of wastewater conveyance pipes.

IV.B. REVENUE REQUIREMENT

Similar to the water utility, a revenue requirement was completed for the wastewater utility and forms the basis for the long-range financial plan and multi-year financial management strategy.

IV.B.1. Operating Forecast

The purpose of the operating forecast is to determine whether the existing rates and charges are sufficient to recover the costs the City incurs to operate and maintain the wastewater system. The 2019 budget formed the baseline for this forecast. While the operating forecast was developed for the 2019 through 2028 time period, this study focused on establishing wastewater rates for the 2020 – 2022 rate-setting period. The following list highlights some of the key assumptions used in the development of the wastewater utility operating forecast.

IV.B.1.a Operating Revenue

- **Retail Rate Revenue** was based on 2018 actual detailed customer accounts and usage statistics from the City's billing system. Rate revenues were forecast for each customer class.
- **Non-Rate Revenue** consists of late fees, set-up fees, and sewer inspection fees.
- **Customer Growth** was based on discussions with City staff, both customer growth and demand was forecast to be 1.0 percent annually from 2019 to 2024, and 0.5 percent annually for all years thereafter.
- **Interest Earnings** were forecasted at 2.0 percent per year for all years of the forecast period (based on recent Washington LGIP earnings).

IV.B.1.b O&M Expenses

- **General Cost Inflation** was set at 3.0 percent, based on the Washington State Economic & Revenue Forecast Council Projections for Seattle CPI
- **Construction Cost Inflation (CCI)** was assumed to be 3.0 percent for all years in the study period, based on the feedback from the City.
- **Labor Cost Inflation** was set to be 4.0 percent for all years in the study period, based on feedback from the City.

- **Benefit Cost Inflation** was set to be 5.0 percent for all years in the study period, based on feedback from the City.
- **State Excise Taxes** was set to be 3.852 percent on all wastewater rate revenue, based on the prevailing tax rate.
- **State B&O Tax** was set to be 1.5 percent on all non-rate revenue, based on the prevailing tax rate.
- **City Utility Tax** was set to be 9.0 percent, based on the prevailing City tax rate.
- **Additional O&M Expenses** - while the 2019 budgeted expenses were used as the basis to forecast future expenses, the following incremental expenses were added for the study period, based upon direction from the City:
 - » Additional 0.75 FTEs (\$115,000) in 2022 in conjunction with the Phase III WWTP upgrade
 - » Additional \$130,000 for electricity and various supplies in 2022 in conjunction with the Phase III WWTP upgrade

IV.B.1.c Debt Service

- **Existing Debt.** The wastewater utility currently has four outstanding debt issues resulting in annual debt service of \$710,000. The debt issues are broken down as follows:
 - » Two revenue bonds with debt service of \$695,000 annually; and
 - » Two small loans for equipment purchases with debt service of \$15,000 annually.
- **New Debt.** The City has been offered a low-interest loan totaling nearly \$28.6 million from the Department of Ecology (DOE) to fund its Phase III WWTP upgrade. This will be repaid over a 20-year term with a 2.0 percent interest rate, resulting in an annual payment of approximately \$1.9 million starting in 2023.

IV.B.1.d Rate-Funded Capital

- Rate-funded capital is a way to ensure system integrity through reinvestment in the system. Ideally, the minimum funding would be an amount equal to or greater than the annual depreciation expense. A formal rate-funded capital policy was not recommended as a part of this study due to the large impact on rates which would be necessary to fund the policy. The feasibility of a rate-funded capital policy should be re-examined during the city's next wastewater utility rate study.

IV.B.2. Capital Funding Plan

The wastewater utility is anticipating \$45.0 million in capital costs in years 2019 through 2028 escalated to the date of construction. The most significant capital project in this period is the construction of the Phase III WWTP Improvements in 2020-2021 and is forecasted to cost nearly \$29.6 million (escalated \$).

Funding for the capital plan identified comes from a number of different sources:

- **DOE loan proceeds** – the City has secured a loan from the Department of Ecology to fund the Phase III Wastewater Treatment Plant Upgrades. The loan totals \$28.6 million and will fund 63.5 percent of the total capital program.
- **Cash balances and rate-funded capital (including interest)** – cash balances include the beginning capital fund balance available after meeting the capital fund reserve target, any cash flow from the operating fund above what is needed to meet the operating fund reserve target, as well as

developer and inspection capital contributions. 18.4 percent of the total capital program is funded with cash balances and rate-funded capital.

- **Connection charge revenue** – connection charge revenues are forecast at the existing fee levels and are based on the assumed customer growth rate of 1.0 to 0.5 percent resulting in between 50 and 100 new connections annually. 18.1 percent of the total capital program is funded with connection charge revenue.

Exhibit 4.1 provides a summary of the funding sources for the capital program. A detailed capital plan can be found in the Technical Appendix.

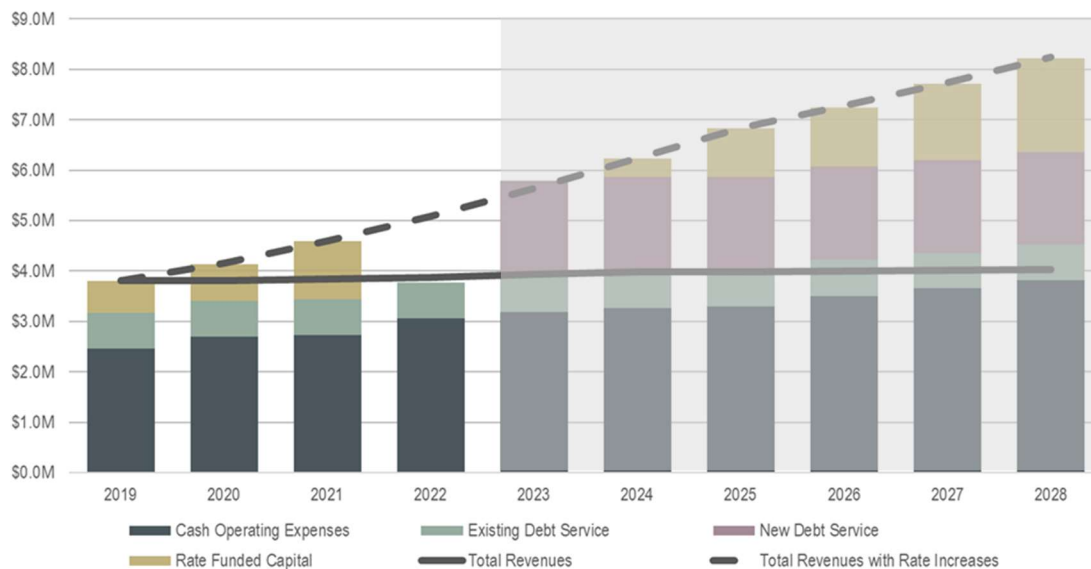
Exhibit 4.1 Wastewater Capital Funding Summary

Funding Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
Total Capital Costs	\$ 847,236	\$ 20,536,951	\$ 13,305,921	\$ 2,306,375	\$ 1,206,466	\$ 1,154,088	\$ 1,596,677	\$ 1,093,515	\$ 1,388,873	\$ 1,561,017	\$ 44,997,121
Funding Sources											
Cash Balances & Rate Funded Capital	\$ -	\$ -	\$ 3,779,638	\$ 1,273,688	\$ 163,452	\$ 100,644	\$ 1,064,688	\$ 558,866	\$ 851,551	\$ 1,021,008	\$ 8,813,533
DOE Loan Proceeds	-	19,524,612	8,503,820	-	-	-	-	-	-	-	28,028,432
Connection Fee Revenue	847,236	1,012,339	1,022,463	1,032,687	1,043,014	1,053,444	531,989	534,649	537,323	540,009	8,155,155
Total Capital Funding	\$ 847,236	\$ 20,536,951	\$ 13,305,921	\$ 2,306,375	\$ 1,206,466	\$ 1,154,088	\$ 1,596,677	\$ 1,093,515	\$ 1,388,873	\$ 1,561,017	\$ 44,997,121

IV.B.3. Summary of Revenue Requirement

The operating forecast components of O&M expenses, debt service and rate-funded capital come together to form the multi-year revenue requirement. The revenue requirement compares the overall wastewater system revenue against forecasted expenses to evaluate the sufficiency of rates on an annual basis. **Exhibit 4.2** provides a summary of the wastewater system revenue requirement findings.

Exhibit 4.2 Wastewater Utility Revenue Requirement Summary



Summary of wastewater revenue requirement:

- In 2019, current revenue levels are sufficient to meet existing annual financial obligations.
- During the 2020-2022 rate setting period, existing revenue levels will remain sufficient to meet existing annual financial obligations. However, new debt service payments for the \$28.6 million DOE loan are forecasted to begin in 2023, resulting in an additional \$1.9 million in new expenses.

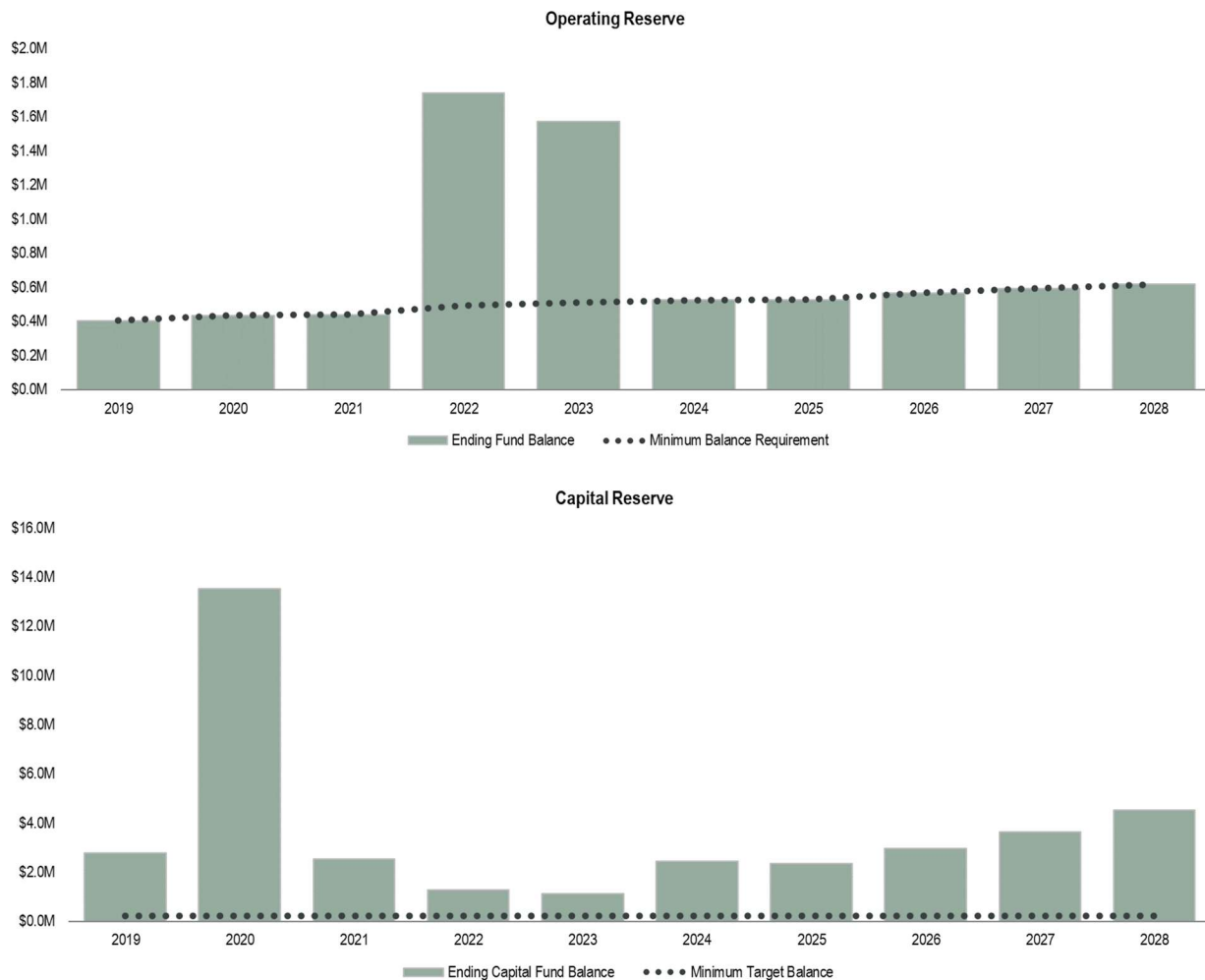
- To build up the system's rate capacity to meet the total projected financial obligations and additional debt service needs, rate increases are proposed at 9.55 percent annually from 2020 through 2025 before leveling off to 6.0 percent per year for the planning period 2026 – 2028.
- Bonded wastewater debt service coverage is forecasted to remain above 2.0 in all years of the forecast, and coverage on total debt service coverage is forecast to remain above 1.0 in all years of the forecast except for 2023 when full principal and interest payments begin on the DOE loan. The City will use approximately \$143,000 in reserves in 2023 to fulfill their debt obligations before recovering to a 1.15 total debt coverage ratio in 2024. Bonded debt service coverage is forecasted to be 6.34 in 2028 and total debt service coverage is forecasted to be 1.76 in 2028.

IV.B.4. Reserves

Exhibit 4.3 shows a summary of the projected Operating Reserve and Capital Reserve through 2028 based on the rate forecasts presented above. The Operating Reserve has a minimum balance target of 60 days of operating and maintenance (O&M) expenses (\$400,000 to \$620,000). The Capital Reserve has a minimum target of \$230,000 and maximum target of \$460,000, based on the average capital project costs throughout the study period.

Both the operating reserve balance and capital reserve balance are maintained at or above the target level in all years. In most years of the forecast any cash over and above the reserve targets is considered available to aid in fully funding the capital program. In 2022 and 2023, the operating reserve balance will be held within the operating fund to prepare for a one-year cash flow deficiency forecast in 2023 as full principle and interest payments from the DOE loan are realized.

Exhibit 4.3 Operating and Capital Fund Balances



IV.C. WASTEWATER COST OF SERVICE ANALYSIS

Similar to the water utility, the cost of service allocation process for the wastewater utility involves three steps - 1) allocate total utility assets and costs by function, 2) develop customer-specific allocation factors and 3) allocate costs to customer classes.

IV.C.1. Allocation of Utility Assets by Function

The City's wastewater utility assets in service were reviewed to identify the infrastructure assets in use and how they relate to providing wastewater service. This allocation assigns value and costs to functional categories based on documented system requirements and industry standard practice based on the relationship of each class of asset and their function in the system. Assets are allocated to the functions of service according to known or assumed cost "causation". The functions of service to which the City's assets were allocated are discussed below.

- **Customer costs:** associated with providing service to customers regardless of wastewater contribution, such as billing and office support.

- **Wastewater flow costs:** related to actual and estimated wastewater volume processed within the system in a year.
- **Strength costs:** reflect strength of sewage processed. Strength is tracked by two measurements – biochemical oxygen demand (BOD) and total suspended solids (TSS). BOD is the parameter used to characterize the organic strength of sewage and TSS is the parameter that measures the amount of particles suspended in water that will not pass through a filter and require treatment.

Exhibit 4.4 Wastewater Utility Functional Plant (Assets) in Service

Plant in Service	Total Costs	FUNCTIONS OF SEWER SERVICE					TOTAL	ALLOCATION BASIS
		CUSTOMER	FLOW	BOD	TSS	AS ALL OTHERS		
Treatment	\$ 19,439,200	0.00%	50.00%	25.00%	25.00%	0.00%	100.00%	50/50 Organic-Hydraulic Split As Flow As Flow As All Others
Collection	86,597,196	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	
Pumping	13,646,907	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	
General Plant	497,644	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	
Total Utility Plant	\$ 120,180,947	\$ -	\$ 109,963,703	\$ 4,859,800	\$ 4,859,800	\$ 497,644	\$ 120,180,947	
Sewer Service Functions		0.00%	91.88%	4.06%	4.06%		100.00%	
Allocation of "As All Others"		\$ -	\$ 457,230	\$ 20,207	\$ 20,207	\$ (497,644)	\$ -	
TOTAL	\$ 120,180,947	\$ -	\$ 110,420,933	\$ 4,880,007	\$ 4,880,007	\$ -	\$ 120,180,947	
Allocation Percentages		0.00%	91.88%	4.06%	4.06%	0.00%	100.00%	

The allocation basis (shown in Exhibit 4.4) used for the major functions of service are as follows:

- **Collection lines and pumping assets** are allocated based on 100 percent flow. The asset infrastructures primary responsibility is handling the peak flow requirements of the system.
- **Treatment assets** are allocated based on industry standards suggesting that 50 percent of the treatment assets are in place to handle flow while the remaining 50 percent are responsible for handling strength. The strength allocation of treatment is split evenly with 25 percent to BOD and 25 percent to TSS.
- **General assets** are allocated as all other plant in service related to the collection, pumping and treatment assets.

The result of the functional asset allocation is 92 percent allocated to flow, 4 percent to BOD and 4 percent to TSS. The resulting asset allocation is referred to as the "plant-in-service" allocation and is used to allocate annual costs if the cost supports the total utility system.

IV.C.2. Allocation of Utility Costs by Function

The annual test period costs (forecast 2020) were also grouped by function. The process required assigning each budget line item account to wastewater functions. The following summarizes the key cost allocation assumptions:

- **Administrative Service Costs** were allocated as customer, as these employees were assumed to be utility billing and other customer service employees.
- **Maintenance Costs** were allocated as plant-in-service – 92 percent to flow and 4 percent to BOD and TSS each.
- **Operations Costs** were also allocated as plant-in-service.
- **Sludge Removal Costs** were allocated as treatment – 50 percent to flow and 25 percent to BOD and TSS each.

- **Treatment Plant Supplies and Utility Costs** were all allocated as treatment.
- **Taxes** were allocated as all other expenses.
- **Existing Debt Service Costs** were allocated as plant-in-service – 92 percent to flow and 4 percent to BOD and TSS each.

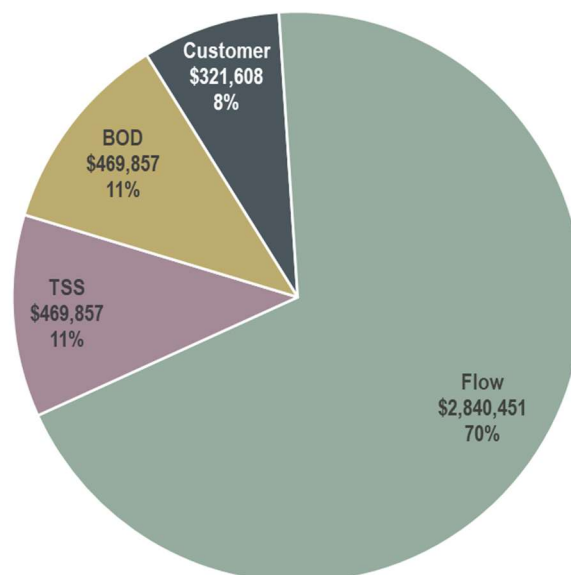
Total rate revenue requirements are calculated by taking the total expenses, deducting non-rate revenue and adding net cash flow resulting from the proposed annual rate increase. The line by line utility cost allocation results in costs being allocated to the functional cost pools identified in **Exhibit 4.5**.

Exhibit 4.5 Wastewater Utility Functional Cost Allocation (2020 Forecast)

REVENUE REQUIREMENT	TOTAL COSTS	FUNCTIONS OF SEWER SERVICE						TOTAL	ALLOCATION BASIS
		CUSTOMER	FLOW	BOD	TSS	TAXES	AS ALL OTHERS		
OPERATING AND CAPITAL EXPENSES									
Cash Operating Expenses	\$ 2,654,679	9.94%	63.18%	13.44%	13.44%	0.00%	0.00%	100.00%	As O&M Expenses
Existing Debt Service	711,697	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
New Debt Service	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Rate Funded System Reinvestment	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Total Expenses	\$ 3,366,377	7.84%	69.25%	11.45%	11.45%	0.00%	0.00%	100.00%	
OTHER REVENUES AND ADJUSTMENTS									
Less:									
Operating Fund & Debt Reserve Fund Interest Earnings	\$ (22,917)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Other Revenue	(36,528)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Plus:									
Additional (Reduction of) Taxes Due to Rate Increases	45,955	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Net Cash Flow After Rate Increase	748,887	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Partial Year Adjustment	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Rate Revenue Requirement	\$ 4,101,773	\$ 263,948	\$ 2,331,194	\$ 385,618	\$ 385,618	\$ -	\$ 735,396	\$ 4,101,773	
Water Service Functions		7.84%	69.25%	11.45%	11.45%	0.00%		100.00%	
Allocation of "As All Others"		\$ 57,660	\$ 509,257	\$ 84,239	\$ 84,239	\$ -	\$ (735,396)	\$ -	
Rate Revenue Requirement Allocation Percentages	\$ 4,101,773	\$ 321,608	\$ 2,840,451	\$ 469,857	\$ 469,857	\$ -	\$ -	\$ 4,101,773	
		7.84%	69.25%	11.45%	11.45%	0.00%	0.00%	100.00%	

The cost allocation indicates that the majority of costs, 70 percent, relate to meeting flow requirements, followed by 11 percent related to TSS and BOD, and 8 percent related to customer costs. The results of the allocation are summarized in **Exhibit 4.6**.

Exhibit 4.6 Wastewater Utility Functional Cost Allocation Summary (2020 Forecast)



IV.C.3. Customer Class Distinctions

The City's current customer classes consist of a single-family class (including senior/disabled discount accounts), a multi-family class (including apartment complexes and mobile home parks), and a commercial class. The cost of service analysis was conducted for each of these classes. One of the main objectives of the cost of service rate study is to evaluate if cost differences exist when serving different customer classes of the system.

IV.C.4. Allocation Factors

Once the customer classes were defined, functional cost pools (shown in **Exhibit 4.5**) were then allocated to these customer classes based on the demand each class places on the system. In order to complete this task, the analysis consisted of first developing allocation factors that identified customer characteristics including number of accounts, overall flow entering the wastewater system and strength factors differing by each customer class. The allocation factors are intended to equitably allocate total functional cost pools to those benefitting from the service. For this study, the wastewater costs were allocated based on the following:

- **Customer Costs** - based on number of customer accounts.
- **Wastewater Flow Costs** - based on annual volume contributed to the wastewater system.
- **Strength Costs** - based on annual volume and adjusted for the different strength factors associated with each customer class. The strength factors applied rely on average strength assumptions from various municipal governments.
 - » Single-family strength is 240 mg/l for both BOD and TSS.
 - » Multi-family strength is 240 mg/l for both BOD and TSS
 - » As system-specific commercial strength factors were not available, factors were based on the average strength assumptions from various municipal governments. BOD was assumed to be 403 mg/l and TSS was assumed to be 352 mg/l for the commercial class.

Exhibit 4.7 summarizes the allocation factors used for the customer classes evaluated in the cost of service analysis.

Exhibit 4.7 Wastewater Utility Customer Allocation Factors

Customer Class	Accounts	Flow (ccf)	BOD mg/l	TSS mg/l
Single-Family	4,037	258,312	240	240
Multi-Family	122	43,663	240	240
Commercial	353	77,727	403	352
Total	4,511	379,703		

Customer Class	Customer	Flow	BOD	TSS
Single-Family	89.48%	68.03%	59.70%	62.11%
Multi-Family	2.70%	11.50%	10.09%	10.50%
Commercial	7.82%	20.47%	30.20%	27.39%
Total	100.00%	100.00%	100.00%	100.00%

The cost of service by class was calculated by multiplying the functional cost pools by the allocation factor distribution percentages. Ultimately, this element of the analysis defines the total annual

revenue that should be generated from each customer class, in order to achieve cost-based recovery from rates.

IV.C.5. Wastewater Cost of Service Analysis Results

Exhibit 4.8 provides a comparison of current rate revenue distribution between customer classes and the distribution of revenues resulting from the cost of service analysis.

Exhibit 4.8 Comparison of Wastewater Current Revenue Distribution to Cost of Service Distribution

Class	Existing 2020		COSA 2020		Difference	
	Revenue		Revenue		\$	%
Single Family	\$	2,661,935	\$	2,792,499	\$ 130,564	4.90%
Multi Family		380,576		432,055	51,479	13.53%
Commercial		701,691		877,219	175,528	25.02%
Total	\$	3,744,202	\$	4,101,773	\$ 357,571	9.55%

It should be noted, given the need for assumptions to complete a cost of service analysis, the margin of error for class-specific results is typically considered to be plus-or-minus 5.0 percent, relative to the system average. A cost of service study is a snapshot in time and because costs fluctuate each year, the needed increase by class can also fluctuate and interclass rate changes are not suggested unless the class's revenue difference is consistently outside of the 5.0 percent threshold. Results indicating adjustments in the 6.0-10.0 percent range should be considered on the "watch-list" and would benefit from another analysis in the future to determine if the resulting subsidization was an anomaly or indicative of an ongoing trend.

The cost of service results indicate that the single-family and multi-family classes are within their cost of service, while the commercial class is outside of their cost of service, by nearly 15.0 percent over the system average increase of 9.55 percent. As the commercial class is a significant portion of the overall use within the system, single-family customers are subsidizing other classes and cost of service adjustments were recommended. During the three-year rate planning period (2020-2022), commercial and multi-family customers will see their bills increase more than the required system average increase of 9.55 percent (commercial rates will increase 14.64 percent per year, multi-family 10.83 percent per year) and single-family customers will see their bills increase by less than the required system average increase, roughly 8.0 percent per year on average.

IV.D. RATE DESIGN

The principal objective of the rate design stage is to implement rate structures that collect the appropriate level of revenue as outlined by the revenue requirement. Establishing rates is a blend of "Art" and "Science" and especially so when it comes to the rate levels and structures. Several variables must be balanced to arrive at optimal rates. The main objective in this rate design was to address intraclass equity.

IV.D.1. Existing Wastewater Rates

The existing wastewater charges include a fixed rate and a per-100 cubic foot (CCF) consumption rate. The consumption charge contains four tiers, for usage from 0-25 ccf, 26-50 ccf, 51-150 ccf, and for usage over 150 ccf. **Exhibit 4.9** provides a summary of the existing wastewater utility rates.

Exhibit 4.9 Existing Bimonthly Wastewater Rates

Bimonthly rates (usage per ccf)	
All Customers	Existing (2019)
Fixed	\$ 31.97
Consumption	
Tier 1 (0-25 ccf)	\$ 7.24
Tier 2 (26-50 ccf)	8.08
Tier 3 (51-150 ccf)	9.51
Tier 4 (151+ ccf)	8.08

IV.D.2. Proposed Wastewater Rates

In addition to assessing interclass equity, the City looked to evaluate intraclass equity through an evaluation of the existing wastewater rate structure and tier thresholds.

Currently, each class is charged the same rate with the same tier thresholds for all consumption. Furthermore, each customer's bill is based on their total water consumption, rather than their winter average consumption, meaning single-family customers will be billed for outdoor water usage which does not place a burden on the wastewater system. To address these inequities, the proposed rate structure will charge a uniform rate for all consumption. In addition, the single-family customer bills will be based on each customer's previous year's annual winter average consumption, as a proxy to determine indoor water usage. The multi-family and commercial classes will not be based on winter average consumption, considering the consumption of these customers generally is not outdoor usage. **Exhibit 4.10** provides a summary of the proposed 2019-2022 rate schedule.

Exhibit 4.10 Proposed Wastewater Rate Design Options

Single-Family		Existing 2019				
			2020	2021	2022	
Fixed		\$ 31.97	\$ 34.54	\$ 37.28	\$ 40.20	
Consumption (per ccf)						
0-25 ccf		\$ 7.24	\$ 8.92	\$ 9.63	\$ 10.39	
26-50 ccf		8.08	N/A	N/A	N/A	
51-150 ccf		9.51	N/A	N/A	N/A	
151+ ccf		8.08	N/A	N/A	N/A	

Multi-Family		Existing 2019				
			2020	2021	2022	
Fixed		\$ 31.97	\$ 35.43	\$ 39.27	\$ 43.52	
Consumption (per ccf)						
0-25 ccf		\$ 7.24	\$ 9.07	\$ 10.05	\$ 11.14	
26-50 ccf		8.08	N/A	N/A	N/A	
51-150 ccf		9.51	N/A	N/A	N/A	
151+ ccf		8.08	N/A	N/A	N/A	

Commercial		Existing 2019				
			2020	2021	2022	
Fixed		\$ 31.97	\$ 36.65	\$ 42.01	\$ 48.16	
Consumption (per ccf)						
0-25 ccf		\$ 7.24	\$ 9.35	\$ 10.72	\$ 12.29	
26-50 ccf		8.08	N/A	N/A	N/A	
51-150 ccf		9.51	N/A	N/A	N/A	
151+ ccf		8.08	N/A	N/A	N/A	

IV.E. CONNECTION FEE

In addition to reviewing the necessary rate increases and existing rate structures, the wastewater utility's connection fees (CFs) were reviewed. Connection fees are a one-time charge imposed as a condition of service on new customers connecting to the system. The connection fee is typically based on a blend of historical and planned future capital investments in system infrastructure – its underlying premise is that growth (future customers) will pay for growth-related costs that the utility has incurred (or will incur) to provide system capacity to serve new customers.

Similar to the water utility, the purpose of the sewer connection fee is two-fold: 1) to provide a source for capital financing and 2) to equitably recover a proportionate share of utility plant-in-service costs from new customers. In absence of connection fees, growth-related costs would be borne in large part by existing customers.

Revenues generated from the connection fees can be used to fund capital projects or debt service incurred to finance capital projects but should not be used to pay for operating and maintenance costs.

Section 35.92.025 of the Revised Code of Washington (RCW) authorizes cities to impose connection fees; however, it does not outline a specific methodology for calculating them. The City has considerable latitude in choosing from a variety of legally defensible approaches used in the industry, but it is important that the City's connection fees are based on an equitable allocation of system capacity costs to new connections. Since the calculated charges represent the maximum allowable

charge, the City may choose to implement a charge at any level up to the calculated charge. The calculation methodology is similar to the water utility as well and uses an “integrated” approach to compute the connection fees, which is summarized in **Exhibit 4.11**:

Exhibit 4.11 Connection Fee Methodology

$$\frac{\text{EXISTING COST}}{\text{CURRENT \& FUTURE CAPACITY}} + \frac{\text{FUTURE COST}}{\text{FUTURE CAPACITY}} = \text{CF}$$

IV.E.1. Existing Cost Basis

The existing cost basis is intended to recognize the current ratepayers’ net investment in the original cost of the system assets. The existing cost basis includes the following components:

- **Utility Capital Assets:** As the City practices cash-basis accounting, some asset information, such as acquisition date or original cost, has not always been closely tracked. In discussion with City staff, it was determined that the systemwide average acquisition date for the utility’s assets was 1970. Estimated replacement costs were deflated using the ENR CCI to arrive at the total original cost of \$19.3 million for the system’s assets.
- **Less: Contributed Capital** – The total original cost is reduced to recognize known third party contributions. The outside contributions provide a source of capital at no new cost to the City’s ratepayers. Since the connection fee is necessarily cost based, the net investment by the City excludes those contributions. Developer contributions have not always been closely tracked, and in discussions with City staff, it was estimated that 60 percent of the smaller diameter collection system (pipe sizes 12” or less) had been contributed by developers. This results in a deduction of \$5.2 million.
- **Plus: Interest on Non-Contributed Plant in Service** – RCW 35.92.025 provides a guideline for connection charges which suggests that such charges can include interest on an asset at the rate applicable during the time of construction. Using the historical Bond Buyer Index for 20-year term bonds, interest can accumulate for a maximum of ten years from the date of construction for any particular asset and cannot exceed the original cost of the asset or 10 percent for 10 years. Conceptually, this interest provision attempts to account for opportunity costs that the City’s customers incurred by supporting investments in infrastructure rather than having it available for investment or other uses. Calculated interest for the water utility results in an addition of \$7.6 million.
- **Plus: Construction Work in Progress** – The costs of construction work in progress is added to the existing cost basis to recognize investments that the City has made in capital projects that are currently underway, despite the fact that these projects have not yet been booked as assets. The utility did not identify any capital projects currently in progress.
- **Less: Outstanding Debt Principal** - Another adjustment to the existing system cost basis is to deduct the net liability of outstanding utility debt, recognizing that new customers will bear a proportionate share of this debt related to existing assets through their utility rates. Therefore, the cost of those assets charged to new development is offset to some degree by the remaining debt liability. Since the utility typically has cash resources that are not included in the system cost

basis, the net debt load is defined as total debt minus outstanding cash and investments. The result is a reduction of \$5.3 million.

After factoring in the above adjustments, the existing cost basis will be spread across the total customer base (existing and incremental future growth), as all existing infrastructure will continue to benefit all customers. The existing cost basis is shown below in **Exhibit 4.12**.

Exhibit 4.12 Existing Cost Basis

Existing Cost Basis	
Utility Capital Assets	\$ 19,341,529
less: Contributed Capital	(5,181,230)
plus: Interest on Non-Contributed Plant	7,598,680
plus: Construction-Work-in-Progress	-
less: Net Debt Principal Outstanding	(5,346,554)
Total Existing Cost Basis	\$ 16,412,425

IV.E.2. Future Cost Basis

The future cost basis portion of the connection fee is intended to recover a share of the costs associated with planned future capital projects. As provided by RCW 35.92.025, future facilities planned for construction can be included in the connection fee. Consistent with the legal requirement that the costs be borne by the City, funding by developers or special property assessments are not included in the calculation. There are three main types of capital projects, described below.

- **Plus: Upgrade Projects** - Upgrade projects generally involve upgrading the level of service for all customers to comply with regulatory requirements imposed by state and federal agencies.
- **Plus: Expansion Projects** - This type of project will increase system capacity to serve growth and would generally not be needed in the absence of growth.
- **Less: Repair and Replacement Projects** - These are projects related to the repair or replacement of existing infrastructure and are most often needed because existing facilities have deteriorated due to use by existing customers. The integrated approach removes these projects from the future cost basis on the grounds that: (a) these projects are attributable to existing customers; and (b) new customers will pay for their share of these projects through rates when they connect.

The City's 2019 through 2038 capital plan identifies \$49.0 million in capital project costs. City staff allocated \$12.0 million (24.6 percent) of the total cost to repair and replacement projects, which are deducted from the future cost basis as described above. \$1.0 million in state grants for the WWTP Expansion project were also identified and deducted. **Exhibit 4.13** provides a summary of the future cost basis.

Exhibit 4.13 Future Cost Basis

Future Cost Basis	
Total Capital Improvement Program (2019\$)	\$ 48,998,637
less: Repair & Replacement Projects	(12,044,112)
less: Developer Contributions / Grants	(1,000,000)
Total Future Cost Basis	\$ 35,954,525

IV.E.3. System Capacity

System capacity is separated into two groups: existing and future capacity. Given that new connections can impose different demands on the sewer system, the connection fee calculation uses the concept of Equivalent Residential Units (ERUs) to “standardize” connections. An ERU is a measure of equivalent demand, the amount of demand that a non-single family account places on the system in relation to an average single-family account. The purpose of an ERU is to maintain equitable proportions between single-family and other customers, and between existing and future connections. Based on discussions with City staff, an ERU was determined to be defined as 175 gallons per day of usage.

- **Existing Capacity-** Existing system capacity from Table 6 in the 2016 Comprehensive Sewer Plan was used to determine the number of ERUs the existing system has capacity for. It was determined the existing system capacity in 2019 is 1.43 MGD, meaning the system can currently support 8,171 ERUs.
- **Future Capacity-** The future system capacity was developed based on the growth rate assumed in Table 7 of the 2016 Comprehensive Sewer Plan. It was estimated that the system will add 4,040 ERUs of capacity in the 20-year period.
- **Total System Capacity** – The results of the existing and future calculated capacities are added together to determine the total system capacity of 12,211 ERUs.

IV.E.4. Calculation of the Connection Fee

As described previously, the existing cost basis is divided by the total existing and future ERUs, while the future cost basis is divided by the future ERUs only. The results are added together to determine the maximum allowable connection fee. **Exhibit 4.14** provides a summary of the connection fee calculation for the City’s wastewater system.

Exhibit 4.14 Connection Fee Calculation	
Wastewater Connection Fee (CF)	
Existing System Portion	
Existing System Costs	\$ 16,412,425
Total ERUs	12,211
Existing System CF per ERU	\$ 1,344
Future System Portion	
Future System Costs Allocable to Growth	\$ 35,954,525
Future ERUs	4,040
Future Cost Basis Allocable to Growth	\$ 8,900
Total Connection Fee	\$ 10,244

The resulting maximum allowable connection fee is \$10,244 per ERU. This represents an increase of \$173 from the existing charge of \$10,071. Since this calculated charge is the maximum allowable charge, the City may choose to implement a charge at any level up to the calculated charge. Revenues generated from the charge will vary depending on whether or not the full charge is implemented. Delaying or otherwise limiting general facility charges will generally reduce the amount of revenue available, which could result in delays in completing the capital improvement program and/or additional existing customer rate increases.

IV.F. SUMMARY

The analysis described above concludes the wastewater utility rate study. Annual rate increases of 9.55 percent for the period 2020 through 2022 are recommended to address an increase in operating costs associated with the completion of the Phase III Wastewater Treatment Plant Upgrades and elevated debt service repayment associated with the DOE loan taken to fund these upgrades. Due to cost-of-service shifts, multi-family and commercial customers will see bills increase above the annual system average increase of 9.55 percent and single-family customers will see bill increases lower than this annual system average increase. In order to address intraclass equity, rate design changes are recommended for each class. Consumption for all classes will now be based on a single, uniform charge unique to each class, and single-family customers will now be billed on their previous years' winter average usage. The connection fee was also reviewed, and the calculated maximum charge was determined to be \$10,244.

We recommend that the City revisit the rate study with each budget cycle to review if revenue and expense projections are reasonable when compared to actual experience. Any significant or unexpected changes will require adjustments to the rate strategy proposed.

The detailed technical appendix developed as part of the wastewater rate study can be found at the end of this report.

Section V. STORMWATER

V.A. INTRODUCTION

The City of Ferndale operates a stormwater utility responsible for managing stormwater runoff throughout the City. The City stormwater management system consists of 70 miles of stormwater pipeline, 453 culverts, 23 retention and detention ponds, and 50 miles of open ditches to maintain.

Similar to the water and wastewater utility, a revenue requirement was completed for the stormwater utility and forms the basis for the long-range financial plan and multi-year financial management strategy. The operating forecast was developed for the 2019 through 2028 time period with the focus on the 2020-2022 rate-setting period.

V.B. REVENUE REQUIREMENT

A revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy. The analysis is developed by completing an operating forecast that identifies future annual operating costs and a capital funding plan that defines a strategy for funding the capital improvement needs of the City.

V.B.1. Operating Forecast

The purpose of the operating forecast is to determine whether the existing rates and charges are sufficient to recover the costs the City incurs to operate and maintain the stormwater system. The 2019 budget formed the baseline for this forecast. The operating forecast was developed for the 2019 through 2028 time period. This study focused on establishing stormwater rates for the 2020 – 2022 rate-setting period. The following list highlights some of the key assumptions used in the development of the stormwater utility operating forecast.

V.B.1.a Operating Revenue

- **Retail Rate Revenue** was based on actual detailed customer accounts and usage statistics from the City's billing system. Usage data from 2018 was used to project 2019 revenue.
- **Non-Rate Revenue** consists of late fees, set-up fees, inspection fees, and DOE grants.
- **Customer Growth** was forecast to be 1.0 percent annually from 2019 to 2024, and 0.5 percent annually for all years thereafter.
- **Interest Earnings** were forecasted at 2.0 percent per year for all years of the forecast period (based on recent Washington LGIP earnings).
- **Mitigation Fee Revenue** was forecast to be \$65,000 annually until 2024, at which point revenue will decrease by 7.5 percent per year thereafter. Mitigation fee revenue is forecast to decrease as the City approaches build-out and developable land within the City boundaries becomes limited.

V.B.1.b O&M Expenses

- **General Cost Inflation** was set at 3.0 percent based on the Washington State Economic & Revenue Forecast Council Projections for Seattle CPI

- **Construction Cost Inflation (CCI)** was assumed to be 3.0 percent for all years in the study period based on feedback from the City.
- **Labor Cost Inflation** was set to be 4.0 percent for all years in the study period based on feedback from the City.
- **Benefit Cost Inflation** was set to be 5.0 percent for all years in the study period based on feedback from the City.
- **State B&O Tax** was set to be 1.5 percent on all non-rate revenue based on the prevailing tax rate.
- **City Utility Tax** was set to be 9.0 percent based on the prevailing City tax rate.

V.B.1.c Debt Service

- **Existing Debt** is approximately \$90,000 annually. The City currently has five outstanding loans:
 - » One revenue bond (issued 2014) with payments of nearly \$40,000 annually
 - » Two small equipment loans with payments totaling approximately \$10,000 annually
 - » Two Public Works Trust Fund loans with payments totaling approximately \$40,000 annually
- **New Debt.** A total of \$6.5 million of new debt issuances have been forecast throughout the study period. These issuances have conservatively been assumed to be revenue bonds, with an interest rate of 4.0 percent, an issuance cost of 1.0 percent, term of 20 years, and coverage requirement of 1.25. Annual new debt service is forecasted to be \$550,000 in 2024.

V.B.1.d Rate-funded Capital

Rate-funded capital is a way to ensure system integrity through reinvestment in the system. Ideally, the minimum funding would be an amount equal to or greater than the annual depreciation expense. A formal rate-funded capital policy was not recommended as a part of this study. The feasibility of a rate-funded capital policy should be re-examined during the next comprehensive stormwater rate study.

V.B.2. Capital Funding Plan

The stormwater utility is anticipating \$9.9 million in capital costs from 2019 through 2028 (escalated to year of construction). The projects include various culvert replacements, NPDES compliance projects, and various street projects.

Funding for the capital plan identified comes from a number of different sources:

- **Cash balances (including interest) and rate-funded capital** – Cash balances and rate-funded capital include the beginning capital fund balance available after meeting the capital fund reserve target, any cash flow from the operating fund above what is needed to meet the operating fund reserve target as well as developer and inspection capital contributions. Cash balances are forecast to fund 28.6 percent of the 10-year capital plan.
- **Revenue bond proceeds** – Three revenue bond issuances are forecasted, \$2.6 million in 2020, \$2.3 million in 2022, and \$1.6 million in 2024, for a total issuance of \$6.5 million. Revenue bond proceeds are forecasted to fund 65.4 percent of the 10-year capital plan.
- **Mitigation Fee revenue** – Mitigation fee revenues are forecast based on recent actual mitigation fee revenue. Revenue is forecasted to be just over \$580,000 throughout the study period, funding 6.0 percent of the 10-year capital plan.

Exhibit 5.1 provides a summary of the funding sources for the capital expenditures. A detailed capital plan can be found in the Technical Appendix.

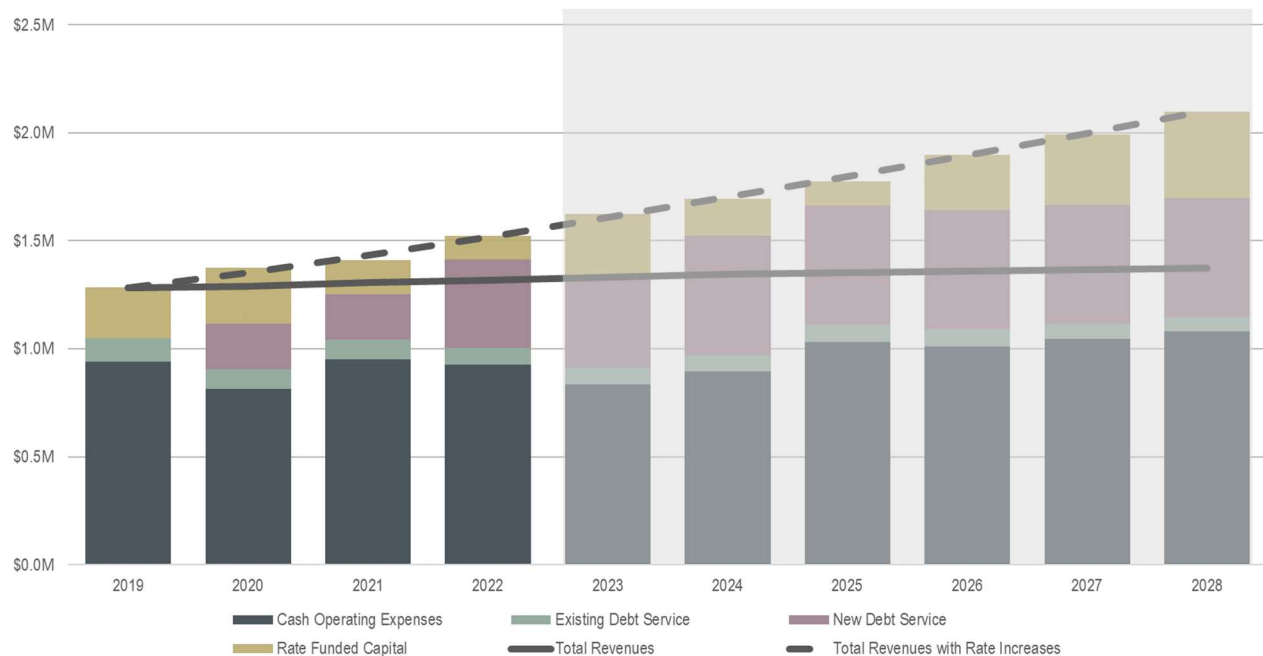
Exhibit 5.1 Stormwater Capital Funding Summary

Funding Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
Total Capital Costs	\$ 440,060	\$ 1,606,500	\$ 2,103,593	\$ 1,294,636	\$ 1,481,275	\$ 1,717,500	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193	\$ 9,892,432
Funding Sources											
Cash Balances & Rate Funded Capital	\$ 375,060	\$ -	\$ 955,093	\$ -	\$ 395,912	\$ 57,375	\$ 242,897	\$ 256,024	\$ 269,106	\$ 282,176	\$ 2,833,644
Revenue Bond Proceeds	-	1,541,500	1,083,500	1,229,636	1,020,364	1,600,000	-	-	-	-	6,475,000
Connection Charge	65,000	65,000	65,000	65,000	65,000	60,125	55,616	51,444	47,586	44,017	583,788
Total	\$ 440,060	\$ 1,606,500	\$ 2,103,593	\$ 1,294,636	\$ 1,481,275	\$ 1,717,500	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193	\$ 9,892,432

V.B.3. Summary of Revenue Requirement

The operating forecast components of O&M expenses, debt service and rate-funded capital come together to form the multi-year revenue requirement. The revenue requirement compares the overall revenue available to the stormwater system to the expenses to evaluate the sufficiency of rates on an annual basis. **Exhibit 5.2** provides a summary of the stormwater system revenue requirement findings.

Exhibit 5.2 Stormwater Utility Revenue Requirement Summary



Summary of stormwater utility revenue requirement:

- In 2019, current rate levels are sufficient to meet existing annual financial obligations.
- During the 2020 – 2022 rate setting period, a revenue deficiency will grow to be over \$160,000 by 2022. This growing deficiency is a result of:
 - » Operating costs increasing an average of approximately 3.0 percent annually; and
 - » New debt service payments totaling \$410,000 annually by 2022 to fund capital projects such as various culvert replacements.
- To meet the total projected financial obligations of the stormwater utility, rate increases are proposed at 5.0 percent per year for the forecast period.

