

City of Livingston

**Water, Wastewater and
Solid Waste Rate Study**

DRAFT

April 12, 2021

HEC No. 190294

The following report was prepared by Hansford Economic Consulting LLC.

The analyses and findings contained within this report are based on primary data provided by the City of Livingston, as well as additional secondary sources of data available as of the date of this report. Updates to information used in this report could change or invalidate the findings contained herein. While it is believed that the primary and secondary sources of information are accurate, this is not guaranteed.

Every reasonable effort has been made in order that the data contained in this study reflect the most accurate and timely information possible. No responsibility is assumed for inaccuracies in reporting by the client, its consultants and representatives, or any other data source used in the preparation of this study. No warranty or representation is made that any of the projected values or results contained in this study will actually be achieved. There will usually be differences between forecasted or projected results and actual results due to changes in events and circumstances.

Changes in economic and social conditions due to events including, but not limited to, major recessions, droughts, major environmental problems or disasters that would negatively affect operations, expenses and revenues may affect the result of the findings in this study. In addition, other factors not considered in the study may influence actual results. Any applications for financing, or bond sales analyses, should re-evaluate the financial health and projection of revenues and expenses at the time of the application or preparation for bond sale.

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Section 1: INTRODUCTION AND SUMMARY OF FINDINGS

1.1 PURPOSE OF THE STUDY

The City of Livingston (City) provides three utility services to the residents and businesses of the City; water, wastewater, and solid waste. The purpose of this Utilities Rate Study (Study) is to determine the level of funding required over the next five years to adequately fund each of the utility systems and to determine a schedule of monthly property-related fees to support that level of funding.

This report provides an explanation and justification of the calculated utility rates for the next five years and it documents adherence to the law regarding setting of rates by a municipality. Per California Constitution Article 13D, these types of utility rates shall not be extended, imposed, or increased by any agency unless it meets all of the following requirements:

- (1) Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- (2) Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- (3) The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- (4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted.
- (5) No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library, services, where the service is available to the public at large in substantially the same manner as it is to property owners.

The utility financial models presented in this Study project revenues and expenses and calculate rates for the next five fiscal years with the first change in utility rates implemented on the July 2021 billing cycle (August bills).

1.2 BACKGROUND

The City last conducted utility rate studies in the 2012 to 2014 time period. New solid waste rates were adopted in spring 2013, and new water and wastewater rates were adopted in spring 2014. A utility systems rate study is necessary at this time to a) ensure revenue sufficiency of the utility systems for the next five years, and b) demonstrate the City's ability to repay State loans for funding of the water system.

Rate studies are typically conducted every three to five years to ensure revenue sufficiency. A cost of service analysis, which not only allows for revenue sufficiency, but also examines whether customers are paying for their share of system costs and adjusts rates and customer classifications to achieve equity to the maximum extent practicable, is advisable whenever there has been a shift in the economic base of the community, and whenever proportional cost of service is in question. As part of the regular periodic review of the rates, best practices include maintaining financially self-sustaining utilities, setting policies or guidelines on an appropriate reserve levels, including depreciation in the rates, and continual customer outreach to educate on the value of the City services provided.

This Study incorporates all three major elements of cost-based rate making; revenue requirement analysis, cost of service analysis, and rate-design analysis. In determining appropriate rate structures for Livingston that would meet the requirements of Proposition 218, the following key objectives were considered:

- Rates must be capable of generating sufficient revenues to meet all annual financial obligations of the utility enterprise funds;
- Changes to the rate structures must be administratively feasible (compatible with the existing billing system and straightforward to explain to customers);
- The rate structures should be as reflective of local customer use of the services as possible; and
- Revised rates must be supportive of City goals, including meeting target reserve levels and keeping within affordability guidelines.

This report presents the result of the analysis and rate structures that best meets these objectives under current and projected conditions.

1.3 RATE SETTING PRINCIPLES AND REPORT ORGANIZATION

This report was prepared using the principles established by the American Water Works Association (AWWA), the Water Environment Federation (WEF), and Government Finance Officers Association (GFOA).

