



Sewer Rate Study for City of Marysville

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Purpose

The purpose of this wastewater (sewer) enterprise rate study is to reset rates to ensure adequate revenue to cover increased costs in various expense categories, and for safe and reliable operation into the future. The study encompasses revenue and expense trends, overall operating costs including new costs for treatment service by Linda County Water District (LCWD), existing and planned debt, and ongoing fund balances. This study is done to meet the requirements of California's Propositions 218 and 26. In general, this means:

- A rate study is conducted to support the revenue needed for operation of the utility.
- Each customer group pays its proportionate share of costs.
- Revenue from rates is used only for sewer enterprise purposes.
- Customers are notified in writing of rate increases, the reasons for the increase, the rate hearing to be held after 45 days, and that they may protest in writing.
- If more than 50 percent of customers (parcel owners) protest, the increase may not happen.

Approach to Setting Rates

The process of resetting sewer rates follows these sequential steps.

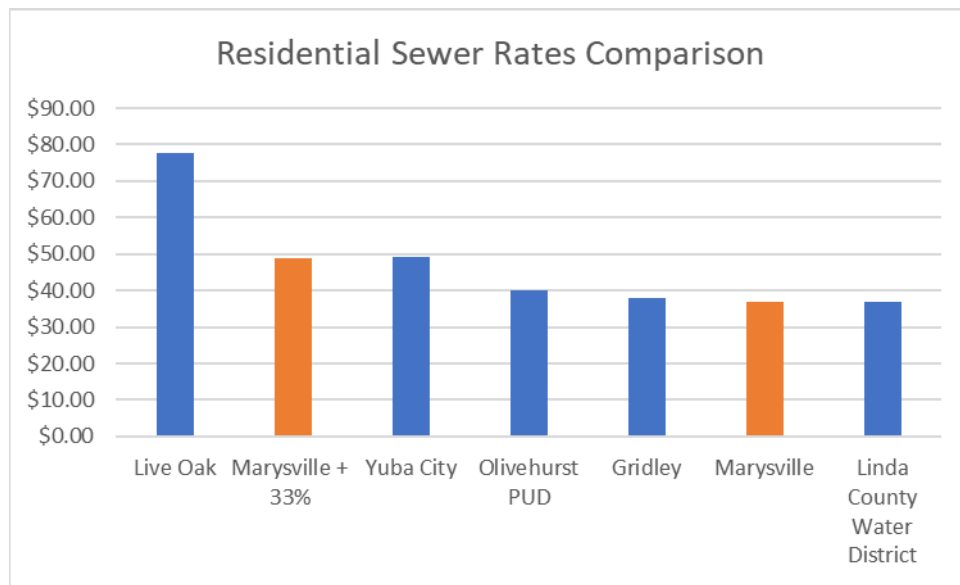
1. Audited financials are reviewed to observe history of revenues, expenses, and changing fund balance.
2. Accounting reports are reviewed to bridge between the end of the last audit into the current fiscal year. The budget is reviewed for the current fiscal year as well as the next fiscal year, if available.
3. A Capital Improvement Projects (CIP) list is developed for the next five years, including estimated costs and timing.
4. Operating expense projections are developed for the next five years.
5. Billing data is downloaded for all billing cycles and all customers for the most recent complete fiscal year. Billing data is reconciled to audited financial values accounting reports, as appropriate.
6. Billing data is divided into appropriate customer classes to determine revenue collected from each customer class.
7. Cost of service modeling is done to apportion costs to between residential and commercial customer classes.
8. A rate model is constructed to achieve the revenues needed for FY19/20 based on the revenue and expense workbook, including the average CIP amount for each year.
9. Comparisons are shown to other utilities.
10. A rate table is developed, showing existing rates compared to all future rates over the next five years.
11. All Excel workbooks containing data and modeling are provided for reference and future use by Marysville.