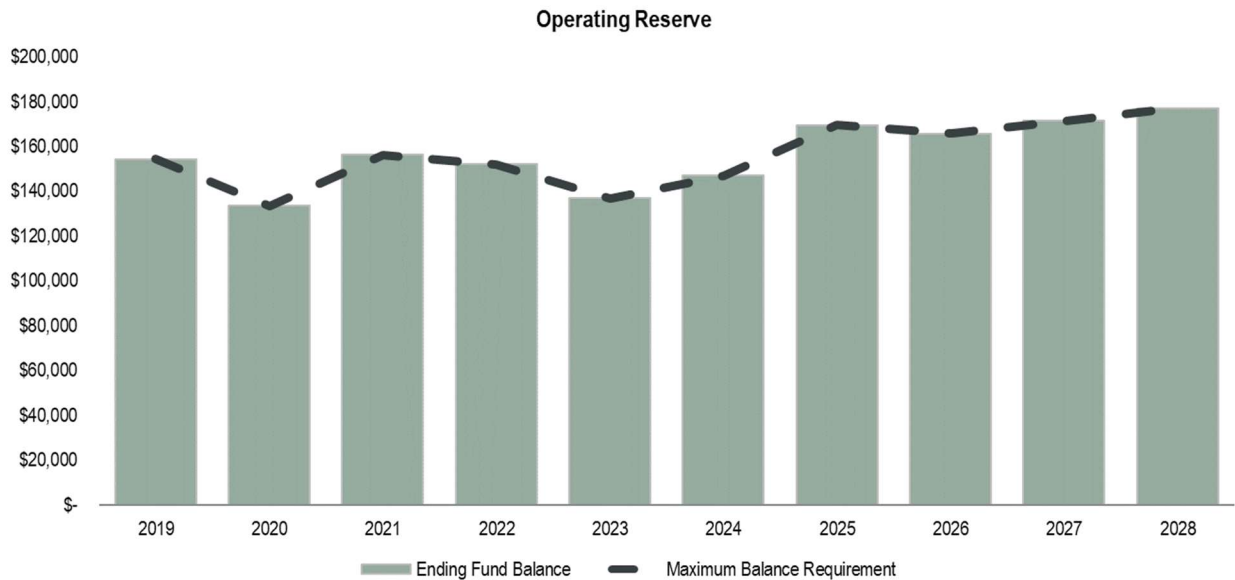
- Stormwater bonded debt service coverage is projected to remain above the minimum requirement of 1.25 throughout the forecast period, ending at 1.75 in 2028.

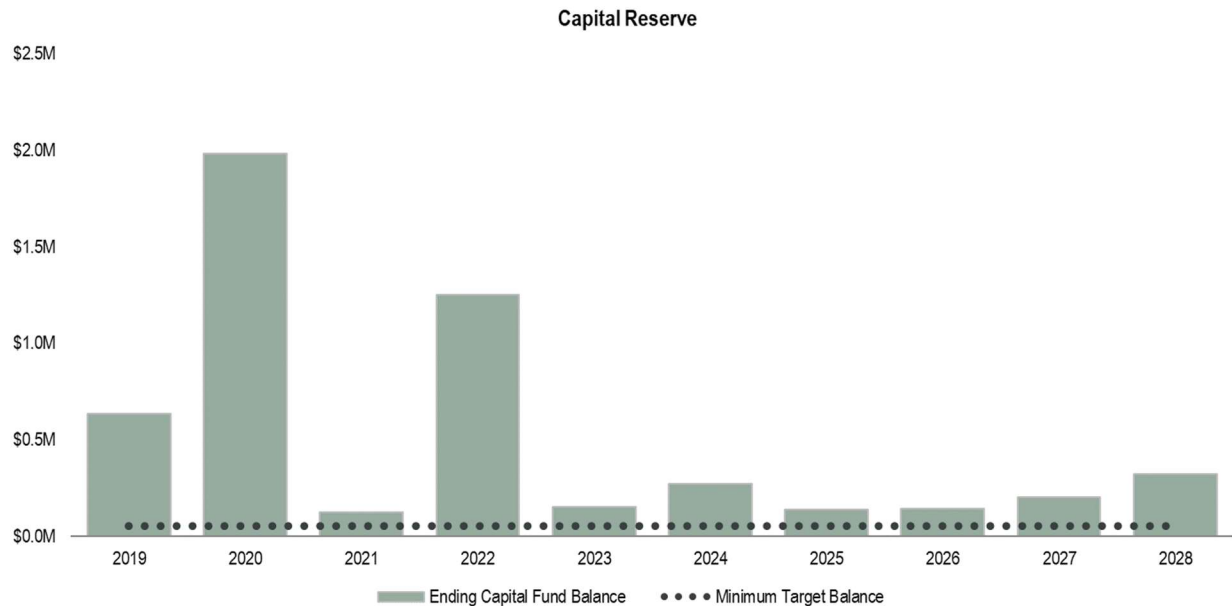
V.B.4. Reserves

Exhibit 5.3 shows a summary of the projected Operating Reserve and Capital Reserve through 2028 based on the rate forecasts presented above. The Operating Reserve has a minimum balance target of 60 days of operating and maintenance (O&M) expenses (\$154,000 to \$177,000). The Capital Reserve has a minimum target of \$56,000 and maximum target of \$113,000, based on the average capital project cost throughout the study period.

Both the Operating Reserve fund balance and Capital Reserve fund balance are maintained at or above the target level in all years. Any cash over and above the reserve targets for both funds is considered available for use by the City.

Exhibit 5.3 Operating and Capital Fund Balances





V.C. MITIGATION FEE

At the time of this writing, FCS GROUP continues to work with City staff to develop an updated stormwater mitigation fee. This update is anticipated to be completed in 2020.

V.D. SUMMARY

The analysis described above concludes the stormwater utility rate study. Unlike the water and wastewater utilities, cost of service and rate structures were not analyzed. Annual rate increases of 5.0 percent in 2020 through 2022 are recommended to address inflation of operating costs and elevated debt service repayment while executing the capital program.

We recommend that the City revisit the rate study with each budget cycle to review if revenue and expense projections are reasonable when compared to actual experience. Any significant or unexpected changes will require adjustments to the rate strategy proposed.

The detailed Technical Appendix developed as part of the stormwater rate study can be found at the end of this report.

Section VI. APPENDIX

VI.A. CITY OF FERNDAL FINANCIAL MANAGEMENT POLICIES



City of Ferndale, Washington

FINANCIAL MANAGEMENT POLICIES

CITY OF FERNDAL, WASHINGTON



Elements:

Element #1	Budget Policies & 6-Year Financial Plan
Element #2	Revenue, Expenditure & Reserve Policies
Element #3	Capital Improvement Plan Policies
Element #4	Debt Management Policies
Element #5	Cash Management & Investment Policies
Element #6	Accounting & Financial Reporting Policy
Element #7	General Utility Policies
Element #8	Credit Card Policy



City of Ferndale
Financial Management Policies
Element #1

BUDGET POLICIES & 6-YEAR FINANCIAL PLAN

BACKGROUND, PURPOSE & CONTEXT

The stewardship of public funds is one of the greatest responsibilities given to the officials and managers of the City of Ferndale. Therefore, the establishment and maintenance of fiscal policies enables the City to protect public interests and maintain public trust. This document incorporates policies used by the City to meet its obligations and operate in a financially prudent manner. These policies have been established to provide general fiscal guidelines and are intended to provide direction in the management of the City's financial affairs.

OVERALL FINANCIAL PLANNING

The City shall develop and maintain a 6-year financial forecast that estimates resources and expenditure behavior for the five (5) years beyond the current budget period. This forecast will provide the City's decision makers with an indication of the long-term fiscal impact of current policy and budget decisions. This planning tool will recognize the effects of economic cycles on the demand for services. To this end, the forecast should differentiate between revenue associated with one-time activities and revenue derived as a result of base economic growth.

Due to the importance of the 6-year financial forecast and its interplay with the budgeting process, it shall be the policy of the City of Ferndale to update the 6-year financial forecast concurrent with the City mid-year financial report so the information is available for the annual budget process that begins in the fall of each year.

GENERAL BUDGET POLICIES

The budget is the central financial planning document which embodies all operating revenue and expenditure decisions. It establishes the level of services to be provided by each department and embodies the City Council's collective prioritization of service delivery options. To this end, the City has established the following general budget guidelines:

Operating Deficits – Current revenues will be sufficient to support current expenditures. Revenue estimates will be realistic and debt financing will not be used to support current operating expenses.

Interfund Loans & Transfers – Any interfund transfers and/or loans will be completed only after specific Council approval or inclusion in the approved annual budget.

Resources Greater than Budgeted Expenditures – Resources (fund balances) greater than budgeted expenditures in any fund shall be considered "one-time" resources and shall not be used to fund ongoing service delivery programs.



Budget Adoption Level – Budget adoption by the City Council shall be at the fund level. Any changes in appropriations at the fund level shall require City Council approval.

Full Time Equivalent (FTE) Budgeting – As a tool for Council consideration, all adopted budgets of the City will list the actual and proposed FTE allocation on a department/fund basis.

Public Safety Services – Public safety is a top priority, and as such, unmet needs in this area should have a priority over other service areas.

Current Service Levels – To aid in the prudent management of City affairs, City service levels will be established, monitored, and reviewed so a determination of required resources (both personnel and non-personnel) can be made for the ensuing budget year.

New Programs that are Primarily Funded by Additional Fees or Grants – New programs that are funded through a specific dedicated and/or restricted revenue source (i.e., non-tax revenue), will receive consideration.

Expenditures that Delay Future Cost Increases – When practical, resources should be allocated for selective expenditures whose purpose is to avoid even larger costs in the future.

Expenditures that Forestall Adding Permanent Staff - Recognizing that personnel-related expenditures represent the largest portion of the City's budget, methods to increase efficiency should receive priority funding if it can forestall the addition of permanent staff.

Future Fiscal Effect of Programs or Personnel – Whenever programs or personnel are proposed, the current and future fiscal impact (as reflected in the 6-year financial forecast) shall be determined and reported to the City Council to aid in their deliberations.

Commitments that Can Reasonably be Maintained Over the Long Term – Funding for new programs and services should be limited to the extent that they can be funded over the near-to-long-term given the current revenue stream.

Overhead and Full Cost Allocation – Department and Fund budgets shall be prepared in a manner that reflects the full cost of providing services.

Maintenance of Quality Service Programs – If expenditure reductions are necessary, elimination of selective services is preferable to across-the-board cuts.

Distinguished Budget Presentation – The City will seek to comply with the suggested criteria of the Government Finance Officers Association in producing a budget document that meets the Distinguished Budget Presentation program.



FORMULATION & APPROVAL OF BUDGETS

State law designates the timeline for budget formulation and adoption. The City of Ferndale will adhere to these guidelines while striving to complete the budget adoption process prior to the December 31 deadline. It shall also be the policy of the City to target adoption of the ensuing year budget by the end of November annually.

BUDGET LINE-ITEM TRANSFERS

The transfer of line-item budget authority shall be done administratively and approved by the Mayor when the following circumstances exist:

- The transfer does not alter the Department's (within Current Expense) or the Fund's total expenditures
- The transfer does not allow for the purchase of additional Capital Expenditures or Personnel
- The transfer equals less than 25% of the Department/Fund expenditure budget
- The transfer does not authorize a project, expenditure, or item not originally included within the approved budget.

Transfers between Departments and/or between Funds are not permitted. For those transfers that fit into the above criteria, City staff will report any such transfers to the City Council during the quarterly financial report. In addition, any transfers that exceed the administrative threshold listed above will only be considered during the City's quarterly budget amendment public hearing process or sooner if circumstances dictate.

BUDGET AMENDMENTS

Amending the City budget occurs whenever the requested changes will cause the existing appropriation levels for the Fund to change. This situation generally occurs when the City Council authorizes additional appropriation through out the year. Budget amendments are completed through an ordinance that amends the original budget and states the sources of funding for the incremental appropriations.

It is the policy of the City of Ferndale to bring to the attention of the City Council, as they become apparent, any and all expenditures that are deemed necessary but not included in the original budget. In those instances, City staff will inform the Council if the additional expenditures can be accomplished within the existing budgetary authority of the fund or if a budget amendment is necessary. Nothing shall preclude City Administration from bringing to the attention of the Council any emergency expenditure that requires the expenditure of funds not included in the budget.

Furthermore, it is the intent of the City to include all additionally authorized expenditures in one of possibly four quarterly scheduled budget amendments. City staff will review the need for budget amendments with the City Council and prepare budget amendments to the extent that they become necessary.



City of Ferndale
Financial Management Policies
Element #2

REVENUE, EXPENDITURE & RESERVE POLICIES

REVENUE POLICY

1. All revenues will be conservatively estimated as a basis for preparation of the annual budget.
2. Current revenues will be sufficient to support current expenditures.
3. All fees for service shall be reviewed on an annual basis.
4. Revenues of a limited or indefinite term will be used for capital projects or one-time operating expenditures to ensure that no ongoing service program is lost when such revenues are reduced or discontinued.
5. Grant applications to fund new service programs will be reviewed with due consideration being given to whether locally generated revenues will be required to support these programs when outside funding is no longer available.
6. Whenever possible, charges for services shall be set at an amount that reflects the actual cost of service delivery.

EXPENDITURE POLICY

1. Expenditures approved by the City Council define the City's spending limits for the upcoming fiscal year. The City will maintain an operating philosophy of cost control and responsible financial management.
2. Budgeted annual expenditures will be maintained within the limitations of annual revenues.
3. All interfund borrowings shall only be completed following approval by the City Council.
4. Short-term borrowings (less than 5 years and less than \$20,000) will not be done without full financial analysis and the Council shall be informed of all such borrowings. Such borrowings may include commercial lines of credit, equipment loans, and capital leases.



5. All long-term borrowings (greater than 5 years and \$20,000) shall include full life-cycle financial analysis and prior approval by the City Council.
6. All authorized positions will be budgeted for a full year and with the maximum allowable benefit rate unless specifically designated by the City Council as a partial-year position.

RESERVE & CONTINGENCY POLICY

Adequate reserve levels are a necessary component of the City's overall financial management strategy and a key factor in external agencies' measurement of the City's financial strength. Prudent use of reserve funds enable the City to defray future costs, take advantage of matching funds, and other beneficial (but limited) opportunities. Reserve funds provide the city with the ability to exercise flexible financial planning in developing future capital projects. Reserve funds are necessary to enable the City to deal with unforeseen emergencies.

General Fund Contingency Reserve – The City will establish a General Fund Contingency Reserve to meet any unforeseen municipal expense. This Fund will be considered a “rainy day” fund for the City. Annual contributions to this fund will be budgeted from Current Expense Fund resources. All expenditures from this fund shall have prior approval of the City Council. The target reserve fund balance shall be 10% of the Current Expense Fund's annual expenditure budget and annual contributions shall equal at least 5% of the reserve fund's target balance.

Facilities Capital Reserve – The City will establish a Facilities Capital Reserve Fund to address unforeseen City facilities capital expenditures. Annual contributions to the Facilities Capital Reserve Fund will be budgeted from Real Estate Excise Tax resources and/or Current Expense Fund resources. All expenditures from this fund shall have prior approval of the City Council. The target reserve fund balance shall be \$300,000 and annual contributions shall equal at least 5% of the reserve fund's target balance.

Unreserved Fund Balances – It is the City's policy to maintain an unreserved fund balance within all operating funds in a reasonable amount for emergency or unforeseen needs. The target ending fund balance will be at least 10% of the budgeted revenues for the Current Expense Fund and at least 5% of the budgeted revenues for the other City operating funds and annual contributions shall equal at least 10% of the ending fund balance target amount.



City of Ferndale

Financial Management Policies

Element #3

CAPITAL IMPROVEMENT PLAN (CIP) POLICIES

CAPITAL IMPROVEMENT PLAN POLICIES

Ferndale's city government is accountable for a considerable investment in buildings, parks, roads, sewers, equipment, and other capital investments. The preservation, maintenance, and future improvement of these facilities are a primary responsibility of the City. Planning and implementing sound capital improvement policies and programs today will help the City avoid emergencies and major costs in the future. A number of important policy considerations are the basis for the Capital Improvement Plan (CIP).

1. The City will establish and implement a comprehensive multi-year CIP.
2. For each project on the CIP, both the anticipated costs (one-time or multi-year) and the anticipated revenue sources shall be listed.
3. The CIP will be prepared and updated annually.
4. Financial analysis of funding sources will be conducted for all proposed capital improvement projects to determine the adequacy and potentiality of revenues.
5. The CIP will be consistent with the Capital Facilities Element of the Comprehensive Plan.

Relationship of Long-Range Plans to the CIP – Virtually all of the projects included in the CIP are based upon formal long-range plans that have been adopted by the City Council. This ensures that the City's CIP, which is the embodiment of the recommendations of these individual planning studies, is responsive to the officially stated direction of the City Council. Examples of these long-range plans include; the City's 6-Year Street Plan, Water Comprehensive Plan, and Sewer Comprehensive Plan.

CIP Coordinating Team – The CIP Coordinating Team is a cross-departmental team which participates in the review and recommendation of the CIP program to the City Council. The Team will review proposed capital projects in regards to accurate costing (design, capital, and operating) congruence with City objectives, and prioritize projects by a set of deterministic criteria. The Public Works Director will serve as the lead for the Team.



Establishing CIP Priorities – The City uses the following basic CIP project prioritization and selection process:

1. CIP priorities are established by staff in conjunction with City Council priorities and input from citizens, and associated City boards and commissions (if applicable).
2. Designated personnel within City departments recommend project expenditure plans to the CIP Coordinating Team.
3. The Finance Department determines revenue projections available in consultation with various revenue-generating departments
4. The CIP Coordinating Team evaluates the various CIP projects and selects those with the highest priority.
5. A Preliminary CIP is developed and is recommended to the City Council.
6. The City Council reviews the Preliminary CIP, holds a public hearing(s), considers possible alterations, and then officially adopts the CIP.
7. Within available funding, the highest priority CIP projects are then selected and included in the annual budget.

Types of Projects Included in the CIP

The CIP will display, to the extent possible, all major capital improvement projects in which the City is involved. It is difficult to define precisely what characteristics a project would have before it is included or excluded in the CIP. However the following criteria will be used to guide the CIP Coordinating Team in determining projects for City Council review and approval:

1. A CIP project is generally defined to be any project that possesses ALL of the following characteristics:
 - A. The project or sum of components exceeds an estimated cost of \$50,000; and
 - B. Involves totally new physical construction, reconstruction designed to gradually and systematically replace an existing system on a piecemeal basis, replacement of a major component of an existing facility, or acquisition of land or structures; and
 - C. Involves City funding in whole or in part, or involves no City funds but is the City's responsibility for implementation, such as 100% grant-funded projects or 100% LID funded projects; and



- D. Involves the skills and construction needs beyond those needed for a general repair and/or maintenance project.

Timing of CIP Preparation

The CIP shall be monitored on an on-going basis and shall be revised annually in conjunction with the annual budget of the City. The annual process of CIP development shall begin in May of each year when work on the City's 6-year Street Plan is begun. The annual CIP shall be included in the preliminary and final budget document of the City.

Predesign & Cost Estimations

For some projects, it is difficult to develop accurate cost estimates when no preliminary engineering or community contact has been performed. To address this problem, some CIP projects are initially proposed and funded for only preliminary engineering and planning work whose completion will refine the anticipated project construction costs

Project Timing, Cost and Scope

Every effort will be made to accurately estimate all project start dates, completion dates, cost and scope. The predictability of project timing may be important to specific private developers, such as the provision for street improvements or the extension of water and/or sewer lines, without which development could not occur. As such, once a project has been included in the CIP, project scheduling is a priority.

CIP Maintenance & Operating Costs

CIP projects shall have a funding plan for maintenance and operating costs identified in the project description. These costs will be included in the City's long-range financial plan.

Preserve Existing Capital Infrastructure Before Building New Facilities

It is the City's policy to ensure that adequate resources are allocated to preserve the City's existing infrastructure before targeting resources toward building new facilities that also have maintenance obligations. This policy addresses the need to protect the City's investment in capital facilities and to avoid embarking on a facility enhancement program which, together with the existing facilities, we cannot afford to adequately maintain.

Balanced CIP Plan

The CIP is a balanced six-year plan. This means that for the entire six-year period, revenues will be equal to project expenditures and all sources of revenues to fund the projects will be specifically identified.



It is possible that, in specific years, expenditures will be more than revenues and that interim financing will be proposed to fund the shortfall. Over the life of the six-year plan however, all planned interim financing will be repaid and all plan expenditures, including interest costs, will be provided for with identified revenues. Any project funding plan, in which interim financing and/or debt is NOT retired within the current six-year plan, must have specific City Council approval to move forward.

Use of Debt in the CIP

The CIP is viewed as a long-term program that will continually address capital requirements far into the future. As such, the use of long-term debt should be minimized, allowing the City to put money into actual projects rather than into interest payments to financial institutions. There may be exceptions to this policy for extraordinary circumstances where debt must be incurred to achieve major City goals that otherwise could not be achieved, or would have to wait an unacceptably long time. Issuance of long-term debt must receive City Council authorization. Any debt envisioned to fund elements of the CIP shall include a description of the dedicated funding for serving debt payments.

Development of “Mini CIP” list

Realizing that a complete listing of all anticipated capital improvement projects serves the needs of the City, it is the policy of the City to maintain a “mini CIP” consisting of projects that, due to their dollar amount (less than \$50,000), are not included on the annual CIP. This mini CIP list will include those project that otherwise would be included on the CIP if not for there relatively low dollar cost. This list will be for management use and will not include anticipated funding sources or detailed timelines.



City of Ferndale
Financial Management Policies
Element #4

DEBT MANAGEMENT POLICY

The amount of debt issued by the City is an important factor in measuring its financial performance and condition. Proper use and management of borrowing can yield significant advantages. From a policy perspective, the City of Ferndale uses debt in two ways: 1) As a mechanism to equalize the cost of needed improvements between present and future citizens; and 2) As a mechanism to reduce the annual costs of substantial public improvements.

The basic objectives of the City's debt management policies are to:

1. Achieve the lowest possible cost of borrowing.
2. Ensure access to capital markets to adequately provide the long-term financial needs of the City.
3. Be received by the markets as a strong and sound credit which has fully demonstrated its commitment to meet all obligations in a timely fashion.
4. Monitor and control capital spending in such a way so that capital market entry can be planned.
5. Maintain a level and structure of outstanding indebtedness that does not lead to erratic and excessive debt service requirements, thereby avoiding unnecessary strain on the operating budgets.
6. To smooth the use of debt so that debt service payments will be predictable and manageable part of the operating budget.
7. To plan for entry into the capital markets to coincide with the long-term financial needs of the City as presented in the Capital Improvement Plan.

To carry out these objectives, the following debt management policies are adopted:

1. City Council approval is required prior to the issuance of debt.
2. The City will use the services of certified and credible legal counsel and underwriting firms in the preparation of all long-term debt representations.



3. The City will not use long-term debt to support current operations.
4. Long-term borrowing will only be used for capital improvements that cannot be financed from current revenues.
5. Short-term borrowing will only be used to meet the immediate financing needs of a project for which long-term financing has been secured but not yet received.
6. The repayment term for long-term shall be for a period not to exceed a conservative estimate of the asset's useful life.
7. Noncapital furnishings, supplies, and personnel will not be financed from long-term debt proceeds.
8. When restructuring its current outstanding debt, the City will use refunding bonds or other instruments where appropriate.
9. To assure the greatest degree of equity and specific benefit, assessment debt will be issued in place of general obligation debt where feasible.
10. Under most circumstances, the maturity of assessment debt shall not exceed 15 years and the maturity of general obligation debt shall not exceed 20 years.
11. To be considered for long-term debt financing, the project shall be included on the City's Capital Improvement Plan.



City of Ferndale

Financial Management Policies

Element #5

CASH MANAGEMENT & INVESTMENT POLICY

Careful financial control of the City's daily operations is an important part of Ferndale's overall fiscal management program. Achieving adequate cash management and investment control requires sound financial planning to ensure that sufficient revenues are available to meet current expenditures of any one operating period. Once steps are taken to ensure that the City maintains a protected cash position in its daily operations, it is to the municipality's advantage to prudently invest idle funds until such time as they are required to make expenditures. To this end, the following policies are adopted:

1. The city's idle cash will be invested on a continuous basis.
2. The Finance Department will develop, maintain, and consistently seek to improve cash management and the timely and accurate accounting of all City funds. All cash received by City departments will be deposited within 24 hours of receipt.
3. The city will invest all funds based upon the following order of priority:
 - A. Legality
 - B. Safety
 - C. Liquidity and Yield
4. Investments shall not be made for the purposes of speculation.
5. The City is prohibited from investing in derivative financial instruments.
6. An analysis of the City's cash position will be prepared at regular intervals through the year.
7. Sufficient cash shall be maintained to provide adequate funds for current operating expenditures.
8. The city may invest in any of the securities identified as eligible investments as defined by RCW 35A.40.050. In general these include: Certificates of Deposit, United States Securities, Bankers' Acceptances, Repurchase Agreements and Certificates, and Notes and Bonds of the State of Washington.



INVESTMENT POLICY

It is the policy of the City of Ferndale to invest public funds in a manner that will provide the highest investment return with maximum security while meeting the daily cash flow demands and conforming to all Washington statutes governing the investment of public funds.

Scope:

This investment policy applies to all financial assets of the City of Ferndale. These funds are accounted for in the City's annual report and include:

1. General Fund
2. Special Revenue Funds
3. Capital Project Funds
4. Enterprise Funds
5. Trust and Agency Funds
6. Any new fund created by ordinance of the City Council, unless specifically exempted.

Strategy and Objectives:

The primary investment *strategy* will be to invest excess idle cash within the constraints of this policy in order to increase interest earnings. This will be done in a manner that supports the City's primary purpose of providing services to the public.

Investments will be made with judgment and care to the degree which persons of prudence, discretion, and intelligence would exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived.

The standard of prudence to be used by the investment officer will be the "prudent person" and shall be applied in the context of managing an overall portfolio. The investment officer acting in accordance with this policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely manner and appropriate action is taken to control adverse developments.

The primary *objectives*, in priority order, of the City's investment activities shall be:

Safety:

Safety of principal is the foremost objective of the City. Investments of the City of Ferndale shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The primary objective of safety will be measured in terms of cash, as opposed to accounting terms, where different, and in terms of the portfolio as a whole, as opposed to any single transaction. This means, for example, that a single transaction that generated an accounting loss but actually increased the amount of cash received in the portfolio would be considered to have increased capital, and not decreased it.



Liquidity:

The City's investment portfolio will remain sufficiently liquid to enable the City to meet all operating and debt service requirements that might be reasonably anticipated.

Return on Investment:

The City's investment portfolio will be designed with the objective of attaining a market rate of return throughout the budgetary and economic cycles, taking into account the City's investment risk constraints and the cash flow characteristics of the portfolio. Investment of tax exempt borrowing proceeds and of any debt service funds will comply with the "arbitrage" restrictions of section 148 of the Internal Revenue Service Code of 1986.

Delegation of Authority:

Management responsibility for the investment program is hereby delegated to the Clerk-Treasurer. The Clerk-Treasurer will be responsible for all transactions undertaken. A system of controls and standard operating procedures is in place to regulate activities of subordinates delegated investment related tasks during the absence of the Clerk-Treasurer.

Ethics and Conflicts of Interest:

Officers and employees involved in the investment process shall refrain from personal activity that would conflict with proper execution of the investment program, or which could impair their ability to make impartial investment decisions. Employees and investment officials shall disclose to the Council any material financial interests in financial institutions that conduct business with the City. They shall further disclose any large personal financial investment positions that could be related to the performance of the City's portfolio. Employees and officers shall subordinate their personal investment transactions to those of the City of Ferndale, particularly with regard to the time of purchases and sales.

Authorized Financial Dealers and Institutions:

The Clerk-Treasurer is authorized to conduct investment transactions with several competing, reputable investment securities broker/dealers and financial institutions. Security dealers and financial institutions may include "primary" or regional dealers that qualify under Securities and Exchange Commission Rule 15C3-1 and investment departments of local banks on the list of Qualified Public Depositories approved by the Washington Public Deposit Protection Commission as authorized to provide investment services. R.C.W. 39.58.080.

Authorized Investments:

- ☐ Certificates, notes, bonds or other obligations of the United States. RCW 43.84.080; 36.29.020.
- ☐ Obligations of U.S. agencies or of any corporation wholly owned by the government of the United States. RCW 43.84.080; 36.20.020.



City of Ferndale, Washington

- ☐ Federal Home Loan Bank notes and bonds. RCW 43.84.080; 36.29.020.
- ☐ Federal Land Bank Bonds. RCW 43.84.080; 36.29.020.
- ☐ Federal National Mortgage Association notes, debentures and guaranteed certificates of participation. RCW 43.84.080; 36.29.020.
- ☐ Notes or bonds secured by mortgage that the Federal Housing Administrator has insured or made a commitment to insure in obligations of national mortgage associations. RCW 39.60.010.
- ☐ Debentures issued by the Federal Housing Administrator. RCW 39.60.010.
- ☐ Bonds of the Homeowner's Loan Corporation. RCW 39.60.010.
- ☐ Obligations of any other government-sponsored corporation whose obligations are or may become eligible as collateral for advances to member banks as determined by the board of governors of the Federal Reserve System. RCW 43.84.080; 36.29.020.
- ☐ Bonds of the State of Washington and any local government in the state of Washington, which bonds have at the time of investment one of the three highest credit ratings of a nationally recognized rating agency. RCW 39.59.010.
- ☐ General obligation bonds of a state other than the State of Washington and general obligation bonds of a local government other than the State of Washington, which bonds have at the time of investment one of the three highest ratings of a nationally recognized rating agency. RCW 39.59.010.
- ☐ Bonds or other obligations issued by a housing authority pursuant to the housing authorities' law of this state or issued by any public housing authority or agency in the United States. RCW 39.59.220.
- ☐ Bonds or warrants of the State of Washington. RCW 35.39.030.
- ☐ Washington State Housing Finance Commission bonds. RCW 43.180.190.
- ☐ Port district bonds and notes issued under the authority of Chapter 54.24 RCW.
- ☐ Bonds or other obligations issued by a metropolitan corporation pursuant to Chapter 35.58 RCW. RCW 35.58.510.
- ☐ State, county, municipal, or school district bonds, or warrants of taxing districts of the state. Such bonds and warrants shall be only those found within the limit of indebtedness prescribed by law for the taxing jurisdiction issuing them and to be general obligations. RCW 43.84.080.



City of Ferndale, Washington

- ☐ General obligation or utility revenue bonds or warrants of any city or town in the state. RCW 35.39.030.
- ☐ The City's own bonds or warrants of a local improvement district that are within the protection of the local improvement guaranty fund law. RCW 35.45.150.
- ☐ Interim financing warrants of a local improvement district that is within the protection of the local improvement guaranty fund law for the benefit of the General Fund. RCW 35.39.034.
- ☐ Subject to the arbitrage provisions of Section 148 of the federal Internal Revenue Code or similar provision concerning the investment of state and local money and funds, the following mutual funds and money market funds:
 - 1. Shares of mutual funds with portfolios consisting of only United States government or United States government guaranteed bonds issued by federal agencies with average maturities of less than 4 years, or bonds described in RCW 39.59.020 (1) or (2), except that bonds otherwise described in RCW 39.59.020 (1) or (2) shall have one of the four highest ratings of a nationally recognized rating agency.
 - 2. Shares of money market funds with portfolios consisting of only bonds of states and local governments or other issuers authorized by law for investment by local governments, which bonds have at the time of investment one of the two highest credit ratings of a nationally recognized rating agency.
 - 3. Shares of money market funds with portfolios consisting of securities otherwise authorized by law for investment by local governments. RCW 39.39.030.
- ☐ Bankers' acceptances purchased on the secondary market. RCW 43.84.080; 36.29.020.
- ☐ Any investment authorized by law for the treasurer of the State of Washington or any local government of the State of Washington but, except as provided in Chapter 39.58 RCW, such investments shall not include certificates of deposit (CD) of banks or bank branches not located in the State of Washington. RCW 39.59.020.

Safekeeping and Custody:

All security transactions, including collateral for repurchase agreements, entered into by the City of Ferndale shall be conducted on a delivery-vs.-payment (DVP) basis. Securities will be held by a third party custodian designated by the Clerk-Treasurer.



Repurchase agreements may be entered into on a safekeeping basis only if a master agreement with the bank or trust department providing the safekeeping is first obtained and it very clearly establishes that the bank\trust is acting as third party agent for the Clerk-Treasurer, not the broker\dealer arranging the repurchase agreements.

Such third party safekeeping arrangements will be documented with a signed agreement between the Clerk-Treasurer and the bank\trust involved assuring that the Clerk-Treasurer has absolute control over the securities once they are delivered to safekeeping and that the dealer does not have access to them under any circumstances.

Diversification:

It is the policy of the City to diversify the investment portfolio to the extent necessary to maximize the return on investment while minimizing the risk of loss and to retain sufficient liquidity to meet cash flow obligations. To achieve this balance, the maximum percentage of the investment portfolio invested in a specific type of instrument and at a specific type of institution is set forth below. Nothing herein should be construed as a mandate to place investments with any specified number of firms or financial institutions or to distribute investments among firms or financial institutions based on a ratio of total funds to be invested. Safety, liquidity and return should be the determining factors, along with ease of working with a given broker\dealer or financial institution, in placement of investment funds.

Diversification by instrumentality:

1. U.S. Treasury Obligations and U.S. Agency Securities and Instrumentalities of Government Sponsored Corporations: 50%
2. Municipal Bonds: 25%
3. Bankers' Acceptances (BA): 10%
4. Certificates of Deposit (CD)
 - A. Commercial Banks: 50%
 - C. Savings and Loan Associations: 10%
5. Pooled Investments LGIP: 100%
6. Money Market Funds: 100%
7. Repurchase Agreements: 10%

Diversification by institution type:

1. Bankers' Acceptances: no more than 10% at any given institution.
2. Certificates of Deposit: no more than \$100,000 at any institution.
3. Local Government Investment Pool: Up to 100% of total portfolio.
4. Money Market Funds: Up to 100% of portfolio at one institution.
5. Municipal Bonds: no more than 10% of portfolio in any one issue or in multiple issues of a single municipality.
6. U.S. Government and government agencies: no more than 50% of portfolio.



Maturities:

To the extent possible, the City will attempt to match its investments with anticipated cash flow requirements. Unless matched to a specific cash flow, the City will not directly invest in securities maturing more than four years from the date of purchase.

Internal Control:

The Clerk-Treasurer shall establish a process of independent review by an external auditor. This review will provide internal control by assuring that policies and procedures are being followed.

Such review may also result in recommendations to change operating procedures to improve internal control.

Performance Standards:

The City of Ferndale investment strategy shall lean toward conservative and passive investments. The consideration of investment yields will use, as a benchmark, the average rate of return of the Local Government Investment Pool of the State of Washington. This performance standard shall take into account the City's investment risk constraints and cash flow needs. The intent shall be to have 100% of the City's cash available for investment invested at all times.

Reporting:

The Clerk-Treasurer will provide the Mayor and/or City Administrator and Council with a quarterly report of investment holdings and activity.

Monitoring:

The Clerk-Treasurer will routinely monitor the contents of the portfolio, the available markets, and the relative values of competing instruments. Securities will be bought and sold to obtain market yield through both transactions gains and interest earnings when the option is available.

Internal Purchases and Sales:

The Clerk-Treasurer may buy and sell investments between funds to meet monthly cash flow requirements. Earned interest on investments other than "Treasurer's cash" shall be credited to the fund holding ownership of the investment at the time the interest is earned.



City of Ferndale

Financial Management Policies

Element #6

ACCOUNTING & FINANCIAL REPORTING POLICY

The City of Ferndale recognizes the need for ensuring accountability for the collection, management, and expenditure of all public funds under its jurisdiction. To this end, a basic City accounting system and policy has evolved with a number of critical objectives including:

- Accountability for money and property under control of the city
- Compliance with governing laws, ordinances, and procedures
- Providing timely and accurate information on the financial status of the City
- Maintaining financial systems to monitor expenditures, revenues, and performance of all municipal programs
- Reporting and providing information to City officials, City Council, and taxpayers.

To further these objectives, the following policies are adopted:

1. The City of Ferndale will establish and maintain a high standard of accounting practices. Accounting and budgetary systems will, at all times, conform to Generally Accepted Accounting Principles (GAAP), the State of Washington's Budgeting Accounting Reporting System (BARS), and local regulations.
2. A comprehensive accounting system will be maintained to provide all financial information necessary to effectively operate the City.
3. The City will meet the financial reporting standards set by the Governmental Accounting Standards Board (GASB).
4. Full disclosure will be provided in all City financial reports and bond representations.
5. An annual audit will be performed by the State Auditor's Office to include the issuance of a financial opinion.



City of Ferndale

Financial Management Policies

Element #7

GENERAL UTILITY POLICIES

The City will establish enterprise funds (i.e. – utility funds) when the following conditions exist:

1. The intent of the City is that all costs of providing service should be financed primarily through user charges, and
2. The fund purpose will be to account for City-operated utility services.

Fiscal Stewardship – It is incumbent on utility fund management that complete and accurate fiscal management of utility operations be provided to allow management to make prudent fiscal decisions.

Self-sufficient Funding – Each utility shall remain a self-supporting enterprise fund. The revenues of each utility fund comes from customer charges based upon established rates. State law requires that utility funds be only used for utility purposes. Since each utility has somewhat differing service areas, it is essential for rate payer equity that they are kept financially separate and accountable.

Comprehensive Planning Policies – Comprehensive Plans for Water and Sewer Utilities shall be completed or updated every six (6) years, using a 20-year planning horizon or greater and considering life-cycle costs to identify funding needs. Comprehensive Storm, Flood, and Surface Water Plans will be completed and updated as required using similar criteria for planning infrastructure needs.

Capital Investment Program Policies – The Utilities CIP will provide sufficient funds from a variety of sources for implementation of both short-term and long-term capital projects identified in each Comprehensive Plan and the City-wide CIP as approved by the City Council.

Funding Levels – Funding for capital investments shall be sustained at a level sufficient to meet the projected 20 year capital improvement needs as outlined in the Comprehensive Plan(s). The primary on-going source for future capital improvement needs shall be from Capital Connection Fees.



Funding from rate revenues shall fund current operations and to the extent possible, debt service. Rate revenue shall be set at a level that can sustain operational costs as determined by the 6-year financial forecast model.

Use of Debt – The utilities should fund future capital investments from amassed Capital Connection Fees to the extent possible. Customers will pay less over the long-term if debt is avoided. However, the use of ultra low interest debt such as the Public Works Trust Fund loans, by offering repayment terms below market rates, below investment earnings, or even inflation, should be viewed as a form of extreme low interest financing. When available, such sources should be preferred over other forms of debt funding and may be used instead of using existing capital reserves. In those instances where capital reserves would generate more in interest earnings than the alternative cost of the loan, the City's customers would be assumed to benefit from incurring such debt.

Operating Reserves – For all utility funds, an operating reserve shall be established – See the UTILITY OPERATING RESERVE POLICIES section for more information. This operating reserve shall be carried as beginning/ending fund balance within each utility fund. Sources of operating reserves shall primarily be from rate revenue in excess of current operating needs.

Capital Improvement Reserves – For all utility funds, a capital improvement reserve shall be established – See the UTILITY CAPITAL RESERVE POLICIES section for more information. Revenues of the Utility Reserve Fund may include one-time transfers from the utility operating funds, unplanned revenues from other sources, Capital Connection Fees, and interest earned on existing monies.

Monies from the Utility Reserve Fund shall be used for improvements identified in the Utility CIP. Because these funds are invested, they may be loaned for other purposes provided repayment is made at appropriate interest rates.

The Utility Reserve Fund will accumulate large levels of funds in advance of major expenditures. These funds will provide rate stability over the long-term when used for capital improvement purposes and should not be used for rate relief since this could lead to the need for the use of excessive debt to fund the actual capital improvement needs when they occur.

UTILITY SYSTEM EXPANSION AND CONNECTION POLICIES

Responsibilities – Those seeking or who are required to have utility service are responsible for extending and/or upgrading the existing utility system(s) prior to connecting. The extensions or upgrades must be constructed to City standards and requirements. This can be accomplished through the use of a Developer Extension Agreement together, when appropriate, with a Latecomer Agreement.



When the cost to extend and/or upgrade the system to accommodate development or redevelopment is beyond the means of a single developer and when there is benefit to areas in addition to those to be served by the extension/upgrade, the City may employ alternative means of financing the improvement including the formation of Local Improvement Districts and/or through the use of capital surcharge fees.

Cost Recovery – All utilities shall establish fees and charges to recover utility costs related to development services and capital facilities that provide services to a property developer. The intent of this policy is to fully recover these costs, so as to reimburse the general rate payer. The utility may enter into Latecomer Agreements with developers for recovery of their costs for capital improvements, which benefit other properties in accordance with State law. The utility shall add an administrative charge for this service.

Use of Revenues – All capital-related revenues such as Capital Connection Fees, Latecomer Agreement administrative charges, and interest earned on these funds, shall be deposited into the Utility Capital Reserve Fund

UTILITY RATE POLICIES

Rate Levels – Rates shall be set at a level sufficient to cover current and future expenses and operating reserves consistent with these policies and long-term financial forecasts. Changes in rate levels should be gradual and uniform. Cost increases or decreases for wholesale services shall be passed directly through to Ferndale customers. At the end of the budget cycle, fund balances that are greater than anticipated may be transferred into the Utility Capital Reserve.

Debt Service Coverage Requirements – Existing revenue bond covenants legally require the City's utilities to generate more in rate revenue than is needed to actually cover the required debt service – this is referred to as “debt coverage”. While there are different debt coverage ratios, the more restrictive ratio relates to coverage without the inclusion of Capital Connection revenues. With this said, it is the policy of the City to set the debt service coverage ratio (excluding connection fees) at a minimum of 1.25 and a target of 2.00. This policy will help ensure that the necessary coverage requirements are met, that other utilities will not be unfairly burdened, and that sufficient coverage is available if the utility needs to incur additional debt.

Frequency of Rate Increases – Utility rates shall be evaluated annually and adjusted to meet budgeted expenses including wholesale cost increases and to achieve financial policy objectives.

Utility Rate Equity – The rate structure shall fairly allocate costs among the different customer classes. Funding of the long-term CIP also provides for rates that fairly spread costs over current and future customers.



Rate Uniformity – Rates shall be uniform for all utility customers of the same class and level of service throughout the service area. However, special rates or surcharges may be established for specific areas both within and outside of the current Ferndale City limits.

Rate Assistance – Rate assistance programs shall be provided for specific low-income customers as permitted by State law.

GENERAL UTILITY RESERVE POLICIES

It shall be the policy of the City of Ferndale to have two (2) separate utility reserve funds – an Operating Reserve Fund that will be included in beginning/ending fund balance within the utility fund and a Capital Reserve Fund that will be a separate fund from the utility fund.

Realizing that funding for both the Operating Reserve Fund and the Capital Reserve Fund may come from rate revenues as well as other sources, the management of the utilities and the resulting customer rates and other charges will need to be sufficient to cover: A) current year operating needs, B) current year contributions to Operating Reserves, and C) current year contributions to Capital Reserves.

UTILITY OPERATING RESERVE POLICIES

Operating Reserve Fund These reserves shall be carried as beginning and ending cash and investments and as such, will become part of the annual determination of total resources available for appropriation. Setting aside these budgeted resources in the fund's beginning/ending fund balance will help ensure continued rate stability and will protect utility customers from service disruptions that might otherwise result in unforeseen economic or emergency events.

The operating reserves are defined in terms of the following three (3) separate components:

- **Working Capital Reserve** – Used to accommodate normal cyclical financial fluctuations within the bimonthly billing cycle and during the budget year. By having a Working Capital Reserve within beginning/ending fund balance, we can assure the utilities ability to fully pay all vouchers submitted for payment on a timely basis.
- **Operating Contingency Reserve** – Protects against adverse financial performance due to variations in revenues or expenses. Since utility revenues are directly related to variations in water demand, an Operating Contingency Reserve protects the financial health of the utility brought about by unforeseen changes in utility demand.



- Plant Emergency Reserve – Provides financial resources for protection against system failure at some reasonable level. This reserve component of beginning/ending fund balance is not meant to provide funds to recover from a major disaster (flood, earthquake, etc.) but is rather embedded in fund balance to provide funds in the event of a major break or component failure.

Operating Reserve Levels – The following Operating Reserve minimums and targets are established for the three (3) components listed above:

- Working Capital Reserve – A minimum of one (1) month’s average utility expenses and a target of three (3) month’s average utility expenses is set for this component.
- Operating Contingency Reserve – A minimum of (1) month’s average utility expenses and a target of two (2) month’s average utility expenses is set for this component.
- Plant Emergency Reserve – A minimum of (1) month’s average utility expenses and a target of two (2) month’s average utility expenses is set for this component.

Management of Operating Reserves – A working range of operating reserves is established with a minimum and maximum target level. Management of reserves will be based on the level of reserves with respect to the following thresholds. The primary source of operating reserves shall be rate revenue.

- Above Target – Operating reserve levels will be reduced back to the target level by transferring excess to the Capital Reserve Fund or modifying the utility rates.
- Between Minimum and Target – Rate increases would be imposed sufficient to ensure that: 1) operating reserves would not fall below the minimum; and 2) operating reserves would recover 50% of the shortfall from target levels in a normal year.
- Below Minimum – Rate increases would be imposed sufficient to ensure that even with adverse financial performance, operating reserves would return to at least the minimum at the end of the following year. To meet this “worst case” standard, a year of normal performance would be likely to recover operating reserve levels rapidly to target levels.



- Negative Balance – Reserves would be borrowed from another fund to meet operating reserve needs (working capital). Similar to the “below minimum” scenario, rate increases would be imposed sufficient to ensure that even with adverse financial performance, operating reserves would return from the negative balance to at least the minimum target at the end of the following year, which would allow for loan repayment within that time frame.

UTILITY CAPITAL RESERVE POLICIES

Capital Reserve Fund – The utilities annual budget recommendations (including estimated number of new connections) shall provide funding for capital reserves. The purpose of capital reserves shall be for the ongoing expansion and/or major maintenance and improvement to the utility’s infrastructure. Infrastructure expansion is primarily driven by expanded customer base while major improvements and maintenance to existing infrastructure are a function of age and use. The primary source of capital reserves shall be from Capital Connection Charges.

The capital reserves are defined in terms of the following two (2) separate components:

Infrastructure Expansion – Driven primary by population increases, the need to fund future system expansion has brought about the institution of Capital Connection Fees. Under this funding scenario, “growth is paying for growth”.

Infrastructure Maintenance/Improvement – The replacement and/or improvement to existing infrastructure is primarily driven by the age of the system and usage by the existing customer base. As a result, the funding of infrastructure should be derived primarily from rate revenue and secondarily from Capital Connection Fees.

Capital Reserve Levels – The following Capital Reserve minimums and targets are established for the two (2) components listed above:

- **Infrastructure Expansion Capital Reserve** – A minimum of 50% of the annual Capital Connection Charges is established with a maximum target of 100% of the annual Capital Connection Charges. There is no maximum amount set for Infrastructure Expansion Capital Reserve balances.
- **Infrastructure Maintenance/Improvement Capital Reserve** – A minimum annual contribution of 10% of the annual expenditure budget and a target of 20% of the annual expenditure budget is set for this component. A maximum balance of 50% of the utility fund’s annual expenditure budget is set for Infrastructure Maintenance/Improvement Capital Reserve balances.



Management of Capital Reserves – A working range of capital reserves are established with a minimum and maximum target level. Management of reserves will be based on the level of reserves with respect to the following thresholds:

- Above Target – No action will be taken on rates or Capital Connection Charge amounts. Excess Capital Connection Charges may remain in the operating fund to mitigate rate increases, while maintaining bond coverage covenant requirements.
- Between Minimum and Target – Rate increases or increases in the Capital Connection Charge would be imposed sufficient to ensure that annual contributions to the capital reserves would not fall below the minimum.
- Below Minimum – Capital Connection Charges and/or Rates would be increased so that, given revised estimations of actual annual new connections; the minimum annual contributions to the Capital Reserve Fund would be achieved.

Establishment of Minimum Operating and Capital Reserve Targets – Monetary targets and estimated new connections needed to achieve the minimum annual reserve amounts will be reviewed and adjusted annually as part of the City budget process.



City of Ferndale
Financial Management Policies
Element #8

CREDIT CARD POLICY

GENERAL FINANCE PROVISIONS

The purpose of this policy is to establish guidelines for the City of Ferndale to provide for the issuance of charge cards to officers and employees for the purpose of covering expenses incident to authorized travel and enabling a cost-effective, convenient and streamlined method of purchasing items. Reports on cardholder activity enable the City of Ferndale to capture information necessary to better manage City of Ferndale purchasing activities.

Authority

The City of Ferndale is authorized to use credit cards as set forth in RCW 43.09.2855 for official City of Ferndale purchases and acquisitions and pursuant policies and procedures adopted by the City of Ferndale Finance Department.

Definitions

Individual Credit Card

A credit card may be issued to an individual who meets the following conditions:

- a) He or she is an employee at the City of Ferndale, and
- b) Said employee agrees to be held liable to the credit card company for all charges while conducting official City of Ferndale business.

Exceptions may be made by the City Treasurer or the City Administrator. Individual credit cards may not be in the name of a contractor, contract employee, or non-permanent City of Ferndale employee.

Institutional Credit Card

A credit card issued in the name of the City of Ferndale whose cardholder agrees to sign a hold harmless document to limit liability to the credit card company for all charges while conducting official City of Ferndale business.

Exceptions may be made by the City Treasurer or the City Administrator. Institutional credit cards may not be in the name of a contractor, contract employee, or non-permanent City of Ferndale employee.