The AWWA “Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1 (the “M1 Manual”) establishes commonly accepted professional standards for cost of service studies. This manual is referenced in the water rate study.

The wastewater rate study uses the functional cost allocation methodology to determine rates¹, as presented in WEF Manual of Practice No. 27 and guidelines prepared by the California State Water Resources Control Board for State Revolving Fund financing.

¹ Chapter 6, pages 110-120, Financing and Charges for Wastewater Systems, Manual of Practice No. 27.

The GFOA publishes guidelines on sufficient cash balances for enterprise funds. Minimum cash balance targets for each utility fund in this Study are based on the GFOA guidelines.

The Study is presented in four sections. Following this introduction and summary of findings, Section 2 provides the water rate study. Section 3 provides the wastewater rate study, and Section 4 provides the solid waste rate study. For each utility study, the analysis begins with a description of the utility fund and its customers, followed by calculation of the revenue requirement, detailed calculations of the utility rates, projected cash flow and bill impacts to customers.

Appendix A includes support tables for the water rate study.

Appendix B includes support tables for the wastewater rate study.

Appendix C includes support tables for the solid waste rate study.

1.4 WATER RATE STUDY FINDINGS

Water rate study summary and key findings are summarized here:

- The City provides water supply, treatment, and distribution to the residents and businesses of Livingston. Monthly water rates pay for 99% of the annual costs of the water fund.
- The water fund has had net positive revenues for the last four years. The last water rate study included several capital improvement project costs that have not yet been incurred; therefore, revenues have deliberately been significantly greater than expenses. In the next five-year period cash reserves will be used to pay for capital improvement projects.
- The vast majority of the water system customer base is single family residential (93%); however, this customer category only uses 23% of the water. In contrast, the industrial customer category uses 65% of the water but holds less than 1% of the customer accounts. Although the residential customers use significantly more water during the peak summer months than winter months, their use is more than doubled by industrial use throughout the year. Industrial use is very steady month-to-month which makes the City less vulnerable to swings in revenues due to summer use; however, the City's largest industrial user, Foster Farms, is responsible for about 65% of the annual water fund revenue stream.
- The functional allocation of costs in the cost of service analysis determines that 36% of the costs should be collected in base "fixed" monthly charges; this is rounded to 35% of costs collected in base monthly charges. In the 2014 water rate study it was determined that 35% was the most appropriate percentage to use because such a large amount of use of the system is from industrial users. The industrial customers do not have many water meters; therefore, capacity of the system, as measured by instantaneous flow through water meters, is much less significant in determining use of the system than it is for most water systems. Note, the functional allocation provides a guideline, not a rule, for allocating costs between base monthly charges and variable use charges.

- There are no proposed changes to the water rate structure except however that the methodology to calculate the construction water variable use rate (which is not a property-related service, and which fee is not included in the public hearing process) has been revised. The change in methodology increases the construction water rate proportionately more than the property-related fees.
- Due to updated pricing provided by the City's water meter supplier, the monthly meter fees for 1.5", 3", and 10" meters are reduced. All other monthly meter fees increase.
- A higher than minimum cash balance at the end of five years would be prudent for the water fund because of the multiple number of CIP project planned in the next five years. Cash reserves can be used, if necessary, to pay for project cost overruns; it can also be used to pay off State loans early and complete other system rehabilitation projects not currently in the CIP.
- The calculated August 2021 water rates result in an increase of \$3.77 per month during winter months for residential customers, and about \$4.46 per month during summer months. The impact to Foster Farms of the August 2021 rate increase is approximately \$109,000 (a 4.6% increase).

The updated water rate schedule is provided in **Table A** on the following page. Water bills are based on usage in the preceding month; therefore, the August 2021 water bill will be calculated on the end of July water meter read.