Existing Rate Structure and Cost Allocation

The existing sewer rates have been in place since 2012.¹ They are shown with proposed rates in Attachment A. The existing rate structure consists of a fixed monthly rate for residential customers, and a combined fixed and variable rate for commercial customers. The commercial variable rate is based on typical discharge concentration for the type of business, and volume is based on potable water consumed during October through March each year. The volume is reset on customer bills each July 1.² This approach assumes most water going into a commercial facility in the winter goes out through the sewer and is not used for irrigation. Marysville presently uses five categories of variable rates depending on the customer type.

From a comparison standpoint, Marysville's residential sewer rates are on the low end for the region as shown below. This chart also shows the proposed 33 percent increase to the residential rate.



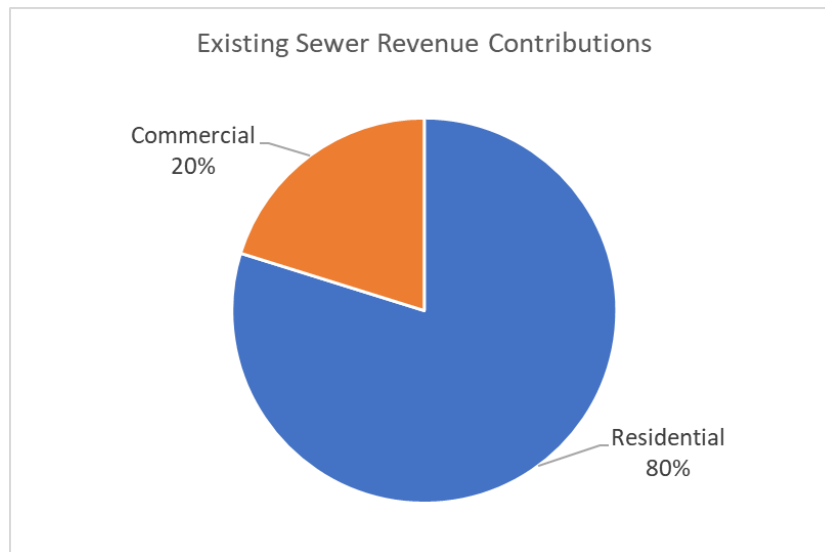
The following table shows the determination of allocated costs compared to revenue from residential and commercial customers. This was done based on measured volume from billing data for commercial customers, total discharge averages for all customers, and billing amounts specific to residential or commercial. The commercial class was given a ten percent reduction (benefit) for internal water use. The result shows that 22 percent of discharge is commercial, but only 20 percent of revenue is from commercial. Similarly, 78 percent of discharge is residential, but residential customers are paying 80 percent of total revenue. Reset rates correct the slight imbalance. This analysis also shows that current average revenue is \$5.55 per hundred cubic feet (ccf) discharge.

¹ Resolution No. 2012-50, dated September 18, 2012.

² Billing service is through contract with Utility Management Services, Inc. (UMS). UMS accesses monthly water data for Marysville customers, and shows the water reference value in the UMS commercial sewer billing data.



Comparison of Volumes Treated to Revenue Collected by Customer Class								
		Volumes					Revenues	
		CF/mo	Gal/CF	Gal/mo	Gal/mo	%	\$/Mo	%
Commercial		1,013,465	7.48	7,580,718				
	Less consumed	-101,347	-10%	-758,072				
		912,119			6,822,646	22%	\$45,436	20%
Residential					23,577,354	78%	\$180,320	80%
Totals					30,400,000	100%	\$225,756	
Total Target based on 1 MGD Plant					30,400,000		\$0.007	per gallon
							\$5.55	per CCF



Capital Improvement Projects

See Attachment B for a list of planned Capital Improvement Projects (CIP), including timing and estimated costs. Projects total \$4.0 million over the next ten years. Approximately \$3.5 million is planned within five years. This list was developed through internal evaluation at Marysville. These projects that must be completed for safe and reliable operation of the system according to the evaluation. Costs are estimated for the purpose of rate setting, and rates are set to provide adequate revenue for the projects. For funding purposes, \$2.0 million will be covered by new debt (in conjunction with refinance of an existing loan with LCWD) and the remaining amount will be covered by surplus revenue at a planned rate of \$400,000 per year.