Procedures for Obtaining Credit Cards

1. The City of Ferndale may establish a credit card in the name of a City of Ferndale employee with a financial institution provider for City of Ferndale business use only. The City of Ferndale employee must receive monthly statements from the financial institution provider. More than one card may be obtained for various accounts.
2. The Finance Department shall establish procedures and forms for implementing and monitoring a credit card purchasing program through a financial institution provider that includes, but is not limited to, the following:
 - (a) A dollar limitation on the credit card;
 - (b) A dollar limitation of purchasing authority assigned to the cardholder per transaction made with the credit card;
 - (c) A dollar limitation of purchasing authority assigned to the cardholder for the total of all charges made during each monthly billing cycle;
 - (d) Merchant category blocking.

Authorized Card Use

1. Cardholders are authorized to use the card to purchase merchandise or services required as a function of their duties at the City of Ferndale. Unauthorized and/or inappropriate card use is addressed in the next section of this procedure.
2. A purchase made with a credit card may be made in-store, by telephone, fax, Internet or U.S. mail. A purchase order is required per established Finance Department procedure.
3. If a credit card is issued for the purpose of covering expenses relating to authorized travel, upon billing or no later than thirty days of the billing date, the officer or employee using a credit card issued under this section shall submit a fully itemized travel expense voucher. Any charges against the credit card not properly identified on the travel expense voucher shall be paid by the official or employee by check or salary deduction.

Unauthorized and/or Inappropriate Card Use

1. Credit cards must never be used to purchase items for personal use or for non-City of Ferndale purposes, even if the cardholder intends to reimburse the City of Ferndale. Unauthorized and/or inappropriate card use includes, but is not limited to:



- (a) Items for personal use;
- (b) Items for non-City of Ferndale purposes;
- (c) Cash or cash advances;
- (d) Food and beverages for an individual employee. (However, authorized cards may allow for food and non-alcoholic beverages for business-related meetings and travel in compliance with system procedures and after obtaining approval for special expenses.);
- (e) Alcoholic beverages;
- (f) Weapons of any kind or explosives (except authorized Police Department purchases)
- (g) Relocation expenses;
- (h) Entertainment; and
- (i) Recreation.

Disciplinary Action

1. A cardholder who makes an unauthorized purchase with the card or uses the card in an inappropriate manner will be subject to revocation of the credit card and disciplinary action including restitution to the City of Ferndale for unauthorized purchases, possible card cancellation, possible termination of employment at the City of Ferndale and criminal prosecution.
2. If any item purchased with a credit card is not acceptable, arrangements must be made for a return for credit or an exchange. A cash refund or check is prohibited unless the vendor insists that a refund must be by cash or check, then the funds must be deposited immediately with the City of Ferndale.
2. If, for any reason, disallowed charges are not repaid before the charge card billing is due and payable, the City of Ferndale shall have a prior lien against and a right to withhold any and all funds payable or to become payable to the official or employee up to an amount of the disallowed charges and interest at the same rate as charged by the company which issued the charge card. Any official or employee who has been issued a charge card by the City of Ferndale shall not use the card if any disallowed charges are outstanding and shall surrender the card upon demand of the City Treasurer or auditing officer. The City of Ferndale shall have unlimited authority to revoke use of any charge card issued under this section, and, upon such revocation order being delivered to the charge card company, shall not be liable for any costs.



Responsibility and Accountability

It is the responsibility of each individual cardholder to:

1. Safeguard the credit card and credit card account number at all times; lost or stolen credit cards must be reported immediately to the credit card agency and the City of Ferndale Finance Department;
2. Keep credit card in a secure location at all times;
3. Not allow anyone to use the credit card and/or credit card account number who is not authorized to do so;
4. Obtain and retain original itemized receipts for goods and services purchased. All forms of canceled checks and copies of credit card bills do not substitute for original receipts. An employee may be allowed to file an affidavit in lieu of a receipt if the original receipt is lost or a receipt is not obtained;
5. Review in a timely manner monthly statements from the financial institution provider for accuracy and ensuring all transactions posted are legitimate transactions made by the cardholder. Receipts and/or packing slips and the customer's copy of the charges must be attached to the monthly statement. The authorized user of the credit card must sign the statement that the goods have been received;
6. Submit the statement and documentation in a timely manner to the Finance Department for payment processing;
7. Surrender the credit card and corresponding support documentation to the Finance Department upon separation from the City of Ferndale;
8. Take any other steps necessary to ensure that the credit card is used only for authorized purposes.

Periodic Reviews

The City of Ferndale Finance Department shall conduct periodic reviews for proper card use. Credit card records will be audited from time to time.

VI.B. WATER MODEL TECHNICAL EXHIBITS

City of Ferndale
Utility Rate Study: Water Utility
Summary

Revenue Requirement	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues										
Rate Revenues Under Existing Rates	\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322	\$ 2,468,604	\$ 2,480,947	\$ 2,493,352	\$ 2,505,819
Non-Rate Revenues	142,812	131,608	137,117	138,457	136,040	138,554	146,843	147,329	147,811	148,314
Total Revenues	\$ 2,479,919	\$ 2,492,086	\$ 2,521,199	\$ 2,546,380	\$ 2,568,042	\$ 2,594,877	\$ 2,615,447	\$ 2,628,276	\$ 2,641,162	\$ 2,654,132
Expenses										
Cash Operating Expenses	\$ 2,290,893	\$ 2,355,204	\$ 2,386,930	\$ 2,855,479	\$ 2,881,309	\$ 2,887,444	\$ 2,983,783	\$ 3,084,743	\$ 3,188,613	\$ 3,348,021
Existing Debt Service	489,230	488,524	486,411	490,701	482,091	483,067	488,256	487,289	475,869	472,550
New Debt Service	-	455,661	455,661	455,661	455,661	861,391	861,391	861,391	861,391	1,093,363
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Reserves	-	-	-	-	-	-	-	-	-	-
Total Expenses	\$ 2,780,123	\$ 3,299,390	\$ 3,329,003	\$ 3,801,841	\$ 3,819,061	\$ 4,231,902	\$ 4,333,430	\$ 4,433,423	\$ 4,525,874	\$ 4,913,934
Net Surplus (Deficiency)	\$ (300,204)	\$ (807,304)	\$ (807,804)	\$ (1,255,461)	\$ (1,251,019)	\$ (1,637,025)	\$ (1,717,984)	\$ (1,805,147)	\$ (1,884,711)	\$ (2,259,801)
Additions to Meet Coverage	-	-	-	-	-	-	-	-	-	(23,418)
Total Surplus (Deficiency)	\$ (300,204)	\$ (807,304)	\$ (807,804)	\$ (1,255,461)	\$ (1,251,019)	\$ (1,637,025)	\$ (1,717,984)	\$ (1,805,147)	\$ (1,884,711)	\$ (2,283,219)
Annual Rate Increase		30.9%	9.0%	8.5%	8.5%	8.5%	7.0%	7.0%	7.0%	7.0%
Cumulative Rate Increase		30.90%	42.68%	54.81%	67.97%	82.24%	95.00%	108.65%	123.26%	138.89%
Revenues After Rate Increases	\$ 2,337,107	\$ 3,089,865	\$ 3,401,633	\$ 3,727,679	\$ 4,084,977	\$ 4,476,522	\$ 4,813,828	\$ 5,176,550	\$ 5,566,603	\$ 5,986,047
Additional Taxes from Rate Increase	-	102,326	142,752	185,149	231,896	283,414	329,011	378,166	431,146	488,241
Net Cash Flow After Rate Increase	\$ (300,204)	\$ (180,242)	\$ 66,995	\$ (120,854)	\$ 170,060	\$ 99,760	\$ 298,229	\$ 512,290	\$ 757,394	\$ 732,186
Coverage After Rate Increase: Bonded Debt	1.19	1.22	1.55	1.29	1.64	1.38	1.58	1.69	1.87	1.73
Coverage After Rate Increase: Total Debt	0.97	1.10	1.41	1.17	1.49	1.30	1.47	1.57	1.76	1.64
Sample Bimonthly Residential Bill (3/4" Meter, x 11 ccf)	\$55.56	\$72.73	\$79.27	\$86.01	\$93.32	\$101.26	\$108.34	\$115.93	\$124.04	\$132.72
Increase to Bimonthly Bill (\$)		\$17.17	\$6.55	\$6.74	\$7.31	\$7.93	\$7.09	\$7.58	\$8.11	\$8.68
Fund Balance	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Reserve										
Beginning Balance	\$ 1,172,644	\$ 612,440	\$ 432,198	\$ 499,193	\$ 378,339	\$ 504,075	\$ 512,768	\$ 537,073	\$ 561,165	\$ 586,320
plus: Net Cash Flow after Rate Increase	(300,204)	(180,242)	66,995	(120,854)	170,060	99,760	298,229	512,290	757,394	732,186
less: Transfer of Surplus to Capital Fund	(260,000)	-	-	-	(44,323)	(91,067)	(273,923)	(488,198)	(732,239)	(697,272)
Ending Balance	\$ 612,440	\$ 432,198	\$ 499,193	\$ 378,339	\$ 504,075	\$ 512,768	\$ 537,073	\$ 561,165	\$ 586,320	\$ 621,233
<i>Actual Days of O&M</i>	<i>98 days</i>	<i>67 days</i>	<i>73 days</i>	<i>46 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>
<i>Minimum Balance Requirement</i>	<i>\$ 376,585</i>	<i>\$ 387,157</i>	<i>\$ 409,193</i>	<i>\$ 492,860</i>	<i>\$ 504,075</i>	<i>\$ 512,768</i>	<i>\$ 537,073</i>	<i>\$ 561,165</i>	<i>\$ 586,320</i>	<i>\$ 621,233</i>
<i>Maximum Balance Requirement</i>	<i>\$ 376,585</i>	<i>\$ 387,157</i>	<i>\$ 409,193</i>	<i>\$ 492,860</i>	<i>\$ 504,075</i>	<i>\$ 512,768</i>	<i>\$ 537,073</i>	<i>\$ 561,165</i>	<i>\$ 586,320</i>	<i>\$ 621,233</i>
Capital Reserve										
Beginning Balance	\$ -	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	260,000	-	-	-	44,323	91,067	273,923	488,198	732,239	697,272
plus: Capital Grants / Other Resources	-	-	-	-	-	-	-	-	-	-
plus: Conn. Fee Revenue Towards Capital	648,000	647,954	654,433	660,977	667,587	674,263	340,503	342,205	343,916	345,636
plus: Revenue Bond Proceeds	-	5,675,000	-	-	-	4,600,000	-	-	-	2,630,000
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	3,896	43,966	2,373	10,105	16,312	82,714	6,614	1,622	15,336
Total Funding Sources	\$ 908,000	\$ 6,521,626	\$ 2,896,700	\$ 781,992	\$ 1,227,287	\$ 6,197,229	\$ 4,832,827	\$ 1,167,725	\$ 1,158,879	\$ 4,455,039
less: Capital Expenditures	(713,223)	(4,323,326)	(2,778,057)	(276,722)	(411,700)	(2,061,542)	(4,502,120)	(1,086,624)	(392,084)	(3,671,334)
Ending Capital Fund Balance	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794	\$ 783,704
<i>Minimum Target Balance</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>
Combined Beginning Balance	\$ 1,172,644	\$ 807,217	\$ 2,630,499	\$ 617,835	\$ 883,610	\$ 1,319,662	\$ 4,648,455	\$ 867,781	\$ 642,266	\$ 1,353,114
Combined Ending Balance	\$ 807,217	\$ 2,630,499	\$ 617,835	\$ 883,610	\$ 1,319,662	\$ 4,648,455	\$ 867,781	\$ 642,266	\$ 1,353,114	\$ 1,404,937
<i>Ending Total Days of Operating Expenditures</i>	<i>129 days</i>	<i>391 days</i>	<i>89 days</i>	<i>106 days</i>	<i>155 days</i>	<i>535 days</i>	<i>96 days</i>	<i>68 days</i>	<i>136 days</i>	<i>134 days</i>
<i>Combined Minimum Target Balance</i>	<i>491,764</i>	<i>502,336</i>	<i>524,372</i>	<i>608,039</i>	<i>619,254</i>	<i>627,947</i>	<i>652,252</i>	<i>676,344</i>	<i>701,499</i>	<i>736,412</i>

City of Ferndale
Utility Rate Study: Water Utility
Assumptions

Economic & Financial Factors	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Escalation Rates										
General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Construction Cost Inflation	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Cost Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Benefit Cost Inflation	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Labor + Benefits	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Customer Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%
Demand Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%
[Extra]	0.00%	0.00%	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%	0.00%	0.00%
[Extra]	0.00%	0.00%	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%	0.00%	0.00%
No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment Interest										
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Tax Rates										
State Excise	5.029%	5.029%	5.029%	5.029%	5.029%	5.029%	5.029%	5.029%	5.029%	5.029%
State B&O	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
City Utility	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
State Excise & City Utility	14.03%	14.03%	14.03%	14.03%	14.03%	14.03%	14.03%	14.03%	14.03%	14.03%
B&O & City Utility Tax	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
No Tax	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Fund Balance & Financial Policy Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning Fund Balances										
Operating Reserve	\$ 1,172,644	Fund 401								
Capital Reserve	\$ -									
Debt Reserve	\$ 432,975	Fund 409 + calculated water portion of funds 403/404								
Total Reserves	\$ 1,605,619									
Total Operating and Capital Cash Test: Days of O&M (Informational only--does not drive rate increases)										
	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days
Operating Balance: Minimum & Maximum Target										
Min. Fund Balance Target (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Max. Fund Balance (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Capital Balance: Minimum & Maximum Target										
Min. Fund Balance Target (days of Capital Expense)	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days
Max. Fund Balance (days of Capital Expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
System Reinvestment Funding										
Select Annual Funding Option →	4									
No Rate Funded Capital										
Target Amounts										
1 Original Cost Depreciation	\$ -	\$ 17,331	\$ 108,393	\$ 167,865	\$ 174,783	\$ 185,075	\$ 226,926	\$ 319,320	\$ 346,486	\$ 356,288
2 Estimated Replacement Cost Depreciation	\$ -	\$ 17,331	\$ 108,393	\$ 167,865	\$ 174,783	\$ 185,075	\$ 226,926	\$ 319,320	\$ 346,486	\$ 356,288
3 Manual User Input	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4 No Rate Funded Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Percent Toggle of Selected Funding Target										
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Funding Target Assumed in Model										
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Result w/ Transfers (compared to Annual Depreciation)										
		0%	0%	0%	25%	49%	121%	153%	211%	196%

City of Ferndale
Utility Rate Study: Water Utility
Assumptions

Capital Financing Assumptions		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Connection Fees												
Select Revenue Option →		2		Manual Input								
1	Calculated		\$641,538	\$647,954	\$654,433	\$660,977	\$667,587	\$674,263	\$340,503	\$342,205	\$343,916	\$345,636
	Actual Charge	2018 Customer	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446	\$6,446
	Existing Customer Base	9,953	10,052	10,153	10,254	10,357	10,460	10,565	10,618	10,671	10,724	10,778
	Incremental Customer Base		100	101	102	103	104	105	53	53	53	54
	Annual Revenue											
2	Manual Input	\$ 730,377	\$ 648,000	\$647,954	\$ 654,433	\$ 660,977	\$ 667,587	\$ 674,263	\$ 340,503	\$ 342,205	\$ 343,916	\$ 345,636
Other Funding Sources (Uses)												
		Capital Grants / Other Resources										
	[Extra]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-	-
	Total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue Bonds												
		Level total payments										
	Term (years)	20 years	20 years	20 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	0 years	0 years	0 years
	Interest Cost	4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
	Issuance Cost	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Legal Minimum or Policy Coverage	1.25	Review bond covenants before updating this section.									
	Use Reserves to Pay for Last Payment?	Yes	("Yes" is default)									
	Include / Exclude Conn. Fees in Coverage?	Exclude										
Other Loans 1												
		Level total payments										
	Term (years)	20 years	20 years	20 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	0 years	0 years	0 years
	Interest Cost	4.00%	4.00%	4.00%	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%	1.00%	1.00%	1.00%
Other Loans 2												
		Level principal payments										
	Term (years)	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years	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	0 years	0 years	0 years
	Interest Cost	1.50%	1.50%	1.50%	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%	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	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	0 years	0 years	0 years
	Interest Cost	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

City of Ferndale
Utility Rate Study: Water Utility
Operating Revenue and Expenditure Forecast

Operating Revenues		Escalation	Actuals 2018	Budget 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Account #	Rate Revenues												
401-000-000-343-40-30-00	Sales & Service	Customer Growth	\$ 2,222,717	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
401-000-000-343-40-30-01	Water Sales - Discounted	Customer Growth	40,603	-	-	-	-	-	-	-	-	-	-
401-000-000-343-40-30-02	Bulk Water Sales	Customer Growth	21	-	-	-	-	-	-	-	-	-	-
[Extra]	Single Family	Customer Growth	-	1,564,291	1,579,933	1,595,733	1,611,690	1,627,807	1,644,085	1,652,306	1,660,567	1,668,870	1,677,214
[Extra]	Multi Family	Customer Growth	-	267,371	270,045	272,745	275,473	278,228	281,010	282,415	283,827	285,246	286,672
[Extra]	Commercial	Customer Growth	-	401,485	405,500	409,555	413,650	417,787	421,964	424,074	426,195	428,326	430,467
[Extra]	Irrigation	Customer Growth	-	103,960	105,000	106,050	107,110	108,181	109,263	109,809	110,358	110,910	111,465
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
Total Rate Revenue			\$ 2,263,341	\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322	\$ 2,468,604	\$ 2,480,947	\$ 2,493,352	\$ 2,505,819
Non-Rate Revenues													
401-000-000-321-91-00-01	Cell Phone Tower Rental	No Escalation	\$ 7,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200	\$ 11,200
401-000-000-343-40-40-00	Set UP Fees	No Escalation	11,640	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
401-000-000-343-40-40-02	Reconnection Fees	No Escalation	27,730	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
401-000-000-343-40-40-03	Meter Charge	No Escalation	25,328	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000
401-000-000-343-40-40-04	Hydrant Meter Deposits	No Escalation	-	-	-	-	-	-	-	-	-	-	-
401-000-000-343-40-40-05	Set UP Fees - New Meter Set	No Escalation	4,620	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
401-000-000-343-40-40-06	Installation Fee-New Meter Set	No Escalation	11,050	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
401-000-000-343-40-40-07	Prop Sale Final Meter Read Fee	No Escalation	12,120	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
401-000-000-343-40-40-08	Hydrant Meter Setup Fee	No Escalation	200	200	200	200	200	200	200	200	200	200	200
401-000-000-343-40-40-09	Hydr Metr Rentl/con/permit Fee	No Escalation	-	-	-	-	-	-	-	-	-	-	-
401-000-000-343-40-40-10	Meter Testing Fee	No Escalation	-	-	-	-	-	-	-	-	-	-	-
401-000-000-343-40-90-00	Miscellaneous	No Escalation	2,318	-	-	-	-	-	-	-	-	-	-
401-000-000-359-00-40-00	Late Fees	No Escalation	64,612	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
401-000-000-343-40-20-01	Connections-Utility Billings	No Escalation	14,901	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
401-000-000-389-10-00-01	Refundable Deposits	No Escalation	837	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
401-000-000-397-00-00-01	Other Fin Sources-TR From 302	No Escalation	-	-	-	-	-	-	-	-	-	-	-
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Revenues			\$ 182,556	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700	\$ 110,700
TOTAL OPERATING REVENUES			\$ 2,445,897	\$ 2,447,807	\$ 2,471,178	\$ 2,494,782	\$ 2,518,623	\$ 2,542,702	\$ 2,567,022	\$ 2,579,304	\$ 2,591,647	\$ 2,604,052	\$ 2,616,519

Operating Expenses		Escalation	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Account #	Taxes												
401-000-001-534-10-53-00	B&O/Excise Tax	[Calculated]	\$ 125,386	\$ 119,194	\$ 120,369	\$ 121,556	\$ 122,755	\$ 123,966	\$ 125,189	\$ 125,807	\$ 126,427	\$ 127,051	\$ 127,678
401-000-001-534-10-53-01	COF Monthly Utility Tax - Water	[Calculated]	276,288	284,509	270,759	273,466	276,201	278,963	281,753	252,820	254,084	255,354	256,631
Other Operating Costs													
Administration - General													
401-000-001-534-10-10-00	Salaries	Labor Cost Inflation	36,502	42,805	44,518	46,298	48,150	50,076	52,079	54,163	56,329	58,582	60,925
401-000-001-534-10-10-01	Salaries Clerical	Labor Cost Inflation	85,201	51,689	53,756	55,906	58,143	60,468	62,887	65,402	68,019	70,739	73,569
401-000-001-534-10-21-01	Benefits-Medical	Benefit Cost Inflation	38,665	39,269	41,232	43,294	45,458	47,731	50,118	52,624	55,255	58,018	60,919
401-000-001-534-10-21-02	Benefits-L & I	Benefit Cost Inflation	621	577	605	636	667	701	736	773	811	852	894
401-000-001-534-10-21-03	Benefits-Retirement	Benefit Cost Inflation	17,836	19,890	20,885	21,929	23,025	24,177	25,385	26,655	27,987	29,387	30,856
401-000-001-534-10-21-04	Benefits-Social Security	Benefit Cost Inflation	9,169	7,229	7,590	7,970	8,368	8,787	9,226	9,687	10,172	10,680	11,214
401-000-001-534-10-21-05	Benefits - PFML	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-22-00	Clothing Allowance	General Cost Inflation	47	23	24	25	25	26	27	28	29	29	30
401-000-001-534-10-30-00	Autoread Software Maint.	General Cost Inflation	-	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
401-000-001-534-10-31-01	Office Supplies	General Cost Inflation	751	500	515	530	546	563	580	597	615	633	652
401-000-001-534-10-31-10	O & M Supplies	General Cost Inflation	114	500	515	530	546	563	580	597	615	633	652
401-000-001-534-10-40-00	Central Services	General Cost Inflation	148,804	148,804	153,268	157,866	162,602	167,480	172,505	177,680	183,010	188,500	194,155
401-000-001-534-10-40-01	Central Services - Elected Officials	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-40-02	Vehicle Rental - Fund 550	General Cost Inflation	62,597	62,597	64,475	66,409	68,401	70,453	72,567	74,744	76,986	79,296	81,675
401-000-001-534-10-40-03	Vehicle Rental Fund 550 - Capital	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-40-04	Computer Repair & Replacement - Fund 510	General Cost Inflation	13,408	12,399	12,771	13,154	13,549	13,955	14,374	14,805	15,249	15,707	16,178
401-000-001-534-10-41-00	Professional Services 401.000.001	General Cost Inflation	2,307	62,000	2,500	2,575	54,152	4,277	4,405	56,037	6,218	6,405	58,097
401-000-001-534-10-41-01	Prof Services Comp Plan Update	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-41-03	Prof Serv Billings/Staff/Print/Dep/CC/Bank Fees	General Cost Inflation	20,681	30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143
401-000-001-534-10-42-00	Postage	General Cost Inflation	7,485	7,000	7,210	7,426	7,649	7,879	8,115	8,358	8,609	8,867	9,133
401-000-001-534-10-42-01	Cell Phone	General Cost Inflation	4,173	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
401-000-001-534-10-43-00	Travel	General Cost Inflation	762	250	258	265	273	281	290	299	307	317	326
401-000-001-534-10-44-00	Public Notice Publication	General Cost Inflation	3,624	250	258	265	273	281	290	299	307	317	326
401-000-001-534-10-45-00	Copy Machine Lease	General Cost Inflation	3,107	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
401-000-001-534-10-45-01	Copy Machine Maintenance	General Cost Inflation	773	700	721	743	765	788	811	836	861	887	913
401-000-001-534-10-48-00	Contract R & M	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-48-01	Contract Admin Temp. Service	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-49-00	Miscellaneous	General Cost Inflation	165	300	309	318	328	338	348	358	369	380	391
401-000-001-534-10-49-01	Water Resource Council Dues	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
401-000-001-534-10-98-01	Autoread Software Maint.	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
Total - Administration - General			456,792	494,781	450,549	466,455	534,447	501,593	519,375	589,315	558,485	578,367	650,490

TOTAL CASH OPERATING EXPENSES BEFORE REALIZATION FACTOR	\$ 2,361,225	\$ 2,290,893	\$ 2,355,204	\$ 2,386,930	\$ 2,855,479	\$ 2,881,309	\$ 2,887,444	\$ 2,983,783	\$ 3,084,743	\$ 3,188,613	\$ 3,348,021
REALIZATION FACTOR IMPACT (Excluding Taxes)	n/a	-	-	-	-	-	-	-	-	-	-
TOTAL CASH OPERATING EXPENSES	\$ 2,361,225	\$ 2,290,893	\$ 2,355,204	\$ 2,386,930	\$ 2,855,479	\$ 2,881,309	\$ 2,887,444	\$ 2,983,783	\$ 3,084,743	\$ 3,188,613	\$ 3,348,021

City of Ferndale
Utility Rate Study: Water Utility
Existing Debt

Existing Debt Service - Summary	Total	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Annual Debt Payments											
Revenue Bonds	\$ 5,163,546	\$ 397,381	\$ 398,181	\$ 398,581	\$ 398,581	\$ 397,857	\$ 396,719	\$ 395,169	\$ 397,714	\$ 395,244	\$ 395,675
PWTF Loans	-	-	-	-	-	-	-	-	-	-	-
Other Loans	872,885	91,849	90,343	87,830	92,119	84,234	86,348	93,087	89,575	80,625	76,875
Total Debt Payments	6,036,431	489,230	488,524	486,411	490,701	482,091	483,067	488,256	487,289	475,869	472,550

Existing Debt Service - Revenue Bonds		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2011 Revenue Bond											
Annual Interest Payment	\$ 1,303,546	\$ 167,381	\$ 158,181	\$ 148,581	\$ 138,581	\$ 127,857	\$ 116,719	\$ 105,169	\$ 92,714	\$ 80,244	\$ 65,675
Annual Principal Payment	\$ 3,860,000	230,000	240,000	250,000	260,000	270,000	280,000	290,000	305,000	315,000	330,000
Total Annual Payment	\$ 5,163,546	\$ 397,381	\$ 398,181	\$ 398,581	\$ 398,581	\$ 397,857	\$ 396,719	\$ 395,169	\$ 397,714	\$ 395,244	\$ 395,675
Use of Debt Reserve for Debt Service	-	-	-	-	-	-	-	-	-	-	-
TOTAL REVENUE BONDS											
Annual Interest Payment	\$ 1,303,546	\$ 167,381	\$ 158,181	\$ 148,581	\$ 138,581	\$ 127,857	\$ 116,719	\$ 105,169	\$ 92,714	\$ 80,244	\$ 65,675
Annual Principal Payment	\$ 3,860,000	230,000	240,000	250,000	260,000	270,000	280,000	290,000	305,000	315,000	330,000
Total Annual Payment	\$ 5,163,546	\$ 397,381	\$ 398,181	\$ 398,581	\$ 398,581	\$ 397,857	\$ 396,719	\$ 395,169	\$ 397,714	\$ 395,244	\$ 395,675
Use of Debt Reserve for Debt Service	-	-	-	-	-	-	-	-	-	-	-
Annual Debt Reserve Target on Existing Revenue Bonds		399,456	399,456	399,456	399,456	399,456	399,456	399,456	399,456	399,456	399,456

Existing Debt Service - Other Loans		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2016 LOCAL Heavy Equipment Purchase											
Annual Interest Payment	\$ 14,366	\$ 3,060	\$ 2,872	\$ 2,487	\$ 2,082	\$ 1,658	\$ 1,212	\$ 743	\$ 252	\$ -	\$ -
Annual Principal Payment	68,717	7,517	7,517	7,892	8,287	8,701	9,137	9,593	10,073	-	-
Total Annual Payment	\$ 83,083	\$ 10,577	\$ 10,389	\$ 10,379	\$ 10,369	\$ 10,359	\$ 10,348	\$ 10,337	\$ 10,325	\$ -	\$ -
2016 LOCAL Minor Equipment Purchase											
Annual Interest Payment	\$ 565	\$ 281	\$ 212	\$ 72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment	8,361	2,741	2,741	2,878	-	-	-	-	-	-	-
Total Annual Payment	\$ 8,927	\$ 3,022	\$ 2,954	\$ 2,950	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LOCAL Water Booster											
Annual Interest Payment	\$ 165,875	\$ 28,250	\$ 27,000	\$ 24,500	\$ 21,750	\$ 18,875	\$ 16,000	\$ 12,750	\$ 9,250	\$ 5,625	\$ 1,875
Annual Principal Payment	615,000	50,000	50,000	50,000	60,000	55,000	60,000	70,000	70,000	75,000	75,000
Total Annual Payment	\$ 780,875	\$ 78,250	\$ 77,000	\$ 74,500	\$ 81,750	\$ 73,875	\$ 76,000	\$ 82,750	\$ 79,250	\$ 80,625	\$ 76,875
TOTAL OTHER LOANS											
Annual Interest Payment	\$ 180,807	\$ 31,591	\$ 30,085	\$ 27,059	\$ 23,832	\$ 20,533	\$ 17,212	\$ 13,493	\$ 9,502	\$ 5,625	\$ 1,875
Annual Principal Payment	692,078	60,258	60,258	60,771	68,287	63,701	69,137	79,593	80,073	75,000	75,000
Total Annual Payment	\$ 872,885	\$ 91,849	\$ 90,343	\$ 87,830	\$ 92,119	\$ 84,234	\$ 86,348	\$ 93,087	\$ 89,575	\$ 80,625	\$ 76,875

City of Ferndale
Utility Rate Study: Water Utility
Capital Improvement Program

2019
Project Costs in Year

ID	Description	Useful Life (Years)	Percent Replacement?	Unescalated Total	Unescalated Capital Cost									
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1*	Pumping													
	Church Rd. Pump Sta. Improvements	40.00	70%	\$ 393,928	\$ -	\$ -	\$ 393,928	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Source													
3*	Central City Well Treatment & Activation	50.00	0%	281,377	-	-	281,377	-	-	-	-	-	-	-
4*	New City Shop Well pump house	50.00	25%	850,000	-	850,000	-	-	-	-	-	-	-	-
9*	Thornton Rd. Well Pump & Treatment	50.00	25%	787,856	-	-	-	-	-	787,856	-	-	-	-
12*	New Douglas Well	50.00	10%	883,524	-	-	-	-	-	883,524	-	-	-	-
14*	Emergency Intertie Construction	50.00	75%	2,600,000	-	1,000,000	1,600,000	-	-	-	-	-	-	-
	Emergency Intertie Design	50.00	75%	255,000	100,000	155,000	-	-	-	-	-	-	-	-
	Treatment & Storage													
13*	Treatment Plant Up grade & Clear Well Exp.	50.00	50%	1,675,000	-	1,675,000	-	-	-	-	-	-	-	-
23*	New Bakerview Storage Reservoir	50.00	25%	3,376,526	-	-	-	-	-	-	3,376,526	-	-	-
38	New Smith Rd. Storage Reservoir	50.00	25%	4,502,035	-	-	-	-	-	-	-	-	-	-
	Distribution													
5*	Malloy Village to Sampson Rope	40.00	50%	170,819	170,819	-	-	-	-	-	-	-	-	-
6*	Guinevere St. to Washington St.	40.00	50%	84,413	-	-	-	-	-	-	-	-	84,413	-
8*	Nordic Way to Hovander Rd.	40.00	20%	884,807	442,404	442,404	-	-	-	-	-	-	-	-
10*	Thornton Rd. under I-5	40.00	50%	343,280	-	-	343,280	-	-	-	-	-	-	-
11*	Thornton Rd. from Malloy Ave. to BNSF	40.00	75%	365,790	-	-	-	-	365,790	-	-	-	-	-
15*	Connecting Main St. to S. Church Rd.	40.00	10%	258,867	-	-	-	-	-	-	-	-	-	-
16*	Ferndale Terrace Pressure Zone	40.00	100%	2,813,772	-	-	-	-	-	-	-	-	-	2,813,772
17a*	Slater Rd. W. of Rural Ave.	40.00	45%	106,923	-	-	-	-	-	106,923	-	-	-	-
18*	Along Malloy Rd.-- To Convert Mid Zone	40.00	10%	883,524	-	-	-	-	-	-	-	883,524	-	-
19*	Slater Rd. UGA Transmission Main	40.00	0%	393,928	-	-	-	-	-	-	393,928	-	-	-
20*	Along Malloy Ave. & Portal Way to Grandview Rd. (REMOVED)	40.00	0%	-	-	-	-	-	-	-	-	-	-	-
27	Along Thornton St. & Hatton Pl.	40.00	70%	253,239	-	-	-	253,239	-	-	-	-	-	-
56	Deer Creek Upgrade	40.00	100%	225,102	-	-	-	-	-	-	-	-	225,102	-
	Planning													
	Long Term Water Planning	20.00	10%	75,000	-	75,000	-	-	-	-	-	-	-	-
	Total Capital Projects Before Completion Factor			22,464,714	713,223	4,197,404	2,618,585	253,239	365,790	1,778,304	3,770,455	883,524	309,515	2,813,772
	Completion Factor Impact			-	-	-	-	-	-	-	-	-	-	-
	Total Capital Projects			\$ 22,464,714	\$ 713,223	\$ 4,197,404	\$ 2,618,585	\$ 253,239	\$ 365,790	\$ 1,778,304	\$ 3,770,455	\$ 883,524	\$ 309,515	\$ 2,813,772

City of Ferndale
Utility Rate Study: Water Utility
Capital Funding

Capital Project Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
TOTAL CAPITAL EXPENDITURES	\$ 713,223	\$ 4,323,326	\$ 2,778,057	\$ 276,722	\$ 411,700	\$ 2,061,542	\$ 4,502,120	\$ 1,086,624	\$ 392,084	\$ 3,671,334

Capital Financing Plan	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Grants / Other Resources	-	-	-	-	-	-	-	-	-	-
Balance/Remained to be Funded	\$ 713,223	\$ 4,323,326	\$ 2,778,057	\$ 276,722	\$ 411,700	\$ 2,061,542	\$ 4,502,120	\$ 1,086,624	\$ 392,084	\$ 3,671,334
OTHER FUNDING SOURCES <i>(Note: Operating transfers in year N are always assumed to be available in year N + 1.)</i>										
Beginning Fund Balances	\$ -	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Conn. Fee Revenue Towards Capital	648,000	647,954	654,433	660,977	667,587	674,263	340,503	342,205	343,916	345,636
Interest Earnings	-	3,896	43,966	2,373	10,105	16,312	82,714	6,614	1,622	15,336
Minimum Capital Balance?	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)	(115,179)
Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
Revenue Bond Proceeds	-	5,675,000	-	-	-	4,600,000	-	-	-	2,630,000
TOTAL CAPITAL RESOURCES	\$ 532,821	\$ 6,406,447	\$ 2,781,521	\$ 666,813	\$ 1,067,784	\$ 5,990,982	\$ 4,443,725	\$ 564,348	\$ 311,461	\$ 3,642,587

New Debt Computations	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUE BONDS										
Amount to Fund	\$ -	\$ 5,675,000	\$ -	\$ -	\$ -	\$ 4,600,000	\$ -	\$ -	\$ -	\$ 2,630,000
Issuance Costs	-	61,926	-	-	-	50,563	-	-	-	28,909
Reserve Required	-	455,661	-	-	-	405,730	-	-	-	231,972
Amount of Debt Issue	\$ -	\$ 6,192,587	\$ -	\$ -	\$ -	\$ 5,056,293	\$ -	\$ -	\$ -	\$ 2,890,881
Other Loans 1										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 2										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 3										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Ferndale
Utility Rate Study: Water Utility
Capital Funding

Debt Service Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
EXISTING DEBT SERVICE										
Annual Interest Payments	\$ 198,972	\$ 188,266	\$ 175,640	\$ 162,414	\$ 148,389	\$ 133,930	\$ 118,663	\$ 102,216	\$ 85,869	\$ 67,550
Annual Principal Payments	290,258	300,258	310,771	328,287	333,701	349,137	369,593	385,073	390,000	405,000
Total Debt Service Payments	\$ 489,230	\$ 488,524	\$ 486,411	\$ 490,701	\$ 482,091	\$ 483,067	\$ 488,256	\$ 487,289	\$ 475,869	\$ 472,550
Revenue Bond Payments Only	397,381	398,181	398,581	398,581	397,857	396,719	395,169	397,714	395,244	395,675
NEW DEBT SERVICE										
Annual Interest Payments	\$ -	\$ 247,703	\$ 239,385	\$ 230,734	\$ 221,737	\$ 465,195	\$ 447,818	\$ 429,669	\$ 410,714	\$ 535,461
Annual Principal Payments	-	207,958	216,276	224,927	233,924	396,197	413,574	431,722	450,677	557,902
Total Debt Service Payments	\$ -	\$ 455,661	\$ 455,661	\$ 455,661	\$ 455,661	\$ 861,391	\$ 861,391	\$ 861,391	\$ 861,391	\$ 1,093,363
Revenue Bond Payments Only	-	455,661	455,661	455,661	455,661	861,391	861,391	861,391	861,391	1,093,363
TOTAL DEBT SERVICE PAYMENTS	\$ 489,230	\$ 944,185	\$ 942,072	\$ 946,362	\$ 937,752	\$ 1,344,458	\$ 1,349,647	\$ 1,348,680	\$ 1,337,261	\$ 1,565,913
Total Interest Payments	198,972	435,969	415,025	393,148	370,126	599,125	566,480	531,885	496,584	603,011
Total Principal Payments	290,258	508,216	527,047	553,214	567,626	745,333	783,167	816,795	840,677	962,902
Total Revenue Bond Payments Only	397,381	853,843	854,243	854,243	853,518	1,258,110	1,256,560	1,259,105	1,256,636	1,489,038
Use of Debt Reserve for Debt Service	-	-	-	-	-	-	-	-	-	-
Debt Amortization: Revenue Bonds										
Debt Assumptions: Revenue Bonds										
Term (years)	20 years	20 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	0 years	0 years
Interest Cost	4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Issuance Cost	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Revenue Bonds Total										
Interest Payments	\$ -	\$ 247,703	\$ 239,385	\$ 230,734	\$ 221,737	\$ 465,195	\$ 447,818	\$ 429,669	\$ 410,714	\$ 535,461
Principal Payments	-	207,958	216,276	224,927	233,924	396,197	413,574	431,722	450,677	557,902
Total	\$ -	\$ 455,661	\$ 455,661	\$ 455,661	\$ 455,661	\$ 861,391	\$ 861,391	\$ 861,391	\$ 861,391	\$ 1,093,363
Use of Debt Reserve for Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Ferndale
Utility Rate Study: Water Utility
Revenue Requirement Tests

Cash Flow Test	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUES										
Rate Revenue	\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322	\$ 2,468,604	\$ 2,480,947	\$ 2,493,352	\$ 2,505,819
Other Non-Rate Revenue	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700
Interest Earnings: Operating & Debt Reserve Funds	32,112	20,908	26,417	27,757	25,340	27,854	36,143	36,629	37,111	37,614
<i>Total Revenue</i>	<u>\$ 2,479,919</u>	<u>\$ 2,492,086</u>	<u>\$ 2,521,199</u>	<u>\$ 2,546,380</u>	<u>\$ 2,568,042</u>	<u>\$ 2,594,877</u>	<u>\$ 2,615,447</u>	<u>\$ 2,628,276</u>	<u>\$ 2,641,162</u>	<u>\$ 2,654,132</u>
EXPENSES										
Cash Operating Expenses	\$ 2,290,893	\$ 2,355,204	\$ 2,386,930	\$ 2,855,479	\$ 2,881,309	\$ 2,887,444	\$ 2,983,783	\$ 3,084,743	\$ 3,188,613	\$ 3,348,021
Existing Debt Service	489,230	488,524	486,411	490,701	482,091	483,067	488,256	487,289	475,869	472,550
New Debt Service	-	455,661	455,661	455,661	455,661	861,391	861,391	861,391	861,391	1,093,363
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Min. Operating Reserve	-	-	-	-	-	-	-	-	-	-
<i>Total Expenses</i>	<u>\$ 2,780,123</u>	<u>\$ 3,299,390</u>	<u>\$ 3,329,003</u>	<u>\$ 3,801,841</u>	<u>\$ 3,819,061</u>	<u>\$ 4,231,902</u>	<u>\$ 4,333,430</u>	<u>\$ 4,433,423</u>	<u>\$ 4,525,874</u>	<u>\$ 4,913,934</u>
NET CASH FLOW (DEFICIENCY)	\$ (300,204)	\$ (807,304)	\$ (807,804)	\$ (1,255,461)	\$ (1,251,019)	\$ (1,637,025)	\$ (1,717,984)	\$ (1,805,147)	\$ (1,884,711)	\$ (2,259,801)
Coverage Test - without Conn. Fees	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
ALLOWABLE REVENUES										
Rate Revenue	\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322	\$ 2,468,604	\$ 2,480,947	\$ 2,493,352	\$ 2,505,819
Other Revenue	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700	110,700
Conn. Fee Revenue	-	-	-	-	-	-	-	-	-	-
Interest Earnings - All Funds	32,112	24,804	70,383	30,129	35,445	44,166	118,856	43,243	38,733	52,950
<i>Total Revenue</i>	<u>\$ 2,479,919</u>	<u>\$ 2,495,981</u>	<u>\$ 2,565,165</u>	<u>\$ 2,548,753</u>	<u>\$ 2,578,147</u>	<u>\$ 2,611,188</u>	<u>\$ 2,698,160</u>	<u>\$ 2,634,890</u>	<u>\$ 2,642,784</u>	<u>\$ 2,669,468</u>
EXPENSES										
Cash Operating Expenses	\$ 2,006,384	\$ 2,084,445	\$ 2,113,464	\$ 2,579,278	\$ 2,602,346	\$ 2,605,691	\$ 2,730,964	\$ 2,830,659	\$ 2,933,259	\$ 3,091,390
Revenue Bond Debt Service	397,381	853,843	854,243	854,243	853,518	1,258,110	1,256,560	1,259,105	1,256,636	1,489,038
Revenue Bond Coverage Requirement at 1.25	99,345	213,461	213,561	213,561	213,380	314,528	314,140	314,776	314,159	372,259
<i>Total Expenses</i>	<u>\$ 2,503,111</u>	<u>\$ 3,151,749</u>	<u>\$ 3,181,267</u>	<u>\$ 3,647,081</u>	<u>\$ 3,669,243</u>	<u>\$ 4,178,329</u>	<u>\$ 4,301,664</u>	<u>\$ 4,404,541</u>	<u>\$ 4,504,053</u>	<u>\$ 4,952,687</u>
Coverage	1.19	0.48	0.53	(0.04)	(0.03)	0.00	(0.03)	(0.16)	(0.23)	(0.28)
COVERAGE SURPLUS (DEFICIENCY)	\$ (23,192)	\$ (655,767)	\$ (616,102)	\$ (1,098,328)	\$ (1,091,096)	\$ (1,567,140)	\$ (1,603,504)	\$ (1,769,651)	\$ (1,861,269)	\$ (2,283,219)
Maximum Revenue Deficiency	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sufficiency Test Driving the Deficiency	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Coverage
Maximum Revenue Deficiency (Surplus)	\$ 300,204	\$ 807,304	\$ 807,804	\$ 1,255,461	\$ 1,251,019	\$ 1,637,025	\$ 1,717,984	\$ 1,805,147	\$ 1,884,711	\$ 2,283,219
plus: Additional Tax Expense	48,988	131,738	131,820	204,870	204,145	267,135	280,346	294,569	307,553	372,582
less: Incremental Revenue From Prior Rate Increases	-	-	(736,681)	(1,027,726)	(1,332,953)	(1,669,504)	(2,030,301)	(2,356,950)	(2,709,081)	(3,088,617)
Net Revenue Deficiency (Surplus)	\$ 349,192	\$ 939,042	\$ 202,942	\$ 432,605	\$ 122,211	\$ 234,656	\$ (31,971)	\$ (257,234)	\$ (516,817)	\$ (432,816)

City of Ferndale
Utility Rate Study: Water Utility
Revenue Requirement Tests

Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Rate Revenue @ Existing Rates	\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322	\$ 2,468,604	\$ 2,480,947	\$ 2,493,352	\$ 2,505,819
Revenues from Prior Rate Increases	-	-	736,681	1,027,726	1,332,953	1,669,504	2,030,301	2,356,950	2,709,081	3,088,617
Rate Revenue Before Rate Increase (incl. previous increases)	2,337,107	2,360,478	3,120,764	3,435,649	3,764,956	4,125,827	4,498,905	4,837,897	5,202,433	5,594,436
Required Annual Rate Increase	14.94%	39.78%	6.50%	12.59%	3.25%	5.69%	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	12	12
Info: % Increase to Generate Required Revenue	14.94%	39.78%	6.50%	12.59%	3.25%	5.69%	0.00%	0.00%	0.00%	0.00%
Policy Induced Rate Increases	0.00%	30.90%	9.00%	8.50%	8.50%	8.50%	7.00%	7.00%	7.00%	7.00%
ANNUAL RATE INCREASE	0.00%	30.90%	9.00%	8.50%	8.50%	8.50%	7.00%	7.00%	7.00%	7.00%
CUMULATIVE RATE INCREASE	0.00%	30.90%	42.68%	54.81%	67.97%	82.24%	95.00%	108.65%	123.26%	138.89%

Impacts of Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sufficiency Test Driving the Deficiency	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Coverage
Rate Revenues After Rate Increase	\$ 2,337,107	\$ 3,089,865	\$ 3,401,633	\$ 3,727,679	\$ 4,084,977	\$ 4,476,522	\$ 4,813,828	\$ 5,176,550	\$ 5,566,603	\$ 5,986,047
Full Year Rate Revenues After Rate Increase	2,337,107	3,089,865	3,401,633	3,727,679	4,084,977	4,476,522	4,813,828	5,176,550	5,566,603	5,986,047
Partial Year Adjustment	-	-	-	-	-	-	-	-	-	-
Additional Taxes Due to Rate Increases	-	102,326	142,752	185,149	231,896	283,414	329,011	378,166	431,146	488,241
Net Cash Flow After Rate Increase	\$ (300,204)	\$ (180,242)	\$ 66,995	\$ (120,854)	\$ 170,060	\$ 99,760	\$ 298,229	\$ 512,290	\$ 757,394	\$ 732,186
Coverage After Rate Increase: Bonded Debt	1.19	1.22	1.55	1.29	1.64	1.38	1.58	1.69	1.87	1.73
Coverage After Rate Increase: Total Debt	0.97	1.10	1.41	1.17	1.49	1.30	1.47	1.57	1.76	1.64

Debt Financing Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Net Revenue Bond Proceeds: Automatic Calculation	\$ -	\$ 5,675,000	\$ -	\$ -	\$ -	\$ 4,600,000	\$ -	\$ -	\$ -	\$ 2,630,000
Net Revenue Bond Proceeds: Override*	\$ -	\$ 5,675,000	\$ -	\$ -	\$ -	\$ 4,600,000	\$ -	\$ -	\$ -	\$ 2,630,000
Other Loans 1 Proceeds										
Other Loans 2 Proceeds										
Other Loans 3 Proceeds										

Fund Balance Impacts	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ending Fund Balance: Operating Reserve	\$ 612,440	\$ 432,198	\$ 499,193	\$ 378,339	\$ 504,075	\$ 512,768	\$ 537,073	\$ 561,165	\$ 586,320	\$ 621,233
Actual Days of Operations & Maintenance	98 days	67 days	73 days	46 days	60 days	60 days	60 days	60 days	60 days	60 days
Minimum Target: Operating Reserve	376,585	387,157	409,193	492,860	504,075	512,768	537,073	561,165	586,320	621,233
Minimum Target: Operating Reserve (in Days of O&M)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Ending Fund Balance: Capital Reserve	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794	\$ 783,704
Minimum Target: Capital Reserve	115,179	115,179	115,179	115,179	115,179	115,179	115,179	115,179	115,179	115,179
Total Ending Operating and Capital Cash (days of O&M)	129 days	391 days	89 days	106 days	155 days	535 days	96 days	68 days	136 days	134 days
Capital Expense (Inflated)	\$ 713,223	\$ 4,323,326	\$ 2,778,057	\$ 276,722	\$ 411,700	\$ 2,061,542	\$ 4,502,120	\$ 1,086,624	\$ 392,084	\$ 3,671,334

City of Ferndale
Utility Rate Study: Water Utility
Fund Activity

Funds	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
OPERATING RESERVE										
Beginning Balance	\$ 1,172,644	\$ 612,440	\$ 432,198	\$ 499,193	\$ 378,339	\$ 504,075	\$ 512,768	\$ 537,073	\$ 561,165	\$ 586,320
plus: Net Cash Flow after Rate Increase	(300,204)	(180,242)	66,995	(120,854)	170,060	99,760	298,229	512,290	757,394	732,186
less: Transfer of Surplus to Capital Fund	(260,000)	-	-	-	(44,323)	(91,067)	(273,923)	(488,198)	(732,239)	(697,272)
Ending Balance	\$ 612,440	\$ 432,198	\$ 499,193	\$ 378,339	\$ 504,075	\$ 512,768	\$ 537,073	\$ 561,165	\$ 586,320	\$ 621,233
<i>Minimum Target Balance: 60 days</i>	<i>\$ 376,585</i>	<i>\$ 387,157</i>	<i>\$ 409,193</i>	<i>\$ 492,860</i>	<i>\$ 504,075</i>	<i>\$ 512,768</i>	<i>\$ 537,073</i>	<i>\$ 561,165</i>	<i>\$ 586,320</i>	<i>\$ 621,233</i>
<i>Target Balance: 60 days</i>	<i>\$ 376,585</i>	<i>\$ 387,157</i>	<i>\$ 409,193</i>	<i>\$ 492,860</i>	<i>\$ 504,075</i>	<i>\$ 512,768</i>	<i>\$ 537,073</i>	<i>\$ 561,165</i>	<i>\$ 586,320</i>	<i>\$ 621,233</i>
<i>Actual Days of Cash Achieved</i>	<i>98 days</i>	<i>67 days</i>	<i>73 days</i>	<i>46 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>
CAPITAL RESERVE										
Beginning Balance	\$ -	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	260,000	-	-	-	44,323	91,067	273,923	488,198	732,239	697,272
plus: Capital Grants / Other Resources	-	-	-	-	-	-	-	-	-	-
plus: Conn. Fee Revenue Towards Capital	648,000	647,954	654,433	660,977	667,587	674,263	340,503	342,205	343,916	345,636
plus: Revenue Bond Proceeds	-	5,675,000	-	-	-	4,600,000	-	-	-	2,630,000
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	3,896	43,966	2,373	10,105	16,312	82,714	6,614	1,622	15,336
Total Funding Sources	\$ 908,000	\$ 6,521,626	\$ 2,896,700	\$ 781,992	\$ 1,227,287	\$ 6,197,229	\$ 4,832,827	\$ 1,167,725	\$ 1,158,879	\$ 4,455,039
less: Capital Expenditures	(713,223)	(4,323,326)	(2,778,057)	(276,722)	(411,700)	(2,061,542)	(4,502,120)	(1,086,624)	(392,084)	(3,671,334)
Ending Capital Fund Balance	\$ 194,777	\$ 2,198,300	\$ 118,642	\$ 505,271	\$ 815,587	\$ 4,135,687	\$ 330,707	\$ 81,101	\$ 766,794	\$ 783,704
<i>Minimum Target Balance: 30 days</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>	<i>\$ 115,179</i>
<i>Maximum Target Balance: 60 days</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>	<i>\$ 230,358</i>
DEBT RESERVE										
Beginning Balance	\$ 432,975	\$ 432,975	\$ 888,636	\$ 888,636	\$ 888,636	\$ 888,636	\$ 1,294,366	\$ 1,294,366	\$ 1,294,366	\$ 1,294,366
plus: Reserve Funding from New Debt	-	455,661	-	-	-	405,730	-	-	-	231,972
less: Use of Reserves for Debt Service	-	-	-	-	-	-	-	-	-	-
Ending Balance	\$ 432,975	\$ 888,636	\$ 888,636	\$ 888,636	\$ 888,636	\$ 1,294,366	\$ 1,294,366	\$ 1,294,366	\$ 1,294,366	\$ 1,526,338
<i>Minimum Target Balance</i>	<i>\$ 399,456</i>	<i>\$ 855,118</i>	<i>\$ 855,118</i>	<i>\$ 855,118</i>	<i>\$ 855,118</i>	<i>\$ 1,260,848</i>	<i>\$ 1,260,848</i>	<i>\$ 1,260,848</i>	<i>\$ 1,260,848</i>	<i>\$ 1,492,819</i>
SUMMARY										
Combined Beginning Balance	\$ 1,605,619	\$ 1,240,192	\$ 3,519,135	\$ 1,506,471	\$ 1,772,246	\$ 2,208,298	\$ 5,942,822	\$ 2,162,147	\$ 1,936,633	\$ 2,647,480
Plus: Inflows	\$ 607,796	\$ 6,602,269	\$ 765,394	\$ 542,496	\$ 892,076	\$ 5,887,133	\$ 995,369	\$ 1,349,307	\$ 1,835,171	\$ 4,652,402
Less: Outflows	\$ (973,223)	\$ (4,323,326)	\$ (2,778,057)	\$ (276,722)	\$ (456,024)	\$ (2,152,609)	\$ (4,776,043)	\$ (1,574,822)	\$ (1,124,323)	\$ (4,368,607)
Combined Ending Balance	\$ 1,240,192	\$ 3,519,135	\$ 1,506,471	\$ 1,772,246	\$ 2,208,298	\$ 5,942,822	\$ 2,162,147	\$ 1,936,633	\$ 2,647,480	\$ 2,931,275
<i>Net Change in Reserves</i>	<i>\$ (365,427)</i>	<i>\$ 2,278,943</i>	<i>\$ (2,012,664)</i>	<i>\$ 265,775</i>	<i>\$ 436,052</i>	<i>\$ 3,734,524</i>	<i>\$ (3,780,675)</i>	<i>\$ (225,514)</i>	<i>\$ 710,848</i>	<i>\$ 283,795</i>
TOTAL AVAILABLE CASH TEST: DAYS OF O&M										
Operating & Capital Ending Balance	\$ 807,217	\$ 2,630,499	\$ 617,835	\$ 883,610	\$ 1,319,662	\$ 4,648,455	\$ 867,781	\$ 642,266	\$ 1,353,114	\$ 1,404,937
Ending Total Days of O&M	129 days	391 days	89 days	106 days	155 days	535 days	96 days	68 days	136 days	134 days
<i>Target: 150 Days of O&M</i>	<i>\$ 941,463</i>	<i>\$ 1,009,944</i>	<i>\$ 1,039,595</i>	<i>\$ 1,249,573</i>	<i>\$ 1,279,399</i>	<i>\$ 1,303,092</i>	<i>\$ 1,361,422</i>	<i>\$ 1,423,113</i>	<i>\$ 1,487,572</i>	<i>\$ 1,576,546</i>

City of Ferndale
Utility Rate Study: Water Utility
Assets

Asset Number	Asset Function	Asset Description	Purchase Date	Replacement Cost	% Contributed by Grants / Donations	Original Cost	Original Cost less Contributions	Useful Life (years)
FD-16239	Storage	Water Tank 1,000,000 Gal	1974	\$ 2,674,000		\$ 488,295	\$ 488,295	50
FD-16243	Storage	Water Tank 1,700,000 Gal	1981	\$ 4,680,000		\$ 1,495,564	\$ 1,495,564	50
FD-16244	Pumping	Water Pump Station-Thornton Road Bakerview	2008	\$ 575,000		\$ 431,956	\$ 431,956	50
FD-16245	Supply / Treatment	Water Treatment Plant 4,000,000 Gal	1974	\$ 8,934,000		\$ 1,631,425	\$ 1,631,425	50
P-FD-020	Pumping	Church Road Pump Station	1980	\$ 1,003,000		\$ 293,504	\$ 293,504	50
P-FD-021	Pumping	Thornton Road Pump Station	1975	\$ 1,337,000		\$ 267,354	\$ 267,354	50
	Transmission and Distribution	1"	1970	\$ -	60%	\$ -	\$ -	50
	Transmission and Distribution	2"	1970	\$ 50,704	60%	\$ 6,330	\$ 2,532	50
	Transmission and Distribution	3"	1970	\$ -	60%	\$ -	\$ -	50
	Transmission and Distribution	4"	1970	\$ 5,467,602	60%	\$ 682,591	\$ 273,036	50
	Transmission and Distribution	6"	1970	\$ 7,891,911	60%	\$ 985,248	\$ 394,099	50
	Transmission and Distribution	8"	1970	\$ 32,553,414	60%	\$ 4,064,059	\$ 1,625,624	50
	Transmission and Distribution	10"	1970	\$ 7,867,912	60%	\$ 982,252	\$ 392,901	50
	Transmission and Distribution	12"	1970	\$ 27,143,640	60%	\$ 3,388,688	\$ 1,355,475	50
	Transmission and Distribution	14"	1970	\$ 4,426,995	0%	\$ 552,678	\$ 552,678	50
	Transmission and Distribution	16"	1970	\$ 1,782,338	0%	\$ 222,512	\$ 222,512	50
	Transmission and Distribution	18"	1970	\$ 1,246,428	0%	\$ 155,608	\$ 155,608	50
	Transmission and Distribution	20"	1970	\$ 8,027	0%	\$ 1,002	\$ 1,002	50
	Transmission and Distribution	24"	1970	\$ -	0%	\$ -	\$ -	50
	Transmission and Distribution	30"	1970	\$ -	0%	\$ -	\$ -	50
	Transmission and Distribution	36"	1970	\$ -	0%	\$ -	\$ -	50
	Transmission and Distribution	42"	1970	\$ -	0%	\$ -	\$ -	50
	Transmission and Distribution	46"	1970	\$ -	0%	\$ -	\$ -	50
	Transmission and Distribution	48"	1970	\$ -	0%	\$ -	\$ -	50
	Pumping	2341 Douglas Rd - Well Pump/House	1970	\$ 636,000		\$ 79,400	\$ 79,400	50
	Pumping	2341 Douglas Rd - Well Replacement	1970	\$ 335,000		\$ 41,822	\$ 41,822	50
	Pumping	5735 Legoe Rd - Well Pump/House	1970	\$ 636,000		\$ 79,400	\$ 79,400	50
	Pumping	5735 Legoe Rd - Well Replacement	1970	\$ 335,000		\$ 41,822	\$ 41,822	50
	General Plant	City Sign Shop (assumed 25% split)	2010	\$ 21,250		\$ 16,909	\$ 16,909	50
	General Plant	Shop Storage (assumed 25% split)	1977	\$ 306,700		\$ 71,422	\$ 71,422	50
	General Plant	Shop Office/Crew Facilities (assumed 25% split)	2002	\$ 158,400		\$ 93,620	\$ 93,620	50
	General Plant	Old Shop Storage (assumed 25% split)	1948	\$ 11,294		\$ 471	\$ 471	50
	Hydrants	Hydrants	1970	\$ 2,022,500		\$ 252,495	\$ 252,495	
	Meters & Services	3/4" Meters	1970	\$ 3,725,178		\$ 465,062	\$ 465,062	
	Meters & Services	1" Meters	1970	\$ 269,487		\$ 33,644	\$ 33,644	
	Meters & Services	1 1/2" Meters	1970	\$ 36,296		\$ 4,531	\$ 4,531	
	Meters & Services	2" Meters	1970	\$ 386,340		\$ 48,232	\$ 48,232	
	Meters & Services	3" Meters	1970	\$ 82,200		\$ 10,262	\$ 10,262	
	Meters & Services	4" Meters	1970	\$ 27,650		\$ 3,452	\$ 3,452	
Totals Used in Model				\$ 116,631,266		\$ 16,891,610	\$ 10,826,109	

City of Ferndale
Utility Rate Study: Water Utility
Connection Fee Calculation

Existing Cost Basis		Notes
PLANT-IN-SERVICE		
Utility Capital Assets	\$ 16,891,610	Fixed assets at original cost.
less: Contributed Capital	(6,065,501)	Donated assets at original cost.
plus: Interest on Non-Contributed Plant	7,373,355	Interest on assets up to a maximum 10-year period
plus: Construction-Work-in-Progress	-	
2018 Year-end Estimated Cash Balance	\$ 1,172,644	
less: Debt Principal Outstanding	(4,552,078)	
less: Net Debt Principal Outstanding	\$ (3,379,435)	Debt principal outstanding, net of cash reserves
TOTAL EXISTING COST BASIS	\$ 14,820,029	

Future Cost Basis		Notes
CAPITAL IMPROVEMENT PLAN (2019-2038)		CIP costs are not inflated.
Total Citywide Projects	\$ 22,464,714	
less: Provision for Repair & Replacement	\$ (2,161,690)	
less: Developer Contributions/Grants	\$ -	
Growth Related Projects	\$ 20,303,024	
TOTAL FUTURE COST BASIS	\$ 20,303,024	

Customer Base		Notes
Existing Customers	0 gal	Forecasted 2019 ADD from customer stats
Single Family Equivalency	175 gal	SFE per Ferndale municipal code
	-	Calculated existing ERUs
Total Existing Capacity	1,290,000 gal	Forecasted 2019 ADD from 2016 WSP
Surplus Capacity	1,290,000 gal	Capacity in excess of current ADD
Single Family Equivalency	175 gal	
	7,371	
Total Existing Single Family Equivalent Capacity	7,371	
Future Capacity	4,300	20-Year ERU CAGR from comprehensive plan
TOTAL CUSTOMER BASE	11,672	

Resulting Charge				Notes
Charge Components	Cost Basis	Customers	Charge	
Component for Existing Assets	\$ 14,820,029	11,672	\$ 1,270	
Component for Future Assets	\$ 20,303,024	4,300	\$ 4,721	
	\$ 35,123,054		\$ 5,991	
TOTAL Conn. Fee PER ESU			\$5,991	
Existing Conn. Fee			\$6,446	
Increase (%) - Calculated Above Existing Conn. Fee			-7.1%	
Increase (\$) - Calculated Above Existing Conn. Fee			(\$455)	

City of Ferndale
Utility Rate Study: Water Utility
Retail System Classification

PLANT IN SERVICE	TOTAL COST	FUNCTIONS OF WATER SERVICE							Total	Allocation Basis
		CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL			
Supply / Treatment	\$ 8,934,000	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio As Pumping As Storage As T&D - SPU Methodology As M&S As Fire As All Other	
Pumping	4,857,000	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%		
Storage	7,354,000	0.00%	0.00%	31.04%	20.09%	48.87%	0.00%	100.00%		
Transmission and Distribution	88,438,971	0.00%	0.00%	38.03%	27.00%	34.97%	0.00%	100.00%		
Meters & Services	4,527,151	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
Hydrants	2,022,500	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%		
General Plant	497,644	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%		
Total Plant in Service	\$ 116,631,266	\$ -	\$ 4,527,151	\$43,980,248	\$31,082,776	\$36,543,447	\$ 497,644	\$ 116,631,266		
% Share		0.00%	3.90%	37.87%	26.76%	31.47%		100.00%		
Allocation of "As All Others"		-	19,399	188,460	133,193	156,592	(497,644)			
Adjusted Total Plant in Service		\$ -	\$ 4,546,550	\$44,168,708	\$31,215,968	\$36,700,039		\$ 116,631,266		
Allocation Percentages		0.00%	3.90%	37.87%	26.76%	31.47%		100.00%		

PUMPING	gpm	FUNCTIONS OF WATER SERVICE						Total	Allocation Basis
		CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL		
Water Treatment Plant 1	1,600	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio As Peak Demand Ratio
Water Treatment Plant 2	1,600	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Water Treatment Plant 3	3,250	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Thornton Rd. PS 1	850	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Thornton Rd. PS 2	850	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Curch Road PS 1	800	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Curch Road PS 2	800	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Bakerview PS 1	1,373	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Bakerview PS 2	1,373	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Bakerview PS 3	1,373	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Bakerview PS 4	1,373	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
		0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	
Total Pump Flow (GPM)	15,242	-	-	8,913	6,329	-	-	15,242	
% Share		0.00%	0.00%	58.48%	41.52%	0.00%	-	100.00%	
Allocation of "As All Others"		-	-	-	-	-	-		
Adjusted Total Plant in Service	15,242	-	-	8,913	6,329	-		15,242	
Allocation Percentages		0.00%	0.00%	58.48%	41.52%	0.00%		100.00%	

STORAGE	TOTAL STORAGE	FUNCTIONS OF WATER SERVICE						Total	Allocation Basis
		CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL		
Operational Storage	0.16	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	As Base
Equalizing Storage	0.06	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	As Peak
Standby Storage	1.27	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
Fire Suppression Storage	1.43	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	As Fire
Dead Storage	0.08	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Total Storage	3.02	-	-	0.91	0.59	1.43	0.08	3.02	
% Share		0.00%	0.00%	31.04%	20.09%	48.87%		100.00%	
Allocation of "As All Others"		-	-	0.03	0.02	0.04	(0.08)		
Adjusted Total Plant in Service	3.02	-	-	0.94	0.61	1.47		3.02	
Allocation Percentages		0.00%	0.00%	31.04%	20.09%	48.87%		100.00%	

City of Ferndale
Utility Rate Study: Water Utility
Retail System Classification

TRANSMISSION & DISTRIBUTION - AWW		FUNCTIONS OF WATER SERVICE							Total	Allocation Basis
	Total Cost	CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL			
1"	\$ -	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
2"	50,704	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
3"	-	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
4"	5,467,602	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
6"	7,891,911	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
8"	32,553,414	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
10"	7,867,912	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
12"	27,143,640	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%	100.00%	As Distribution	
14"	4,426,995	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
16"	1,782,338	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
18"	1,246,428	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
20"	8,027	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
24"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
30"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
36"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
42"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
46"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
48"	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio	
Total	\$ 88,438,971	\$62,944,302	\$ -	\$ 4,364,788	\$11,791,833	\$ 9,338,048	\$ -	\$ 88,438,971		
% Share	100.00%	71.17%	0.00%	4.94%	13.33%	10.56%				
Allocation of "As All Other"		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Adjusted Transmission & Distribution	\$ 88,438,971	\$62,944,302	\$ -	\$ 4,364,788	\$11,791,833	\$ 9,338,048	\$ -			
Distribution Allocation: 1"-12"										
Share	\$ Min	% of Total Rep.								
Customer:	\$ 62,944,302	77.73%								
Share	Less Customer	Capacity	% of Total Rep.							
Capacity:	\$ (62,944,302)	\$ 9,494,085	10.74%							
Share										
Fire:										

Replacement costs are from Lake Oswego (2019)

TRANSMISSION & DISTRIBUTION - Incremental Fire Methodology		Incremental Fire Cost	M&S	FUNCTIONS OF WATER SERVICE				Total	Allocation Basis
	Total Cost			BASE	PEAK	FIRE	AS ALL		
1"	\$ -		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
2"	50,704		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
3"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
4"	5,467,602		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
6"	7,891,911	391,797	0.00%	55.58%	39.46%	4.96%	0.00%	100.00%	Fire Increment
8"	32,553,414	1,539,689	0.00%	55.71%	39.56%	4.73%	0.00%	100.00%	Fire Increment
10"	7,867,912	780,784	0.00%	52.68%	37.40%	9.92%	0.00%	100.00%	Fire Increment
12"	27,143,640	2,366,766	0.00%	53.38%	37.90%	8.72%	0.00%	100.00%	Fire Increment
14"	4,426,995	177,735	0.00%	56.13%	39.85%	4.01%	0.00%	100.00%	Fire Increment
16"	1,762,338	99,922	0.00%	55.20%	39.19%	5.61%	0.00%	100.00%	Fire Increment
18"	1,246,428		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
20"	8,027		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
24"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
30"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
36"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
42"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
46"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
48"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
Total	\$ 88,438,971	\$ 5,356,693	\$ -	\$48,586,128	\$34,496,151	\$ 5,356,693	\$ -	\$ 88,438,971	
% Share	100.00%		0.00%	54.94%	39.01%	6.06%			
Allocation of "As All Other"		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Adjusted Transmission & Distribution	\$ 88,438,971		\$ -	\$48,586,128	\$34,496,151	\$ 5,356,693	\$ -		

Replacement costs are from Lake Oswego (2019)

City of Ferndale
Utility Rate Study: Water Utility
Retail System Classification

TRANSMISSION & DISTRIBUTION - SPU									
Approach	Total Cost	Incremental Fire Cost	M&S	FUNCTIONS OF WATER SERVICE				Total	Allocation Basis
				BASE	PEAK	FIRE	AS ALL		
1"	\$ -		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
2"	50,704		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
3"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
4"	5,467,598		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
6"	7,891,905	4,384,392	0.00%	25.99%	18.45%	55.56%	0.00%	100.00%	Fire Increment
8"	32,553,406	14,242,115	0.00%	32.89%	23.36%	43.75%	0.00%	100.00%	Fire Increment
10"	7,867,902	2,832,445	0.00%	37.43%	26.57%	36.00%	0.00%	100.00%	Fire Increment
12"	27,143,628	8,293,886	0.00%	40.61%	28.83%	30.56%	0.00%	100.00%	Fire Increment
14"	4,426,995	1,174,509	0.00%	42.96%	30.50%	26.53%	0.00%	100.00%	Fire Increment
16"	1,782,338	-	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	Fire Increment
18"	1,246,428		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
20"	8,027		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
24"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
30"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
36"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
42"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
46"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
48"	-		0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Peak Demand Ratio
Total	\$ 88,438,931	\$30,927,347	\$ -	\$33,632,505	\$23,879,079	\$30,927,347	\$ -	\$ 88,438,931	
% Share	100.00%		0.00%	38.03%	27.00%	34.97%			
Allocation of "As All Other"			\$ -	\$ -	\$ -	\$ -	\$ -		
Adjusted Transmission & Distribution	\$ 88,438,931		\$ -	\$33,632,505	\$23,879,079	\$30,927,347	\$ -		

Replacement costs are from Lake Oswego (2019)

City of Ferndale
Utility Rate Study: Water Utility
Retail System Classification

Year	FY2020		FUNCTIONS OF WATER SERVICE					Total	Allocation Basis
OPERATING & MAINTENANCE EXPENSES	TOTAL COST	CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL		
B&O/Excise Tax	\$ 120,369	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
COF Monthly Utility Tax - Water	270,759	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Administration - General									
Salaries	44,518	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Salaries Clerical	53,756	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Medical	41,232	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-L & I	605	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Retirement	20,885	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Social Security	7,590	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits - PFML	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Clothing Allowance	24	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Autoread Software Maint.	2,575	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Meters & Services
Office Supplies	515	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
O & M Supplies	515	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Central Services	153,268	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Central Services - Elected Officials	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Vehicle Rental - Fund 550	64,475	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Vehicle Rental Fund 550 - Capital	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Computer Repair & Replacement - F	12,771	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Professional Services 401.000.001	2,500	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Prof Services Comp Plan Update	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Prof Serv Billings/Stuff/Print/Dep/CC	30,900	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Postage	7,210	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Cell Phone	3,090	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Travel	258	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Public Notice Publication	258	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Copy Machine Lease	2,575	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Copy Machine Maintenance	721	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Contract R & M	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Contract Admin Temp. Service	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Miscellaneous	309	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Water Resource Council Dues	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Autoread Software Maint.	-	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Meters & Services
Maintenance									
Salaries	350,144	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Summer Help	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Salaries	10,692	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Medical	92,692	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-L & I	9,487	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Retirement	52,054	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Social Security	27,044	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Overtime Meal Allowan	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Excess Compensation	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits - PFML	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
HSA City Contribution	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits L & I	264	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits Retirement	1,573	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits Social Security	826	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Boot Allowance	1,329	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Overtime Meals	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
O & M Supplies 401.000.002	82,400	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
O & M Supplies-Comm1 Meters	6,180	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
O & M Supplies-Fire Hydrants	5,150	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Small Tools	7,725	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Professional Services 401.000.002	2,060	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Postage	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Cell Phone	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Travel	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Contract R & M	1,030	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Miscellaneous	515	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Certifications	1,545	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service

City of Ferndale

Utility Rate Study: Water Utility

Retail System Classification

Operations									
OT Salaries	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Salaries	217,861	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Salaries - Summer Help	2,600	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Medical	52,126	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-L & I	4,570	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Retirement	32,100	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Social Security	17,027	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits-Retirement Pmt TO Drs	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Benefits - PFML	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits L & I	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits Retirement	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
OT Benefits Social Security	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Boot Allowance	618	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
O & M Supplies 401.000.004	51,500	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
O & M Lab Supplies	1,030	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
O & M Chlorine Supples	30,900	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
O & M Clay Valve WTP Dist Supply	20,600	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
O & M Polymers	51,500	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Office Supplies 401.000.004	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Laboratory Testing	15,450	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Miscellaneous Small Tools	3,090	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Professional Services 401.000.004	61,800	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Phone-Communication	2,060	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Travel	1,545	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Utilities-Puget Sound Energy	173,931	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Water & Sewer Utilities	206	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Utilities-Natural Gas	155	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Contract R & M	5,150	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Contract R&M-Generator Service 40	10,300	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Miscellaneous	2,575	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Miscellaneous-Safety Equipment	1,236	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Miscellaneous/Training	2,060	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As all Other
Fee Refunds	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Intergovernment-Dept of Health	7,210	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Transfers Out									
TR TO F550 Leak Detection Equipm	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
TR TO F550 Vactor Truck	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
TR TO F550 Truck T-6	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
TR TO F550 New Truck	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
TR TO F550 Truck T-25	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Transfers to F550	91,413	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Nonexpenditures									
Latecomers	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Refund of Deposits	206	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
New FTEs for Water Plant Upgrade	-	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Total	\$ 2,355,204	\$ 214,960	\$ 47,442	\$ 637,782	\$ 451,406	\$ 362,166	\$ 641,449	\$ 2,355,204	
% of Classification		12.54%	2.77%	37.22%	26.34%	21.13%		100.00%	
Allocation of "As All Other"		\$ 80,458	\$ 17,757	\$ 238,718	\$ 168,959	\$ 135,557	\$ (641,449)	\$ -	
TOTAL OPERATING & MAINTENANCE E	\$ 2,355,204	\$ 295,418	\$ 65,199	\$ 876,500	\$ 620,365	\$ 497,723	\$ -		
% Share		12.54%	2.77%	37.22%	26.34%	21.13%			

City of Ferndale
Utility Rate Study: Water Utility
Retail System Classification

REVENUE REQUIREMENT	TOTAL COST	FUNCTIONS OF WATER SERVICE						Total	Allocation Basis
		CUSTOMER	M&S	BASE	PEAK	FIRE	OTHER		
Operating & Maintenance Expenses	\$ 2,355,204	12.54%	2.77%	37.22%	26.34%	21.13%	0.00%	100.00%	As O&M Expenses
Existing Debt	488,524	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
New Debt	455,661	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Rate Funded System Reinvestment	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Total Expenses	\$ 3,299,390								
% Share									
less: Non Rate Revenues									
Cell Phone Tower Rental	\$ (11,200)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Set UP Fees	(2,800)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Reconnection Fees	(25,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Meter Charge	(21,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Hydrant Meter Deposits	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Set UP Fees - New Meter Set	(3,500)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Installation Fee-New Meter Set	(9,000)	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Prop Sale Final Meter Read Fee	(10,000)	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%	100.00%	As Supply/Treatment
Hydrant Meter Setup Fee	(200)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Hydr Metr Rent/con/permit Fee	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Meter Testing Fee	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Miscellaneous	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Late Fees	(11,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Connections-Utility Billings	(15,000)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Refundable Deposits	(2,000)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Investment Interest	(20,908)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
plus:									
Net Cash Flow After Rate Increase	\$ (180,242)	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Adjustment for Partial Year Increase	-	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%	100.00%	As Plant in Service
Additional Taxes for Rate Increases	102,326	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Revenue Requirement	\$ 3,089,865	\$ 217,118	\$ 94,979	\$ 1,154,697	\$ 816,943	\$ 738,111	\$ 68,017	\$ 3,089,865	
% of Classification		7.18%	3.14%	38.21%	27.03%	24.43%		100.00%	
Allocation of "As All Other"		\$ 4,887	\$ 2,138	\$ 25,991	\$ 18,388	\$ 16,614	\$ (68,017)	\$ -	
TOTAL O&M EXPENSES	\$ 3,089,865	\$ 222,005	\$ 97,117	\$ 1,180,688	\$ 835,331	\$ 754,724	\$ -		
% Share		7.18%	3.14%	38.21%	27.03%	24.43%			

ALLOCATION FACTORS	Total Cost	FUNCTIONS OF WATER SERVICE					
		CUSTOMER	M&S	BASE	PEAK	FIRE	AS ALL OTHER
CLASSIFICATIONS							
As Customer	100.00%	100.00%					
As M&S	100.00%		100.00%				
As Base	100.00%			100.00%			
As Peak	100.00%				100.00%		
As Fire	100.00%					100.00%	
As [Extra]	100.00%						
As All Other	100.00%						100.00%
PLANT IN SERVICE							
As Peak Demand Ratio	100.00%	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%
As Pumping	100.00%	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%
As Storage	100.00%	0.00%	0.00%	31.04%	20.09%	48.87%	0.00%
As Supply/Treatment	100.00%	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%
As Pumping	100.00%	0.00%	0.00%	58.48%	41.52%	0.00%	0.00%
As Storage	100.00%	0.00%	0.00%	31.04%	20.09%	48.87%	0.00%
As Meters & Services	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%
As Hydrants	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
As General Plant	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
As Plant in Service	100.00%	0.00%	3.90%	37.87%	26.76%	31.47%	0.00%
As Distribution	100.00%	77.73%	0.00%	0.00%	10.74%	11.53%	0.00%
As T&D - AWWA Methodology	100.00%	71.17%	0.00%	4.94%	13.33%	10.56%	0.00%
As T&D - Incremental Fire Cost Method	100.00%	0.00%	0.00%	54.94%	39.01%	6.06%	0.00%
As T&D - SPU Methodology	100.00%	0.00%	0.00%	38.03%	27.00%	34.97%	0.00%
Fire Increment							
OTHER							
As O&M Expenses	100.00%	12.54%	2.77%	37.22%	26.34%	21.13%	0.00%
As Revenue Requirement	100.00%	7.18%	3.14%	38.21%	27.03%	24.43%	0.00%

Peaking Ratio
1.71

City of Ferndale
Utility Rate Study: Water Utility
Customer Allocation

CUSTOMER \$ 222,005				
Class	Allocation Accounts	%	\$ Allocation	\$/Mo./Account
Single Family	4,683	88.46%	\$ 196,393	\$ 3.49
Multi Family	124	2.34%	5,197	3.49
Commercial	402	7.60%	16,877	3.49
Irrigation	84	1.59%	3,539	3.49
Total	5,294	100.00%	\$ 222,005	\$ 3.49

BASE \$ 1,180,688				
Class	Allocation Total Use	%	\$ Allocation	\$/ccf
Single Family	306,099	66.26%	\$ 782,345	\$ 2.56
Multi Family	57,973	12.55%	148,172	2.56
Commercial	77,455	16.77%	197,963	2.56
Irrigation	20,427	4.42%	52,209	2.56
Total	461,955	100.00%	\$ 1,180,688	\$ 2.56

METERS & SERVICES \$ 97,117					
Class	Allocation MSEs	%	\$ Allocation	\$/Mo./MSE	\$/Mo./Account
Single Family	4,735	78.19%	\$ 75,938	\$ 1.34	\$ 1.35
Multi Family	258	4.26%	4,134	1.34	2.78
Commercial	906	14.96%	14,533	1.34	3.01
Irrigation	157	2.59%	2,512	1.34	2.48
Total	6,056	100.00%	\$ 97,117	\$ 1.34	\$ 1.53

PEAK \$ 835,331						
Class	Allocation Total Use	Peak Factor Class Peak/ Avg Total	Peak Use	%	\$ Allocation	\$/ccf
Single Family	306,099	1.37	420,323	65.30%	\$ 545,501	\$ 1.78
Multi Family	57,973	1.19	68,860	10.70%	89,367	1.54
Commercial	77,455	1.24	95,705	14.87%	124,208	1.60
Irrigation	20,427	2.88	58,757	9.13%	76,255	3.73
Total	461,955	1.39	643,645	100.00%	\$ 835,331	\$ 1.81

FIRE \$ 754,724							
Class	Allocation Accounts	Fire Flow (gpm)	Duration	Fire Flow Requirement	Total Fire Flow Req. for Class	%	\$ Allocation \$/Mo./Account
Single Family	4,683	1,000	120	120,000	561,942,152	69.46%	\$ 524,247 \$ 9.33
Multi Family	124	2,000	120	240,000	29,740,701	3.68%	27,746 18.66
Commercial	402	3,000	180	540,000	217,308,727	26.86%	202,732 41.98
Irrigation	84	-	-	-	-	0.00%	-
Total	5,294			900,000	808,991,581	100.00%	\$ 754,724 \$ 11.88

Allocation Summary						
Class	Customer	Meters & Services	Base	Peak	Fire	Total
Single Family	\$ 196,393	\$ 75,938	\$ 782,345	\$ 545,501	\$ 524,247	\$ 2,124,423
Multi Family	5,197	4,134	148,172	89,367	27,746	274,616
Commercial	16,877	14,533	197,963	124,208	202,732	556,312
Irrigation	3,539	2,512	52,209	76,255	-	134,514
Total	\$ 222,005	\$ 97,117	\$ 1,180,688	\$ 835,331	\$ 754,724	\$ 3,089,865

Cost of Service				
Class	Existing 2020 Revenue	COSA 2020 Revenue	Difference \$	%
Residential	\$ 1,579,933	\$ 2,124,423	\$ 544,489	34.46%
Multi-Family	270,045	274,616	4,571	1.69%
Commercial	405,500	556,312	150,813	37.19%
Irrigation	105,000	134,514	29,515	28.11%
Total	\$ 2,360,478	\$ 3,089,865	\$ 729,388	30.90%

City of Ferndale
Utility Rate Study: Water Utility
COS Phase - In

Class	COSA Targets						COSA Revenue
	2019	2020	2021	2022	2023	2024	2025
Single Family	\$ 1,613,483	\$ 2,121,712	\$ 2,334,604	\$ 2,550,924	\$ 2,793,221	\$ 3,060,115	\$ 3,290,429
Multi Family	211,744	280,786	308,929	346,635	379,344	415,144	445,929
Commercial	405,792	547,992	604,985	656,587	722,986	794,265	855,326
Irrigation	106,088	139,375	153,115	173,532	189,426	206,998	222,143
Total	\$ 2,337,107	\$ 3,089,865	\$ 3,401,633	\$ 3,727,679	\$ 4,084,977	\$ 4,476,522	\$ 4,813,828
							\$ 3,089,865

Class	COSA Targets					
	2019	2020	2021	2022	2023	2024
Single Family	0.00%	31.89%	7.85%	7.21%	10.00%	9.87%
Multi Family	0.00%	16.45%	16.45%	16.45%	0.00%	0.00%
Commercial	0.00%	35.39%	9.00%	8.50%	8.50%	8.50%
Irrigation	0.00%	35.80%	9.00%	8.50%	8.50%	8.50%
Total	0.00%	30.90%	9.00%	8.50%	8.50%	8.50%
Target	0.00%	30.90%	9.00%	8.50%	8.50%	8.50%

Rate Design

Class	Accounts					
	2020	2021	2022	2023	2024	2025
Single Family	4,683	4,730	4,777	4,825	4,873	4,897
Multi Family 3/4"	30	30	30	31	31	31
Multi Family 1 1/2"	94	95	96	97	98	99
Commercial 3/4"	157	159	160	162	163	164
Commercial 1 1/2"	245	248	250	253	255	257
Irrigation 3/4"	31	32	32	32	33	33
Irrigation 1 1/2"	53	53	54	55	55	55

Class	Block 1 Usage					
	2020	2021	2022	2023	2024	2025
Single Family	284,553	287,309	290,273	293,175	296,107	297,588
Multi Family	16,229	16,391	16,555	16,721	16,888	16,973
Commercial	25,134	25,385	25,639	25,896	26,155	26,285
Irrigation	4,310	4,354	4,397	4,441	4,485	4,508

Class	Block 2 Usage					
	2020	2021	2022	2023	2024	2025
Single Family	12,800	12,928	13,057	13,188	13,320	13,387
Multi Family	8,477	8,562	8,647	8,734	8,821	8,865
Commercial	11,692	11,808	11,927	12,046	12,166	12,227
Irrigation	2,931	2,960	2,990	3,020	3,050	3,065

Class	Block 3 Usage					
	2020	2021	2022	2023	2024	2025
Single Family	6,401	6,465	6,530	6,595	6,661	6,695
Multi Family	13,825	13,963	14,102	14,243	14,386	14,458
Commercial	18,141	18,323	18,506	18,691	18,878	18,972
Irrigation	6,926	6,995	7,065	7,135	7,207	7,243

Class	Block 3 Usage					
	2020	2021	2022	2023	2024	2025
Single Family	2,345	2,368	2,392	2,416	2,440	2,452
Multi Family	19,443	19,637	19,834	20,032	20,232	20,333
Commercial	22,488	22,713	22,940	23,169	23,401	23,518
Irrigation	6,260	6,323	6,386	6,450	6,514	6,547

2019	2020	Revenue Under Existing Rates		2024	2025
		2021	2022		
\$ 1,564,291	\$ 1,579,933	\$ 1,595,733	\$ 1,611,690	\$ 1,627,807	\$ 1,644,085
267,371	270,045	272,745	275,473	278,228	281,010
401,485	405,500	409,555	413,650	417,787	421,964
103,960	105,000	106,050	107,110	108,181	109,263
\$ 2,337,107	\$ 2,360,478	\$ 2,384,082	\$ 2,407,923	\$ 2,432,002	\$ 2,456,322

2019	2020	Revenue With Phase-In		2024	2025
		2021	2022		
\$ 1,564,291	\$ 2,083,809	\$ 2,270,416	\$ 2,458,352	\$ 2,731,327	\$ 3,030,841
267,371	314,458	369,836	434,968	439,318	443,711
401,485	549,010	604,406	662,338	725,823	795,393
103,960	142,588	156,975	172,021	188,509	206,578
\$ 2,337,107	\$ 3,089,865	\$ 3,401,633	\$ 3,727,679	\$ 4,084,977	\$ 4,476,522

Check

% to COSA in 2025
0.00%
0.00%
0.00%
0.00%

2020 COSA

34.46%
1.69%
37.19%
28.11%

2019	2020	Revenue With Prior Year's Increase				2025
		2021	2022	2023	2024	
\$ 1,564,291	\$ 1,579,933	\$ 2,104,647	\$ 2,293,120	\$ 2,482,936	\$ 2,758,641	\$ 3,045,995
267,371	270,045	317,602	373,535	439,318	443,711	445,929
401,485	405,500	554,501	610,450	668,961	733,081	799,370
103,960	105,000	144,014	158,545	173,741	190,394	207,611
\$ 2,337,107	\$ 2,360,478	\$ 3,120,764	\$ 3,435,649	\$ 3,764,956	\$ 4,125,827	\$ 4,498,905

2020	2021	Fixed Rates		2024	2025
		2022	2023		
\$ 20.68	\$ 22.31	\$ 23.92	\$ 26.31	\$ 28.91	\$ 31.23
18.26	21.26	24.76	24.76	24.76	24.76
57.26	66.67	77.64	77.64	77.64	77.64
21.23	23.14	25.11	27.24	29.56	31.63
66.57	72.56	78.73	85.42	92.68	99.17
21.29	23.21	25.18	27.32	29.65	31.72
66.77	72.78	78.97	85.68	92.96	99.47

2020	2021	Block 1 Revenue		2024	2025
		2022	2023		
\$ 4.85	\$ 5.24	\$ 5.61	\$ 6.17	\$ 6.78	\$ 7.33
4.29	4.99	5.81	5.81	5.81	5.81
4.98	5.43	5.89	6.39	6.94	7.42
5.00	5.45	5.91	6.41	6.96	7.44

2020	2021	Block 2 Revenue		2024	2025
		2022	2023		
\$ 5.35	\$ 5.78	\$ 6.19	\$ 6.81	\$ 7.48	\$ 8.09
4.73	5.51	6.41	6.41	6.41	6.41
5.50	5.99	6.50	7.05	7.65	8.19
5.51	6.01	6.52	7.07	7.68	8.21

2020	2021	Block 3 Revenue		2024	2025
		2022	2023		
\$ 6.33	\$ 6.83	\$ 7.32	\$ 8.05	\$ 8.85	\$ 9.56
5.59	6.51	7.58	7.58	7.58	7.58
6.50	7.08	7.69	8.34	9.05	9.68
6.52	7.10	7.71	8.36	9.08	9.71

2020	2021	Block 4 Revenue		2024	2025
		2022	2023		
\$ 5.35	\$ 5.78	\$ 6.19	\$ 6.81	\$ 7.48	\$ 8.09
4.73	5.51	6.41	6.41	6.41	6.41
5.50	5.99	6.50	7.05	7.65	8.19
5.51	6.01	6.52	7.07	7.68	8.21

2020	2021	Fixed Revenue		2024	2025
		2022	2023		
\$ 581,068	\$ 633,103	\$ 685,509	\$ 761,628	\$ 845,146	\$ 917,533
32,403	3,815	4,486	4,531	4,577	4,600
32,400	38,106	44,817	45,265	45,718	45,947
20,008	22,027	24,138	26,452	28,987	31,171
97,998	107,887	118,227	129,560	141,978	152,676
4,015	4,420	4,844	5,308	5,817	6,255
21,214	23,354	25,593	28,046	30,734	33,050
\$ 759,947	\$ 832,711	\$ 907,614	\$ 1,000,789	\$ 1,102,957	\$ 1,191,231

2020	2021	Volume Revenue		2024	2025
		2022	2023		
\$ 1,381,116	\$ 1,504,796	\$ 1,620,357	\$ 1,810,281	\$ 2,008,793	\$ 2,180,845
69,546	81,793	96,198	97,160	98,132	98,622
125,228	137,863	151,077	165,558	181,427	195,097
21,541	23,714	25,987	28,478	31,208	33,559
\$ 1,597,430	\$ 1,748,167	\$ 1,902,620	\$ 2,101,477	\$ 2,319,560	\$ 2,508,124

2020	2021	Volume Revenue		2024	2025
		2022	2023		
\$ 68,543	\$ 74,681	\$ 80,863	\$ 89,841	\$ 99,693	\$ 108,232
40,077	47,134	55,435	55,590	55,549	56,832
64,267	70,751	77,533	84,964	93,108	100,124
16,161	17,791	19,496	21,365	23,413	25,177
\$ 189,047	\$ 210,358	\$ 233,327	\$ 252,161	\$ 272,764	\$ 290,365

2020	2021	Volume Revenue		2024	2025
		2022	2023		
\$ 40,526	\$ 44,155	\$ 47,810	\$ 53,118	\$ 58,943	\$ 63,992
77,271	90,879	106,884	107,953	109,032	109,578
117,897	129,793	142,233	155,866	170,806	183,676
45,143	49,698	54,462	59,662	65,402	70,330
\$ 280,837	\$ 314,525	\$ 351,389	\$ 376,620	\$ 404,184	\$ 427,576

2020	2021	Volume Revenue		2024	2025
		2022	2023		
\$ 12,557	\$ 13,682	\$ 14,814	\$ 16,459	\$ 18,264	\$ 19,828
91,920	108,108	127,147	128,418	129,703	130,351
123,613	136,085	149,129	163,423	179,087	192,581
34,514	37,997	41,639	45,630	50,004	53,771
\$ 262,605	\$ 295,872	\$ 332,729	\$ 353,931	\$ 377,057	\$ 396,532

Total Revenue						
	2020	2021	2022	2023	2024	2025
\$	2,083,809	\$ 2,270,416	\$ 2,458,352	\$ 2,731,327	\$ 3,030,841	\$ 3,290,429
	314,458	369,836	434,968	439,318	443,711	445,929
	549,010	604,406	662,338	725,823	795,303	855,326
	142,588	156,975	172,021	188,509	206,578	222,143
\$	3,089,865	\$ 3,401,633	\$ 3,727,671	\$ 4,084,977	\$ 4,476,522	\$ 4,812,828

City of Ferndale
Utility Rate Study: Water Utility
Customer Forecast

[illegible]

Accounts	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single-Family Residential - 3/4"	3,906	3,813	3,851	3,890	3,928	3,968	4,007	4,027	4,297
Single-Family Residential - 1"+	45	44	45	45	46	46	47	47	50
Single-Family Residential UBA - 3/4"	187	183	185	187	188	190	192	193	206
Single-Family Residential UBA 1"+	1	1	1	1	1	1	1	1	1
Single-Family Residential Outside City - 3/4"	408	398	402	406	410	414	418	420	448
Single-Family Residential Outside City - 1"+	22	21	21	21	22	22	22	22	24
Single-Family Residential Outside City UBA - 3/4"	12	12	12	12	12	12	12	13	13
Single-Family Residential Outside City UBA - 1"+	0	0	0	0	0	0	0	0	0
Multi-Family - 3/4"	30	29	30	30	30	31	31	31	33
Multi-Family - 1"+	93	90	91	92	93	94	95	96	102
Multi-Family Out - 3/4"	0	0	0	0	0	0	0	0	0
Multi-Family Out - 1"+	2	2	2	2	2	2	2	2	2
Commercial - 3/4"	146	142	144	145	147	148	150	150	160
Commercial - 1"+	232	227	229	231	234	236	238	240	256
Commercial - Out - 3/4"	9	9	9	9	9	9	9	9	10
Commercial - Out - 1"+	11	11	11	11	11	11	11	11	12
Irrigation - 3/4"	30	30	30	30	31	31	31	31	33
Irrigation - 1"+	51	49	50	50	51	52	52	52	56
Irrigation - Out - 3/4"	1	1	1	1	1	1	1	1	1
Irrigation - Out - 1"+	2	2	2	2	2	2	2	2	2
Total	5,188	5,064	5,115	5,166	5,217	5,270	5,322	5,349	5,707

[illegible]

Consumption (ccf)	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family Residential - Tier 1	239,559	233,847	236,186	238,547	240,933	243,342	245,776	247,005	263,550
Single Family Residential - Tier 2	9,872	9,637	9,733	9,830	9,929	10,028	10,128	10,179	10,861
Single Family Residential - Tier 3	4,860	4,744	4,792	4,839	4,888	4,937	4,986	5,011	5,347
Single Family Residential - Tier 4	1,759	1,717	1,734	1,752	1,769	1,787	1,805	1,814	1,935
Single Family Residential UBA - Tier 1	9,309	9,087	9,178	9,270	9,362	9,456	9,551	9,598	10,241
Single Family Residential UBA - Tier 2	341	333	336	340	343	346	350	352	375
Single Family Residential UBA - Tier 3	121	118	119	120	122	123	124	125	133
Single Family Residential UBA - Tier 4	0	0	0	0	0	0	0	0	0
Single Family Residential Outside City - Tier 1	27,574	26,917	27,186	27,458	27,732	28,009	28,290	28,431	30,335
Single Family Residential Outside City - Tier 2	1,893	1,848	1,866	1,885	1,904	1,923	1,942	1,952	2,083
Single Family Residential Outside City - Tier 3	1,028	1,003	1,014	1,024	1,034	1,044	1,055	1,060	1,131
Single Family Residential Outside City - Tier 4	413	403	407	411	415	420	424	426	454
Single Family Residential Outside City UBA - Tier 1	636	621	627	633	640	646	653	656	700
Single Family Residential Outside City UBA - Tier 2	14	14	14	14	14	14	14	14	15
Single Family Residential Outside City UBA - Tier 3	0	0	0	0	0	0	0	0	0
Single Family Residential Outside City UBA - Tier 4	0	0	0	0	0	0	0	0	0
Multi-Family - Tier 1	16,011	15,629	15,786	15,943	16,103	16,264	16,426	16,509	17,614
Multi-Family - Tier 2	8,148	7,954	8,063	8,114	8,195	8,277	8,359	8,401	8,964
Multi-Family - Tier 3	12,528	12,229	12,352	12,475	12,600	12,726	12,853	12,917	13,783
Multi-Family - Tier 4	12,819	12,513	12,638	12,765	12,893	13,021	13,152	13,217	14,103
Multi-Family Out - Tier 1	300	293	296	299	302	305	308	309	330
Multi-Family Out - Tier 2	300	293	296	299	302	305	308	309	330
Multi-Family Out - Tier 3	996	972	982	992	1,002	1,012	1,022	1,027	1,096
Multi-Family Out - Tier 4	4,601	4,491	4,536	4,582	4,627	4,674	4,720	4,744	5,062
Commercial - Tier 1	23,453	22,894	23,123	23,354	23,588	23,823	24,062	24,182	25,802
Commercial - Tier 2	11,017	10,754	10,862	10,970	11,080	11,191	11,303	11,359	12,120
Commercial - Tier 3	17,340	16,927	17,096	17,267	17,439	17,614	17,790	17,879	19,077
Commercial - Tier 4	21,558	21,044	21,254	21,467	21,682	21,898	22,117	22,228	23,717
Commercial Out - Tier 1	1,360	1,328	1,341	1,354	1,368	1,381	1,395	1,402	1,496
Commercial Out - Tier 2	561	548	553	559	564	570	576	578	617
Commercial Out - Tier 3	707	690	697	704	711	718	725	729	778
Commercial Out - Tier 4	834	814	822	830	839	847	856	860	918
Irrigation - Tier 1	4,096	3,998	4,038	4,079	4,119	4,161	4,202	4,223	4,506
Irrigation - Tier 2	2,793	2,726	2,754	2,781	2,809	2,837	2,865	2,880	3,073
Irrigation - Tier 3	6,561	6,405	6,469	6,533	6,599	6,665	6,731	6,765	7,218
Irrigation - Tier 4	5,229	5,104	5,155	5,207	5,259	5,312	5,365	5,392	5,753
Irrigation Out - Tier 1	184	180	181	183	185	187	189	190	202
Irrigation Out - Tier 2	120	117	118	119	121	122	123	124	132
Irrigation Out - Tier 3	309	302	305	308	311	314	317	319	340
Irrigation Out - Tier 4	747	729	736	744	751	759	766	770	822
Total	449,951	439,223	443,615	448,051	452,532	457,057	461,627	463,936	495,013