Historical and Projected Revenues, Expenses and Cash Balances

See Attachment C for Historical and Projected Revenues, Expenses and Cash Balances. The sewer enterprise took on bond debt in 2012 in the amount of \$13,135,000. This was to pay Marysville's share of the expanded treatment facility at LCWD³ and the primary driver for the rate increase in 2012. The bond covenant requires a debt service coverage (DSC) ratio of 1.30, which means net income before debt service must be at least 30 percent higher than debt service payments. Therefore, revenue must be set to meet or exceed the DSC ratio. In FY16/17, the DSC was low at 1.06. For FY17/18, it is projected to be adequate. For FY18/19, it is projected to be less than 1.0 primarily because of new payments being made to LCWD. It is critical for Marysville to increase revenue by resetting rates as soon as possible to both cover increased expenses and meet the bond covenant requirements.

Consequently, revenue overall is proposed to be increased 35 percent for FY19/20 to cover expenses and safely exceed the 1.30 DSC ratio. In the following four years, revenue is increased three percent per year to keep up with inflation.

The following are highlights from Attachment C.

1. The estimated payments to LCWD for operating costs are \$70,000 per month, as provided by the General Manager at LCWD. FY18/19 is 50 percent because Marysville began halfway through the year.
2. Estimated capital contributions to LCWD are \$25,000 per year.⁴
3. Some operating expenses are reduced by result of Marysville not operating its own plant.
4. The \$2M variable rate loan with LCWD is refinanced beginning in FY19/20 to a fixed rate loan.
5. New debt is proposed to be taken on in the amount of \$4M, of which \$2M is to repay LCWD and \$2M is proposed to be for Marysville CIP.
6. The lowest DSC ratio is 1.45 in FY20/21, but then increases.
7. Surplus revenue is available for CIP in the planned amount of \$400,000 per year.
8. The cash balance is projected to increase by over \$700,000 from FY19/20 to FY23/24.

Rate Design

The existing rate structure is generally preserved with adjustments described below. Rates are developed to achieve \$3,711,000 during FY19/20. Rate and revenue modeling are shown in Attachment D.

Overall assumptions and determinations are:

1. The average discharge concentration of the residential and commercial customer classes is assumed to be the same.
2. Commercial revenue overall is increased two percent more than residential overall such that the commercial and residential classes pay proportionally based on modeled volumes.
3. The average rate paid by each customer class is the same at \$7.61 per ccf based on modeled volumes for the residential and commercial classes.

³ The payment was made to LCWD in 2012. Marysville began sending its wastewater influent to LCWD in November 2018.

⁴ The Regional Wastewater Interagency Agreement is dated September 19, 2012. The agreement provides for adjustments to actual costs following each fiscal year. See page 12.