[illegible]

City of Ferndale
Utility Rate Study: Water Utility
Customer Forecast

Accounts	2018	2019	2020	2021	2022	2023	2024	2025	2038	Inflation Factor:
Single Family Residential	3,951	3,857	3,896	3,935	3,974	4,014	4,054	4,074	4,347	Customer Growth
Single Family - UBA	188	184	185	187	189	191	193	194	207	Customer Growth
Single Family - Out	429	419	423	427	432	436	440	442	472	Customer Growth
Single Family - UBA Out	12	12	12	12	12	12	12	13	13	Customer Growth
Multi Family	123	120	121	122	123	125	126	127	135	Customer Growth
Multi Family Out	2	2	2	2	2	2	2	2	2	Customer Growth
Commercial	378	369	373	377	380	384	388	390	416	Customer Growth
Commercial - Out	20	20	20	20	20	20	21	21	22	Customer Growth
Irrigation	81	79	80	81	82	82	83	84	89	Customer Growth
Irrigation - Out	3	3	3	3	3	3	3	3	3	Customer Growth
Total	5,188	5,064	5,115	5,166	5,217	5,270	5,322	5,349	5,707	

Consumption	2018	2019	2020	2021	2022	2023	2024	2025	2038	Inflation Factor:
Single Family Residential	256,050	249,945	252,444	254,969	257,518	260,094	262,695	264,008	281,693	Demand Growth
Single Family - UBA	9,771	9,538	9,633	9,730	9,827	9,925	10,025	10,075	10,750	Demand Growth
Single Family - Out	30,908	30,171	30,473	30,777	31,085	31,396	31,710	31,869	34,003	Demand Growth
Single Family - UBA Out	650	635	641	647	654	660	667	670	715	Demand Growth
Multi Family	49,506	48,326	48,809	49,297	49,790	50,288	50,791	51,045	54,464	Demand Growth
Multi Family Out	6,197	6,049	6,110	6,171	6,233	6,295	6,358	6,390	6,818	Demand Growth
Commercial	73,368	71,619	72,335	73,058	73,789	74,527	75,272	75,648	80,716	Demand Growth
Commercial - Out	3,462	3,379	3,413	3,447	3,482	3,517	3,552	3,570	3,809	Demand Growth
Irrigation	18,679	18,234	18,416	18,600	18,786	18,974	19,164	19,260	20,550	Demand Growth
Irrigation - Out	1,360	1,328	1,341	1,354	1,368	1,381	1,395	1,402	1,496	Demand Growth
Total	449,951	439,223	443,615	448,051	452,532	457,057	461,627	463,936	495,013	

Consumption - Summer	2018	2019	2020	2021	2022	2023	2024	2025	2038	Inflation Factor:
Single Family Residential	144,397	140,954	142,364	143,787	145,225	146,677	148,144	148,885	158,858	Demand Growth
Single Family - UBA	5,708	5,572	5,628	5,684	5,741	5,798	5,856	5,885	6,280	Demand Growth
Single Family - Out	18,509	18,068	18,248	18,431	18,615	18,801	18,989	19,084	20,363	Demand Growth
Single Family - UBA Out	375	366	370	373	377	381	385	387	413	Demand Growth
Multi Family	26,123	25,500	25,755	26,013	26,273	26,536	26,801	26,935	28,739	Demand Growth
Multi Family Out	2,900	2,831	2,859	2,888	2,917	2,946	2,975	2,990	3,190	Demand Growth
Commercial	39,885	38,934	39,323	39,717	40,114	40,515	40,920	41,125	43,879	Demand Growth
Commercial - Out	2,285	2,231	2,253	2,275	2,298	2,321	2,344	2,356	2,514	Demand Growth
Irrigation	17,317	16,904	17,073	17,244	17,416	17,590	17,766	17,855	19,051	Demand Growth
Irrigation - Out	1,242	1,212	1,225	1,237	1,249	1,262	1,274	1,281	1,366	Demand Growth
Total	258,741	252,572	255,097	257,648	260,225	262,827	265,455	266,783	284,653	

Consumption - Winter	2018	2019	2020	2021	2022	2023	2024	2025	2038	Inflation Factor:
Single Family Residential	111,653	108,991	110,081	111,182	112,293	113,416	114,550	115,123	122,835	Demand Growth
Single Family - UBA	4,063	3,966	4,006	4,046	4,086	4,127	4,168	4,189	4,470	Demand Growth
Single Family - Out	12,399	12,103	12,224	12,347	12,470	12,595	12,721	12,784	13,641	Demand Growth
Single Family - UBA Out	275	268	271	274	277	279	282	284	303	Demand Growth
Multi Family	23,383	22,825	23,054	23,284	23,517	23,752	23,990	24,110	25,725	Demand Growth
Multi Family Out	3,297	3,218	3,251	3,283	3,316	3,349	3,383	3,399	3,627	Demand Growth
Commercial	33,483	32,685	33,011	33,342	33,675	34,012	34,352	34,524	36,836	Demand Growth
Commercial - Out	1,177	1,149	1,160	1,172	1,184	1,196	1,208	1,214	1,295	Demand Growth
Irrigation	1,362	1,330	1,343	1,356	1,370	1,384	1,397	1,404	1,498	Demand Growth
Irrigation - Out	118	115	116	118	119	120	121	122	130	Demand Growth
Total	191,210	186,651	188,517	190,403	192,307	194,230	196,172	197,153	210,359	

City of Ferndale
Utility Rate Study: Water Utility
Customer Forecast

MCEs	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family Residential	4,023	3,927	3,966	4,006	4,046	4,087	4,128	4,148	4,426
Single Family - UBA	189	184	186	188	190	192	194	195	208
Single Family - Out	443	433	437	442	446	450	455	457	488
Single Family - UBA Out	12	12	12	12	12	12	12	13	13
Multi Family	360	351	354	358	362	365	369	371	396
Multi Family Out	22	21	22	22	22	22	23	23	24
Commercial	1,188	1,160	1,172	1,183	1,195	1,207	1,219	1,225	1,307
Commercial - Out	97	95	96	97	98	99	100	100	107
Irrigation	200	195	197	199	201	203	205	206	220
Irrigation - Out	17	17	17	17	17	17	17	18	19
Total	6,551	6,395	6,459	6,524	6,589	6,655	6,721	6,755	7,208

Inflation Factor:
[Customer Growth](#)
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MSEs	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family Residential	3,995	3,900	3,939	3,978	4,018	4,058	4,099	4,120	4,395
Single Family - UBA	188	184	186	188	189	191	193	194	207
Single Family - Out	435	425	429	433	437	442	446	448	478
Single Family - UBA Out	12	12	12	12	12	12	12	13	13
Multi Family	238	233	235	237	240	242	245	246	262
Multi Family Out	15	15	15	15	15	16	16	16	17
Commercial	829	809	817	825	834	842	850	855	912
Commercial - Out	60	59	59	60	61	61	62	62	66
Irrigation	138	135	136	138	139	141	142	143	152
Irrigation - Out	14	13	13	14	14	14	14	14	15
Total	5,926	5,784	5,842	5,901	5,960	6,019	6,079	6,110	6,519

Inflation Factor:
[Customer Growth](#)
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Consumption Charge	2017 Rate	2018 Rate	2019 Rate	Unit
Single Family Residential - Tier 1	\$3.58	\$3.64	\$3.68	per ccf
Single Family Residential - Tier 2	\$3.95	\$4.02	\$4.06	per ccf
Single Family Residential - Tier 3	\$4.67	\$4.75	\$4.80	per ccf
Single Family Residential - Tier 4	\$3.95	\$4.02	\$4.06	per ccf
Single Family Residential UBA - Tier 1	\$2.69	\$2.73	\$2.76	per ccf
Single Family Residential UBA - Tier 2	\$2.96	\$3.02	\$3.05	per ccf
Single Family Residential UBA - Tier 3	\$3.50	\$3.56	\$3.60	per ccf
Single Family Residential UBA - Tier 4	\$2.96	\$3.02	\$3.05	per ccf
Single Family Residential Outside City - Tier 1	\$5.37	\$5.46	\$5.52	per ccf
Single Family Residential Outside City - Tier 2	\$5.93	\$6.03	\$6.09	per ccf
Single Family Residential Outside City - Tier 3	\$7.01	\$7.13	\$7.20	per ccf
Single Family Residential Outside City - Tier 4	\$5.93	\$6.03	\$6.09	per ccf
Single Family Residential Outside City UBA - Tier 1	\$4.03	\$4.10	\$4.14	per ccf
Single Family Residential Outside City UBA - Tier 2	\$4.44	\$4.52	\$4.57	per ccf
Single Family Residential Outside City UBA - Tier 3	\$5.25	\$5.34	\$5.40	per ccf
Single Family Residential Outside City UBA - Tier 4	\$3.58	\$4.52	\$4.57	per ccf
Multi-Family - Tier 1	\$3.95	\$3.64	\$3.68	per ccf
Multi-Family - Tier 2	\$4.67	\$4.02	\$4.06	per ccf
Multi-Family - Tier 3	\$3.95	\$4.75	\$4.80	per ccf
Multi-Family - Tier 4	\$2.69	\$4.02	\$4.06	per ccf
Multi-Family Out - Tier 1	\$3.58	\$5.46	\$5.52	per ccf
Multi-Family Out - Tier 2	\$3.95	\$6.03	\$6.09	per ccf
Multi-Family Out - Tier 3	\$4.67	\$7.13	\$7.20	per ccf
Multi-Family Out - Tier 4	\$3.95	\$6.03	\$6.09	per ccf
Commercial - Tier 1	\$2.69	\$3.64	\$3.68	per ccf
Commercial - Tier 2	\$2.96	\$4.02	\$4.06	per ccf
Commercial - Tier 3	\$3.50	\$4.75	\$4.80	per ccf
Commercial - Tier 4	\$2.96	\$4.02	\$4.06	per ccf
Commercial Out - Tier 1	\$5.37	\$5.46	\$5.52	per ccf
Commercial Out - Tier 2	\$5.93	\$6.03	\$6.09	per ccf
Commercial Out - Tier 3	\$7.01	\$7.13	\$7.20	per ccf
Commercial Out - Tier 4	\$5.93	\$6.03	\$6.09	per ccf
Irrigation - Tier 1	\$4.03	\$3.64	\$3.68	per ccf
Irrigation - Tier 2	\$4.44	\$4.02	\$4.06	per ccf
Irrigation - Tier 3	\$5.25	\$4.75	\$4.80	per ccf
Irrigation - Tier 4	\$2.96	\$4.02	\$4.06	per ccf
Irrigation Out - Tier 1	\$3.50	\$5.46	\$5.52	per ccf
Irrigation Out - Tier 2	\$2.96	\$6.03	\$6.09	per ccf
Irrigation Out - Tier 3	\$5.37	\$7.13	\$7.20	per ccf
Irrigation Out - Tier 4	\$5.93	\$6.03	\$6.09	per ccf

City of Ferndale
Utility Rate Study: Water Utility
Customer Forecast

Fixed Charge	2017 Rate	2018 Rate	2019 Rate	Unit
SFR 3/4"	\$15.25	\$15.52	\$15.68	per account
SFR 1"+	\$47.82	\$15.52	\$15.68	per account
SFR UBA 3/4"	\$11.44	\$11.64	\$11.76	per account
SFR UBA 1"+	\$35.87	\$11.64	\$11.76	per account
SFR Out 3/4"	\$22.88	\$23.28	\$23.52	per account
SFR Out 1"	\$71.73	\$23.28	\$23.52	per account
SFR Out UBA 3/4"	\$17.16	\$17.46	\$17.64	per account
SFR Out UBA 1"+	\$53.80	\$17.46	\$17.64	per account
Multi-Family 3/4"	\$15.25	\$15.52	\$15.68	per account
Multi-Family 1"+	\$47.82	\$48.66	\$49.17	per account
Multi-Family Out 3/4"	\$22.88	\$23.28	\$23.52	per account
Multi-Family Out 1"+	\$71.73	\$72.99	\$73.76	per account
Commercial 3/4"	\$15.25	\$15.52	\$15.68	per account
Commercial 1"+	\$47.82	\$48.66	\$49.17	per account
Commercial Out 3/4"	\$22.88	\$23.28	\$23.52	per account
Commercial Out 1"+	\$71.73	\$72.99	\$73.76	per account
Irrigation 3/4"	\$15.25	\$15.52	\$15.68	per account
Irrigation 1"+	\$47.82	\$48.66	\$49.17	per account
Irrigation Out 3/4"	\$22.88	\$23.28	\$23.52	per account
Irrigation Out 1"+	\$71.73	\$72.99	\$73.76	per account

Consumption Revenue by Class	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family Residential	\$1,143,161	\$1,128,090	\$1,139,371	\$1,150,765	\$1,162,272	\$1,173,895	\$1,185,634	\$1,191,562	\$1,271,380
Multi-Family	240,363	237,065	239,435	241,830	244,248	246,690	249,157	250,403	267,177
Commercial	319,560	315,188	318,340	321,523	324,738	327,986	331,266	332,922	355,223
Irrigation	86,757	85,566	86,422	87,286	88,159	89,040	89,931	90,380	96,435
Total	\$1,789,841	\$1,765,908	\$1,783,568	\$1,801,403	\$1,819,417	\$1,837,611	\$1,855,988	\$1,865,267	\$1,990,215

Fixed Revenue by Class	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family Residential	\$ 442,295	\$ 436,201	\$ 440,563	\$ 444,968	\$ 449,418	\$ 453,912	\$ 458,451	\$ 460,744	\$ 491,607
Multi-Family	30,725	30,307	30,610	30,916	31,225	31,537	31,852	32,012	34,156
Commercial	87,490	86,297	87,160	88,031	88,912	89,801	90,699	91,152	97,258
Irrigation	18,648	18,394	18,578	18,764	18,951	19,141	19,332	19,429	20,731
Total	\$ 579,159	\$ 571,198	\$ 576,910	\$ 582,679	\$ 588,506	\$ 594,391	\$ 600,335	\$ 603,337	\$ 643,752

Total Revenue by Revenue Source	2018	2019	2020	2021	2022	2023	2024	2025	2038
Fixed Charge Revenue	\$ 579,159	\$ 571,198	\$ 576,910	\$ 582,679	\$ 588,506	\$ 594,391	\$ 600,335	\$ 603,337	\$ 643,752
Consumption Charge Revenue	1,789,841	1,765,908	1,783,568	1,801,403	1,819,417	1,837,611	1,855,988	1,865,267	1,990,215
Total	\$2,369,000	\$2,337,107	\$2,360,478	\$2,384,082	\$2,407,923	\$2,432,002	\$2,456,322	\$2,468,604	\$2,633,966

Total Operating Revenue by Customer	2018	2019	2020	2021	2022	2023	2024	2025	2038
Single Family	\$1,585,456	\$1,564,291	\$1,579,933	\$1,595,733	\$1,611,690	\$1,627,807	\$1,644,085	\$1,652,306	\$1,762,987
Multi Family	271,088	267,371	270,045	272,745	275,473	278,228	281,010	282,415	301,333
Commercial	407,050	401,485	405,500	409,555	413,650	417,787	421,964	424,074	452,481
Irrigation	105,405	103,960	105,000	106,050	107,110	108,181	109,263	109,809	117,165
Total	\$2,369,000	\$2,337,107	\$2,360,478	\$2,384,082	\$2,407,923	\$2,432,002	\$2,456,322	\$2,468,604	\$2,633,966

Utility Rate Study: Water Utility Rate Design

Rate Design 1: Single Family - Fixed Charges Increase with Meter Size and Tier 4 Increase

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev	Variable Rev	Total Rev
3/4"	4.06		279,178	11,766	5,022	1,645	\$20.53	\$ 567,194	\$ 1,335,699	\$1,902,893
1"	1.67	70	4,859	829	710	91	\$34.21	14,430	30,344	44,774
1 1/2"	3.33		-	-	-	-	\$68.42	-	-	-
2"	5.33	4	244	57	78	-	\$109.47	2,561	1,809	4,370
3"	10.67	3	273	148	592	609	\$218.93	3,885	9,740	13,625
4"	16.67		43	-	-	-	\$342.09	-	-	-
6"	33.33		-	-	-	-	\$684.17	-	-	-
Total		4,683	284,553	12,800	6,401	2,345		\$ 588,070	\$ 1,377,592	\$1,965,662
			\$1,261,116	\$ 62,587	\$ 37,005	\$ 16,884				24.41%
			92.96%	4.18%	2.09%	0.77%		30%	70%	

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	3.04	4,606	215,886	41,716	32,611	15,886	\$20.53	\$ 567,194	\$ 1,480,063	\$2,047,256
1"	1.67	70	70.53%	13.63%	10.65%	5.19%	\$34.21	14,430	-	14,430
1 1/2"	3.33	-					\$68.42	-	-	-
2"	5.33	4					\$109.47	2,561	-	2,561
3"	10.67	3					\$218.93	3,885	-	3,885
4"	16.67	-					\$342.09	-	-	-
6"	33.33	-					\$684.17	-	-	-
Total		4,683						\$ 588,070	\$ 1,480,063	\$2,068,133

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	4,606	215,886	74,328	15,886	\$20.53	\$ 567,194	\$ 1,480,063	\$2,047,256
1"	1.67	70	70.53%	24.28%	5.19%	\$34.21	14,430	-	14,430
1 1/2"	3.33	-				\$68.42	-	-	-
2"	5.33	4				\$109.47	2,561	-	2,561
3"	10.67	3				\$218.93	3,885	-	3,885
4"	16.67	-				\$342.09	-	-	-
6"	33.33	-				\$684.17	-	-	-
Total		4,683					\$ 588,070	\$ 1,480,063	\$2,068,133

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	30	3,002	865	638	87	\$20.53	\$ 3,646	\$ 21,845	\$ 25,491
1"	1.67	48	6,613	2,041	649	-	\$34.21	9,900	43,035	52,935
1 1/2"	3.33	6	870	615	971	483	\$68.42	2,428	15,954	18,383
2"	5.33	34	4,893	4,149	8,942	6,244	\$109.47	22,172	138,624	160,796
3"	10.67	5	630	586	1,737	6,802	\$218.93	6,476	64,671	71,147
4"	16.67	1	222	222	887	5,827	\$342.09	3,035	49,150	52,185
6"	33.33	-	-	-	-	-	\$684.17	-	-	-
Total		124	16,229	8,477	13,825	19,443		\$ 47,657	\$ 333,280	\$ 380,936
			\$ 71,927	\$ 41,448	\$ 79,916	\$ 139,988				41.06%
			27.99%	14.62%	23.85%	33.54%		13%	87%	

Mtr Size	MCEs	Accounts	Volume	Vol. Charge	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	30	4,591	\$5.28	\$20.53	\$ 3,646	\$ 24,221	\$ 27,868
1"	1.67	48	9,302		\$34.21	9,900	49,072	58,972
1 1/2"	3.33	6	2,939		\$68.42	2,428	15,504	17,933
2"	5.00	34	24,228		\$109.47	22,172	127,814	149,986
3"	10.67	5	9,755		\$171.83	6,476	51,460	57,935
4"	16.67	1	7,158		\$342.09	3,035	37,760	40,795
6"	33.33	-	-		\$684.17	-	-	-
Total		124	57,973			\$ 47,657	\$ 305,832.01	\$ 353,489

City of Ferndale

Utility Rate Study: Water Utility
Rate Design

Rate Design 1: Commercial- Fixed Charges Increase with Meter Size and Tier 4 Increase

% Variable	15.84%			
% Fixed	30.90%			
Avg. Incr.	47.32%			

Tier 1	Tier 2	Tier 3	Tier 4
25	50	150	150+
\$4.43	\$4.89	\$5.78	\$7.20

Bimonthly tiers

110.33% 130.43% 162.46%

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	157	7,841	2,330	2,314	1,338	\$20.53	\$ 19,344	\$ 89,151	\$ 88,496
1"	1.67	120	6,966	2,889	4,101	2,914	\$34.21	24,618	89,692	114,310
1 1/2"	3.33	6	564	194	283	253	\$68.42	2,496	6,911	9,407
2"	5.33	91	7,650	4,507	6,915	7,682	\$109.47	59,594	151,226	210,820
3"	10.67	19	1,592	1,351	3,667	9,637	\$218.93	24,607	104,246	128,853
4"	16.67	4	67	25	99	9	\$342.09	9,106	1,049	10,156
6"	33.33	5	453	397	763	654	\$684.17	22,260	13,066	35,326
Total		402	25,134	11,692	18,141	22,488		\$ 162,025	\$ 435,342	\$ 597,367

27% 73% 47.32%

Rate Design 2: Commercial - Meters, Uniform Rate

% Variable	15.84%
% Fixed	30.90%
Avg. Incr.	30.90%

Mtr Size	MCEs	Accounts	Volume	Vol. Charge	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	157	13,823	\$4.76	\$20.53	\$ 19,344	\$ 65,811	\$ 85,156
1"	1.67	120	16,871		\$34.21	24,618	80,326	104,943
1 1/2"	3.33	6	1,295		\$68.42	2,496	6,166	8,661
2"	5.33	91	26,754		\$109.47	59,594	127,379	186,974
3"	10.67	19	16,247		\$218.93	24,607	77,354	101,961
4"	16.67	4	199		\$342.09	9,106	946	10,052
6"	33.33	5	2,267		\$684.17	22,260	10,792	33,051
Total		402	77,455			\$ 162,025	\$ 368,774	\$ 530,799

31% 69% 30.90%

Check O.K.

Meter Size	Volume (ccf)
3"	152

Sample Bimonthly Bill

Existing	ATB 2020	RD1	RD2
\$730.79	\$956.60	\$859.72	\$757.90

Rate Design 1: Irrigation- Fixed Charges Increase with Meter Size and Tier 4 Increase

% Variable	27.39%			
% Fixed	30.90%			
Avg. Incr.	38.95%			

Tier 1	Tier 2	Tier 3	Tier 4
25	50	150	150+
\$4.43	\$4.89	\$5.78	\$7.20

Bimonthly tiers

110.33% 130.43% 162.46%

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	31	1,103	539	687	30	\$20.53	\$ 3,870	\$ 11,710	\$ 15,580
1"	1.67	31	1,636	1,294	3,201	1,056	\$34.21	6,284	39,682	45,966
1 1/2"	3.33	-	-	-	-	-	\$68.42	-	-	-
2"	5.33	19	1,089	748	2,226	3,883	\$109.47	12,277	49,311	61,588
3"	10.67	3	433	322	796	1,292	\$218.93	4,533	17,402	21,935
4"	16.67	0	49	28	15	-	\$342.09	392	439	831
6"	33.33	-	-	-	-	-	\$684.17	-	-	-
Total		84	4,310	2,931	6,926	6,260		\$ 27,356	\$ 118,543	\$ 145,899

19% 81% 38.95%

Rate Design 2: Irrigation - Meters, Tier 4 Increase, Changed Block Amounts

% Variable	37.17%
% Fixed	30.90%
Avg. Incr.	30.90%

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Tier 4	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	31	1,234	5,051	6,251	7,891	\$20.53	\$ 3,870	\$ 110,088	\$ 113,958
1"	1.67	31	-	-	-	-	\$34.21	6,284	-	6,284
1 1/2"	3.33	-	-	-	-	-	\$68.42	-	-	-
2"	5.33	19	-	-	-	-	\$109.47	12,277	-	12,277
3"	10.67	3	-	-	-	-	\$218.93	4,533	-	4,533
4"	16.67	0	-	-	-	-	\$342.09	392	-	392
6"	33.33	-	-	-	-	-	\$684.17	-	-	-
Total		84						\$ 27,356	\$ 110,088	\$ 137,445

20% 80% 30.90%

Check O.K.

Winter Avg	5.99
Annual Avg	40.35
Summer Peak	116.06

Bimonthly usage

Rate Design 3: Irrigation - Meters, Tier 4 Increase, Changed Block Amounts

% Variable	37.17%
% Fixed	30.90%
Avg. Incr.	30.90%

Mtr Size	MCEs	Accounts	Tier 1	Tier 2	Tier 3	Fixed Charge	Fixed Rev.	Variable Rev.	Total Rev.
3/4"	1.00	31	25	100	100+	\$20.53	\$ 3,870	\$ 110,088	\$ 113,958
1"	1.67	31	\$4.10	\$4.92	\$6.40	\$34.21	6,284	-	6,284
1 1/2"	3.33	-	-	20.00%	55.99%	\$68.42	-	-	-
2"	5.33	19	-	-	-	\$109.47	12,277	-	12,277
3"	10.67	3	-	-	-	\$218.93	4,533	-	4,533
4"	16.67	0	-	-	-	\$342.09	392	-	392
6"	33.33	-	-	-	-	\$684.17	-	-	-
Total		84					\$ 27,356	\$ 110,088	\$ 137,445

20% 80% 30.90%

Check O.K.

Winter Avg	5.99
Annual Avg	40.35
Summer Peak	116.06

Bimonthly usage

Meter Size	Volume (ccf)
3"	152

Sample Bimonthly Bill

Existing	ATB 2020	RD1	RD2
\$730.79	\$956.60	\$859.72	\$841.45

City of Ferndale
Utility Rate Study: Water Utility
Rate Design

Rate Design 1 - Combined Total Statistics									
% Variable		26.98%		Tier 1		Tier 2		Tier 3	
% Fixed		30.90%		25		50		150	
Avg. Incr.		30.90%		\$4.43		\$4.89		\$5.78	
						110.33%		130.43%	
								162.46%	

VI.C. WASTEWATER MODEL TECHNICAL EXHIBITS

City of Ferndale
Utility Rate Study: Sewer Utility
Summary

Revenue Requirement	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues										
Rate Revenues Under Existing Rates	\$ 3,707,130	\$ 3,744,202	\$ 3,781,644	\$ 3,819,460	\$ 3,857,655	\$ 3,896,231	\$ 3,915,712	\$ 3,935,291	\$ 3,954,967	\$ 3,974,742
Non-Rate Revenues	101,342	59,445	60,093	60,151	86,403	83,557	61,874	61,930	62,726	63,218
Total Revenues	<u>\$ 3,808,473</u>	<u>\$ 3,803,647</u>	<u>\$ 3,841,736</u>	<u>\$ 3,879,612</u>	<u>\$ 3,944,058</u>	<u>\$ 3,979,788</u>	<u>\$ 3,977,587</u>	<u>\$ 3,997,221</u>	<u>\$ 4,017,693</u>	<u>\$ 4,037,960</u>
Expenses										
Cash Operating Expenses	\$ 2,457,798	\$ 2,654,679	\$ 2,626,587	\$ 2,902,602	\$ 2,963,520	\$ 2,978,347	\$ 2,924,248	\$ 3,088,996	\$ 3,184,387	\$ 3,283,279
Existing Debt Service	716,166	711,697	713,634	712,046	707,972	713,598	709,317	714,929	697,712	700,939
New Debt Service	-	-	-	-	1,895,076	1,881,062	1,867,047	1,853,033	1,839,019	1,825,005
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Reserves	-	-	-	-	-	-	-	-	-	-
Total Expenses	<u>\$ 3,173,963</u>	<u>\$ 3,366,377</u>	<u>\$ 3,340,221</u>	<u>\$ 3,614,648</u>	<u>\$ 5,566,568</u>	<u>\$ 5,573,006</u>	<u>\$ 5,500,612</u>	<u>\$ 5,656,958</u>	<u>\$ 5,721,117</u>	<u>\$ 5,809,222</u>
Net Surplus (Deficiency)	\$ 634,509	\$ 437,271	\$ 501,516	\$ 264,963	\$ (1,622,510)	\$ (1,593,218)	\$ (1,523,025)	\$ (1,659,737)	\$ (1,703,424)	\$ (1,771,262)
Additions to Meet Coverage	(161,304)	(104,516)	-	(109,448)	-	-	-	-	-	-
Total Surplus (Deficiency)	<u>\$ 473,206</u>	<u>\$ 332,755</u>	<u>\$ 501,516</u>	<u>\$ 155,516</u>	<u>\$ (1,622,510)</u>	<u>\$ (1,593,218)</u>	<u>\$ (1,523,025)</u>	<u>\$ (1,659,737)</u>	<u>\$ (1,703,424)</u>	<u>\$ (1,771,262)</u>
Annual Rate Increase		9.55%	9.55%	9.55%	9.55%	9.55%	9.55%	6.00%	6.00%	6.00%
Cumulative Rate Increase		9.55%	20.01%	31.47%	44.03%	57.78%	72.85%	83.22%	94.22%	105.87%
Revenues After Rate Increases	\$ 3,707,130	\$ 4,101,773	\$ 4,538,427	\$ 5,021,565	\$ 5,556,136	\$ 6,147,615	\$ 6,768,386	\$ 7,210,361	\$ 7,681,198	\$ 8,182,780
Additional Taxes from Rate Increase	-	45,955	97,262	154,495	218,289	289,348	366,626	420,912	478,895	540,817
Net Cash Flow After Rate Increase	<u>\$ 634,509</u>	<u>\$ 748,887</u>	<u>\$ 1,161,037</u>	<u>\$ 1,312,574</u>	<u>\$ (142,318)</u>	<u>\$ 368,818</u>	<u>\$ 963,022</u>	<u>\$ 1,194,421</u>	<u>\$ 1,543,911</u>	<u>\$ 1,895,959</u>
Coverage After Rate Increase: Bonded Debt	1.92	2.17	3.07	2.97	3.57	4.26	5.15	5.42	5.95	6.43
Coverage After Rate Increase: Total Debt	1.89	2.13	3.01	2.92	0.96	1.15	1.40	1.49	1.64	1.78
Sample Bimonthly Residential Bill (11 ccf)	\$108.21	\$118.54	\$129.87	\$142.27	\$155.85	\$170.74	\$187.04	\$198.27	\$210.16	\$222.77
Increase to Bimonthly Bill (\$)		\$10.33	\$11.32	\$12.40	\$13.59	\$14.88	\$16.31	\$11.22	\$11.90	\$12.61

Fund Balance	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Reserve										
Beginning Balance	\$ 2,498,876	\$ 404,022	\$ 436,386	\$ 439,322	\$ 1,751,896	\$ 1,609,579	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652
plus: Net Cash Flow after Rate Increase	634,509	748,887	1,161,037	1,312,574	(142,318)	368,818	963,022	1,194,421	1,543,911	1,895,959
less: Transfer of Surplus to Capital Fund	(2,729,364)	(716,523)	(1,158,101)	-	-	(1,452,922)	(960,234)	(1,154,636)	(1,519,307)	(1,870,171)
Ending Balance	<u>\$ 404,022</u>	<u>\$ 436,386</u>	<u>\$ 439,322</u>	<u>\$ 1,751,896</u>	<u>\$ 1,609,579</u>	<u>\$ 525,474</u>	<u>\$ 528,262</u>	<u>\$ 568,047</u>	<u>\$ 592,652</u>	<u>\$ 618,440</u>
Actual Days of O&M	60 days	60 days	60 days	213 days	188 days	60 days	60 days	60 days	60 days	60 days
Minimum Balance Requirement	\$ 404,022	\$ 436,386	\$ 439,322	\$ 493,128	\$ 512,550	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652	\$ 618,440
Maximum Balance Requirement	\$ 404,022	\$ 436,386	\$ 439,322	\$ 493,128	\$ 512,550	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652	\$ 618,440
Capital Reserve										
Beginning Balance	\$ -	\$ 2,800,244	\$13,605,160	\$ 2,751,906	\$ 1,533,256	\$ 1,400,469	\$ 2,780,756	\$ 2,731,918	\$ 3,382,326	\$ 4,117,729
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	2,729,364	716,523	1,158,101	-	-	1,452,922	960,234	1,154,636	1,519,307	1,870,171
plus: Capital Grants / Other Resources	-	1,000,000	-	-	-	-	-	-	-	-
plus: CFC Revenue Towards Capital	918,116	1,012,339	1,022,463	1,032,687	1,043,014	1,053,444	531,989	534,649	537,323	540,009
plus: Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: DOE Loan Proceeds	-	28,557,000	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	56,005	272,103	55,038	30,665	28,009	55,615	54,638	67,647	82,355
Total Funding Sources	<u>\$ 3,647,480</u>	<u>\$34,142,111</u>	<u>\$16,057,827</u>	<u>\$ 3,839,631</u>	<u>\$ 2,606,936</u>	<u>\$ 3,934,845</u>	<u>\$ 4,328,595</u>	<u>\$ 4,475,842</u>	<u>\$ 5,506,602</u>	<u>\$ 6,610,264</u>
less: Capital Expenditures	(847,236)	(20,536,951)	(13,305,921)	(2,306,375)	(1,206,466)	(1,154,088)	(1,596,677)	(1,093,515)	(1,388,873)	(1,561,017)
Ending Capital Fund Balance	<u>\$ 2,800,244</u>	<u>\$13,605,160</u>	<u>\$ 2,751,906</u>	<u>\$ 1,533,256</u>	<u>\$ 1,400,469</u>	<u>\$ 2,780,756</u>	<u>\$ 2,731,918</u>	<u>\$ 3,382,326</u>	<u>\$ 4,117,729</u>	<u>\$ 5,049,247</u>
Minimum Target Balance	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082	\$ 229,082
Combined Beginning Balance	\$ 2,498,876	\$ 3,204,265	\$14,041,545	\$ 3,191,228	\$ 3,285,152	\$ 3,010,048	\$ 3,306,231	\$ 3,260,180	\$ 3,950,374	\$ 4,710,381
Combined Ending Balance	\$ 3,204,265	\$14,041,545	\$ 3,191,228	\$ 3,285,152	\$ 3,010,048	\$ 3,306,231	\$ 3,260,180	\$ 3,950,374	\$ 4,710,381	\$ 5,667,687
Ending Total Days of Operating Expenditures	476 days	1,898 days	428 days	392 days	345 days	369 days	362 days	411 days	469 days	541 days
Combined Minimum Target Balance	633,103	665,467	668,403	722,210	741,632	754,556	757,344	797,129	821,733	847,521

City of Ferndale
Utility Rate Study: Sewer Utility
Assumptions

Economic & Financial Factors	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Escalation Rates										
General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Construction Cost Inflation	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Cost Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Benefit Cost Inflation	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Labor + Benefits	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Customer Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%
Demand Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%
No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment Interest										
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Tax Rates										
State Excise	3.852%	3.852%	3.852%	3.852%	3.852%	3.852%	3.852%	3.852%	3.852%	3.852%
State B&O	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
City Utility	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
State Excise & City Utility	12.85%	12.85%	12.85%	12.85%	12.85%	12.85%	12.85%	12.85%	12.85%	12.85%
B&O & City Utility Tax	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
No Tax	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Net Sewer Tax	1.81%	1.81%	1.81%	1.81%	1.81%	1.81%	1.81%	1.81%	1.81%	1.81%
Treatment Portion	86.90%	86.90%	86.90%	86.90%	86.90%	86.90%	86.90%	86.90%	86.90%	86.90%

Fund Balance & Financial Policy Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning Fund Balances										
Operating Reserve	\$ 2,498,876									
Capital Reserve	\$ -									
Debt Reserve	\$ 741,848									
Total Reserves	\$ 3,240,724									
Total Operating and Capital Cash Test: Days of O&M (Informational only--does not drive rate increases)	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days
Operating Balance: Minimum & Maximum Target										
Min. Fund Balance Target (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Max. Fund Balance (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Capital Balance: Minimum Target										
Min. Fund Balance Target (days of Capital expense)	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days
Max. Fund Balance (days of Capital expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
System Reinvestment Funding										
Select Annual Funding Option →	4									
	No Rate Funded Capital									
Target Amounts										
1 Original Cost Depreciation	\$ -	\$ 17,379	\$ 685,304	\$ 1,097,979	\$ 1,170,109	\$ 1,200,478	\$ 1,228,633	\$ 1,284,231	\$ 1,316,242	\$ 1,353,177
2 Estimated Replacement Cost Depreciation	\$ -	\$ 17,379	\$ 685,304	\$ 1,097,979	\$ 1,170,109	\$ 1,200,478	\$ 1,228,633	\$ 1,284,231	\$ 1,316,242	\$ 1,353,177
3 Manual User Input	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4 No Rate Funded Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Percent Toggle of Selected Funding Target										
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Funding Target Assumed in Model										
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Result w/ Transfers (compared to Annual Depreciation)										
		4123%	169%	0%	0%	121%	78%	90%	115%	138%

City of Ferndale
Utility Rate Study: Sewer Utility
Assumptions

Capital Financing Assumptions		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Facilities Charges												
Select Revenue Option →		2 Manual Input										
1	Calculated		\$1,002,316	\$1,012,339	\$1,022,463	\$1,032,687	\$1,043,014	\$1,053,444	\$531,989	\$534,649	\$537,323	\$540,009
	Actual Charge	2018 Customer	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071	\$10,071
	Existing Customer Base	9,953	10,052	10,153	10,254	10,357	10,460	10,565	10,618	10,671	10,724	10,778
	Incremental Customer Base		100	101	102	103	104	105	53	53	53	54
	Annual Revenue											
2	Manual Input	\$ 929,415	\$ 918,116	\$1,012,339	\$1,022,463	\$1,032,687	\$1,043,014	\$1,053,444	\$531,989	\$534,649	\$537,323	\$540,009
Other Funding Sources (Uses)												
		Capital Grants / Other Resources										
	DOE Loan #1 Proceeds for WWTP Expansion		\$ -	\$ 14,542,784	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	DOE Loan #2 Proceeds for WWTP Expansion		-	14,014,216	-	-	-	-	-	-	-	-
	State Grant for WWTP Expansion		-	1,000,000	-	-	-	-	-	-	-	-
	[Extra]		-	-	-	-	-	-	-	-	-	-
	Total		\$ -	\$ 29,557,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue Bonds												
		Level total payments										
	Term (years)		20 years	20 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	0 years	0 years
	Interest Cost		4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
	Issuance Cost		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Legal Minimum or Policy Coverage	1.25	Review bond covenants before updating this section.									
	Use Reserves to Pay for Last Payment?	Yes	("Yes" is default)									
	Include / Exclude CFCs in Coverage?	Exclude										
Other Loans 1												
		Level total payments										
	Term (years)		20 years	20 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	0 years	0 years
	Interest Cost		4.00%	4.00%	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%	1.00%	1.00%
Other Loans 2												
		Level principal payments										
	Term (years)		20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years
	Interest Only Payments (years)		0 years	0 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%	1.50%	1.50%
	Issuance Cost		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
DOE Loan												
		Level principal payments										
	Term (years)		20 years	20 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	0 years	0 years
	Interest Cost		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

City of Ferndale
Utility Rate Study: Sewer Utility
Operating Revenue and Expenditure Forecast

		Escalation		Actuals	Budget	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Operating Revenues																	
Account #	Rate Revenues																
402-000-000-343-50-30-00	Sales & Service	Customer Growth		\$ 3,370,384		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	
402-000-000-343-50-30-02	Sewer Sales - Discounted	Customer Growth		66,894		-		-		-		-		-		-	
[Extra]	Single Family	Revenue Growth Before Increases		-		2,635,579		2,661,935		2,688,554		2,715,439		2,742,594		2,770,020	
[Extra]	Multi Family	Revenue Growth Before Increases		-		376,808		380,576		384,382		388,226		392,108		396,029	
[Extra]	Commercial	Revenue Growth Before Increases		-		694,744		701,691		708,708		715,795		722,953		730,183	
[Extra]	[Extra]	No Escalation		-		-		-		-		-		-		-	
Total Rate Revenue				\$ 3,437,278		\$ 3,707,130		\$ 3,744,202		\$ 3,781,644		\$ 3,819,460		\$ 3,857,655		\$ 3,896,231	
Non-Rate Revenues																	
402-000-000-343-50-30-01	Intergovernment-Leachate	No Escalation		\$ 734		\$ 428		\$ 428		\$ 428		\$ 428		\$ 428		\$ 428	
402-000-000-343-50-30-03	Other Miscellaneous Revenue	No Escalation		844		-		-		-		-		-		-	
402-000-000-343-50-30-06	Sewer Inspection Fee-New Conn.	No Escalation		8,550		8,500		8,500		8,500		8,500		8,500		8,500	
402-000-000-350-00-00-00	Fines and Penalties	No Escalation		251		-		-		-		-		-		-	
402-000-000-359-00-40-00	Late Fees	No Escalation		-		22,000		22,000		22,000		22,000		22,000		22,000	
[Extra]	Set-Up Fees	No Escalation		-		5,600		5,600		5,600		5,600		5,600		5,600	
[Extra]	[Extra]	No Escalation		-		-		-		-		-		-		-	
Total Non-Rate Revenues				\$ 10,379		\$ 36,528		\$ 36,528		\$ 36,528		\$ 36,528		\$ 36,528		\$ 36,528	
TOTAL OPERATING REVENUES				\$ 3,447,656		\$ 3,743,658		\$ 3,780,730		\$ 3,818,172		\$ 3,855,988		\$ 3,894,183		\$ 3,932,759	

Operating Expenses		Escalation	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Account #	Taxes												
402-000-001-535-10-53-00	B&O/Excise Tax	[Calculated]	78,141	75,000	101,737	102,748	103,770	104,803	105,845	88,947	89,389	89,833	90,280
402-000-001-535-10-53-01	COF Monthly Utility Tax - Sewer		386,266	388,749	428,089	432,370	436,693	441,060	445,471	400,293	402,295	404,306	406,328
Other Operating Costs													
Administration - General													
402-000-001-535-10-10-00	Salaries	Labor Cost Inflation	40,753	50,923	52,960	55,079	57,282	59,573	61,956	64,434	67,012	69,692	72,480
402-000-001-535-10-10-01	Salaries Clerical	Labor Cost Inflation	39,007	54,767	56,958	59,236	61,605	64,070	66,632	69,298	72,070	74,952	77,951
402-000-001-535-10-21-01	Benefits-Medical	Benefit Cost Inflation	19,749	31,421	32,992	34,642	36,374	38,192	40,102	42,107	44,212	46,423	48,744
402-000-001-535-10-21-02	Benefits-L & I	Benefit Cost Inflation	441	532	559	587	616	647	679	713	749	786	825
402-000-001-535-10-21-03	Benefits-Retirement	Benefit Cost Inflation	11,628	16,245	17,057	17,910	18,806	19,746	20,733	21,770	22,859	24,002	25,202
402-000-001-535-10-21-04	Benefits-Social Security	Benefit Cost Inflation	6,031	8,085	8,490	8,914	9,360	9,828	10,319	10,835	11,377	11,946	12,543
402-000-001-535-10-21-09	Benefits - PFML	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-22-00	Clothing Allowance	General Cost Inflation	62	47	48	49	51	52	54	56	57	59	61
402-000-001-535-10-31-01	Office Supplies	General Cost Inflation	1,201	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
402-000-001-535-10-31-10	O & M Supplies	General Cost Inflation	260	500	515	530	546	563	580	597	615	633	652
402-000-001-535-10-40-00	Central Services	General Cost Inflation	82,575	82,575	85,052	87,604	90,232	92,939	95,727	98,599	101,557	104,604	107,742
402-000-001-535-10-40-01	Central Services - Elected Officials	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-40-02	Vehicle Rental Charges - Fund 550	General Cost Inflation	49,671	49,671	51,161	52,696	54,277	55,905	57,582	59,310	61,089	62,922	64,809
402-000-001-535-10-40-03	Vehicle Rental Charges Fund 550 - Capital	General Cost Inflation	222	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-40-04	Computer Repair & Replacement - Fund 510	General Cost Inflation	8,814	8,028	8,269	8,517	8,772	9,036	9,307	9,586	9,873	10,170	10,475
402-000-001-535-10-41-06	Professional Services 402.000.001	General Cost Inflation	25,251	87,000	89,610	92,298	95,067	97,919	100,857	103,883	106,999	110,209	113,515
402-000-001-535-10-41-08	Prof Serv Billings/Fold/Stuff/Print	General Cost Inflation	17,619	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829
402-000-001-535-10-42-00	Postage	General Cost Inflation	7,474	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524
402-000-001-535-10-42-01	Cell Phone	General Cost Inflation	3,657	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
402-000-001-535-10-43-00	Travel	General Cost Inflation	100	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-44-00	Advertising	General Cost Inflation	2,354	250	258	265	273	281	290	299	307	317	326
402-000-001-535-10-45-00	Copy Machine Lease	General Cost Inflation	1,661	2,200	2,266	2,334	2,404	2,476	2,550	2,627	2,706	2,787	2,871
402-000-001-535-10-45-01	Copy Machine Maintenance	General Cost Inflation	804	700	721	743	765	788	811	836	861	887	913
402-000-001-535-10-46-01	Insurance - Self Ins. Deductibles	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-48-00	Contract R & M 402.000.001	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-48-01	Contract Admin Temp. Service	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-001-535-10-49-00	Miscellaneous 402.000.001	General Cost Inflation	-	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
402-000-001-535-10-49-02	Misc. - Pharmaceutical Take-Back Program	General Cost Inflation	1,143	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
Total - Administration - General			\$ 320,477	\$ 409,444	\$ 423,910	\$ 438,909	\$ 454,460	\$ 470,586	\$ 487,308	\$ 504,650	\$ 522,635	\$ 541,289	\$ 560,637
Maintenance													
402-000-002-535-50-10-05	Salaries	Labor Cost Inflation	163,364	127,273	132,364	137,659	143,165	148,891	154,847	161,041	167,483	174,182	181,149
402-000-002-535-50-10-10	OT Salaries	Labor Cost Inflation	3,761	2,591	2,695	2,802	2,914	3,031	3,152	3,278	3,409	3,546	3,688
402-000-002-535-50-21-01	Benefits-Medical	Labor Cost Inflation	50,129	41,863	43,537	45,279	47,090	48,974	50,932	52,970	55,089	57,292	59,584
402-000-002-535-50-21-02	Benefits-L & I	Labor Cost Inflation	3,794	3,145	3,271	3,402	3,538	3,680	3,827	3,980	4,139	4,305	4,477
402-000-002-535-50-21-03	Benefits-Retirement	Labor Cost Inflation	22,332	18,745	19,495	20,275	21,086	21,929	22,806	23,718	24,667	25,654	26,680
402-000-002-535-50-21-04	Benefits-Social Security	Benefit Cost Inflation	12,315	9,736	10,223	10,734	11,271	11,835	12,426	13,048	13,700	14,385	15,104
402-000-002-535-50-21-05	Benefits-Overtime Meals	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-21-06	Benefits-Excess Compensation	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-21-08	HSA City Contribution	Benefit Cost Inflation	1,692	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-21-09	Benefits - PFML	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-21-12	OT Benefits L & I	Benefit Cost Inflation	75	67	70	74	77	81	85	90	94	99	104
402-000-002-535-50-21-13	OT Benefits Retirement	Benefit Cost Inflation	529	381	401	421	442	464	487	511	537	564	592
402-000-002-535-50-21-14	OT Benefits Social Security	Benefit Cost Inflation	285	198	208	219	229	241	253	267	279	293	307
402-000-002-535-50-22-00	Boot Allowance	Benefit Cost Inflation	538	488	512	538	564	593	622	653	686	720	756
402-000-002-535-50-22-01	Overtime Meals	Benefit Cost Inflation	120	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-31-10	O & M Supplies 402.000.002	General Cost Inflation	23,286	75,000	77,250	79,568	81,955	84,413	86,946	89,554	92,241	95,008	97,858
402-000-002-535-50-35-00	Small Tools & Equipment	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-41-00	Professional Services 402.000.002	General Cost Inflation	1,918	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
402-000-002-535-50-41-02	Professional Services-Generator Load Testing	General Cost Inflation	-	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
402-000-002-535-50-42-00	Postage	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-42-01	Cell Phone	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
402-000-002-535-50-43-00	Travel	General Cost Inflation	-	500	515	530	546	563	580	597	615	633	652
402-000-002-535-50-48-00	Contract R & M	General Cost Inflation	-	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566
402-000-002-535-50-49-00	Miscellaneous	General Cost Inflation	2,154	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610
402-000-002-535-50-49-01	Certifications	General Cost Inflation	836	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566
Total - Maintenance			\$ 287,129	\$ 289,888	\$ 300,738	\$ 312,002	\$ 323,696	\$ 335,836	\$ 348,441	\$ 361,527	\$ 375,114	\$ 389,221	\$ 403,869