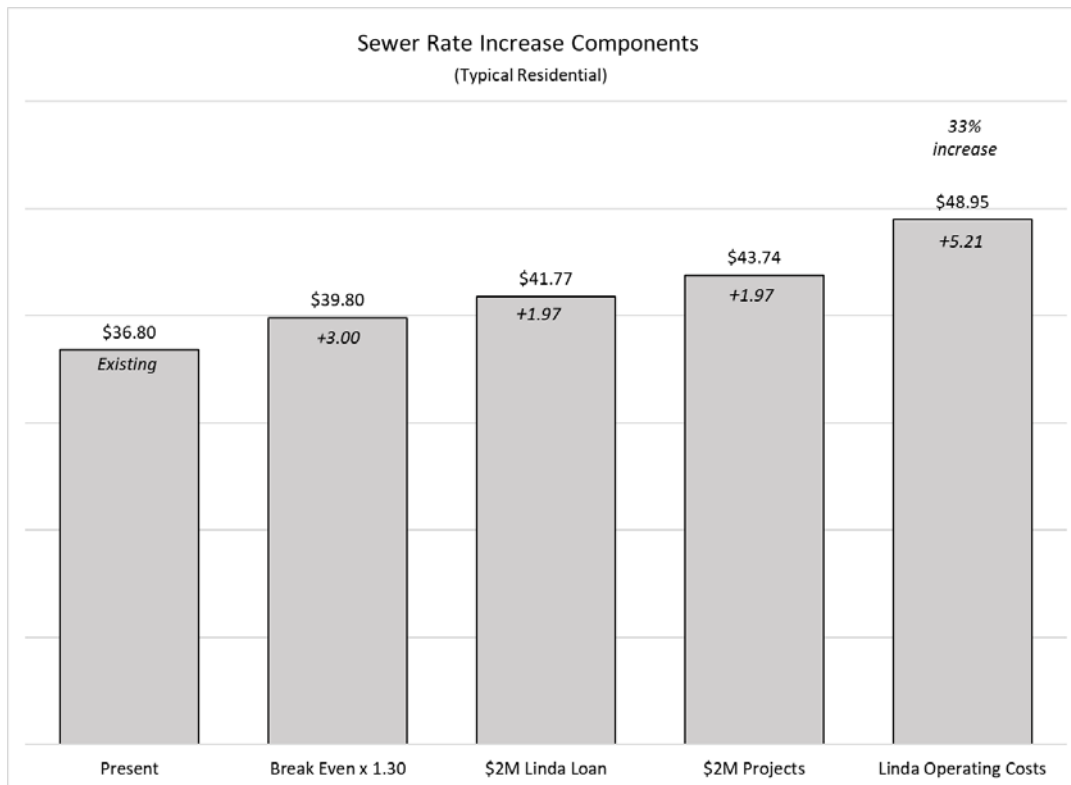


4. The commercial rates and tiers are adjusted such that the amount charged to smaller commercial customers is consistent with amounts charged to residential customers.⁵
5. The existing five-category commercial volumetric rate is simplified to three categories: Low, Medium, and High strength discharge.
6. Markets and bakeries are moved to high concentration, based on similar discharge to restaurants.

Wastewater strength classifications are introduced in Attachment E. Using the classifications as a guide, customers have either low, medium, or high wastewater discharge as determined by the demand on the treatment plant. This is measured by relative “Biochemical Oxygen Demand” (BOD). When discharge from a customer has higher organic content, the demand for treatment is higher at the treatment plant and therefore more cost is assigned to the rate.

The proposed rate increase for residential customers is 33 percent, reduced from 35 percent overall because of cost reallocation to the commercial class. The following bar chart shows the rate increase components for a typical residential customer.⁶ The component for Linda Operating Costs is a combination of new payments to LCWD, offset by reductions from Marysville not operating its own treatment plant.

See the complete rate table in Attachment A for each proposed increase over the five-year planning period.



⁵ For example, a commercial customer with low strength discharge based on the residential average (6.43 ccf per month) pays approximately the same as a residential customer. This is based on the commercial customer paying: $\$16.00 + (6.43 \text{ ccf} \times \$4.93 / \text{ccf}) = \$47.70$.

⁶ “Breakeven x 1.30” of \$3.00 based on $\$230,000 / \$2,800,000 \times \$36.80$. \$230,000 is the amount above breakeven to meet the 1.30 DSC ratio, and \$2,800,000 is the revenue base used for these calculations. The Loan component of \$1.97 based on $\$150,176 / \$2,800,000 \times \$36.80$. Loan payments of \$150,176 are based on \$2,000,000 principal, 4% interest, 30 years, and meeting the DSC ratio of 1.30.