Utility Rate Study: Sewer Utility

Operations

TOTAL CASH OPERATING EXPENSES BEFORE REALIZATION FACTOR	\$ 2,287,425	\$ 2,457,798	\$ 2,654,679	\$ 2,626,587	\$ 2,902,602	\$ 2,963,520	\$ 2,978,347	\$ 2,924,248	\$ 3,088,996	\$ 3,184,387	\$ 3,283,279
REALIZATION FACTOR IMPACT (Excluding Taxes)	n/a	-	-	-	-	-	-	-	-	-	-
TOTAL CASH OPERATING EXPENSES	\$ 2,287,425	\$ 2,457,798	\$ 2,654,679	\$ 2,626,587	\$ 2,902,602	\$ 2,963,520	\$ 2,978,347	\$ 2,924,248	\$ 3,088,996	\$ 3,184,387	\$ 3,283,279

City of Ferndale
Utility Rate Study: Sewer Utility
Existing Debt

Existing Debt Service - Summary	Total	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Annual Debt Payments											
Revenue Bonds	\$ 10,346,292	\$ 701,976	\$ 697,775	\$ 699,725	\$ 701,226	\$ 697,163	\$ 702,800	\$ 698,531	\$ 704,156	\$ 697,712	\$ 700,939
DOE Loans	-	-	-	-	-	-	-	-	-	-	-
Other Loans	<u>96,010</u>	<u>14,190</u>	<u>13,923</u>	<u>13,909</u>	<u>10,820</u>	<u>10,810</u>	<u>10,798</u>	<u>10,786</u>	<u>10,774</u>	-	-
Total Debt Payments	10,442,302	716,166	711,697	713,634	712,046	707,972	713,598	709,317	714,929	697,712	700,939

Existing Debt Service - Revenue Bonds		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2014 Revenue Bond											
Annual Interest Payment	\$ 2,332,500	\$ 255,101	\$ 247,700	\$ 236,450	\$ 224,751	\$ 212,751	\$ 200,450	\$ 183,450	\$ 165,851	\$ 147,450	\$ 128,451
Annual Principal Payment	\$ 7,030,000	<u>370,000</u>	<u>375,000</u>	<u>390,000</u>	<u>400,000</u>	<u>410,000</u>	<u>425,000</u>	<u>440,000</u>	<u>460,000</u>	<u>475,000</u>	<u>495,000</u>
Total Annual Payment	\$ 9,362,500	\$ 625,101	\$ 622,700	\$ 626,450	\$ 624,751	\$ 622,751	\$ 625,450	\$ 623,450	\$ 625,851	\$ 622,450	\$ 623,451
Use of Debt Reserve for Debt Service		-	-	-	-	-	-	-	-	-	-
2011 Revenue Bond											
Annual Interest Payment	\$ 248,792	\$ 31,875	\$ 30,075	\$ 28,275	\$ 26,475	\$ 24,412	\$ 22,350	\$ 20,081	\$ 18,305	\$ 15,262	\$ 12,488
Annual Principal Payment	\$ 735,000	<u>45,000</u>	<u>45,000</u>	<u>45,000</u>	<u>50,000</u>	<u>50,000</u>	<u>55,000</u>	<u>55,000</u>	<u>60,000</u>	<u>60,000</u>	<u>65,000</u>
Total Annual Payment	\$ 983,792	\$ 76,875	\$ 75,075	\$ 73,275	\$ 76,475	\$ 74,412	\$ 77,350	\$ 75,081	\$ 78,305	\$ 75,262	\$ 77,488
Use of Debt Reserve for Debt Service		-	-	-	-	-	-	-	-	-	-
TOTAL REVENUE BONDS											
Annual Interest Payment	\$ 2,581,292	\$ 286,976	\$ 277,775	\$ 264,725	\$ 251,226	\$ 237,163	\$ 222,800	\$ 203,531	\$ 184,156	\$ 162,712	\$ 140,939
Annual Principal Payment	\$ 7,765,000	<u>415,000</u>	<u>420,000</u>	<u>435,000</u>	<u>450,000</u>	<u>460,000</u>	<u>480,000</u>	<u>495,000</u>	<u>520,000</u>	<u>535,000</u>	<u>560,000</u>
Total Annual Payment	\$ 10,346,292	\$ 701,976	\$ 697,775	\$ 699,725	\$ 701,226	\$ 697,163	\$ 702,800	\$ 698,531	\$ 704,156	\$ 697,712	\$ 700,939
Use of Debt Reserve for Debt Service		-	-	-	-	-	-	-	-	-	-
Annual Debt Reserve Target on Existing Revenue Bonds		704,156	704,156	704,156	704,156	704,156	704,156	704,156	704,156	700,939	700,939

Existing Debt Service - DOE Loans		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
WWTP DOE Loan #1											
Annual Interest Payment	\$ 3,157,058	\$ -	\$ -	\$ -	\$ -	\$ 437,520	\$ 279,328	\$ 266,516	\$ 253,445	\$ 240,111	\$ 226,507
Annual Principal Payment	<u>11,468,231</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>476,561</u>	<u>634,752</u>	<u>647,565</u>	<u>660,635</u>	<u>673,970</u>	<u>687,573</u>
Total Annual Payment	\$ 14,625,290	\$ -	\$ -	\$ -	\$ -	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081
TOTAL DOE LOANS											
Annual Interest Payment	\$ 3,157,058	\$ -	\$ -	\$ -	\$ -	\$ 437,520	\$ 279,328	\$ 266,516	\$ 253,445	\$ 240,111	\$ 226,507
Annual Principal Payment	<u>11,468,231</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>476,561</u>	<u>634,752</u>	<u>647,565</u>	<u>660,635</u>	<u>673,970</u>	<u>687,573</u>
Total Annual Payment	\$ 14,625,290	\$ -	\$ -	\$ -	\$ -	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081	\$ 914,081

Existing Debt Service - Other Loans		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2016 LOCAL Heavy Equipment Purchase											
Annual Interest Payment	\$ 14,991	\$ 3,193	\$ 2,997	\$ 2,595	\$ 2,173	\$ 1,730	\$ 1,264	\$ 776	\$ 263	\$ -	\$ -
Annual Principal Payment	<u>71,705</u>	<u>7,843</u>	<u>7,843</u>	<u>8,236</u>	<u>8,647</u>	<u>9,080</u>	<u>9,534</u>	<u>10,010</u>	<u>10,511</u>	<u>-</u>	<u>-</u>
Total Annual Payment	\$ 86,696	\$ 11,037	\$ 10,840	\$ 10,831	\$ 10,820	\$ 10,810	\$ 10,798	\$ 10,786	\$ 10,774	\$ -	\$ -
2016 LOCAL Minor Equipment Purchase											
Annual Interest Payment	\$ 590	\$ 293	\$ 222	\$ 75	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment	<u>8,725</u>	<u>2,861</u>	<u>2,861</u>	<u>3,004</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Annual Payment	\$ 9,315	\$ 3,154	\$ 3,082	\$ 3,079	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL OTHER LOANS											
Annual Interest Payment	\$ 15,581	\$ 3,486	\$ 3,219	\$ 2,670	\$ 2,173	\$ 1,730	\$ 1,264	\$ 776	\$ 263	\$ -	\$ -
Annual Principal Payment	<u>80,430</u>	<u>10,704</u>	<u>10,704</u>	<u>11,239</u>	<u>8,647</u>	<u>9,080</u>	<u>9,534</u>	<u>10,010</u>	<u>10,511</u>	<u>-</u>	<u>-</u>
Total Annual Payment	\$ 96,010	\$ 14,190	\$ 13,923	\$ 13,909	\$ 10,820	\$ 10,810	\$ 10,798	\$ 10,786	\$ 10,774	\$ -	\$ -

City of Ferndale
Utility Rate Study: Sewer Utility
Capital Funding

Capital Project Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
TOTAL CAPITAL EXPENDITURES	\$ 847,236	\$ 20,536,951	\$ 13,305,921	\$ 2,306,375	\$ 1,206,466	\$ 1,154,088	\$ 1,596,677	\$ 1,093,515	\$ 1,388,873	\$ 1,561,017

Capital Financing Plan	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Grants / Other Resources	-	29,557,000	-	-	-	-	-	-	-	-
Balance/Remained to be Funded	\$ 847,236	\$ -	\$ 13,305,921	\$ 2,306,375	\$ 1,206,466	\$ 1,154,088	\$ 1,596,677	\$ 1,093,515	\$ 1,388,873	\$ 1,561,017
OTHER FUNDING SOURCES										
Beginning Fund Balances	\$ -	\$ 2,800,244	\$ 13,605,160	\$ 2,751,906	\$ 1,533,256	\$ 1,400,469	\$ 2,780,756	\$ 2,731,918	\$ 3,382,326	\$ 4,117,729
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
CFC Revenue Towards Capital	918,116	1,012,339	1,022,463	1,032,687	1,043,014	1,053,444	531,989	534,649	537,323	540,009
Interest Earnings	-	56,005	272,103	55,038	30,665	28,009	55,615	54,638	67,647	82,355
Minimum Capital Balance?	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)	(229,082)
Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
DOE Loan Proceeds	-	-	-	-	14,014,216	-	-	-	-	-
Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
TOTAL CAPITAL RESOURCES	\$ 689,034	\$ 3,639,507	\$ 14,670,644	\$ 3,610,550	\$ 16,392,070	\$ 2,252,841	\$ 3,139,280	\$ 3,092,124	\$ 3,758,214	\$ 4,511,011

New Debt Computations	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUE BONDS										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Reserve Required	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 1										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 2										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DOE Loan										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ 14,014,216	\$ -	\$ -	\$ -	\$ -	\$ -

City of Ferndale
Utility Rate Study: Sewer Utility
Capital Funding

Debt Service Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
EXISTING DEBT SERVICE										
Annual Interest Payments	\$ 290,462	\$ 280,993	\$ 267,395	\$ 253,398	\$ 676,412	\$ 503,392	\$ 470,822	\$ 437,864	\$ 402,822	\$ 367,446
Annual Principal Payments	<u>425,704</u>	<u>430,704</u>	<u>446,239</u>	<u>458,647</u>	<u>945,641</u>	<u>1,124,286</u>	<u>1,152,575</u>	<u>1,191,146</u>	<u>1,208,970</u>	<u>1,247,573</u>
Total Debt Service Payments	\$ 716,166	\$ 711,697	\$ 713,634	\$ 712,046	\$ 1,622,053	\$ 1,627,678	\$ 1,623,397	\$ 1,629,010	\$ 1,611,792	\$ 1,615,019
Revenue Bond Payments Only	701,976	697,775	699,725	701,226	697,163	702,800	698,531	704,156	697,712	700,939
NEW DEBT SERVICE										
Annual Interest Payments	\$ -	\$ -	\$ -	\$ -	\$ 280,284	\$ 266,270	\$ 252,256	\$ 238,242	\$ 224,227	\$ 210,213
Annual Principal Payments	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>
Total Debt Service Payments	\$ -	\$ -	\$ -	\$ -	\$ 980,995	\$ 966,981	\$ 952,967	\$ 938,952	\$ 924,938	\$ 910,924
Revenue Bond Payments Only	-	-	-	-	-	-	-	-	-	-
TOTAL DEBT SERVICE PAYMENTS	\$ 716,166	\$ 711,697	\$ 713,634	\$ 712,046	\$ 2,603,048	\$ 2,594,659	\$ 2,576,364	\$ 2,567,962	\$ 2,536,730	\$ 2,525,943
Total Interest Payments	290,462	280,993	267,395	253,398	956,696	769,662	723,078	676,105	627,050	577,659
Total Principal Payments	425,704	430,704	446,239	458,647	1,646,351	1,824,997	1,853,286	1,891,857	1,909,680	1,948,284
Total Revenue Bond Payments Only	701,976	697,775	699,725	701,226	697,163	702,800	698,531	704,156	697,712	700,939
Use of Debt Reserve for Debt Service	-	-	-	-	-	-	-	-	-	-

Debt Amortization : DOE Loan	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Debt Assumptions : DOE Loan										
Term (years)	20 years	20 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	0 years	0 years
Interest Cost	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
DOE Loan Total										
Interest Payments	\$ -	\$ -	\$ -	\$ -	\$ 280,284	\$ 266,270	\$ 252,256	\$ 238,242	\$ 224,227	\$ 210,213
Principal Payments	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>	<u>700,711</u>
Total	\$ -	\$ -	\$ -	\$ -	\$ 980,995	\$ 966,981	\$ 952,967	\$ 938,952	\$ 924,938	\$ 910,924

City of Ferndale
Utility Rate Study: Sewer Utility
Capital Improvement Program

2019 Project Costs in Year

ID	Description	Useful Life (Years)	Percent Replacement?	Unescalated Total	Unescalated Capital Cost									
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	General			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
80A02	Emergency Response Plan	5	90%	177,160	-	-	44,290	-	-	-	-	44,290	-	-
90009	Complete Sewer Comprehensive Plan Update	6	90%	300,000	-	-	-	100,000	-	-	-	-	-	100,000
	Misc & Maintenance			-	-	-	-	-	-	-	-	-	-	-
1M010	Smoke Testing		90%	411,542	50,235	50,235	50,235	-	-	-	-	-	-	52,167
1M011	Sewer I&I Projects	40	90%	1,286,582	86,946	86,946	86,946	86,946	86,946	86,946	54,636	54,636	54,636	54,636
	Sewer Pump Stations			-	-	-	-	-	-	-	-	-	-	-
80PS10	PS #10 Decommission		100%	497,039	-	-	497,039	-	-	-	-	-	-	-
80PS15	Pump Station #15 Decommission		100%	402,848	-	-	402,848	-	-	-	-	-	-	-
80PS16a	Upgrade Pump Station #16 Capacity	30	25%	652,092	-	-	-	652,092	-	-	-	-	-	-
80PS18a	PS #18 - Replace controls	30	85%	38,245	-	-	-	-	38,245	-	-	-	-	-
80PS11-19-D	Pump Stations #11 and #19 Decommission		100%	720,000	-	-	-	350,000	370,000	-	-	-	-	-
80PS12	PS #12 Upgrade	30	25%	344,884	-	-	-	-	344,884	-	-	-	-	-
80PS17b	Upgrade Pump Station #17 Retrofit	30	25%	295,615	-	-	-	-	-	295,615	-	-	-	-
80PS06	Pump Station #6 Retrofit	30	25%	341,986	-	-	-	-	-	-	-	-	-	341,986
80PS07	Pump Station #7 Retrofit	30	25%	185,484	-	-	-	-	-	-	185,484	-	-	-
80PS16b	Pump Station #16 - Force Main	30	25%	521,673	-	-	-	-	-	-	-	-	521,673	-
80PS18	Pump Station #18 Replace pumps	30	25%	423,135	-	-	-	-	-	-	295,615	-	-	127,520
	Sewer Collection			-	-	-	-	-	-	-	-	-	-	-
80G01	Labounty from I-5 to MH 3564	50	10%	689,768	-	-	-	689,768	-	-	-	-	-	-
80G02a	Vista Dr Clay Pipe Rehabilitation	50	90%	341,986	-	-	341,986	-	-	-	-	-	-	-
80G02b	Malloy RCP Pipe Rehabilitation	50	90%	550,655	-	-	550,655	-	-	-	-	-	-	-
80G03	Miscellaneous pipe upgrades / repairs	50	50%	2,966,841	231,855	231,855	231,855	231,855	231,855	231,855	112,551	112,551	112,551	112,551
80G15	Main St East of I-5	50	10%	381,111	-	-	-	-	-	381,111	-	-	-	-
90007a-e	Pipe Belly Repair Project	50	75%	469,506	-	469,506	-	-	-	-	-	-	-	-
90015	TIP: Thornton Street - Vista to Malloy	50	65%	295,615	-	-	295,615	-	-	-	-	-	-	-
90017	TIP: Legoe Avenue	50	50%	139,113	-	139,113	-	-	-	-	-	-	-	-
90018	LaBounty Drive - Seahawk to Sunset	50	50%	310,359	-	-	310,359	-	-	-	-	-	-	-
90019	TIP: Ferndale Terrace	50	50%	478,201	478,201	-	-	-	-	-	-	-	-	-
90020	Main St Siphon lines	50	50%	266,633	-	266,633	-	-	-	-	-	-	-	-
90026a	Grandview Industrial Area Sewer Extension Design (REMOVED)	50	0%	-	-	-	-	-	-	-	-	-	-	-
90026b	Grandview Industrial Area Sewer Extension Construction (REMOVED)	50	0%	-	-	-	-	-	-	-	-	-	-	-
80G02	Annual Sewer CIPP-Rehabilitation	50	75%	2,599,205	-	-	-	-	-	-	185,658	185,658	185,658	185,658
80G04b	PS #10 abandonment - required pipe upgrades- 20-yr Capacity limits	50	10%	270,122	-	-	-	-	-	-	-	270,122	-	-
80G16	Upgrade Trunk Main GM6E from Future Jail to PS #4	50	10%	828,881	-	-	-	-	-	-	-	-	-	-
90007	Repair high maintenance pipe sections (bellies, bad joints, etc.)	50	75%	742,630	-	-	-	-	-	-	53,045	53,045	53,045	53,045
	Wastewater Treatment Plant			-	-	-	-	-	-	-	-	-	-	-
70010b	CONST: Phase III WWTP Improvements	30	66%	28,424,780	-	18,694,500	9,730,280	-	-	-	-	-	-	-
70011	Annual Equipment Replacement	50	66%	2,363,569	-	-	-	-	-	-	168,826	168,826	168,826	168,826
70015	Biosolids Management	15	66%	281,377	-	-	-	-	-	-	281,377	-	-	-
	Total Capital Projects Before Completion Factor			48,998,637	847,236	19,938,788	12,542,107	2,110,660	1,071,930	995,527	1,337,192	889,128	1,096,389	1,196,389
	Completion Factor Impact			-	-	-	-	-	-	-	-	-	-	-
	Total Capital Projects			\$ 48,998,637	\$ 847,236	\$ 19,938,788	\$ 12,542,107	\$ 2,110,660	\$ 1,071,930	\$ 995,527	\$ 1,337,192	\$ 889,128	\$ 1,096,389	\$ 1,196,389

City of Ferndale
Utility Rate Study: Sewer Utility
Revenue Requirement Tests

Cash Flow Test	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUES										
Rate Revenue	\$ 3,707,130	\$ 3,744,202	\$ 3,781,644	\$ 3,819,460	\$ 3,857,655	\$ 3,896,231	\$ 3,915,712	\$ 3,935,291	\$ 3,954,967	\$ 3,974,742
Other Non-Rate Revenue	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528
Interest Earnings: Operating & Debt Reserve Funds	64,814	22,917	23,565	23,623	49,875	47,029	25,346	25,402	26,198	26,690
Total Revenue	\$ 3,808,473	\$ 3,803,647	\$ 3,841,736	\$ 3,879,612	\$ 3,944,058	\$ 3,979,788	\$ 3,977,587	\$ 3,997,221	\$ 4,017,693	\$ 4,037,960
EXPENSES										
Cash Operating Expenses	\$ 2,457,798	\$ 2,654,679	\$ 2,626,587	\$ 2,902,602	\$ 2,963,520	\$ 2,978,347	\$ 2,924,248	\$ 3,088,996	\$ 3,184,387	\$ 3,283,279
Existing Debt Service	716,166	711,697	713,634	712,046	707,972	713,598	709,317	714,929	697,712	700,939
New Debt Service	-	-	-	-	1,895,076	1,881,062	1,867,047	1,853,033	1,839,019	1,825,005
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Min. Operating Reserve	-	-	-	-	-	-	-	-	-	-
Total Expenses	\$ 3,173,963	\$ 3,366,377	\$ 3,340,221	\$ 3,614,648	\$ 5,566,568	\$ 5,573,006	\$ 5,500,612	\$ 5,656,958	\$ 5,721,117	\$ 5,809,222
NET CASH FLOW (DEFICIENCY)	\$ 634,509	\$ 437,271	\$ 501,516	\$ 264,963	\$ (1,622,510)	\$ (1,593,218)	\$ (1,523,025)	\$ (1,659,737)	\$ (1,703,424)	\$ (1,771,262)
Coverage Test - without CFCs										
ALLOWABLE REVENUES										
Rate Revenue	\$ 3,707,130	\$ 3,744,202	\$ 3,781,644	\$ 3,819,460	\$ 3,857,655	\$ 3,896,231	\$ 3,915,712	\$ 3,935,291	\$ 3,954,967	\$ 3,974,742
Other Revenue	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528	36,528
CFC Revenue	-	-	-	-	-	-	-	-	-	-
Interest Earnings - All Funds	64,814	78,922	295,668	78,662	80,540	75,038	80,962	80,041	93,844	109,045
Total Revenue	\$ 3,808,473	\$ 3,859,652	\$ 4,113,840	\$ 3,934,650	\$ 3,974,723	\$ 4,007,797	\$ 4,033,202	\$ 4,051,860	\$ 4,085,340	\$ 4,120,315
EXPENSES										
Cash Operating Expenses	\$ 2,457,798	\$ 2,654,679	\$ 2,626,587	\$ 2,902,602	\$ 2,963,520	\$ 2,978,347	\$ 2,924,248	\$ 3,088,996	\$ 3,184,387	\$ 3,283,279
Revenue Bond Debt Service	701,976	697,775	699,725	701,226	697,163	702,800	698,531	704,156	697,712	700,939
Revenue Bond Coverage Requirement at 1.25	175,494	174,444	174,931	175,306	174,291	175,700	174,633	176,039	174,428	175,235
Total Expenses	\$ 3,335,267	\$ 3,526,897	\$ 3,501,243	\$ 3,779,134	\$ 3,834,973	\$ 3,856,846	\$ 3,797,411	\$ 3,969,190	\$ 4,056,526	\$ 4,159,452
Coverage	1.92	1.73	2.13	1.47	1.45	1.46	1.59	1.37	1.29	1.19
COVERAGE SURPLUS (DEFICIENCY)	\$ 473,206	\$ 332,755	\$ 612,597	\$ 155,516	\$ 139,750	\$ 150,951	\$ 235,791	\$ 82,669	\$ 28,814	\$ (39,137)
Maximum Revenue Deficiency										
Sufficiency Test Driving the Deficiency	None	None	None	None	Cash	Cash	Cash	Cash	Cash	Cash
Maximum Revenue Deficiency (Surplus)	\$ (473,206)	\$ (332,755)	\$ (501,516)	\$ (155,516)	\$ 1,622,510	\$ 1,593,218	\$ 1,523,025	\$ 1,659,737	\$ 1,703,424	\$ 1,771,262
plus: Additional Tax Expense	(69,785)	(49,072)	(73,960)	(22,934)	239,277	234,957	224,606	244,767	251,209	261,214
less: Incremental Revenue From Prior Rate Increases	-	-	(361,147)	(764,351)	(1,214,126)	(1,715,466)	(2,262,640)	(2,866,936)	(3,291,445)	(3,744,861)
Net Revenue Deficiency (Surplus)	\$ (542,991)	\$ (381,827)	\$ (936,623)	\$ (942,801)	\$ 647,661	\$ 112,709	\$ (515,009)	\$ (962,433)	\$ (1,336,812)	\$ (1,712,386)

City of Ferndale
Utility Rate Study: Sewer Utility
Revenue Requirement Tests

Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Rate Revenue @ Existing Rates	\$ 3,707,130	\$ 3,744,202	\$ 3,781,644	\$ 3,819,460	\$ 3,857,655	\$ 3,896,231	\$ 3,915,712	\$ 3,935,291	\$ 3,954,967	\$ 3,974,742
Revenues from Prior Rate Increases	-	-	361,147	764,351	1,214,126	1,715,466	2,262,640	2,866,936	3,291,445	3,744,861
Rate Revenue Before Rate Increase (incl. previous increases)	3,707,130	3,744,202	4,142,791	4,583,812	5,071,781	5,611,698	6,178,353	6,802,227	7,246,413	7,719,604
Required Annual Rate Increase	0.00%	0.00%	0.00%	0.00%	12.77%	2.01%	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	12	12
Info: % Increase to Generate Required Revenue	0.00%	0.00%	0.00%	0.00%	12.77%	2.01%	0.00%	0.00%	0.00%	0.00%
Policy Induced Rate Increases	0.00%	9.55%	9.55%	9.55%	9.55%	9.55%	9.55%	6.00%	6.00%	6.00%
ANNUAL RATE INCREASE	0.00%	9.55%	9.55%	9.55%	9.55%	9.55%	9.55%	6.00%	6.00%	6.00%
CUMULATIVE RATE INCREASE	0.00%	9.55%	20.01%	31.47%	44.03%	57.78%	72.85%	83.22%	94.22%	105.87%

Impacts of Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sufficiency Test Driving the Deficiency	None	None	None	None	Cash	Cash	Cash	Cash	Cash	Cash
Rate Revenues After Rate Increase	\$ 3,707,130	\$ 4,101,773	\$ 4,538,427	\$ 5,021,565	\$ 5,556,136	\$ 6,147,615	\$ 6,768,386	\$ 7,210,361	\$ 7,681,198	\$ 8,182,780
Full Year Rate Revenues After Rate Increase	3,707,130	4,101,773	4,538,427	5,021,565	5,556,136	6,147,615	6,768,386	7,210,361	7,681,198	8,182,780
Partial Year Adjustment	-	-	-	-	-	-	-	-	-	-
Additional Taxes Due to Rate Increases	-	45,955	97,262	154,495	218,289	289,348	366,626	420,912	478,895	540,817
Net Cash Flow After Rate Increase	\$ 634,509	\$ 748,887	\$ 1,161,037	\$ 1,312,574	\$ (142,318)	\$ 368,818	\$ 963,022	\$ 1,194,421	\$ 1,543,911	\$ 1,895,959
Coverage After Rate Increase: Bonded Debt	1.92	2.17	3.07	2.97	3.57	4.26	5.15	5.42	5.95	6.43
Coverage After Rate Increase: Total Debt	1.89	2.13	3.01	2.92	0.96	1.15	1.40	1.49	1.64	1.78

Debt Financing Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Net Revenue Bond Proceeds: Automatic Calculation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Revenue Bond Proceeds: Override*	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 1 Proceeds										
Other Loans 2 Proceeds										
DOE Loan Proceeds					\$ 14,014,216	\$ -				

Fund Balance Impacts	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ending Fund Balance: Operating Reserve	\$ 404,022	\$ 436,386	\$ 439,322	\$ 1,751,896	\$ 1,609,579	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652	\$ 618,440
Actual Days of Operations & Maintenance	60 days	60 days	60 days	213 days	188 days	60 days	60 days	60 days	60 days	60 days
Minimum Target: Operating Reserve	404,022	436,386	439,322	493,128	512,550	525,474	528,262	568,047	592,652	618,440
Minimum Target: Operating Reserve (in Days of O&M)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Ending Fund Balance: Capital Reserve	\$ 2,800,244	\$ 13,605,160	\$ 2,751,906	\$ 1,533,256	\$ 1,400,469	\$ 2,780,756	\$ 2,731,918	\$ 3,382,326	\$ 4,117,729	\$ 5,049,247
Minimum Target: Capital Reserve	229,082	229,082	229,082	229,082	229,082	229,082	229,082	229,082	229,082	229,082
Total Ending Operating and Capital Cash (days of O&M)	476 days	1,898 days	428 days	392 days	345 days	369 days	362 days	411 days	469 days	541 days
Total Capital Expenditures (Escalated)	\$ 847,236	\$ 20,536,951	\$ 13,305,921	\$ 2,306,375	\$ 1,206,466	\$ 1,154,088	\$ 1,596,677	\$ 1,093,515	\$ 1,388,873	\$ 1,561,017

City of Ferndale
Utility Rate Study: Sewer Utility
Fund Activity

Funds	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
OPERATING RESERVE										
Beginning Balance	\$ 2,498,876	\$ 404,022	\$ 436,386	\$ 439,322	\$ 1,751,896	\$ 1,609,579	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652
plus: Net Cash Flow after Rate Increase	634,509	748,887	1,161,037	1,312,574	(142,318)	368,818	963,022	1,194,421	1,543,911	1,895,959
less: Transfer of Surplus to Capital Fund	(2,729,364)	(716,523)	(1,158,101)	-	-	(1,452,922)	(960,234)	(1,154,636)	(1,519,307)	(1,870,171)
Ending Balance	\$ 404,022	\$ 436,386	\$ 439,322	\$ 1,751,896	\$ 1,609,579	\$ 525,474	\$ 528,262	\$ 568,047	\$ 592,652	\$ 618,440
<i>Minimum Target Balance: 60 days</i>	<i>\$ 404,022</i>	<i>\$ 436,386</i>	<i>\$ 439,322</i>	<i>\$ 493,128</i>	<i>\$ 512,550</i>	<i>\$ 525,474</i>	<i>\$ 528,262</i>	<i>\$ 568,047</i>	<i>\$ 592,652</i>	<i>\$ 618,440</i>
<i>Maximum Target Balance: 60 days</i>	<i>\$ 404,022</i>	<i>\$ 436,386</i>	<i>\$ 439,322</i>	<i>\$ 493,128</i>	<i>\$ 512,550</i>	<i>\$ 525,474</i>	<i>\$ 528,262</i>	<i>\$ 568,047</i>	<i>\$ 592,652</i>	<i>\$ 618,440</i>
<i>Actual Days of Cash Achieved</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>213 days</i>	<i>188 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>
CAPITAL RESERVE										
Beginning Balance	\$ -	\$ 2,800,244	\$ 13,605,160	\$ 2,751,906	\$ 1,533,256	\$ 1,400,469	\$ 2,780,756	\$ 2,731,918	\$ 3,382,326	\$ 4,117,729
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	2,729,364	716,523	1,158,101	-	-	1,452,922	960,234	1,154,636	1,519,307	1,870,171
plus: Capital Grants / Other Resources	-	29,557,000	-	-	-	-	-	-	-	-
plus: CFC Revenue Towards Capital	918,116	1,012,339	1,022,463	1,032,687	1,043,014	1,053,444	531,989	534,649	537,323	540,009
plus: Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: DOE Loan Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	56,005	272,103	55,038	30,665	28,009	55,615	54,638	67,647	82,355
Total Funding Sources	\$ 3,647,480	\$ 34,142,111	\$ 16,057,827	\$ 3,839,631	\$ 2,606,936	\$ 3,934,845	\$ 4,328,595	\$ 4,475,842	\$ 5,506,602	\$ 6,610,264
less: Capital Expenditures	(847,236)	(20,536,951)	(13,305,921)	(2,306,375)	(1,206,466)	(1,154,088)	(1,596,677)	(1,093,515)	(1,388,873)	(1,561,017)
Ending Capital Fund Balance	\$ 2,800,244	\$ 13,605,160	\$ 2,751,906	\$ 1,533,256	\$ 1,400,469	\$ 2,780,756	\$ 2,731,918	\$ 3,382,326	\$ 4,117,729	\$ 5,049,247
<i>Minimum Target Balance: 30 days</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>	<i>\$ 229,082</i>
<i>Minimum Target Balance: 60 days</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>	<i>\$ 458,163</i>
DEBT RESERVE										
Beginning Balance	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848
plus: Reserve Funding from New Debt	-	-	-	-	-	-	-	-	-	-
less: Use of Reserves for Debt Service	-	-	-	-	-	-	-	-	-	-
Ending Balance	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848	\$ 741,848
<i>Minimum Target Balance</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 704,156</i>	<i>\$ 700,939</i>	<i>\$ 700,939</i>
SUMMARY										
Combined Beginning Balance	\$ 3,240,724	\$ 3,946,113	\$ 14,783,393	\$ 3,933,075	\$ 4,027,000	\$ 3,751,895	\$ 4,048,078	\$ 4,002,028	\$ 4,692,221	\$ 5,452,229
Plus: Inflows	\$ 4,281,989	\$ 32,090,754	\$ 3,613,704	\$ 2,400,300	\$ 931,362	\$ 2,903,193	\$ 2,510,861	\$ 2,938,345	\$ 3,668,188	\$ 4,388,494
Less: Outflows	\$ (3,576,600)	\$ (21,253,474)	\$ (14,464,022)	\$ (2,306,375)	\$ (1,206,466)	\$ (2,607,010)	\$ (2,556,911)	\$ (2,248,151)	\$ (2,908,180)	\$ (3,431,188)
Combined Ending Balance	\$ 3,946,113	\$ 14,783,393	\$ 3,933,075	\$ 4,027,000	\$ 3,751,895	\$ 4,048,078	\$ 4,002,028	\$ 4,692,221	\$ 5,452,229	\$ 6,409,534
<i>Net Change in Reserves</i>	<i>\$ 705,389</i>	<i>\$ 10,837,280</i>	<i>\$ (10,850,318)</i>	<i>\$ 93,924</i>	<i>\$ (275,105)</i>	<i>\$ 296,183</i>	<i>\$ (46,051)</i>	<i>\$ 690,193</i>	<i>\$ 760,007</i>	<i>\$ 957,306</i>
TOTAL AVAILABLE CASH TEST: DAYS OF O&M										
Operating & Capital Ending Balance	\$ 3,204,265	\$ 14,041,545	\$ 3,191,228	\$ 3,285,152	\$ 3,010,048	\$ 3,306,231	\$ 3,260,180	\$ 3,950,374	\$ 4,710,381	\$ 5,667,687
Ending Total Days of O&M	476 days	1,898 days	428 days	392 days	345 days	369 days	362 days	411 days	469 days	541 days
<i>Target: 150 Days of O&M</i>	<i>\$ 1,010,054</i>	<i>\$ 1,109,850</i>	<i>\$ 1,119,390</i>	<i>\$ 1,256,341</i>	<i>\$ 1,307,593</i>	<i>\$ 1,342,888</i>	<i>\$ 1,352,414</i>	<i>\$ 1,442,428</i>	<i>\$ 1,505,458</i>	<i>\$ 1,571,546</i>

City of Ferndale
Utility Rate Study: Sewer Utility
Assets

Asset Number	Asset Function	Asset Description	Purchase Date	Replacement Cost	% Contributed by Grants / Donations	Original Cost	Original Cost less Contributions	Useful Life (years)
FD-16246	Treatment	WWTP 5 Bldgs 3,500,000 Gal	1969	\$ 19,439,200		\$ 2,230,025	\$ 2,230,025	50
	Collection	2-inch pipe	1970	\$ 97,710	60%	\$ 12,198	\$ 4,879	50
	Collection	4-inch pipe	1970	\$ 1,570,032	60%	\$ 196,007	\$ 78,403	50
	Collection	6-inch pipe	1970	\$ 3,757,081	60%	\$ 469,045	\$ 187,618	50
	Collection	8-inch pipe	1970	\$ 51,325,911	60%	\$ 6,407,670	\$ 2,563,068	50
	Collection	9-inch pipe	1970	\$ 37,801	60%	\$ 4,719	\$ 1,888	50
	Collection	10-inch pipe	1970	\$ 5,412,437	60%	\$ 675,704	\$ 270,282	50
	Collection	12-inch pipe	1970	\$ 6,969,086	60%	\$ 870,040	\$ 348,016	50
	Collection	14-inch pipe	1970	\$ 30,364	0%	\$ 3,791	\$ 3,791	50
	Collection	15-inch pipe	1970	\$ 4,155,451	0%	\$ 518,778	\$ 518,778	50
	Collection	16-inch pipe	1970	\$ 530,127	0%	\$ 66,183	\$ 66,183	50
	Collection	17-inch pipe	1970	\$ 1,077,549	0%	\$ 134,524	\$ 134,524	50
	Collection	18-inch pipe	1970	\$ 3,956,898	0%	\$ 493,990	\$ 493,990	50
	Collection	20-inch pipe	1970	\$ 17,089	0%	\$ 2,133	\$ 2,133	50
	Collection	21-inch pipe	1970	\$ 2,915,726	0%	\$ 364,007	\$ 364,007	50
	Collection	24-inch pipe	1970	\$ 294,390	0%	\$ 36,752	\$ 36,752	50
	Collection	27-inch pipe	1970	\$ 1,671,506	0%	\$ 208,675	\$ 208,675	50
	Collection	30-inch pipe	1970	\$ 349,634	0%	\$ 43,649	\$ 43,649	50
	Collection	36-inch pipe	1970	\$ 521,975	0%	\$ 65,165	\$ 65,165	50
	Collection	42-inch pipe	1970	\$ 1,524,792	0%	\$ 190,359	\$ 190,359	50
	Collection	48-inch pipe	1970	\$ 381,635	0%	\$ 47,644	\$ 47,644	50
FD-16260	Pumping	Pump Station #3	1972	\$ 1,606,182		\$ 254,534	\$ 254,534	50
FD-16265	Pumping	Pump Station #2	1972	\$ 1,868,182		\$ 296,054	\$ 296,054	50
FD-16268	Pumping	Generator Building	1980	\$ 115,543		\$ 33,811	\$ 33,811	50
P-FD-003	Pumping	Pump Station #4	2015	\$ 1,031,000		\$ 935,190	\$ 935,190	50
P-FD-004	Pumping	Pump Station #5	1985	\$ 449,000		\$ 169,746	\$ 169,746	50
P-FD-005	Pumping	Pump Station #6	1998	\$ 584,000		\$ 312,561	\$ 312,561	50
P-FD-006	Pumping	Pump Station #7	1969	\$ 449,000		\$ 51,508	\$ 51,508	50
P-FD-007	Pumping	Pump Station #8	1976	\$ 574,000		\$ 124,587	\$ 124,587	50
P-FD-008	Pumping	Pump Station #9	2004	\$ 359,000		\$ 230,905	\$ 230,905	50
P-FD-009	Pumping	Pump Station #10	1978	\$ 584,000		\$ 146,556	\$ 146,556	50
P-FD-010	Pumping	Pump Station #11	1989	\$ 539,000		\$ 224,869	\$ 224,869	50
P-FD-011	Pumping	Pump Station #12	1983	\$ 314,000		\$ 115,416	\$ 115,416	50
P-FD-012	Pumping	Pump Station #15	1993	\$ 853,000		\$ 401,783	\$ 401,783	50
P-FD-013	Pumping	Pump Station #16	1994	\$ 584,000		\$ 285,487	\$ 285,487	50
P-FD-014	Pumping	Pump Station #17	1994	\$ 853,000		\$ 416,987	\$ 416,987	50
P-FD-015	Pumping	Pump Station #18	1993	\$ 449,000		\$ 211,489	\$ 211,489	50
P-FD-016	Pumping	Pump Station #19	2006	\$ 673,000		\$ 471,586	\$ 471,586	50
P-FD-017	Pumping	Pump Station #20	2007	\$ 404,000		\$ 290,967	\$ 290,967	50
P-FD-018	Pumping	Pump Station #22	2007	\$ 584,000		\$ 420,605	\$ 420,605	50
P-FD-019	Pumping	Pump Station #23	2016	\$ 774,000		\$ 723,403	\$ 723,403	50
	General Plant	City Sign Shop (assumed 25% split)	2010	\$ 21,250		\$ 16,909	\$ 16,909	50
	General Plant	Shop Storage (assumed 25% split)	1977	\$ 306,700		\$ 71,422	\$ 71,422	50
	General Plant	Shop Office/Crew Facilities (assumed 25% split)	2002	\$ 158,400		\$ 93,620	\$ 93,620	50
	General Plant	Old Shop Storage (assumed 25% split)	1948	\$ 11,294		\$ 471	\$ 471	50
Totals Used in Model				\$ 120,180,947		\$ 19,341,529	\$ 14,160,299	

City of Ferndale
Utility Rate Study: Sewer Utility
Capital Facilities Charge Calculation

Existing Cost Basis		Notes
PLANT-IN-SERVICE		
Utility Capital Assets	\$ 19,341,529	Fixed assets at original cost.
less: Contributed Capital	(5,181,230)	Donated assets at original cost.
plus: Interest on Non-Contributed Plant	7,598,680	Interest on assets up to a maximum 10-year period
plus: Construction-Work-in-Progress	-	
2018 Year-end Cash Balances	\$ 2,498,876	
less: Debt Principal Outstanding	(7,845,430)	
less: Net Debt Principal Outstanding	\$ (5,346,554)	Debt principal outstanding, net of cash reserves
TOTAL EXISTING COST BASIS	\$ 16,412,425	

Future Cost Basis		Notes
CAPITAL IMPROVEMENT PLAN (2019-2038)		CIP costs are not inflated.
Total Citywide Projects	\$ 48,998,637	
less: Provision for Repair & Replacement	\$ (12,044,112)	
less: Developer Contributions/Grants	\$ (1,000,000)	
Growth Related Projects	\$ 35,954,525	
TOTAL FUTURE COST BASIS	\$ 35,954,525	

Customer Base		Notes
Existing Customers	768,625 gal	Forecasted 2019 Average Daily Flow
Single Family Equivalency	175 gal	SFE per Ferndale municipal code
Total Existing Customers	4,392	Calculated existing ERUs
Existing Capacity	1,430,000 gal	Forecasted 2020 Non-I&I Average Daily Flow
Surplus Capacity	661,375 gal	Capacity over existing Average Daily Flow
Single Family Equivalency	175 gal	SFE per Ferndale municipal code
Total Existing Capacity	3,779	Calculated existing ERU capacity
Total Existing Customers	8,171	
Future Customers	4,040	20-Year ERU CAGR from comprehensive plan
TOTAL CUSTOMER BASE	12,211	

Resulting Charge		Notes
Charge Components	Cost Basis	Customers
Component for Existing Assets	\$ 16,412,425	12,211
Component for Future Assets	\$ 35,954,525	4,040
	\$ 52,366,950	
TOTAL CFC PER ESU		\$10,244
Existing CFC		\$10,071
Increase (%) - Calculated Above Existing CFC		1.7%
Increase (\$) - Calculated Above Existing CFC		\$173

City of Ferndale
Utility Rate Study: Sewer Utility
Functional Allocation

Allocation of Plant in Service

Plant in Service	Total Costs	FUNCTIONS OF SEWER SERVICE						TOTAL	ALLOCATION BASIS
		CUSTOMER	FLOW	BOD	TSS	TAXES	AS ALL OTHERS		
Treatment	\$ 19,439,200	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	50/50 Organic-Hydraulic Split As Flow As Flow As All Others
Collection	86,597,196	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
Pumping	13,646,907	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
General Plant	497,644	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	
Total Utility Plant	\$ 120,180,947	\$ -	\$ 109,963,703	\$ 4,859,800	\$ 4,859,800	\$ -	\$ 497,644	\$ 120,180,947	
Sewer Service Functions		0.00%	91.88%	4.06%	4.06%	0.00%		100.00%	
Allocation of "As All Others"		\$ -	\$ 457,230	\$ 20,207	\$ 20,207		\$ (497,644)	\$ -	
TOTAL	\$ 120,180,947	\$ -	\$ 110,420,933	\$ 4,880,007	\$ 4,880,007	\$ -	\$ -	\$ 120,180,947	
Allocation Percentages		0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	

Allocation of Operating Expenses

Test Year =>		FUNCTIONS OF SEWER SERVICE							
2020								TOTAL	ALLOCATION BASIS
OPERATING EXPENSE	TOTAL COSTS	CUSTOMER	FLOW	BOD	TSS	TAXES	AS ALL OTHERS		
B&O/Excise Tax	101,737	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
COF Monthly Utility Tax - Sewer	428,089	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Administration - General									
Salaries	52,960	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Salaries Clerical	56,958	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Medical	32,992	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-L & I	559	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Retirement	17,057	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits-Social Security	8,490	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Benefits - PFML	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Clothing Allowance	48	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Office Supplies	1,030	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
O & M Supplies	515	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Central Services	85,052	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Central Services - Elected Officials	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Vehicle Rental Charges - Fund 550	51,161	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Vehicle Rental Charges Fund 550 - Capital	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Computer Repair & Replacement - Fund 510	8,269	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Professional Services 402.000.001	89,610	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Prof Serv Billings/Fold/Stuff/Print	6,180	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Postage	5,150	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Cell Phone	2,575	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Travel	-	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	As Customer
Advertising	258	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Copy Machine Lease	2,266	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Copy Machine Maintenance	721	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Insurance - Self Ins. Deductibles	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Contract R & M 402.000.001	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Contract Admin Temp. Service	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Miscellaneous 402.000.001	1,030	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Misc. - Pharmaceutical Take-Back Program	1,030	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others

City of Ferndale
Utility Rate Study: Sewer Utility
Functional Allocation

Maintenance										
Salaries	132,364	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Salaries	2,695	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Medical	43,537	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-L & I	3,271	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Retirement	19,495	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Social Security	10,223	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Overtime Meals	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Excess Compensation	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
HSA City Contribution	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits - PFML	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits L & I	70	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits Retirement	401	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits Social Security	208	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Boot Allowance	512	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Overtime Meals	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
O & M Supplies 402.000.002	77,250	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Small Tools & Equipment	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Professional Services 402.000.002	2,575	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Professional Services-Generator Load Testing	3,090	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Postage	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Cell Phone	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Travel	515	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Contract R & M	1,236	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Miscellaneous	2,060	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Certifications	1,236	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Operations										
Advertising	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Sludge Disposal/Biosolids Mgmt	500,000	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
Sludge Disposal-Permits	3,090	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
OT Salaries	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Salaries	217,861	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Salaries - Summer Help	2,600	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Medical	52,126	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-L & I	4,570	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Retirement	32,100	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Social Security	17,027	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits-Retirement Pmt TO Drs	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Benefits - PFML	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits L & I	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits Retirement	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
OT Benefits Social Security	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Boot Allowance	630	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
O&M Supplies - Other 402.000.004	77,250	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
O&M - Lab Supplies 402	10,300	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
O&M - Filter Supplies 402	3,090	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
O&M - Aerator Supplies 402	4,120	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
O&M - Polymers 402	36,050	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
O&M - Chlorine & Sulfur Dioxide (Cl2/SO2) Supplies 402	25,750	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
Miscellaneous Small Tools	2,575	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Professional Services 402.000.004	20,600	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Lab Testing	6,695	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Phone	4,635	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Travel	1,030	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Utilities-Cascade Gas	515	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
Utilities-Puget Sound Energy	206,000	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
Utilities-Water/sewer	618	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment	
Pump Station Propane	773	0.00%	90.83%	4.58%	4.58%	0.00%	0.00%	100.00%	Treatment/Collection	
Contract R & M	36,050	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Contract R&M-Generator Service 402.000.004	6,180	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Contract R & M - Aerators	5,150	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service	
Miscellaneous	1,030	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
NPDES	515	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Miscellaneous-Safety Equipment	1,545	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Miscellaneous/training	5,150	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Fee Refunds	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
NPDES Wastewater Discharge Permit	36,050	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	
Dam Safety Permit - DOE	1,030	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others	

City of Ferndale
Utility Rate Study: Sewer Utility
Functional Allocation

Transfers Out									
Sewer Comp Plan	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
TR TO F550 Vactor Truck	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
TR TO F550 Truck T-6	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
TR TO F550 New Truck	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
TR TO F550 Truck T-13	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Transfers to F550	77,500	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
New FTE - Sewer WWTP - 0.75 FTE	-	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	100.00%	Treatment
[Extra]	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Total Operating Expenses	\$ 2,654,679	\$ 184,514	\$ 1,172,519	\$ 249,366	\$ 249,366	\$ -	\$ 798,916	\$ 2,654,679	
Sewer Service Functions		9.94%	63.18%	13.44%	13.44%	0.00%		100.00%	
Allocation of "As All Others"		\$ 79,434	\$ 504,775	\$ 107,353	\$ 107,353		\$ (798,916)	\$ -	
TOTAL	\$ 2,654,679	\$ 263,948	\$ 1,677,294	\$ 356,719	\$ 356,719	\$ -	\$ -	\$ 2,654,679	
Allocation Percentages		9.94%	63.18%	13.44%	13.44%	0.00%	0.00%	100.00%	