Conclusion

It is critical for Marysville to increase rates as soon as possible to cover increased operating expenses, pay new debt service, provide ongoing fund balance support, and meet the bond covenant requirements. This rate study projects revenue needed to meet the anticipated requirements, and provides a technical validation to support the proposed rate increases. Cost of service methodology was used to allocate revenue requirements between the residential and commercial rate classes. Commercial volumetric rates have been realigned for more accurate cost allocation. The overall result is that rates have been adjusted to be in proportion to cost for each type of service, and rates have also been reset to achieve the needed revenue increase.



ATTACHMENT A – Existing and Proposed Rates

City of Marysville Sewer Rate Schedule (Proposed)																	
Category of Service	Present	10/01/19			Change	7/1/2020			7/1/2021			7/1/2022			7/1/2023		
		Per Month	Per Month	Per Month		Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month	Per Month
Single-Family, and Multi-Family per unit	\$36.80	\$48.95		33%	\$50.42			\$51.93			\$53.49			\$55.09			
Commercial																	
	Strength Classification ¹	Fixed	\$/CCF ²	Change	\$/CCF	Fixed	\$/CCF	Change	\$/CCF	Fixed	\$/CCF	Change	\$/CCF	Fixed	\$/CCF	Change	\$/CCF
Offices	Low	\$11.56	\$3.38	38%	\$4.93	\$16.00	\$5.08	46%	\$5.23	\$16.97	\$5.23	46%	\$5.39	\$17.48	\$5.39	46%	\$5.55
Pretreatment	Low	\$11.56	\$3.50	38%	\$4.93	\$16.00	\$5.08	41%	\$5.23	\$16.97	\$5.23	41%	\$5.39	\$17.48	\$5.39	41%	\$5.55
Commercial/Industrial	Medium	\$11.56	\$3.89	38%	\$6.43	\$16.00	\$6.62	65%	\$8.82	\$16.97	\$6.82	65%	\$7.03	\$17.48	\$7.03	65%	\$7.24
Market/Bakery	High	\$11.56	\$4.11	38%	\$7.93	\$16.00	\$8.17	93%	\$8.41	\$16.97	\$8.41	93%	\$8.67	\$17.48	\$8.67	93%	\$8.93
Restaurants	High	\$11.56	\$5.56	38%	\$7.93	\$16.00	\$8.17	43%	\$8.41	\$16.97	\$8.41	43%	\$8.67	\$17.48	\$8.67	43%	\$8.93
Commercial by Strength Classification																	
Facilities classified as Low Strength Discharge	Low		<i>new</i>	38%	\$4.93	\$16.00	\$5.08	<i>new</i>	\$5.23	\$16.97	\$5.23	<i>new</i>	\$5.39	\$17.48	\$5.39	<i>new</i>	\$5.55
Facilities classified as Medium Strength Discharge	Medium		<i>new</i>	38%	\$6.43	\$16.00	\$6.62	<i>new</i>	\$6.82	\$16.97	\$6.82	<i>new</i>	\$7.03	\$17.48	\$7.03	<i>new</i>	\$7.24
Facilities classified as High Strength Discharge	High		<i>new</i>	38%	\$7.93	\$16.00	\$8.17	<i>new</i>	\$8.41	\$16.97	\$8.41	<i>new</i>	\$8.67	\$17.48	\$8.67	<i>new</i>	\$8.93
1) See "City of Marysville Wastewater Strength Classification Guide for Rate Setting" for guidance on assignment of strength classifications.																	
2) CCF (hundred cubic feet) is average potable water metered during November through March.																	



ATTACHMENT B – Capital Improvement Projects

City of Marysville Planned Capital Improvement Projects

As of June 2019

Project Description	Two Year Expenditure	Five Year Expenditure	Ten Year Expenditure
Sewer Master Plan	\$400,000		
Corps Levee Phase 2B – Interim Linda Pipe Connection	\$250,000		
Lift Station SCADA Upgrade - 2 nd and F Street	\$30,000		
Corps Levee Phase 3 - 17 th Street Pipe Infrastructure	\$600,000		
Lift Station Pump and Generator Replacement – 2 nd and F St.	\$120,000		
Air Compressor - Portable	\$30,000		
Portable Generator	\$25,000		
Citywide Pipe Replacement – Maintenance (\$40k/yr)	\$80,000	\$120,000	\$200,000
New Maintenance Vehicle	\$25,000		
Corps Levee Phase 3 Storm Drain Outfall (17 th and Hall)	\$600,000		
Lift Station Odor Control System – 10 th and Yuba Street	\$50,000		
Wastewater Treatment Facility Pond Closure Report	\$100,000		
Ellis Lake Aeration Water Quality	\$140,000		
Lift Station SCADA Upgrade – 17 th and Hall Street		\$30,000	
Lift Station SCADA Upgrade – Ahern Street		\$30,000	
Lift Station SCADA Upgrade – 10 th and Yuba Streets		\$30,000	
Lift Station Pump and Generator Replacement – 17 th and Hall St.		\$120,000	
Lift Station Pump and Generator Replacement – Ahern Street		\$120,000	
Lift Station Pump and Generator Replacement – 10 th and Yuba St.		\$120,000	
Lift Station Exhaust Systems – 17 th and Hall Street		\$50,000	
Lift Station Exhaust Systems – Ahern Street		\$50,000	
Lift Station Exhaust Systems – 10 th and Yuba Street		\$50,000	
Lift Station Odor Control System – Ahern Street		\$50,000	
New Maintenance Vehicle		\$30,000	
Replacement Backhoe Equipment		\$150,000	
Ellis Lake Aeration Water Quality		\$50,000	
Vactor Truck			\$300,000
Lift Station Odor Control System – 17 th and Hall Street			\$50,000
Subtotals	\$2,450,000	\$1,000,000	\$550,000
10 Year Total		\$4,000,000	