Allocation of Revenue Requirement

Design Rates For =>		2020	FUNCTIONS OF SEWER SERVICE					TOTAL	ALLOCATION BASIS
REVENUE REQUIREMENT	TOTAL COSTS	CUSTOMER	FLOW	BOD	TSS	TAXES	AS ALL OTHERS		
OPERATING AND CAPITAL EXPENSES									
Cash Operating Expenses	\$ 2,654,679	9.94%	63.18%	13.44%	13.44%	0.00%	0.00%	100.00%	As O&M Expenses
Existing Debt Service	711,697	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
New Debt Service	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Rate Funded System Reinvestment	-	0.00%	91.88%	4.06%	4.06%	0.00%	0.00%	100.00%	As Plant in Service
Total Expenses	\$ 3,366,377	7.84%	69.25%	11.45%	11.45%	0.00%	0.00%	100.00%	
OTHER REVENUES AND ADJUSTMENTS									
Less:									
Operating Fund & Debt Reserve Fund Interest Earnings	\$ (22,917)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Other Revenue	(36,528)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Plus:									
Additional (Reduction of) Taxes Due to Rate Increases	45,955	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Net Cash Flow After Rate Increase	748,887	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Partial Year Adjustment	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Others
Rate Revenue Requirement	\$ 4,101,773	\$ 263,948	\$ 2,331,194	\$ 385,618	\$ 385,618	\$ -	\$ 735,396	\$ 4,101,773	
Sewer Service Functions		7.84%	69.25%	11.45%	11.45%	0.00%		100.00%	
Allocation of "As All Others"		\$ 57,660	\$ 509,257	\$ 84,239	\$ 84,239	\$ -	\$ (735,396)	\$ -	
Rate Revenue Requirement	\$ 4,101,773	\$ 321,608	\$ 2,840,451	\$ 469,857	\$ 469,857	\$ -	\$ -	\$ 4,101,773	
Allocation Percentages		7.84%	69.25%	11.45%	11.45%	0.00%	0.00%	100.00%	

City of Ferndale
Utility Rate Study: Sewer Utility
Customer Allocation

CUSTOMER \$ 321,608

Class	Allocation Accounts	%	\$ Allocation	Mo. Unit Cost
Single Family	4,037	89.48%	\$ 287,787	\$ 5.94
Multi Family	122	2.70%	8,676	5.94
Commercial	353	7.82%	25,145	5.94
Total	4,511	100.00%	\$ 321,608	\$ 5.94

FLOW \$ 2,840,451

Class	Allocation Total Use	%	\$ Allocation	Unit Cost/ccf
Single Family	258,312	68.03%	\$ 1,932,363	\$ 7.48
Multi Family	43,663	11.50%	326,633	7.48
Commercial	77,727	20.47%	581,455	7.48
Total	379,703	100.00%	\$ 2,840,451	\$ 7.48

BOD \$ 469,857

Class	Allocation Total Use	Strength	%	\$ Allocation	Unit Cost /ccf
Single Family	258,312	240	59.70%	\$ 280,527	\$ 1.09
Multi Family	43,663	240	10.09%	47,418	1.09
Commercial	77,727	403	30.20%	141,911	1.83
Total	379,703	273	100.00%	\$ 469,857	\$ 1.24

TSS \$ 469,857

Class	Allocation Total Use	Strength	%	\$ Allocation	Unit Cost/ccf
Single Family	258,312	240	62.11%	\$ 291,821	\$ 1.13
Multi Family	43,663	240	10.50%	49,327	1.13
Commercial	77,727	352	27.39%	128,708	1.66
Total	379,703	263	100.00%	\$ 469,857	\$ 1.24

Allocation Summary

Class	Customer	Flow	BOD	TSS	Total
Single Family	\$ 287,787	\$ 1,932,363	\$ 280,527	\$ 291,821	\$ 2,792,499
Multi Family	8,676	326,633	47,418	49,327	432,055
Commercial	25,145	581,455	141,911	128,708	877,219
Total	\$ 321,608	\$ 2,840,451	\$ 469,857	\$ 469,857	\$ 4,101,773

Cost of Service

Class	Existing 2020	COSA 2020 Revenue	Difference \$	%
Single Family	\$ 2,661,935	\$ 2,792,499	\$ 130,564	4.90%
Multi Family	380,576	432,055	51,479	13.53%
Commercial	701,691	877,219	175,528	25.02%
Total	\$ 3,744,202	\$ 4,101,773	\$ 357,571	9.55%

City of Ferndale
Utility Rate Study: Sewer Utility
COS Phase - In

Class	COSA Targets						COSA Revenue
	2019	2020	2021	2022	2023	2024	
Single Family	\$ 2,522,822	\$ 2,792,499	\$ 3,098,954	\$ 3,414,767	\$ 3,773,464	\$ 4,176,988	\$ 4,600,366
Multi Family	389,993	432,055	476,807	528,488	601,406	663,849	729,415
Commercial	794,316	877,219	962,666	1,078,311	1,181,266	1,306,878	1,438,604
Total	\$ 3,707,130	\$ 4,101,773	\$ 4,538,427	\$ 5,021,565	\$ 5,556,136	\$ 6,147,615	\$ 6,768,386

Class	COSA Targets					
	2019	2020	2021	2022	2023	2024
Single Family	0.00%	8.03%	7.94%	7.85%	9.55%	9.55%
Multi Family	0.00%	10.83%	10.83%	10.83%	9.55%	9.55%
Commercial	0.00%	14.64%	14.64%	14.64%	9.55%	9.55%
Total	0.00%	9.55%	9.55%	9.55%	9.55%	9.55%
Target	0.00%	9.55%	9.55%	9.55%	9.55%	9.55%

Growth		1.00%	1.00%	1.00%	1.00%	1.00%	0.50%
		Revenue Under Existing Rates					
2019	2020	2021	2022	2023	2024	2025	
\$ 2,635,579	\$ 2,661,935	\$ 2,688,554	\$ 2,715,439	\$ 2,742,594	\$ 2,770,020	\$ 2,783,870	
376,808	380,576	384,382	388,226	392,108	396,029	398,009	
694,744	701,691	708,708	715,795	722,953	730,183	733,834	
\$ 3,707,130	\$ 3,744,202	\$ 3,781,644	\$ 3,819,460	\$ 3,857,655	\$ 3,896,231	\$ 3,915,712	

Revenue With Phase-In							% to COSA in 2022
2019	2020	2021	2022	2023	2024	2025	
\$ 2,635,579	\$ 2,875,601	\$ 3,134,964	\$ 3,414,767	\$ 3,778,285	\$ 4,180,503	\$ 4,602,640	0.00%
376,808	421,786	472,132	528,488	584,748	646,998	712,330	0.00%
694,744	804,386	931,331	1,078,311	1,193,102	1,320,114	1,453,416	0.00%
\$ 3,707,130	\$ 4,101,773	\$ 4,538,427	\$ 5,021,565	\$ 5,556,136	\$ 6,147,615	\$ 6,768,386	

Check

		Revenue With Prior Year's Increase					
2019	2020	2021	2022	2023	2024	2025	
\$ 2,635,579	\$ 2,661,935	\$ 2,904,358	\$ 3,166,313	\$ 3,448,914	\$ 3,816,068	\$ 4,201,405	
376,808	380,576	426,003	476,853	533,773	590,596	650,233	
694,744	701,691	812,430	940,645	1,089,094	1,205,033	1,326,715	
\$ 3,707,130	\$ 3,744,202	\$ 4,142,791	\$ 4,583,811	\$ 5,071,781	\$ 5,611,698	\$ 6,178,353	

Rate Design

Growth		1.00%	1.00%	1.00%	1.00%	0.50%
		Accounts				
Class	2020	2021	2022	2023	2024	2025
Single Family	4,037	4,077	4,118	4,159	4,200	4,221
Multi Family	122	123	124	125	127	127
Commercial	353	356	360	363	367	369

Growth		1.00%	1.00%	1.00%	1.00%	0.50%
		Block 1 Usage				
Class	2020	2021	2022	2023	2024	2025
Single Family	243,657	246,094	248,555	251,040	253,551	254,818
Multi Family	15,514	15,669	15,826	15,984	16,144	16,224
Commercial	22,718	22,945	23,174	23,406	23,640	23,758

Growth		1.00%	1.00%	1.00%	1.00%	0.50%
		Block 2 Usage				
Class	2020	2021	2022	2023	2024	2025
Single Family	9,494	9,589	9,685	9,782	9,880	9,929
Multi Family	7,930	8,009	8,090	8,170	8,252	8,293
Commercial	10,888	10,997	11,107	11,218	11,330	11,387

Growth		1.00%	1.00%	1.00%	1.00%	0.50%
		Block 3 Usage				
Class	2020	2021	2022	2023	2024	2025
Single Family	3,597	3,633	3,670	3,706	3,743	3,762
Multi Family	12,213	12,335	12,459	12,583	12,709	12,773
Commercial	17,543	17,719	17,896	18,075	18,256	18,347

Growth		1.00%	1.00%	1.00%	1.00%	0.50%
		Block 4 Usage				
Class	2020	2021	2022	2023	2024	2025
Single Family	1,563	1,579	1,595	1,611	1,627	1,635
Multi Family	8,006	8,086	8,167	8,249	8,331	8,373
Commercial	26,578	26,843	27,112	27,383	27,657	27,795

		Fixed Rates				
2020	2021	2022	2023	2024	2025	
\$ 34.54	\$ 37.28	\$ 40.20	\$ 44.04	\$ 48.25	\$ 52.86	
35.43	39.27	43.52	47.68	52.23	57.22	
36.65	42.01	48.16	52.76	57.80	63.32	

		Block 1 Rates				
2020	2021	2022	2023	2024	2025	
\$ 7.82	\$ 8.44	\$ 9.10	\$ 9.97	\$ 10.93	\$ 11.97	
8.02	8.89	9.86	10.80	11.83	12.96	
8.30	9.51	10.91	11.95	13.09	14.34	

		Block 2 Rates				
2020	2021	2022	2023	2024	2025	
\$ 8.73	\$ 9.42	\$ 10.16	\$ 11.13	\$ 12.19	\$ 13.36	
8.95	9.92	11.00	12.05	13.20	14.46	
9.26	10.62	12.17	13.33	14.61	16.00	

		Block 3 Rates				
2020	2021	2022	2023	2024	2025	
\$ 10.27	\$ 11.09	\$ 11.96	\$ 13.10	\$ 14.35	\$ 15.72	
10.54	11.68	12.95	14.18	15.54	17.02	
10.90	12.50	14.33	15.69	17.19	18.84	

		Block 4 Rates				
2020	2021	2022	2023	2024	2025	
\$ 8.73	\$ 9.42	\$ 10.16	\$ 11.13	\$ 12.19	\$ 13.36	
8.95	9.92	11.00	12.05	13.20	14.46	
9.26	10.62	12.17	13.33	14.61	16.00	

		Fixed Revenue				
2020	2021	2022	2023	2024	2025	
\$ 836,451	\$ 911,894	\$ 993,282	\$ 1,099,022	\$ 1,216,019	\$ 1,338,809	
25,872	28,960	32,417	35,868	39,686	43,693	
77,553	89,793	103,963	115,031	127,276	140,128	
\$ 939,876	\$ 1,030,646	\$ 1,129,662	\$ 1,249,920	\$ 1,382,981	\$ 1,522,631	

		Volume Revenue				
2020	2021	2022	2023	2024	2025	
\$ 1,905,676	\$ 2,077,557	\$ 2,262,984	\$ 2,503,889	\$ 2,770,441	\$ 3,050,193	
124,482	139,340	155,973	172,577	190,948	210,230	
188,549	218,305	252,757	279,665	309,436	340,682	
\$ 2,218,707	\$ 2,435,202	\$ 2,671,714	\$ 2,956,131	\$ 3,270,826	\$ 3,601,105	

		Volume Revenue				
2020	2021	2022	2023	2024	2025	
\$ 82,872	\$ 90,346	\$ 98,410	\$ 108,886	\$ 120,478	\$ 132,643	
71,014	79,491	88,979	98,452	108,932	119,932	
100,852	116,768	135,195	149,588	165,512	182,225	
\$ 254,738	\$ 286,605	\$ 322,585	\$ 356,925	\$ 394,922	\$ 434,800	

		Volume Revenue				
2020	2021	2022	2023	2024	2025	
\$ 36,957	\$ 40,290	\$ 43,886	\$ 48,558	\$ 53,727	\$ 59,152	
128,723	144,089	161,288	178,458	197,455	217,394	
191,256	221,439	256,386	283,679	313,878	345,573	
\$ 356,936	\$ 405,817	\$ 461,559	\$ 510,695	\$ 565,061	\$ 622,119	

		Volume Revenue				
2020	2021	2022	2023	2024	2025	
\$ 13,646	\$ 14,877	\$ 16,205	\$ 17,930	\$ 19,839	\$ 21,842	
71,695	80,252	89,832	99,395	109,976	121,081	
246,176	285,027	330,009	365,140	404,011	444,807	
\$ 331,517	\$ 380,157	\$ 436,046	\$ 482,465	\$ 533,826	\$ 587,730	

		Total Revenue				
2020	2021	2022	2023	2024	2025	
\$ 2,875,601	\$ 3,134,964	\$ 3,414,767	\$ 3,778,285	\$ 4,180,503	\$ 4,602,640	
421,786	472,132	528,488	584,748	646,998	712,330	
804,386	931,331	1,078,311	1,193,102	1,320,114	1,453,416	
\$ 4,101,773	\$ 4,538,427	\$ 5,021,565	\$ 5,556,136	\$ 6,147,615	\$ 6,768,386	

City of Ferndale
Utility Rate Study: Sewer Utility
Customer Forecast

[illegible]

Accounts	2018	2019	2020	2021	2022	2023	2024	2025
Single Family	3,834	3,770	3,808	3,846	3,885	3,923	3,963	3,982
Single Family UBA	178	175	176	178	180	182	184	185
Single Family - Out	63	62	63	63	64	64	65	65
Single Family UBA - Out	2	2	2	2	2	2	2	2
Multi Family	121	119	120	121	123	124	125	126
Multi Family - Out	1	1	1	1	1	1	1	1
Commercial	342	336	339	343	346	350	353	355
Commercial - Out	9	9	9	9	9	9	9	9
Total	4,549	4,474	4,519	4,564	4,609	4,655	4,702	4,726

[illegible]

Consumption (ccf)		2018	2019	2020	2021	2022	2023	2024	2025
Single Family Residential - Tier 1		232,892	229,032	231,322	233,636	235,972	238,332	240,715	241,919
Single Family Residential - Tier 2		9,159	9,007	9,097	9,188	9,280	9,373	9,467	9,514
Single Family Residential - Tier 3		3,492	3,434	3,468	3,503	3,538	3,574	3,609	3,627
Single Family Residential - Tier 4		1,574	1,548	1,563	1,579	1,595	1,611	1,627	1,635
Single Family Residential UBA - Tier 1		8,829	8,683	8,769	8,857	8,946	9,035	9,126	9,171
Single Family Residential UBA - Tier 2		293	288	291	294	297	300	303	304
Single Family Residential UBA - Tier 3		113	111	112	113	114	116	117	117
Single Family Residential UBA - Tier 4		0	0	0	0	0	0	0	0
Single Family Residential Outside City - Tier 1		3,800	3,737	3,774	3,812	3,850	3,889	3,928	3,947
Single Family Residential Outside City - Tier 2		120	118	119	120	122	123	124	125
Single Family Residential Outside City - Tier 3		30	30	30	30	30	31	31	31
Single Family Residential Outside City - Tier 4		0	0	0	0	0	0	0	0
Single Family Residential Outside City UBA		86	85	85	86	87	88	89	89
Single Family Residential Outside City UBA		0	0	0	0	0	0	0	0
Single Family Residential Outside City UBA		0	0	0	0	0	0	0	0
Single Family Residential Outside City UBA		0	0	0	0	0	0	0	0
Multi-Family - Tier 1		15,394	15,139	15,290	15,443	15,598	15,754	15,911	15,991
Multi-Family - Tier 2		7,759	7,630	7,707	7,784	7,862	7,940	8,020	8,060
Multi-Family - Tier 3		11,702	11,508	11,623	11,739	11,857	11,975	12,095	12,156
Multi-Family - Tier 4		7,069	6,952	7,021	7,092	7,162	7,234	7,306	7,343
Multi-Family Out - Tier 1		150	148	149	150	152	154	155	156
Multi-Family Out - Tier 2		150	148	149	150	152	154	155	156
Multi-Family Out - Tier 3		396	389	393	397	401	405	409	411
Multi-Family Out - Tier 4		661	650	657	663	670	676	683	687
Commercial - Tier 1		21,924	21,561	21,776	21,994	22,214	22,436	22,660	22,774
Commercial - Tier 2		10,464	10,291	10,393	10,497	10,602	10,708	10,815	10,870
Commercial - Tier 3		17,415	17,126	17,298	17,471	17,645	17,822	18,000	18,090
Commercial - Tier 4		26,758	26,315	26,578	26,843	27,112	27,383	27,657	27,795
Commercial Out - Tier 1		632	622	628	634	640	647	653	656
Commercial Out - Tier 2		332	326	330	333	336	340	343	345
Commercial Out - Tier 3		165	162	164	166	167	169	171	171
Commercial Out - Tier 4		0	0	0	0	0	0	0	0
Total		381,359	375,038	378,789	382,577	386,402	390,266	394,169	396,140

[illegible]

Consumption	2018	2019	2020	2021	2022	2023	2024	2025
Single Family	247,117	243,021	245,451	247,906	250,385	252,889	255,418	256,695
Single Family UBA	9,235	9,082	9,173	9,264	9,357	9,451	9,545	9,593
Single Family - Out	3,950	3,885	3,923	3,963	4,002	4,042	4,083	4,103
Single Family UBA - Out	86	85	85	86	87	88	89	
Multi Family	41,924	41,229	41,641	42,058	42,478	42,903	43,332	43,549
Multi Family - Out	1,357	1,335	1,348	1,361	1,375	1,389	1,403	1,410
Commercial	76,561	75,292	76,045	76,805	77,573	78,349	79,133	79,528
Commercial - Out	1,129	1,110	1,121	1,133	1,144	1,155	1,167	1,173
Total	381,359	375,038	378,789	382,577	386,402	390,266	394,169	396,140

[illegible]

Consumption - Summer	2018	2019	2020	2021	2022	2023	2024	2025
Single Family	139,284	136,976	140,677	138,345	142,084	139,729	143,504	140,427
Single Family UBA	5,298	5,210	5,351	5,262	5,404	5,315	5,459	5,341
Single Family - Out	2,432	2,392	2,456	2,416	2,481	2,440	2,506	2,452
Single Family UBA - Out	40	39	40	40	41	40	41	40
Multi Family	21,885	21,522	22,104	21,737	22,325	21,955	22,548	22,065
Multi Family - Out	330	325	333	328	337	331	340	333
Commercial	40,383	39,714	40,787	40,111	41,195	40,512	41,607	40,714
Commercial - Out	642	631	648	638	655	644	661	647
Total	210,294	206,809	212,397	208,877	214,521	210,965	216,666	212,020

[illegible]

City of Ferndale
Utility Rate Study: Sewer Utility
Customer Forecast

Consumption - Winter	2018	2019	2020	2021	2022	2023	2024	2025
Single Family	107,833	106,046	108,911	107,106	110,000	108,177	111,100	108,718
Single Family UBA	3,937	3,872	3,976	3,910	4,016	3,950	4,056	3,969
Single Family - Out	1,518	1,493	1,533	1,508	1,549	1,523	1,564	1,530
Single Family UBA - Out	46	45	46	46	47	46	47	46
Multi Family	20,039	19,707	20,239	19,904	20,442	20,103	20,646	20,203
Multi Family - Out	1,027	1,010	1,037	1,020	1,048	1,030	1,058	1,035
Commercial	36,178	35,578	36,540	35,934	36,905	36,294	37,274	36,475
Commercial - Out	487	479	492	484	497	489	502	491
Total	171,065	168,230	172,776	169,912	174,503	171,611	176,248	172,469

Inflation Factor:
Demand Growth
Demand Growth
Demand Growth
Demand Growth
Demand Growth
Demand Growth
Demand Growth

Consumption Charge	2018 Rate	2019 Rate	Unit
Single Family Residential - Tier 1	\$7.02	\$7.24	per ccf
Single Family Residential - Tier 2	\$7.83	\$8.08	per ccf
Single Family Residential - Tier 3	\$9.22	\$9.51	per ccf
Single Family Residential - Tier 4	\$7.83	\$8.08	per ccf
Single Family Residential UBA - Tier 1	\$5.27	\$5.43	per ccf
Single Family Residential UBA - Tier 2	\$5.87	\$6.06	per ccf
Single Family Residential UBA - Tier 3	\$6.92	\$7.13	per ccf
Single Family Residential UBA - Tier 4	\$5.87	\$6.06	per ccf
Single Family Residential Outside City - Tier 1	\$10.53	\$10.86	per ccf
Single Family Residential Outside City - Tier 2	\$11.75	\$12.12	per ccf
Single Family Residential Outside City - Tier 3	\$13.83	\$14.27	per ccf
Single Family Residential Outside City - Tier 4	\$11.75	\$12.12	per ccf
Single Family Residential Outside City UBA	\$7.90	\$8.15	per ccf
Single Family Residential Outside City UBA	\$8.81	\$9.09	per ccf
Single Family Residential Outside City UBA	\$10.37	\$10.70	per ccf
Single Family Residential Outside City UBA	\$8.81	\$9.09	per ccf
Multi-Family - Tier 1	\$7.02	\$7.24	per ccf
Multi-Family - Tier 2	\$7.83	\$8.08	per ccf
Multi-Family - Tier 3	\$9.22	\$9.51	per ccf
Multi-Family - Tier 4	\$7.83	\$8.08	per ccf
Multi-Family Out - Tier 1	\$10.53	\$10.86	per ccf
Multi-Family Out - Tier 2	\$11.75	\$12.12	per ccf
Multi-Family Out - Tier 3	\$13.83	\$14.27	per ccf
Multi-Family Out - Tier 4	\$11.75	\$12.12	per ccf
Commercial - Tier 1	\$7.02	\$7.24	per ccf
Commercial - Tier 2	\$7.83	\$8.08	per ccf
Commercial - Tier 3	\$9.22	\$9.51	per ccf
Commercial - Tier 4	\$7.83	\$8.08	per ccf
Commercial Out - Tier 1	\$10.53	\$10.86	per ccf
Commercial Out - Tier 2	\$11.75	\$12.12	per ccf
Commercial Out - Tier 3	\$13.83	\$14.27	per ccf
Commercial Out - Tier 4	\$11.75	\$12.12	per ccf

Fixed Charge	2018 Rate	2019 Rate	Unit
SFR	\$30.99	\$31.97	per account
SFR UBA	\$23.24	\$23.98	per account
SFR Out	\$46.49	\$47.96	per account
SFR Out UBA	\$34.86	\$35.97	per account
Multi-Family	\$30.99	\$31.97	per account
Multi-Family Out	\$46.49	\$47.96	per account
Commercial	\$30.99	\$31.97	per account
Commercial Out	\$46.49	\$47.96	per account

Fixed Revenue by Class	2018	2019	2020	2021	2022	2023	2024	2025
Single Family Residential	\$ 755,657	\$ 766,633	\$ 774,300	\$ 782,043	\$ 789,863	\$ 797,762	\$ 805,739	\$ 809,768
Multi-Family	22,782	23,113	23,344	23,577	23,813	24,051	24,292	24,413
Commercial	66,023	66,982	67,652	68,329	69,012	69,702	70,399	70,751
Total	\$ 844,463	\$ 856,729	\$ 865,296	\$ 873,949	\$ 882,688	\$ 891,515	\$ 900,430	\$ 904,932

Consumption Revenue by Class	2018	2019	2020	2021	2022	2023	2024	2025
Single Family Residential	\$1,842,642	\$1,868,945	\$1,887,635	\$1,906,511	\$1,925,576	\$1,944,832	\$1,964,280	\$1,974,102
Multi-Family	348,643	353,695	357,232	360,804	364,412	368,057	371,737	373,596
Commercial	618,757	627,761	634,039	640,379	646,783	653,251	659,783	663,082
Total	\$2,810,042	\$2,850,402	\$2,878,906	\$2,907,695	\$2,936,772	\$2,966,140	\$2,995,801	\$3,010,780

Total Revenue by Revenue Source	2018	2019	2020	2021	2022	2023	2024	2025
Fixed Charge Revenue	\$ 844,463	\$ 856,729	\$ 865,296	\$ 873,949	\$ 882,688	\$ 891,515	\$ 900,430	\$ 904,932
Consumption Charge Revenue	2,810,042	2,850,402	2,878,906	2,907,695	2,936,772	2,966,140	2,995,801	3,010,780
Total	\$3,654,505	\$3,707,130	\$3,744,202	\$3,781,644	\$3,819,460	\$3,857,655	\$3,896,231	\$3,915,712

Total Operating Revenue by Customer	2018	2019	2020	2021	2022	2023	2024	2025
Single Family	\$2,598,299	\$2,635,579	\$2,661,935	\$2,688,554	\$2,715,439	\$2,742,594	\$2,770,020	\$2,783,870
Multi Family	371,425	376,808	380,576	384,382	388,226	392,108	396,029	398,009
Commercial	684,781	694,744	701,691	708,708	715,795	722,953	730,183	733,834
Total	\$3,654,505	\$3,707,130	\$3,744,202	\$3,781,644	\$3,819,460	\$3,857,655	\$3,896,231	\$3,915,712

City of Ferndale
Utility Rate Study: Sewer Utility
Rate Design

Design For **2020**

Single Family - Rate Design 1- 100% Fixed Charge

% Variable	-100.00%
% Fixed	276.62%
Avg. Incr.	9.55%

Tier 1	Tier 2	Tier 3	Tier 4
25	50	150	150+
\$0.00	\$0.00	\$0.00	\$0.00

Mtr Size	Accounts
3/4"	3,994
1"	36
1 1/2"	-
2"	3
3"	3
4"	-
6"	-
Total	4,037

Tier 1	Tier 2	Tier 3	Tier 4
240,931	9,032	2,652	950
2,230	255	271	-
-	-	-	-
221	58	78	-
275	149	596	614
-	-	-	-
-	-	-	-
243,657	9,494	3,597	1,563

Fixed Charge
\$120.40
\$120.40
\$120.40
\$120.40
\$120.40
\$120.40
\$120.40

Fixed Rev.	Variable Rev.	Total Rev.
\$2,885,591	\$ (0)	\$2,885,591
26,285	(0)	26,285
-	-	-
2,120	(0)	2,120
2,153	(0)	2,153
-	-	-
-	-	-
\$2,916,149	\$ (0)	\$2,916,149

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Flat	277%
Flat Inclining	271%

Single Family - Rate Design 2- Uniform Volume, Winter Average

% Variable	9.55%
% Fixed	9.55%
Avg. Incr.	9.55%

Mtr Size	Accounts
3/4"	3,994
1"	36
1 1/2"	-
2"	3
3"	3
4"	-
6"	-
Total	4,037

Annualized Winter
228,491
-
-
-
-
-
-
228,491

Vol. Charge
\$9.05

Fixed Charge
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02

Fixed Rev.	Variable Rev.	Total Rev.
\$ 839,357	\$ 2,067,904	\$2,907,261
7,646	-	7,646
-	-	-
617	-	617
626	-	626
-	-	-
-	-	-
\$ 848,245	\$ 2,067,904	\$2,916,149

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Uniform **\$ 9.05**

Meter Size	Consumption	
3/4"	10	
Sample Bill Calculation		
Existing 2019	ATB 2020	Full 2020 COS + RD
\$104.37	\$114.34	\$118.73

City of Ferndale
Utility Rate Study: Sewer Utility
Rate Design

Multi Family - Rate Design 1- 100% Fixed Charge

% Variable	-100.00%
% Fixed	1685.99%
Avg. Incr.	9.55%

Tier 1	Tier 2	Tier 3	Tier 4
25	50	150	150+
\$0.00	\$0.00	\$0.00	\$0.00

Mtr Size	Accounts
3/4"	31
1"	48
1 1/2"	6
2"	34
3"	3
4"	-
6"	-
Total	122

Tier 1	Tier 2	Tier 3	Tier 4
2,731	711	424	-
6,579	2,022	654	-
876	620	978	487
4,930	4,180	9,009	6,291
397	397	1,148	1,229
-	-	-	-
-	-	-	-
15,514	7,930	12,213	8,006

Fixed Charge
\$570.98
\$570.98
\$570.98
\$570.98
\$570.98
\$570.98
\$570.98

Fixed Rev.	Variable Rev.	Total Rev.
\$ 106,721	\$ -	\$ 106,721
163,065	-	163,065
20,417	-	20,417
116,509	-	116,509
10,208	-	10,208
-	-	-
-	-	-
\$ 416,921	\$ -	\$ 416,921

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Flat	1686%
Flat Inclining	533%

Multi Family - Rate Design 2- Uniform Volume, Winter Average

% Variable	9.55%
% Fixed	9.55%
Avg. Incr.	9.55%

Mtr Size	Accounts
3/4"	31
1"	48
1 1/2"	6
2"	34
3"	3
4"	-
6"	-
Total	122

Total Usage
3,867
9,255
2,961
24,409
3,171
-
-
43,663

Vol. Charge
\$8.96

Fixed Charge
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02

Fixed Rev.	Variable Rev.	Total Rev.
\$ 6,546	\$ 34,657	\$ 41,203
10,002	82,953	92,955
1,252	26,538	27,791
7,147	218,774	225,920
626	28,426	29,052
-	-	-
-	-	-
\$ 25,573	\$ 391,348	\$ 416,921

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Uniform	\$ 8.96
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Meter Size	Consumption	
3/4"	64	
Sample Bill Calculation		
Existing 2019	ATB 2020	Full 2020 COS + RD
\$548.11	\$600.45	\$577.64

City of Ferndale
Utility Rate Study: Sewer Utility
Rate Design

Commercial - Rate Design 1- 100% Fixed Charge

% Variab	-100.00%
% Fixed	1036.26%
Avg. Incr.	9.55%

Tier 1	Tier 2	Tier 3	Tier 4
25	50	150	150+
\$0.00	\$0.00	\$0.00	\$0.00

Mtr Size	Accounts
3/4"	139
1"	106
1 1/2"	6
2"	78
3"	20
4"	1
6"	3
Total	353

Tier 1	Tier 2	Tier 3	Tier 4
7,339	2,351	2,560	1,851
6,058	2,513	3,805	2,432
569	196	285	255
6,694	4,031	6,282	7,141
1,753	1,510	4,290	14,883
-	-	-	-
306	288	322	15
22,718	10,888	17,543	26,578

Fixed Charge
\$363.26
\$363.26
\$363.26
\$363.26
\$363.26
\$363.26

Fixed Rev.	Variable Rev.	Total Rev.
\$ 302,796	\$ (0)	\$ 302,796
230,506	(0)	230,506
13,350	(0)	13,350
170,093	(0)	170,093
43,298	(0)	43,298
2,165	-	2,165
6,495	(0)	6,495
\$ 768,703	\$ (0)	\$ 768,703

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Flat	1036%
Flat Inclining	271%

Commercial - Rate Design 2- Uniform Volume, Winter Average

% Variab	9.55%
% Fixed	9.55%
Avg. Incr.	9.55%

Mtr Size	Accounts
3/4"	139
1"	106
1 1/2"	6
2"	78
3"	20
4"	1
6"	3
Total	353

Total Usage
77,727
-
-
-
-
-
-
77,727

Tier 1
\$8.94

Fixed Charge
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02
\$35.02

Fixed Rev.	Variable Rev.	Total Rev.
\$ 29,194	\$ 694,590	\$ 723,783
22,224	-	22,224
1,287	-	1,287
16,399	-	16,399
4,174	-	4,174
209	-	209
626	-	626
\$ 74,113	\$ 694,590	\$ 768,703

Check O.K. 9.55%

Mtr Size	MCEs
3/4"	1.00
1"	1.67
1 1/2"	3.33
2"	5.33
3"	10.67
4"	16.67
6"	33.33

Uniform	\$ 9.32
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Meter Size	Consumption
3/4"	46
Sample Bill Calculation	
Existing 2019	ATB 2020 Full 2020 COS + RD
\$382.65	\$419.19 \$380.12

VI.D. STORMWATER MODEL TECHNICAL EXHIBITS

City of Ferndale
Utility Rate Study: Stormwater Utility
Summary

Revenue Requirement	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues										
Rate Revenues Under Existing Rates	\$ 1,235,676	\$ 1,248,033	\$ 1,260,513	\$ 1,273,118	\$ 1,285,849	\$ 1,298,708	\$ 1,305,201	\$ 1,311,727	\$ 1,318,286	\$ 1,324,878
Non-Rate Revenues	55,645	45,137	48,936	49,390	53,276	52,971	55,995	56,448	56,373	56,485
Total Revenues	\$ 1,291,321	\$ 1,293,170	\$ 1,309,449	\$ 1,322,508	\$ 1,339,125	\$ 1,351,679	\$ 1,361,196	\$ 1,368,175	\$ 1,374,659	\$ 1,381,362
Expenses										
Cash Operating Expenses	\$ 939,225	\$ 812,632	\$ 949,743	\$ 923,402	\$ 829,737	\$ 889,784	\$ 1,026,345	\$ 1,002,323	\$ 1,034,958	\$ 1,068,836
Existing Debt Service	109,762	91,936	90,783	78,796	77,961	77,127	81,041	79,754	70,398	69,120
New Debt Service	-	210,768	210,768	409,223	409,223	550,347	550,347	550,347	550,347	550,347
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Reserves	-	-	-	-	-	-	-	-	-	-
Total Expenses	\$ 1,048,987	\$ 1,115,337	\$ 1,251,294	\$ 1,411,422	\$ 1,316,922	\$ 1,517,258	\$ 1,657,732	\$ 1,632,424	\$ 1,655,703	\$ 1,688,303
Net Surplus (Deficiency)	\$ 242,334	\$ 177,833	\$ 58,155	\$ (88,914)	\$ 22,203	\$ (165,579)	\$ (296,536)	\$ (264,249)	\$ (281,044)	\$ (306,941)
Additions to Meet Coverage	-	-	-	(69,134)	(46,301)	(103,078)	(101,667)	(103,812)	(111,389)	(109,785)
Total Surplus (Deficiency)	\$ 242,334	\$ 177,833	\$ 58,155	\$ (158,048)	\$ (24,098)	\$ (268,657)	\$ (398,204)	\$ (368,060)	\$ (392,433)	\$ (416,726)
Annual Rate Increase		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Cumulative Rate Increase		5.00%	10.25%	15.76%	21.55%	27.63%	34.01%	40.71%	47.75%	55.13%
Revenues After Rate Increases	\$ 1,235,676	\$ 1,310,434	\$ 1,389,716	\$ 1,473,793	\$ 1,562,958	\$ 1,657,517	\$ 1,749,095	\$ 1,845,732	\$ 1,947,709	\$ 2,055,320
Additional Taxes from Rate Increase	-	936	1,938	3,010	4,157	5,382	6,658	8,010	9,441	10,957
Net Cash Flow After Rate Increase	\$ 242,334	\$ 239,298	\$ 185,419	\$ 108,751	\$ 295,155	\$ 187,848	\$ 140,699	\$ 261,746	\$ 338,938	\$ 412,545
Coverage After Rate Increase: Bonded Debt	8.56	2.21	2.10	1.34	1.81	1.39	1.32	1.52	1.64	1.76
Coverage After Rate Increase: Total Debt	3.21	1.83	1.75	1.23	1.66	1.31	1.23	1.42	1.55	1.68
Sample Bimonthly Residential Bill	\$31.53	\$33.11	\$34.76	\$36.50	\$38.32	\$40.24	\$42.25	\$44.37	\$46.58	\$48.91
Increase to Bimonthly Bill (\$)		\$1.58	\$1.66	\$1.74	\$1.82	\$1.92	\$2.01	\$2.11	\$2.22	\$2.33

Fund Balance	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Reserve										
Beginning Balance	\$ 679,820	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447
plus: Net Cash Flow after Rate Increase	242,334	239,298	185,419	108,751	295,155	187,848	140,699	261,746	338,938	412,545
less: Transfer of Surplus to Capital Fund	(767,761)	(260,108)	(162,727)	(112,916)	(310,376)	(177,789)	(118,049)	(265,485)	(333,351)	(406,740)
Ending Balance	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447	\$ 177,251
<i>Actual Days of O&M</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>	<i>60 days</i>
<i>Minimum Balance Requirement</i>	<i>\$ 154,393</i>	<i>\$ 133,583</i>	<i>\$ 156,276</i>	<i>\$ 152,111</i>	<i>\$ 136,890</i>	<i>\$ 146,949</i>	<i>\$ 169,599</i>	<i>\$ 165,860</i>	<i>\$ 171,447</i>	<i>\$ 177,251</i>
<i>Maximum Balance Requirement</i>	<i>\$ 154,393</i>	<i>\$ 133,583</i>	<i>\$ 156,276</i>	<i>\$ 152,111</i>	<i>\$ 136,890</i>	<i>\$ 146,949</i>	<i>\$ 169,599</i>	<i>\$ 165,860</i>	<i>\$ 171,447</i>	<i>\$ 177,251</i>
Capital Reserve										
Beginning Balance	\$ -	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	767,761	260,108	162,727	112,916	310,376	177,789	118,049	265,485	333,351	406,740
plus: Capital Grants / Other Resources	250,000	-	-	-	-	-	-	-	-	-
plus: SDC Revenue Towards Capital	65,000	65,000	65,000	65,000	65,000	60,125	55,616	51,444	47,586	44,017
plus: Revenue Bond Proceeds	-	2,625,000	-	2,250,000	-	1,600,000	-	-	-	-
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	12,854	39,983	3,266	25,997	4,398	6,895	4,536	4,816	6,197
Total Funding Sources	\$ 1,082,761	\$ 3,605,663	\$ 2,266,873	\$ 2,594,462	\$ 1,701,198	\$ 2,062,235	\$ 525,294	\$ 548,246	\$ 626,530	\$ 766,792
less: Capital Expenditures	(440,060)	(1,606,500)	(2,103,593)	(1,294,636)	(1,481,275)	(1,717,500)	(298,513)	(307,468)	(316,693)	(326,193)
Ending Capital Fund Balance	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838	\$ 440,599
<i>Minimum Target Balance</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>	<i>\$ 56,482</i>
Combined Beginning Balance	\$ 679,820	\$ 797,094	\$ 2,132,746	\$ 319,556	\$ 1,451,936	\$ 356,812	\$ 491,684	\$ 396,380	\$ 406,638	\$ 481,285
Combined Ending Balance	\$ 797,094	\$ 2,132,746	\$ 319,556	\$ 1,451,936	\$ 356,812	\$ 491,684	\$ 396,380	\$ 406,638	\$ 481,285	\$ 617,850
<i>Ending Total Days of Operating Expenditures</i>	<i>310 days</i>	<i>957 days</i>	<i>123 days</i>	<i>572 days</i>	<i>156 days</i>	<i>200 days</i>	<i>140 days</i>	<i>147 days</i>	<i>168 days</i>	<i>209 days</i>
<i>Combined Minimum Target Balance</i>	<i>210,876</i>	<i>190,066</i>	<i>212,758</i>	<i>208,593</i>	<i>193,372</i>	<i>203,432</i>	<i>226,081</i>	<i>222,342</i>	<i>227,929</i>	<i>233,734</i>

City of Ferndale
Utility Rate Study: Stormwater Utility
Assumptions

Economic & Financial Factors	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Escalation Rates										
General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Construction Cost Inflation	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Cost Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Benefit Cost Inflation	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Labor + Benefits	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%
Revenue Growth Before Increases	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.50%	0.50%
Mitigation Fee Forecast	0.00%	0.00%	0.00%	0.00%	0.00%	-7.50%	-7.50%	-7.50%	-7.50%	-7.50%
[Extra]	0.00%	0.00%	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%	0.00%	0.00%
[Extra]	0.00%	0.00%	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%	0.00%	0.00%
No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment Interest										
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Tax Rates										
State B&O	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
City Utility	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
B&O & City Utility Tax	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
No Tax	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Fund Balance & Financial Policy Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning Fund Balances										
Operating Reserve	\$ 679,820	Fund 407								
Capital Reserve	\$ -									
Debt Reserve	\$ 42,450	Calculated stormwater portion of Funds 403/404								
Total Reserves	\$ 722,269									
Total Operating and Capital Cash Test: Days of O&M (Informational only--does not drive rate increases)										
	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days	150 days
Operating Balance: Minimum & Maximum Target										
Min. Fund Balance Target (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Max. Fund Balance (days of O&M expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Capital Balance: Minimum Target										
Min. Fund Balance Target (days of capital expense)	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days	30 days
Max. Fund Balance (days of capital expense)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
System Reinvestment Funding										
Select Annual Funding Option →	4	No Rate Funded Capital								
Target Amounts										
1 Original Cost Depreciation	\$ 269,573	\$ 280,575	\$ 332,071	\$ 395,286	\$ 438,277	\$ 485,933	\$ 528,871	\$ 536,334	\$ 544,020	\$ 551,938
2 Estimated Replacement Cost Depreciation	\$ 1,874,260	\$ 1,885,262	\$ 1,936,757	\$ 1,999,972	\$ 2,042,963	\$ 2,090,620	\$ 2,133,557	\$ 2,141,020	\$ 2,148,707	\$ 2,156,624
3 Manual User Input	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4 No Rate Funded Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Percent Toggle of Selected Funding Target										
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Funding Target Assumed in Model										
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Result w/ Transfers (compared to Annual Depreciation)										
	285%	93%	49%	29%	71%	37%	22%	49%	61%	74%

City of Ferndale
Utility Rate Study: Stormwater Utility
Assumptions

Capital Financing Assumptions		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
System Development Charges											
Select Revenue Option →		2 Manual Input									
1	Calculated	\$23,440	\$23,674	\$23,911	\$24,150	\$24,392	\$24,636	\$12,441	\$12,503	\$12,566	\$12,629
	Actual Charge	2018 Customer	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
	Existing Customer Base	4,688	4,735	4,782	4,830	4,878	4,927	4,976	5,001	5,026	5,051
	Incremental Customer Base		47	47	48	48	49	49	25	25	25
	Annual Revenue										
2	Manual Input	59,530	\$ 65,000	\$ 65,000	\$ 65,000	\$ 65,000	\$ 60,125	\$ 55,616	\$ 51,444	\$ 47,586	\$ 44,017
Other Funding Sources (Uses)		Capital Grants / Other Resources									
	DOE Grants	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	[Extra]	-	-	-	-	-	-	-	-	-	-
	Total	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue Bonds		Level total payments									
	Term (years)	20 years	20 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	0 years	0 years
	Interest Cost	4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
	Issuance Cost	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Legal Minimum or Policy Coverage	1.25	Review bond covenants before updating this section.								
	Use Reserves to Pay for Last Payment?	Yes	("Yes" is default)								
	Include / Exclude SDCs in Coverage?	Exclude									
Other Loans 1		Level total payments									
	Term (years)	20 years	20 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	0 years	0 years
	Interest Cost	4.00%	4.00%	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%	1.00%	1.00%
Other Loans 2		Level principal payments									
	Term (years)	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years	20 years
	Interest Only Payments (years)	0 years	0 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%	1.50%	1.50%
	Issuance Cost	1.00%	1.00%	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	20 years	20 years
	Interest Only Payments (years)	0 years	0 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%	3.00%	3.00%

City of Ferndale
Utility Rate Study: Stormwater Utility
Operating Revenue and Expenditure Forecast

		Actuals		Budget									
Operating Revenues		Escalation	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Account #	Rate Revenues												
407-000-000-343-10-00-00	Storm Utility Rate Revenue	Revenue Growth Before Increases	\$ 1,201,775	\$ 1,213,793	\$ 1,225,931	\$ 1,238,190	\$ 1,250,572	\$ 1,263,078	\$ 1,275,708	\$ 1,282,087	\$ 1,288,497	\$ 1,294,940	\$ 1,301,415
407-000-000-343-10-00-01	Storm Utility Rate Revenue - Discounted	Revenue Growth Before Increases	21,667	21,883	22,102	22,323	22,546	22,772	22,999	23,114	23,230	23,346	23,463
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
Total Rate Revenue			\$ 1,223,442	\$ 1,235,676	\$ 1,248,033	\$ 1,260,513	\$ 1,273,118	\$ 1,285,849	\$ 1,298,708	\$ 1,305,201	\$ 1,311,727	\$ 1,318,286	\$ 1,324,878
Non-Rate Revenues													
407-000-000-334-03-10-02	DOE Grants	No Escalation	\$ 12,172	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
407-000-000-334-03-80-04	TIB Grant - WA Street	No Escalation	69,161	-	-	-	-	-	-	-	-	-	-
407-000-000-343-10-00-03	Storm Utility Inspection Fee - New Connections	No Escalation	8,150	8,600	8,600	8,600	8,600	8,600	8,600	8,600	8,600	8,600	8,600
407-000-000-343-83-90-01	Miscellaneous	No Escalation	251	-	-	-	-	-	-	-	-	-	-
407-000-000-345-85-00-04	Storm Mit Fees-VanderYaght Regional	No Escalation	28	-	-	-	-	-	-	-	-	-	-
407-000-000-345-85-00-05	Storm Mit Fees-SW Regional	No Escalation	-	-	-	-	-	-	-	-	-	-	-
407-000-000-345-85-00-06	Storm Mit Fees-Neubauer Regional	No Escalation	7,407	-	-	-	-	-	-	-	-	-	-
407-000-000-345-85-00-10	Storm Mit Fees Resid-Refunds	No Escalation	-	-	-	-	-	-	-	-	-	-	-
407-000-000-359-00-40-00	Late Fees	No Escalation	-	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000
[Extra]	[Extra]	No Escalation	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Revenues			\$ 97,168	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200	\$ 41,200
TOTAL OPERATING REVENUES			\$ 1,320,610	\$ 1,276,876	\$ 1,289,233	\$ 1,301,713	\$ 1,314,318	\$ 1,327,049	\$ 1,339,908	\$ 1,346,401	\$ 1,352,927	\$ 1,359,486	\$ 1,366,078
Operating Expenses		Escalation	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Account #	Taxes												
407-000-002-531-30-53-00	B&O Tax	[Calculated]	17,977	17,842	20,238	20,426	20,615	20,806	20,925	20,955	20,991	21,031	21,076
407-000-002-531-30-53-01	COF Monthly Utility Tax - Storm	[Calculated]	117,115	107,055	114,433	115,577	116,733	117,900	119,079	119,685	119,175	119,771	120,370
Drainage													
407-000-002-531-30-10-00	Salaries	Labor Cost Inflation	98,024	104,054	108,216	112,545	117,047	121,728	126,598	131,661	136,928	142,405	148,101
407-000-002-531-30-10-02	Salaries - Seasonal	Labor Cost Inflation	4,710	5,000	5,200	5,408	5,624	5,849	6,083	6,327	6,580	6,843	7,117
407-000-002-531-30-10-03	Salaries - Technical	Labor Cost Inflation	108,676	127,116	132,200	137,488	142,988	148,707	154,656	160,842	167,275	173,966	180,925
407-000-002-531-30-10-10	OT Salaries	Labor Cost Inflation	347	840	873	908	944	982	1,022	1,062	1,105	1,149	1,195
407-000-002-531-30-21-01	Benefits-Medical	Benefit Cost Inflation	44,001	49,881	52,375	54,994	57,744	60,631	63,662	66,845	70,188	73,697	77,382
407-000-002-531-30-21-02	Benefits-L & I	Benefit Cost Inflation	2,308	6,015	6,315	6,631	6,963	7,311	7,676	8,060	8,463	8,886	9,331
407-000-002-531-30-21-03	Benefits-Retirement	Benefit Cost Inflation	28,327	32,724	34,360	36,078	37,882	39,776	41,765	43,853	46,046	48,348	50,766
407-000-002-531-30-21-04	Benefits-Social Security/Medicare	Benefit Cost Inflation	15,924	18,067	18,970	19,919	20,915	21,961	23,059	24,211	25,422	26,693	28,028
407-000-002-531-30-21-05	Benefits - PFML	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-21-08	Benefits-HSA City Contribution	Benefit Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-21-12	OT Benefits L & I	Benefit Cost Inflation	6	17	18	18	19	20	21	22	24	25	26
407-000-002-531-30-21-13	OT Benefits Retirement	Benefit Cost Inflation	49	121	127	133	140	147	154	162	170	178	187
407-000-002-531-30-21-14	OT Benefits Social Security	Benefit Cost Inflation	26	64	67	71	74	78	82	86	90	95	100
407-000-002-531-30-22-00	Benefits-Boot/Clothing Allowance	Benefit Cost Inflation	520	255	267	281	295	310	325	341	358	376	395
407-000-002-531-30-31-01	Office Supplies	General Cost Inflation	511	500	515	530	546	563	580	597	615	633	652