ATTACHMENT C – Historical and Projected Revenues, Expenses, and Cash Balances

MARYSVILLE SEWER ENTERPRISE FUND	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	
	<u>Audited</u>	<u>Preliminary</u>	<u>Forecast</u>	<u>Forecast</u>	<u>Forecast</u>	<u>Forecast</u>	<u>Forecast</u>	<u>Forecast</u>	
Operating Revenues				35%	3.0%	3.0%	3.0%	3.0%	
Utility Revenue	\$2,855,878	\$2,988,492	\$2,750,000	3,710,000	3,821,000	3,936,000	4,054,000	4,176,000	
Late Fees and Other Revenue	62,320	54,029	50,000	50,000	50,000	50,000	50,000	50,000	
Total Operating Revenue	2,918,198	3,042,521	2,800,000	3,760,000	3,871,000	3,986,000	4,104,000	4,226,000	
Operating Expenses									Escalate
Salaries and Benefits	297,358	228,484	240,000	190,000	195,700	201,571	207,618	213,847	3%
Pension Unfunded Actuarial Liability (UAL)	197,814	156,774							
Gas and Electric	88,131	100,000	102,000	105,000	108,000	111,000	114,000	117,000	3%
Repairs and Maintenance - Buildings	403,260	153,788	150,000	153,000	156,000	159,000	162,000	165,000	2%
Professional Services	279,176	365,076	250,000	200,000	204,000	208,000	212,000	216,000	2%
Payments to other Agencies / LCWD	144,144	17,017	420,000	857,000	874,000	891,000	909,000	927,000	2%
Payments to LCWD for Capital Projects			25,000	25,000	26,000	27,000	28,000	29,000	2%
Other Operations and Maintenance	276,728	168,392	140,000	98,000	100,000	102,000	104,000	106,000	2%
General Government Transfer	235,801	235,000	235,000	280,000	288,000	297,000	306,000	315,000	3%
Total Operating Expenses	1,922,412	1,424,531	1,562,000	1,908,000	1,951,700	1,996,571	2,042,618	2,088,847	
Operating Expenses for Loans									
LCWD \$2,000,000, 4%, 30 yrs	-	-	58,000	116,000	<i>See 2020 Planned New Debt below</i>				
LCWD \$12,300,600	476,625	476,625	476,625	476,625	476,625	476,625	476,625	476,625	
SRF Loan Debt Service	179,449	179,449	-	-	-	-	-	-	
Total Loan Amounts	656,074	656,074	534,625	592,625	476,625	476,625	476,625	476,625	
Operating Expense with Loans	2,578,486	2,080,605	2,096,625	2,500,625	2,428,325	2,473,196	2,519,243	2,565,472	
Net Operating Income	339,712	961,916	703,375	1,259,375	1,442,675	1,512,804	1,584,757	1,660,528	
Adjustments for Debt Service Coverage									
Net Operating Income	339,712	961,916	703,375	1,259,375	1,442,675	1,512,804	1,584,757	1,660,528	
To include Interest Income	29,779	28,132	30,000	30,000	30,000	30,000	30,000	30,000	
To eliminate UAL expense	197,814	156,774	-	-	-	-	-	-	
To reduce FY17 emergency levee repair	254,012	-	-	-	-	-	-	-	
Net Income Available for Debt Service	821,317	1,146,822	733,375	1,289,375	1,472,675	1,542,804	1,614,757	1,690,528	
2012 Bond Debt Service	774,175	775,638	771,038	781,288	781,338	780,969	782,800	782,000	
2020 Planned New Debt Service (\$4M, 4%, 30 yrs)	0	0	0	0	231,000	231,000	231,000	231,000	
Total Debt Service	774,175	775,638	771,038	781,288	1,012,338	1,011,969	1,013,800	1,013,000	
Debt Service Coverage Ratio	1.06	1.48	0.95	1.65	1.45	1.52	1.59	1.67	
Net Revenues after debt service	47,142	371,184	(37,663)	508,087	460,337	530,835	600,957	677,528	
Vactor Truck Lease	67,656	70,109	72,652	Ended	-	-	-	-	
2001 ABAG Lease Revenue	41,573	41,767	41,760	43,560	41,580	Ended	-	-	
Total	109,229	111,876	114,412	43,560	41,580	0	0	0	
Surplus Revenue	(62,087)	259,308	(152,075)	464,527	418,757	530,835	600,957	677,528	
Surplus Revenue used as Pay-Go for Capital Projects		-	-	400,000	400,000	400,000	400,000	400,000	
Projected Fund Cash Balance	1,831,298	1,247,000	1,094,925	1,159,452	1,178,209	1,309,044	1,510,001	1,787,529	