City of Ferndale													
Utility Rate Study: Stormwater Utility													
Operating Revenue and Expenditure Forecast													
407-000-002-531-30-31-10	O & M Supplies 407	General Cost Inflation	2,392	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524
407-000-002-531-30-31-11	O & M Supplies - Pet Waste 407	General Cost Inflation	1,198	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
407-000-002-531-30-31-20	Printing	General Cost Inflation	-	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610
407-000-002-531-30-35-00	Small Tools	General Cost Inflation	213	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
407-000-002-531-30-40-00	Central Services	General Cost Inflation	79,765	79,765	82,158	84,623	87,161	89,776	92,469	95,244	98,101	101,044	104,075
407-000-002-531-30-40-01	Central Services - Elected Officials	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-40-02	Vehicle Rental Fund 550	General Cost Inflation	36,996	36,773	37,876	39,012	40,183	41,388	42,630	43,909	45,226	46,583	47,980
407-000-002-531-30-40-03	Vehicle Rental Fund 550 - Capital	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-40-04	Computer Repair & Maintenance Fund 510	General Cost Inflation	10,124	9,338	9,618	9,907	10,204	10,510	10,825	11,150	11,485	11,829	12,184
407-000-002-531-30-41-00	Professional Services 407	General Cost Inflation	24,395	101,000	24,395	25,127	25,881	26,658	27,457	28,281	29,129	30,003	30,903
407-000-002-531-30-41-03	Professional Services - Included in DOE Grants	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-41-04	Prof Services - Fulfillment	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-41-05	Maint & Repair Projects - Storm 407	General Cost Inflation	2,870	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669	32,619
407-000-002-531-30-41-06	Prof Services - Planned Action EIS Stormwater Study 2012	General Cost Inflation	32	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-41-11	Maint & Repair - Levy	General Cost Inflation	-	30,000	-	-	-	-	-	-	-	-	-
407-000-002-531-30-41-12	Maint & Repair - Wetlands Mitigation Monitoring	General Cost Inflation	6,531	30,000	30,900	31,827	32,782	33,765	34,778	35,822	36,896	38,003	39,143
407-000-002-531-30-41-13	Wetlands Mitigation Monitoring - Contra Account (See Fund 001)	General Cost Inflation	(6,531)	(30,000)	(30,900)	(31,827)	(32,782)	(33,765)	(34,778)	(35,822)	(36,896)	(38,003)	(39,143)
407-000-002-531-30-41-14	Prof Services - Storm Comp Plan Updates	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-42-00	Cell Phone	General Cost Inflation	2,666	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
407-000-002-531-30-42-01	Postage	General Cost Inflation	211	300	309	318	328	338	348	358	369	380	391
407-000-002-531-30-43-00	Travel	General Cost Inflation	855	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
407-000-002-531-30-44-00	Advertising	General Cost Inflation	938	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
407-000-002-531-30-48-01	Contract Admin Temp Service	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-48-02	Decant Disposal	General Cost Inflation	17,588	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669	32,619
407-000-002-531-30-48-03	Water Quality Monitoring	General Cost Inflation	13,205	20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095
407-000-002-531-30-49-01	Misc. - Safety Equipment	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
407-000-002-531-30-49-02	Misc. - Training	General Cost Inflation	4,010	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610
407-000-002-531-30-49-03	Miscellaneous	General Cost Inflation	1,902	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610
407-000-002-531-30-49-04	Stormwater Permit	General Cost Inflation	4,458	4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919	5,067	5,219
Total - Drainage			\$ 507,247	\$ 696,828	\$ 611,711	\$ 634,777	\$ 658,747	\$ 683,656	\$ 709,543	\$ 736,448	\$ 764,412	\$ 793,478	\$ 823,692
Transfers Out													
407-000-003-597-00-00-09	TR TO F550 Vector Truck	General Cost Inflation	100,000	-	-	-	-	-	-	-	-	-	-
407-000-003-597-00-86-07	Transfer to F550 T-16	General Cost Inflation	-	110,000	-	-	-	-	-	-	-	-	-
407-000-003-597-00-86-08	Transfer to F550 T-25	General Cost Inflation	-	7,500	-	-	-	-	-	-	-	-	-
[Extra]	[Extra]	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
[Extra]	Transfers to F550	General Cost Inflation	-	-	66,250	178,963	127,308	7,376	40,237	149,257	97,745	100,678	103,698
[Extra]	[Extra]	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
[Extra]	[Extra]	General Cost Inflation	-	-	-	-	-	-	-	-	-	-	-
Total - Transfers Out			\$ 100,000	\$ 117,500	\$ 66,250	\$ 178,963	\$ 127,308	\$ 7,376	\$ 40,237	\$ 149,257	\$ 97,745	\$ 100,678	\$ 103,698
TOTAL CASH OPERATING EXPENSES BEFORE REALIZATION FACTOR			\$ 742,339	\$ 939,225	\$ 812,632	\$ 949,743	\$ 923,402	\$ 829,737	\$ 889,784	\$ 1,026,345	\$ 1,002,323	\$ 1,034,958	\$ 1,068,836
REALIZATION FACTOR IMPACT (Excluding Taxes)			n/a	-	-	-	-	-	-	-	-	-	-
TOTAL CASH OPERATING EXPENSES			\$ 742,339	\$ 939,225	\$ 812,632	\$ 949,743	\$ 923,402	\$ 829,737	\$ 889,784	\$ 1,026,345	\$ 1,002,323	\$ 1,034,958	\$ 1,068,836

City of Ferndale
Utility Rate Study: Stormwater Utility
Existing Debt

Existing Debt Service - Summary		Total	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Annual Debt Payments												
Revenue Bonds	\$	591,875	\$ 41,112	\$ 40,613	\$ 39,863	\$ 39,112	\$ 38,362	\$ 37,613	\$ 41,613	\$ 40,412	\$ 39,213	\$ 38,012
PWTF Loans		482,411	58,007	40,881	40,488	31,569	31,492	31,415	31,338	31,262	31,185	31,108
Other Loans		72,008	10,643	10,442	10,432	8,115	8,107	8,099	8,090	8,080	-	-
Total Debt Payments		1,146,294	109,762	91,936	90,783	78,796	77,961	77,127	81,041	79,754	70,398	69,120

Existing Debt Service - Revenue Bonds			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2014 Revenue Bond												
Annual Interest Payment	\$	146,875	\$ 16,112	\$ 15,613	\$ 14,863	\$ 14,112	\$ 13,362	\$ 12,613	\$ 11,613	\$ 10,412	\$ 9,213	\$ 8,012
Annual Principal Payment	\$	445,000	25,000	25,000	25,000	25,000	25,000	25,000	30,000	30,000	30,000	30,000
Total Annual Payment	\$	591,875	\$ 41,112	\$ 40,613	\$ 39,863	\$ 39,112	\$ 38,362	\$ 37,613	\$ 41,613	\$ 40,412	\$ 39,213	\$ 38,012
Use of Debt Reserve for Debt Service			-	-	-	-	-	-	-	-	-	-
TOTAL REVENUE BONDS												
Annual Interest Payment	\$	146,875	\$ 16,112	\$ 15,613	\$ 14,863	\$ 14,112	\$ 13,362	\$ 12,613	\$ 11,613	\$ 10,412	\$ 9,213	\$ 8,012
Annual Principal Payment	\$	445,000	25,000	25,000	25,000	25,000	25,000	25,000	30,000	30,000	30,000	30,000
Total Annual Payment	\$	591,875	\$ 41,112	\$ 40,613	\$ 39,863	\$ 39,112	\$ 38,362	\$ 37,613	\$ 41,613	\$ 40,412	\$ 39,213	\$ 38,012
Use of Debt Reserve for Debt Service			-	-	-	-	-	-	-	-	-	-
Annual Debt Reserve Target on Existing Revenue Bonds			41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,500	41,500	41,500

Existing Debt Service - PWTF Loans			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PWTF - Regional Storm Pond												
Annual Interest Payment	\$	8,065	\$ 1,075	\$ 999	\$ 922	\$ 845	\$ 768	\$ 691	\$ 614	\$ 538	\$ 461	\$ 384
Annual Principal Payment		430,138	30,724	30,724	30,724	30,724	30,724	30,724	30,724	30,724	30,724	30,724
Total Annual Payment	\$	438,203	\$ 31,799	\$ 31,723	\$ 31,646	\$ 31,569	\$ 31,492	\$ 31,415	\$ 31,338	\$ 31,262	\$ 31,185	\$ 31,108
PWTF - Storm Drainage												
Annual Interest Payment	\$	4,736	\$ 2,526	\$ 1,263	\$ 947	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment		39,472	23,682	7,895	7,895	-	-	-	-	-	-	-
Total Annual Payment	\$	44,208	\$ 26,208	\$ 9,158	\$ 8,842	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL PWTF LOANS												
Annual Interest Payment	\$	12,801	\$ 3,601	\$ 2,262	\$ 1,869	\$ 845	\$ 768	\$ 691	\$ 614	\$ 538	\$ 461	\$ 384
Annual Principal Payment		469,610	54,406	38,619	38,619	30,724	30,724	30,724	30,724	30,724	30,724	30,724
Total Annual Payment	\$	482,411	\$ 58,007	\$ 40,881	\$ 40,488	\$ 31,569	\$ 31,492	\$ 31,415	\$ 31,338	\$ 31,262	\$ 31,185	\$ 31,108

Existing Debt Service - Other Loans			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2016 LOCAL Heavy Equipment Purchase												
Annual Interest Payment	\$	11,243	\$ 2,395	\$ 2,248	\$ 1,946	\$ 1,630	\$ 1,297	\$ 948	\$ 582	\$ 197	\$ -	\$ -
Annual Principal Payment		53,779	5,883	5,883	6,177	6,486	6,810	7,150	7,508	7,883	-	-
Total Annual Payment	\$	65,022	\$ 8,277	\$ 8,130	\$ 8,123	\$ 8,115	\$ 8,107	\$ 8,099	\$ 8,090	\$ 8,080	\$ -	\$ -
2016 LOCAL Minor Equipment Purchase												
Annual Interest Payment	\$	442	\$ 220	\$ 166	\$ 56	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Annual Principal Payment		6,544	2,145	2,145	2,253	-	-	-	-	-	-	-
Total Annual Payment	\$	6,986	\$ 2,365	\$ 2,312	\$ 2,309	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL OTHER LOANS												
Annual Interest Payment	\$	11,686	\$ 2,615	\$ 2,414	\$ 2,003	\$ 1,630	\$ 1,297	\$ 948	\$ 582	\$ 197	\$ -	\$ -
Annual Principal Payment		60,322	8,028	8,028	8,429	6,486	6,810	7,150	7,508	7,883	-	-
Total Annual Payment	\$	72,008	\$ 10,643	\$ 10,442	\$ 10,432	\$ 8,115	\$ 8,107	\$ 8,099	\$ 8,090	\$ 8,080	\$ -	\$ -

City of Ferndale
Utility Rate Study: Stormwater Utility
Capital Improvement Program

2019 Project Costs in Year

ID	Description	Useful Life (Years)	Percent Replacement?	Unescalated Total	Unescalated Capital Cost									
					2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	Facility and Conveyance			\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	Gateway Storm Riverside to Labounty	40.00	50%	496,277	-	48,544	447,733	-	-	-	-	-	-	-
	Malloy Road Culvert Replacement	40.00	100%	965,409	60,000	-	905,409	-	-	-	-	-	-	-
	Portal Way Culvert Replacement	40.00	100%	725,433	-	-	84,834	640,599	-	-	-	-	-	-
	Douglas Road Culvert Replacement	40.00	100%	882,001	-	-	-	82,363	799,638	-	-	-	-	-
	Labounty Road Culvert Replacement	40.00	100%	856,312	-	-	-	-	79,964	776,348	-	-	-	-
	Studies			-	-	-	-	-	-	-	-	-	-	-
	Storm Comprehensive Plan Update	6.00	50%	29,126	-	29,126	-	-	-	-	-	-	-	-
	Watershed Basin Planning	6.00	50%	48,544	-	48,544	-	-	-	-	-	-	-	-
	Portal Way between Brown and Grandview	6.00	50%	70,695	-	-	70,695	-	-	-	-	-	-	-
	Smith between PS #4 and Hovander	6.00	50%	68,636	-	-	-	68,636	-	-	-	-	-	-
	Schell Creek Retrofit	6.00	50%	66,637	-	-	-	-	66,637	-	-	-	-	-
	Ferndale Levee Projects			-	-	-	-	-	-	-	-	-	-	-
	Emergency Repair	40.00	100%	20,060	20,060	-	-	-	-	-	-	-	-	-
	Levee Rehabilitation Design and Construction	40.00	50%	-	-	-	-	-	-	-	-	-	-	-
	NPDES Compliance Projects			-	-	-	-	-	-	-	-	-	-	-
	Decant Facility Design	40.00	50%	111,757	60,000	-	-	-	-	51,757	-	-	-	-
	Decant Facility Construction	40.00	50%	485,437	-	485,437	-	-	-	-	-	-	-	-
	Nooksack River Fecal Coliform Reduction Projects	40.00	50%	48,544	-	48,544	-	-	-	-	-	-	-	-
	Illicit Discharge Detection and Elimination Study	40.00	50%	47,130	-	-	47,130	-	-	-	-	-	-	-
	Maintenance and Repair			-	-	-	-	-	-	-	-	-	-	-
	Catch Basin and Conveyance Repair and Replacement	40.00	100%	123,722	-	25,000	25,000	25,000	25,000	23,722	-	-	-	-
	Stormwater Facilities Maintenance and Upgrades	40.00	50%	148,722	25,000	25,000	25,000	25,000	25,000	23,722	-	-	-	-
	Pump Station #8 Equipment Replacement	40.00	100%	145,631	-	145,631	-	-	-	-	-	-	-	-
	Street Concurrent Projects			-	-	-	-	-	-	-	-	-	-	-
	Washington Street Main Street to Vista Drive	40.00	50%	252,313	-	-	-	-	-	252,313	-	-	-	-
	Ferndale Terrace Design	40.00	50%	275,000	275,000	-	-	-	-	-	-	-	-	-
	Thornton Street Crossing	40.00	50%	703,883	-	703,883	-	-	-	-	-	-	-	-
	Ferndale Terrace Construction	40.00	50%	282,779	-	-	282,779	-	-	-	-	-	-	-
	Thornton Street (Vista Dr to Malloy)	40.00	50%	94,260	-	-	94,260	-	-	-	-	-	-	-
	Alder Street	40.00	50%	228,785	-	-	-	228,785	-	-	-	-	-	-
	Thornton Street (Church Rd to Maureen Dr)	40.00	50%	114,393	-	-	-	114,393	-	-	-	-	-	-
	Douglas Road (750 ft east of S Church Rd to Imhoff)	40.00	50%	244,334	-	-	-	-	244,334	-	-	-	-	-
	Main Street (Barrett to east City Limits)	40.00	50%	353,670	-	-	-	-	-	353,670	-	-	-	-
	Legoe Avenue	40.00	50%	75,521	-	-	-	-	75,521	-	-	-	-	-
	Continuing Annual Projects			-	-	-	-	-	-	-	-	-	-	-
	Annual Capital	40.00	50%	3,500,000	-	-	-	-	-	-	250,000	250,000	250,000	250,000
				-	-	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-
	Total Capital Projects Before Completion Factor			11,465,007	440,060	1,559,709	1,982,838	1,184,776	1,316,094	1,481,531	250,000	250,000	250,000	250,000
	Completion Factor Impact			-	-	-	-	-	-	-	-	-	-	-
	Total Capital Projects			\$ 11,465,007	\$ 440,060	\$ 1,559,709	\$ 1,982,838	\$ 1,184,776	\$ 1,316,094	\$ 1,481,531	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000

City of Ferndale
Utility Rate Study: Stormwater Utility
Capital Funding

Capital Project Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
TOTAL CAPITAL EXPENDITURES	\$ 440,060	\$ 1,606,500	\$ 2,103,593	\$ 1,294,636	\$ 1,481,275	\$ 1,717,500	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193

Capital Financing Plan	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Grants / Other Resources	250,000	-	-	-	-	-	-	-	-	-
Balance/Remained to be Funded	\$ 190,060	\$ 1,606,500	\$ 2,103,593	\$ 1,294,636	\$ 1,481,275	\$ 1,717,500	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193
OTHER FUNDING SOURCES										
Beginning Fund Balances	\$ -	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
SDC Revenue Towards Capital	65,000	65,000	65,000	65,000	65,000	60,125	55,616	51,444	47,586	44,017
Interest Earnings	-	12,854	39,983	3,266	25,997	4,398	6,895	4,536	4,816	6,197
Minimum Capital Balance?	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)	(56,482)
Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
Revenue Bond Proceeds	-	2,625,000	-	2,250,000	-	1,600,000	-	-	-	-
TOTAL CAPITAL RESOURCES	\$ 8,518	\$ 3,289,072	\$ 2,047,664	\$ 2,425,063	\$ 1,334,340	\$ 1,827,963	\$ 350,763	\$ 226,279	\$ 236,697	\$ 303,569

New Debt Computations	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUE BONDS										
Amount to Fund	\$ -	\$ 2,625,000	\$ -	\$ 2,250,000	\$ -	\$ 1,600,000	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	28,644	-	24,732	-	17,587	-	-	-	-
Reserve Required	-	210,768	-	198,455	-	141,123	-	-	-	-
Amount of Debt Issue	\$ -	\$ 2,864,413	\$ -	\$ 2,473,187	\$ -	\$ 1,758,711	\$ -	\$ -	\$ -	\$ -
Other Loans 1										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 2										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Issuance Costs	-	-	-	-	-	-	-	-	-	-
Amount of Debt Issue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Loans 3										
Amount to Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Ferndale
Utility Rate Study: Stormwater Utility
Capital Funding

Debt Service Summary	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
EXISTING DEBT SERVICE										
Annual Interest Payments	\$ 22,328	\$ 20,289	\$ 18,735	\$ 16,587	\$ 15,427	\$ 14,252	\$ 12,809	\$ 11,147	\$ 9,674	\$ 8,396
Annual Principal Payments	87,434	71,647	72,049	62,210	62,534	62,874	68,232	68,607	60,724	60,724
Total Debt Service Payments	\$ 109,762	\$ 91,936	\$ 90,783	\$ 78,796	\$ 77,961	\$ 77,127	\$ 81,041	\$ 79,754	\$ 70,398	\$ 69,120
Revenue Bond Payments Only	41,112	40,613	39,863	39,112	38,362	37,613	41,613	40,412	39,213	38,012
NEW DEBT SERVICE										
Annual Interest Payments	\$ -	\$ 114,577	\$ 110,729	\$ 230,387	\$ 222,485	\$ 302,166	\$ 290,882	\$ 279,079	\$ 266,733	\$ 253,818
Annual Principal Payments	-	96,192	100,040	178,837	186,738	248,181	259,465	271,268	283,614	296,529
Total Debt Service Payments	\$ -	\$ 210,768	\$ 210,768	\$ 409,223	\$ 409,223	\$ 550,347	\$ 550,347	\$ 550,347	\$ 550,347	\$ 550,347
Revenue Bond Payments Only	-	210,768	210,768	409,223	409,223	550,347	550,347	550,347	550,347	550,347
TOTAL DEBT SERVICE PAYMENTS	\$ 109,762	\$ 302,705	\$ 301,552	\$ 488,020	\$ 487,185	\$ 627,474	\$ 631,388	\$ 630,101	\$ 620,745	\$ 619,467
Total Interest Payments	22,328	134,866	129,463	246,973	237,912	316,418	303,691	290,226	276,407	262,214
Total Principal Payments	87,434	167,839	172,088	241,047	249,272	311,056	327,697	339,875	344,338	357,253
Total Revenue Bond Payments Only	41,112	251,381	250,631	448,335	447,585	587,960	591,960	590,759	589,560	588,359
Use of Debt Reserve for Debt Service	-	-	-	-	-	-	-	-	-	-

Debt Amortization: Revenue Bonds	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Debt Assumptions: Revenue Bonds										
Term (years)	20 years	20 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	0 years	0 years
Interest Cost	4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Issuance Cost	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Revenue Bonds Total										
Interest Payments	\$ -	\$ 114,577	\$ 110,729	\$ 230,387	\$ 222,485	\$ 302,166	\$ 290,882	\$ 279,079	\$ 266,733	\$ 253,818
Principal Payments	-	96,192	100,040	178,837	186,738	248,181	259,465	271,268	283,614	296,529
Total	\$ -	\$ 210,768	\$ 210,768	\$ 409,223	\$ 409,223	\$ 550,347	\$ 550,347	\$ 550,347	\$ 550,347	\$ 550,347
Use of Debt Reserve for Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Ferndale
Utility Rate Study: Stormwater Utility
Revenue Requirement Tests

Cash Flow Test	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REVENUES										
Rate Revenue	\$ 1,235,676	\$ 1,248,033	\$ 1,260,513	\$ 1,273,118	\$ 1,285,849	\$ 1,298,708	\$ 1,305,201	\$ 1,311,727	\$ 1,318,286	\$ 1,324,878
Other Non-Rate Revenue	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200
Interest Earnings: Operating & Debt Reserve Funds	14,445	3,937	7,736	8,190	12,076	11,771	14,795	15,248	15,173	15,285
<i>Total Revenue</i>	<u>\$ 1,291,321</u>	<u>\$ 1,293,170</u>	<u>\$ 1,309,449</u>	<u>\$ 1,322,508</u>	<u>\$ 1,339,125</u>	<u>\$ 1,351,679</u>	<u>\$ 1,361,196</u>	<u>\$ 1,368,175</u>	<u>\$ 1,374,659</u>	<u>\$ 1,381,362</u>
EXPENSES										
Cash Operating Expenses	\$ 939,225	\$ 812,632	\$ 949,743	\$ 923,402	\$ 829,737	\$ 889,784	\$ 1,026,345	\$ 1,002,323	\$ 1,034,958	\$ 1,068,836
Existing Debt Service	109,762	91,936	90,783	78,796	77,961	77,127	81,041	79,754	70,398	69,120
New Debt Service	-	210,768	210,768	409,223	409,223	550,347	550,347	550,347	550,347	550,347
System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
Additions Required to Meet Min. Operating Reserve	-	-	-	-	-	-	-	-	-	-
<i>Total Expenses</i>	<u>\$ 1,048,987</u>	<u>\$ 1,115,337</u>	<u>\$ 1,251,294</u>	<u>\$ 1,411,422</u>	<u>\$ 1,316,922</u>	<u>\$ 1,517,258</u>	<u>\$ 1,657,732</u>	<u>\$ 1,632,424</u>	<u>\$ 1,655,703</u>	<u>\$ 1,688,303</u>
NET CASH FLOW (DEFICIENCY)	\$ 242,334	\$ 177,833	\$ 58,155	\$ (88,914)	\$ 22,203	\$ (165,579)	\$ (296,536)	\$ (264,249)	\$ (281,044)	\$ (306,941)
Coverage Test - without SDCs										
ALLOWABLE REVENUES										
Rate Revenue	\$ 1,235,676	\$ 1,248,033	\$ 1,260,513	\$ 1,273,118	\$ 1,285,849	\$ 1,298,708	\$ 1,305,201	\$ 1,311,727	\$ 1,318,286	\$ 1,324,878
Other Revenue	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200	41,200
SDC Revenue	-	-	-	-	-	-	-	-	-	-
Interest Earnings - All Funds	14,445	16,791	47,719	11,455	38,072	16,170	21,690	19,784	19,989	21,482
<i>Total Revenue</i>	<u>\$ 1,291,321</u>	<u>\$ 1,306,024</u>	<u>\$ 1,349,432</u>	<u>\$ 1,325,774</u>	<u>\$ 1,365,122</u>	<u>\$ 1,356,078</u>	<u>\$ 1,368,091</u>	<u>\$ 1,372,711</u>	<u>\$ 1,379,475</u>	<u>\$ 1,387,559</u>
EXPENSES										
Cash Operating Expenses	\$ 939,225	\$ 812,632	\$ 949,743	\$ 923,402	\$ 829,737	\$ 889,784	\$ 1,026,345	\$ 1,002,323	\$ 1,034,958	\$ 1,068,836
Revenue Bond Debt Service	41,112	251,381	250,631	448,335	447,585	587,960	591,960	590,759	589,560	588,359
Revenue Bond Coverage Requirement at 1.25	10,278	62,845	62,658	112,084	111,896	146,990	147,990	147,690	147,390	147,090
<i>Total Expenses</i>	<u>\$ 990,615</u>	<u>\$ 1,126,859</u>	<u>\$ 1,263,032</u>	<u>\$ 1,483,821</u>	<u>\$ 1,389,219</u>	<u>\$ 1,624,734</u>	<u>\$ 1,766,295</u>	<u>\$ 1,740,771</u>	<u>\$ 1,771,908</u>	<u>\$ 1,804,285</u>
Coverage	8.56	1.96	1.59	0.90	1.20	0.79	0.58	0.63	0.58	0.54
COVERAGE SURPLUS (DEFICIENCY)	\$ 300,706	\$ 179,164	\$ 86,400	\$ (158,048)	\$ (24,098)	\$ (268,657)	\$ (398,204)	\$ (368,060)	\$ (392,433)	\$ (416,726)
Maximum Revenue Deficiency										
Sufficiency Test Driving the Deficiency	<i>None</i>	<i>None</i>	<i>None</i>	<i>Coverage</i>	<i>Coverage</i>	<i>Coverage</i>	<i>Coverage</i>	<i>Coverage</i>	<i>Coverage</i>	<i>Coverage</i>
Maximum Revenue Deficiency (Surplus)	\$ (242,334)	\$ (177,833)	\$ (58,155)	\$ 158,048	\$ 24,098	\$ 268,657	\$ 398,204	\$ 368,060	\$ 392,433	\$ 416,726
plus: Additional Tax Expense	(3,690)	(2,708)	(886)	2,407	367	4,091	6,064	5,605	5,976	6,346
less: Incremental Revenue From Prior Rate Increases	-	-	(63,026)	(130,495)	(202,682)	(279,880)	(360,603)	(446,113)	(536,675)	(632,570)
Net Revenue Deficiency (Surplus)	\$ (246,025)	\$ (180,541)	\$ (122,066)	\$ 29,960	\$ (178,217)	\$ (7,132)	\$ 43,665	\$ (72,448)	\$ (138,266)	\$ (209,498)

City of Ferndale
Utility Rate Study: Stormwater Utility
Revenue Requirement Tests

Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Rate Revenue @ Existing Rates	\$ 1,235,676	\$ 1,248,033	\$ 1,260,513	\$ 1,273,118	\$ 1,285,849	\$ 1,298,708	\$ 1,305,201	\$ 1,311,727	\$ 1,318,286	\$ 1,324,878
Revenues from Prior Rate Increases	-	-	63,026	130,495	202,682	279,880	360,603	446,113	536,675	632,570
Rate Revenue Before Rate Increase (incl. previous increases)	1,235,676	1,248,033	1,323,539	1,403,613	1,488,531	1,578,588	1,665,805	1,757,840	1,854,961	1,957,447
Required Annual Rate Increase	0.00%	0.00%	0.00%	2.13%	0.00%	0.00%	2.62%	0.00%	0.00%	0.00%
Number of Months New Rates Will Be In Effect	12	12	12	12	12	12	12	12	12	12
Info: % Increase to Generate Required Revenue	0.00%	0.00%	0.00%	2.13%	0.00%	0.00%	2.62%	0.00%	0.00%	0.00%
Policy Induced Rate Increases	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
ANNUAL RATE INCREASE	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
CUMULATIVE RATE INCREASE	0.00%	5.00%	10.25%	15.76%	21.55%	27.63%	34.01%	40.71%	47.75%	55.13%

Impacts of Rate Increases	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sufficiency Test Driving the Deficiency	None	None	None	Coverage	Coverage	Coverage	Coverage	Coverage	Coverage	Coverage
Rate Revenues After Rate Increase	\$ 1,235,676	\$ 1,310,434	\$ 1,389,716	\$ 1,473,793	\$ 1,562,958	\$ 1,657,517	\$ 1,749,095	\$ 1,845,732	\$ 1,947,709	\$ 2,055,320
Full Year Rate Revenues After Rate Increase	1,235,676	1,310,434	1,389,716	1,473,793	1,562,958	1,657,517	1,749,095	1,845,732	1,947,709	2,055,320
Partial Year Adjustment	-	-	-	-	-	-	-	-	-	-
Additional Taxes Due to Rate Increases	-	936	1,938	3,010	4,157	5,382	6,658	8,010	9,441	10,957
Net Cash Flow After Rate Increase	\$ 242,334	\$ 239,298	\$ 185,419	\$ 108,751	\$ 295,155	\$ 187,848	\$ 140,699	\$ 261,746	\$ 338,938	\$ 412,545
Coverage After Rate Increase: Bonded Debt	8.56	2.21	2.10	1.34	1.81	1.39	1.32	1.52	1.64	1.76
Coverage After Rate Increase: Total Debt	3.21	1.83	1.75	1.23	1.66	1.31	1.23	1.42	1.55	1.68

Debt Financing Assumptions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Net Revenue Bond Proceeds: Automatic Calculation	\$ -	\$ 2,625,000	\$ -	\$ 2,250,000	\$ -	\$ 1,600,000	\$ -	\$ -	\$ -	\$ -
Net Revenue Bond Proceeds: Override*	\$ -	\$ 2,625,000	\$ -	\$ 2,250,000	\$ -	\$ 1,600,000	\$ -	\$ -	\$ -	\$ -
Other Loans 1 Proceeds										
Other Loans 2 Proceeds										
Other Loans 3 Proceeds										

Fund Balance Impacts	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ending Fund Balance: Operating Reserve	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447	\$ 177,251
Actual Days of Operations & Maintenance	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Minimum Target: Operating Reserve	154,393	133,583	156,276	152,111	136,890	146,949	169,599	165,860	171,447	177,251
Minimum Target: Operating Reserve (in Days of O&M)	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
Ending Fund Balance: Capital Reserve	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838	\$ 440,599
Minimum Target: Capital Reserve	56,482	56,482	56,482	56,482	56,482	56,482	56,482	56,482	56,482	56,482
Total Ending Operating and Capital Cash (days of O&M)	310 days	957 days	123 days	572 days	156 days	200 days	140 days	147 days	168 days	209 days
Total Capital Expense (Inflated)	\$ 440,060	\$ 1,606,500	\$ 2,103,593	\$ 1,294,636	\$ 1,481,275	\$ 1,717,500	\$ 298,513	\$ 307,468	\$ 316,693	\$ 326,193

City of Ferndale
Utility Rate Study: Stormwater Utility
Fund Activity

Funds	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
OPERATING RESERVE										
Beginning Balance	\$ 679,820	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447
plus: Net Cash Flow after Rate Increase	242,334	239,298	185,419	108,751	295,155	187,848	140,699	261,746	338,938	412,545
less: Transfer of Surplus to Capital Fund	(767,761)	(260,108)	(162,727)	(112,916)	(310,376)	(177,789)	(118,049)	(265,485)	(333,351)	(406,740)
Ending Balance	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447	\$ 177,251
<i>Minimum Target Balance: 60 days</i>	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447	\$ 177,251
<i>Maximum Target Balance: 60 days</i>	\$ 154,393	\$ 133,583	\$ 156,276	\$ 152,111	\$ 136,890	\$ 146,949	\$ 169,599	\$ 165,860	\$ 171,447	\$ 177,251
<i>Actual Days of Cash Achieved</i>	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days	60 days
CAPITAL RESERVE										
Beginning Balance	\$ -	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838
plus: System Reinvestment Funding	-	-	-	-	-	-	-	-	-	-
plus: Transfers from Operating Fund	767,761	260,108	162,727	112,916	310,376	177,789	118,049	265,485	333,351	406,740
plus: Capital Grants / Other Resources	250,000	-	-	-	-	-	-	-	-	-
plus: SDC Revenue Towards Capital	65,000	65,000	65,000	65,000	65,000	60,125	55,616	51,444	47,586	44,017
plus: Revenue Bond Proceeds	-	2,625,000	-	2,250,000	-	1,600,000	-	-	-	-
plus: Other Loans 1 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 2 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Other Loans 3 Proceeds	-	-	-	-	-	-	-	-	-	-
plus: Interest Earnings	-	12,854	39,983	3,266	25,997	4,398	6,895	4,536	4,816	6,197
Total Funding Sources	\$ 1,082,761	\$ 3,605,663	\$ 2,266,873	\$ 2,594,462	\$ 1,701,198	\$ 2,062,235	\$ 525,294	\$ 548,246	\$ 626,530	\$ 766,792
less: Capital Expenditures	(440,060)	(1,606,500)	(2,103,593)	(1,294,636)	(1,481,275)	(1,717,500)	(298,513)	(307,468)	(316,693)	(326,193)
Ending Capital Fund Balance	\$ 642,701	\$ 1,999,163	\$ 163,280	\$ 1,299,826	\$ 219,922	\$ 344,735	\$ 226,781	\$ 240,778	\$ 309,838	\$ 440,599
<i>Minimum Target Balance: 60 days</i>	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482	\$ 56,482
<i>Maximum Target Balance: 150 days</i>	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965	\$ 112,965
DEBT RESERVE										
Beginning Balance	\$ 42,450	\$ 42,450	\$ 253,218	\$ 253,218	\$ 451,673	\$ 451,673	\$ 592,796	\$ 592,796	\$ 592,796	\$ 592,796
plus: Reserve Funding from New Debt	-	210,768	-	198,455	-	141,123	-	-	-	-
less: Use of Reserves for Debt Service	-	-	-	-	-	-	-	-	-	-
Ending Balance	\$ 42,450	\$ 253,218	\$ 253,218	\$ 451,673	\$ 451,673	\$ 592,796	\$ 592,796	\$ 592,796	\$ 592,796	\$ 592,796
<i>Minimum Target Balance</i>	\$ 41,613	\$ 252,381	\$ 252,381	\$ 450,836	\$ 450,836	\$ 591,960	\$ 591,960	\$ 591,847	\$ 591,847	\$ 591,847
SUMMARY										
Combined Beginning Balance	\$ 722,269	\$ 839,543	\$ 2,385,964	\$ 572,774	\$ 1,903,609	\$ 808,485	\$ 1,084,480	\$ 989,176	\$ 999,434	\$ 1,074,081
Plus: Inflows	\$ 1,325,095	\$ 3,413,029	\$ 453,130	\$ 2,738,388	\$ 696,527	\$ 2,171,284	\$ 321,258	\$ 583,211	\$ 724,691	\$ 869,499
Less: Outflows	\$ (1,207,821)	\$ (1,866,608)	\$ (2,266,320)	\$ (1,407,553)	\$ (1,791,651)	\$ (1,895,289)	\$ (416,562)	\$ (572,954)	\$ (650,044)	\$ (732,934)
Combined Ending Balance	\$ 839,543	\$ 2,385,964	\$ 572,774	\$ 1,903,609	\$ 808,485	\$ 1,084,480	\$ 989,176	\$ 999,434	\$ 1,074,081	\$ 1,210,646
<i>Net Change in Reserves</i>	\$ 117,274	\$ 1,546,421	\$ (1,813,190)	\$ 1,330,835	\$ (1,095,124)	\$ 275,995	\$ (95,304)	\$ 10,258	\$ 74,647	\$ 136,565
TOTAL AVAILABLE CASH TEST: DAYS OF O&M										
Operating & Capital Ending Balance	\$ 797,094	\$ 2,132,746	\$ 319,556	\$ 1,451,936	\$ 356,812	\$ 491,684	\$ 396,380	\$ 406,638	\$ 481,285	\$ 617,850
Ending Total Days of O&M	310 days	957 days	123 days	572 days	156 days	200 days	140 days	147 days	168 days	209 days
<i>Target: 150 Days of O&M</i>	\$ 385,983	\$ 334,343	\$ 391,102	\$ 380,717	\$ 342,696	\$ 367,877	\$ 424,522	\$ 415,205	\$ 429,205	\$ 443,751

VI.E. ORDINANCE 2119 – ADOPTING 2020 – 2022 WATER RATES

ORDINANCE #2119

AN ORDINANCE OF THE COUNCIL OF THE CITY OF FERNDALE WASHINGTON, SETTING RATES, FREQUENCY OF BILLINGS AND CONNECTION FEES FOR WATER SERVICE AND REPEALING ALL PRIOR ORDINANCES IN CONFLICT HERewith

WHEREAS, it is necessary to establish the City's water billing rates for calendar years 2020, 2021 and 2022 to reflect the results of a cost-of-service rate study prepared by a consultant; and

WHEREAS, the recommended revisions to rates and connection fees were reviewed by the City Council Committee and the full City Council on August 14, 2019, August 19, 2019, October 2, 2019 and October 7, 2019; and

WHEREAS, the recommended revisions to rates are necessary to ensure sufficient revenue to fully fund the water utility's financial obligations without any support from the city general tax revenues;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF FERNDALE DO ORDAIN AS FOLLOWS:

Ordinance 1921 is amended to read:

Section 1. The following rate schedule for water service is hereby adopted effective with bills mailed approximately February 28, 2020 and the rate changes for each subsequent year will be effective with bills mailed approximately February 28, 2021 and February 28, 2022:

Section 1. A.

Water Service

Bi-Monthly Rates:

(1 unit = 100 cubic feet (748 gallons) of water) A 9% utility tax is included in rates.

1) Base Fee on size of meter for All Customer Classes

Meter Size	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
3/4"	\$20.53	\$22.37	\$24.27
1"	\$34.21	\$37.29	\$40.46
1 1/2"	\$68.42	\$74.57	\$80.91
2"	\$109.47	\$119.32	\$129.46
3"	\$218.93	\$238.64	\$258.92
4"	\$342.09	\$372.87	\$404.57
6"	\$684.17	\$745.75	\$809.13

2) **Single Family Residential/Residential Duplexes – Single Meter:**

Consumption:

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
1-10 units	\$4.50 / unit	\$4.91 / unit	\$5.32 / unit
11-15 units	\$4.96 / unit	\$5.41 / unit	\$5.87 / unit
16-30 units	\$5.87 / unit	\$6.40 / unit	\$6.94 / unit
31+ units	\$6.93 / unit	\$7.55 / unit	\$8.19 / unit

3) **Multiple Family Residential/Three or more units served through
a Single Water Meter:**

Consumption:

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
All units	\$5.28 / unit	\$5.75 / unit	\$6.24 / unit

4) **Commercial/Non-Residential (Schools-Churches)/Industrial –
Single Meter:**

Consumption:

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
All units	\$4.76 / unit	\$5.19 / unit	\$5.63 / unit

5) **Irrigation – Single Meter:**

Consumption:

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022

1-6 units	\$4.10 / unit	\$4.47 / unit	\$4.85 / unit
7-40 units	\$4.52 / unit	\$4.93 / unit	\$5.35 / unit
41-116 units	\$5.35 / unit	\$5.83 / unit	\$6.32 / unit
117+ units	\$6.18 / unit	\$6.73 / unit	\$7.31 / unit

6) Connections Fees:

January 1, 2020 \$5991

Shared Meters (Water):

Where more than one business or combination of one or more business and residential users have their water usage measured through a single meter, the invoice shall be charged to one designated user at the above rates.

Out-of-City Customers:

Customers outside the corporate limits of the City of Ferndale shall pay the rates shown in the above schedule, together with a surcharge of 50% to be applied to both the base fee and the use charge.

Section 1. B.

Water Service CPI Adjustment

An annual CPI adjustment for bi-monthly rates shall occur with the first bill in 2023 and annually thereafter as follows:

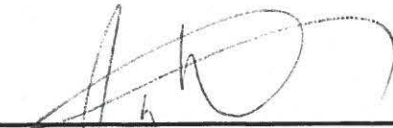
All rates increase (no decreases) by 100% of the Seattle CPI-W, change from December to December of the previous year. A 9% utility tax is included in rates.

Water Connection Fee Inflation Adjustment: Connection Fee increase (no decreases) by 100% of the annual change in the 20-City Engineering News Record Construction Cost Index.

Section 2. Repeal of Ordinances in conflict.

All Ordinances in conflict hereof are hereby repealed.

PASSED AND ENACTED by the City of Ferndale City Council meeting in regular session on the 16th day of December, 2019.



Jon Mutchler, Mayor

ATTEST:



Susan Duncan, CMC, City Clerk

Approved as to form:



Dannon Traxler, CITY ATTORNEY

VI.F. ORDINANCE 2121 – ADOPTING 2020 – 2022 WASTEWATER RATES

ORDINANCE #2121

AN ORDINANCE OF THE COUNCIL OF THE CITY OF FERNDALE, WASHINGTON, SETTING RATES, FREQUENCY OF BILLINGS AND CONNECTION FEES FOR SEWER SERVICE AND REPEALING ALL PRIOR ORDINANCES IN CONFLICT HEREWITH.

WHEREAS, it is necessary to establish the City's sewer billing rates for calendar years 2020, 2021 and 2022 to reflect the results of a cost-of-service rate study prepared by a consultant; and

WHEREAS, the recommended revisions to rates and connection fees were reviewed by the City Council Committee and the full City Council on August 14, 2019, August 19, 2019, October 2, 2019 and October 7, 2019; and

WHEREAS, the recommended revisions to rates are necessary to ensure sufficient revenue to fully fund the sewer utility's financial obligations without any support from the city general tax revenues;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF FERNDALE DO ORDAIN AS FOLLOWS:

Ordinance 2002 is amended to read:

Section 1. The following rate schedule for sewer service is hereby adopted effective with bills mailed approximately February 28, 2020 and the rate changes for each subsequent year will be effective with bills mailed approximately February 28, 2021 and February 28, 2022:

Sewer Service

Bi-Monthly Rates:

(1 unit = 100 cubic feet (748 gallons) of water used)

1) **Non-Metered/Residential Flat Rate:**

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
Flat Rate	\$120.06	\$131.53	\$144.09

2) **Non-Metered/Commercial Flat Rate:**

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022

Flat Rate	\$120.06	\$131.53	\$144.09
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3) Metered **Single Family Residential/Residential Duplexes – Single Meter:**

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
Base Fee	\$34.54	\$37.28	\$40.20
Consumption - All units	\$8.92 / unit	\$9.63 / unit	\$10.39 / unit

For purposes of these charges, winter-average consumption is the average bimonthly water volume recorded on four normal meter readings during the period of October through May of the preceding year. Winter-average consumption for each residence will be recomputed before the start of each year and that volume will be used to compute the bimonthly sewer volume charge for the residence for the entire calendar year.

4) **Multiple Family Residential/Three or more units served through a Single Water Meter:**

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
Base Fee	\$35.43	\$39.27	\$43.52
Consumption - All units	\$9.07 / unit	\$10.05 / unit	\$11.14 / unit

5) **Commercial/Non-Residential (Schools-Churches)/Industrial – Single Meter:**

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
Base Fee	\$36.65	\$42.01	\$48.16
Consumption - All units	\$9.35 / unit	\$10.72 / unit	\$12.29 / unit

6) Connection Fees:

January 1, 2020 \$10,244

Shared Meters (Sewer):

Where more than one business or combination of one or more business and residential users have their water usage measured through a single meter, the invoice shall be charged to one designated user at the above rates.

Commercial/Industrial Effluent:

Commercial/Industrial users contributing effluent which might be expected to impact the system to a greater degree than normal may be required to provide an industrial waste study from which an equitable rate may be established.

Out of City Customers:

Customers outside the corporate limits of the City of Ferndale shall pay the rates shown in the above schedule, together with a surcharge of 50% to be applied to both the base fee and use charge.

Section 1. B.

Sewer Service CPI Adjustment

An annual CPI adjustment for bi-monthly rates shall occur with the first bill in 2023 annually as follows:

All rates increase (no decreases) by 100% of the Seattle CPI-W, change from December to December of the previous year.

Sewer Connection Fee Inflation Adjustment: Connection Fees increase (no decreases) by 100% of the annual change in the 20-City Engineering News Record Construction Cost Index.

Section 2. Repeal of Ordinances in conflict.

All Ordinances in conflict hereof are hereby repealed.

APPROVED AND ADOPTED by the City Council of the City of Ferndale in regular session this 2nd day of December, 2019.

ATTEST:



Jon Mutchler, Mayor



Susan Duncan, CMC, City Clerk

Approved as to form:



Dannon Traxler, CITY ATTORNEY

VI.G. ORDINANCE 2122 – ADOPTING 2020 – 2022 STORMWATER RATES

ORDINANCE #2122

AN ORDINANCE OF THE COUNCIL OF THE CITY OF FERNDALE, WASHINGTON, SETTING RATES AND FREQUENCY OF BILLINGS FOR STORM DRAINAGE SERVICE AND REPEALING ALL PRIOR ORDINANCES IN CONFLICT HEREWITH

WHEREAS, it is necessary to establish the City's storm drainage billing rates for calendar years 2020, 2021 and 2022 to reflect the results of a cost-of-service rate study prepared by a consultant; and

WHEREAS, the recommended revisions to rates were reviewed by the City Council Committee and the full City Council on August 14, 2019, August 19, 2019, October 2, 2019 and October 7, 2019; and

WHEREAS, the recommended revisions to rates are necessary to ensure sufficient revenue to fully fund the storm drainage utility's financial obligations without any support from the city general tax revenues;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF FERNDALE DO ORDAIN AS FOLLOWS:

Ordinance 1922 is amended to read:

Section 1: FMC Chapter 13.40.070 – Storm Drainage, is amended as follows:

A baseline standard equivalent residential unit (ERU) storm drainage bi-monthly fee is imposed for billings mailed February 28, 2020 and the rate changes for each subsequent year will be effective with bills mailed approximately February 28, 2021 and February 28, 2022 (see rates in FMC 13.40.080). This baseline fee is based on the assumption that the average single-family lot equals approximately 10,000 square feet.

Modifications to this baseline fee shall be effective as follows:

	Rates Effective with bills mailed approximately February 28, 2020	Rates Effective with bills mailed approximately February 28, 2021	Rates Effective with bills mailed approximately February 28, 2022
Baseline Fee	\$33.11	\$34.76	\$36.50

A nine percent utility tax is included in rates.

An annual CPI adjustment for bi-monthly rates shall occur with the first bill in 2023 annually as follows:

All rates increase (no decreases) by 100 percent of the Seattle CPI-W change from December to December of the previous year.

The fees for other customers' classifications shall use this 10,000-square-foot ERU baseline as the basis for the calculation of the fee.

Section 1. B. 13.40.080 Rates – Fee calculation

The following ERU-derived fees shall apply. The derived ERU-based fees shall be calculated out to two decimal points and in no case shall the ERU-based fee be less than the baseline ERU fee pursuant to FMC 13.40.070.

Rates:

Class 1 Customers – includes all single-family residential units and all multifamily and condominium units with one or two units (up to duplex). The Class 1 fee equals the baseline ERU fee pursuant to FMC 13.40.070.

Class 2 Customers – includes all multifamily units and condominiums with three or more units. The Class 2 fee equals 50 percent of the Class 1 fees on a per-unit basis.

Class 3 Customers – includes all commercial and industrial customers. The Class 3 fee is calculated based on one of two options as follows:

Option 1: the baseline ERU fee, pursuant to FMC 13.40.070, per two months for every 10,000 square feet of land area.

Option 2: 200 percent of the baseline ERU fee, pursuant to FMC 13.40.070, per two months for every 10,000 square feet of impervious surface.

Class 4 Customers – includes all public-use customers (schools, hospitals, churches, government buildings, etc.). The Class 4 fee is calculated based on one of two options as follows:

Option 1: the baseline ERU fee, pursuant to FMC 13.40.070, per two months for every 10,000 square feet of land area.

Option 2: 200 percent of the baseline ERU fee, pursuant to FMC 13.40.070, per two months for every 10,000 square feet of impervious surface.

Class 5 Customers – includes all mixed-use structures. The Class 5 fee equals the baseline ERU fee, pursuant to FMC 13.40.070, per two months per commercial unit for every 10,000 square feet of land area and the baseline ERU fee, pursuant to FMC 13.40.070, per two months for every residential unit. However, should there be more than two residential units, the fee shall be 50 percent of the Class 1 fees on a per-unit basis.

Section 2. Repeal of Ordinances in conflict.

All Ordinances in conflict hereof are hereby repealed.

APPROVED AND ADOPTED by the City Council of the City of Ferndale in regular session this 2nd day of December, 2019.

ATTEST:



Jon Mutchler, Mayor



Susan Duncan, CMC, City Clerk

Approved as to form:



Dannon Traxler, CITY ATTORNEY