ATTACHMENT D - Detail of Existing and Proposed Rates and Revenue

City of Marysville Sewer Rates and Revenue									
Existing and Proposed									
EXISTING RATES AND REVENUE ¹									
	Count	Fixed Rates	Total Fixed\$	\$/CCF	CCF	Total Vol\$	Total \$	% of \$	\$/CCF
Restaurants	34	\$11.56	\$393	\$5.56	1,668	\$9,273	\$9,666		
Market/Bakeries	13	\$11.56	\$150	\$4.11	454	\$1,866	\$2,016		
C/I	104	\$11.56	\$1,202	\$3.89	3,945	\$15,347	\$16,549		
Pre Treatment	4	\$11.56	\$46	\$3.50	379	\$1,327	\$1,374		
Offices	244	\$11.56	\$2,821	\$3.38	3,689	\$12,467	\$15,288		
No Volume	47	\$11.56	\$543				\$543		
	446		\$5,156		10,135	\$40,280	\$45,436	20%	
				Less % consumed	-1,013	22%			\$4.98
SF & MF²	4,900	\$36.80	\$180,320		31,521	\$180,320	\$180,320	80%	\$5.72
Totals/Avgs³	5,346		\$185,476		40,642		\$225,756	100%	\$5.55
Existing Annual Revenue:⁴ \$2,709,000 (rounded)									
PROPOSED RATES AND REVENUE									
	Count	Fixed Rates	Total Fixed\$	\$/CCF	CCF	Total Vol\$	Total \$	% of \$	\$/CCF
<i>Increase:</i>		38%							
Restaurants	34	\$16.00	\$544	\$7.93	1,668	\$13,225	\$13,769		
Market/Bakeries	13	\$16.00	\$208	\$7.93	454	\$3,600	\$3,808		
Commercial/Ind.	104	\$16.00	\$1,664	\$6.43	3,945	\$25,367	\$27,031		
Pre Treatment	4	\$16.00	\$64	\$4.93	379	\$1,870	\$1,934		
Offices	244	\$16.00	\$3,904	\$4.93	3,689	\$18,184	\$22,088		
No Volume	47	\$16.00	\$752				\$752		
	446		\$7,136		10,135	\$62,247	\$69,383	22.4%	
				Less % consumed	-1,013	22.4%			\$7.61
<i>Increase:</i>		33%							
SF & MF	4,900	\$48.95	\$239,855		31,521	\$239,855	\$239,855	77.6%	\$7.61
Totals/Avgs	5,346		\$246,991		40,642		\$309,238	100.0%	\$7.61
Projected Annual Revenue: \$3,711,000									
Notes:									
1) Based on billing data from September 2018									
2) The calculated monthly residential discharge is 31,521 CCF / 4,900 units = 6.43 ccf/unit, or 4,412 gallons									
3) Total treated volume is based on 1 million gallons per day: 30.4 d/mo x 1,000,000 = 30.4 MG. This is 40,642 ccf.									
4) Revenue per year modeled varies from the revenue and expense workbook because modeled revenue does not include accounting adjustments.									



ATTACHMENT E – Wastewater Strength Classifications

City of Marysville Wastewater Strength Classification Guide for Rate Setting

Class A (Low Strength)	Banks & Financial Institutions Barber Shops Post Office Retail Stores Offices - Business and Professional Libraries Schools without cafeteria Churches, Halls & Lodges
Class B (Medium Strength)	Beauty Shops Dry Cleaners Nail Salons Pet Groomers Commercial Laundromats Bars & Taverns Hospitals and Clinics- General, Convalescent & Veterinarian Hotels and Motels Medical and Dental Offices Pools with Restrooms or clubhouse Theaters Warehouses Car Washes High Tech Medical Manufacturing Light Manufacturing/Industrial Gym or Health Club Machine Shops without steam cleaning equipment Gas Stations, Garages, Auto Repair Shops without steam cleaning equipment Mini Marts without Dish Washer or Garbage Disposal Spa with Various Beauty Treatments
Class C (High Strength)	Restaurants Coffee Shops Ice Cream Parlors Catering Facilities Bakeries Butcher Shops Facilities with steam cleaning equipment Markets with Dish Washer or Garbage Disposal Markets with Bakeries or Butcher Shops Mini Marts with Dish Washer or Garbage Disposal Dairies (milk producers, yogurt, ice cream maker) Specialty Foods Manufacturing (e.g., cheese or olive oil maker)

Notes:

1. If an approved grease trap has not been installed in proper working condition, wastewater users generating Fats, Oils, and Grease (FOG) waste will be put into the High Strength user category.
2. Business industries not listed above shall be assigned to the appropriate classification (Low, Medium, or High Strength) based on the City's professional assessment of the strength of wastewater discharge.
3. These classifications are consistent with the results given in "Revenue Program Guidelines (Appendix G), March 1998 Edition, policy for implementing the state revolving fund for construction of wastewater treatment facilities, State of California Water Resources Control Board."