Table A
Projected Five-Year Water Rate Schedule

Charges	Current	Aug-21	Jul-22	Jul-23	Jul-24	Jul-25
Base Charge						
1" and smaller	\$25.13	\$28.64	\$29.79	\$30.98	\$32.22	\$33.52
1.5"	\$50.27	\$57.29	\$59.58	\$61.96	\$64.45	\$67.04
2"	\$80.43	\$91.66	\$95.32	\$99.14	\$103.11	\$107.26
3"	\$175.94	\$200.51	\$208.52	\$216.86	\$225.56	\$234.63
4"	\$301.61	\$343.73	\$357.46	\$371.76	\$386.68	\$402.23
6"	\$628.35	\$716.10	\$744.70	\$774.51	\$805.58	\$837.98
8"	\$1,206.43	\$1,374.92	\$1,429.82	\$1,487.05	\$1,546.72	\$1,608.91
10"	\$1,910.18	\$2,176.95	\$2,263.88	\$2,354.50	\$2,448.97	\$2,547.45
Meter Fee						
1" and smaller	\$3.05	\$3.30	\$3.39	\$3.47	\$3.56	\$3.65
1.5"	\$11.11	\$7.79	\$7.99	\$8.18	\$8.39	\$8.60
2"	\$12.13	\$14.88	\$15.25	\$15.63	\$16.02	\$16.42
3"	\$25.74	\$18.56	\$19.03	\$19.50	\$19.99	\$20.49
4"	\$40.61	\$43.94	\$45.04	\$46.17	\$47.32	\$48.51
6"	\$56.33	\$75.94	\$77.83	\$79.78	\$81.77	\$83.82
8"	\$89.50	\$123.82	\$126.91	\$130.09	\$133.34	\$136.67
10"	\$204.51	\$159.79	\$163.78	\$167.88	\$172.07	\$176.38
Service Charge Monthly Water Allowance						
Attached Residential (per Unit)	10,000	gallons				
Detached Residential (per Unit)	25,000	gallons				
Non-Residential (per Meter)	35,000	gallons				
Consumption Charge per 1,000 gallons of water in excess of allowance each month						
All Customers	\$1.57	\$1.64	\$1.72	\$1.80	\$1.89	\$1.98
Construction Water	\$1.17	\$1.88	\$1.97	\$2.06	\$2.15	\$2.25

Source: City of Livingston and 2021 HEC rate study.

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* Water rate schedules 1.5x outside City limits.

1.5 WASTEWATER RATE STUDY FINDINGS

Wastewater rate study summary and key findings are summarized here:

- The City provides wastewater collection, treatment, and disposal services to the residents and businesses of Livingston. Monthly wastewater rates pay for 96% of the annual costs of the wastewater fund.
- The wastewater fund is currently covering all expenses and debt service coverage requirements of existing bond covenants. The wastewater fund has adequate cash reserves.

- Wastewater fee collections need to increase beginning August 2021 to pay for increased operating expenses, equipment and vehicle purchases, and the planned wastewater CIP.
- The cost of service study demonstrates a shift in the customer base. Since 2014, the City has experienced growth, particularly in the non-residential customer categories (hotels, gas stations, and other businesses).
- The shift in the customer base, as well as updated cost allocation factors used in the rate calculations causes some customer rates to increase proportionately more than others.

The updated wastewater rate schedule is provided in **Table B** below.

Table B
Calculated Five-Year Wastewater Rate Schedule

Customer Category	Billing Basis	Current	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26
	<i>New Rates on Bills -----></i>		<i>Aug-21</i>	<i>Jul-22</i>	<i>Jul-23</i>	<i>Jul-24</i>	<i>Jul-25</i>
Residential	per unit	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Non-Residential							
Churches/Temples/Comm.Ctrs.	per account	\$42.28	\$47.39	\$49.14	\$53.35	\$53.59	\$54.78
Schools (with cafeteria)	per student	\$1.46	\$1.74	\$1.81	\$1.96	\$1.97	\$2.01
Hotel/Motel	per room	\$17.22	\$18.99	\$19.70	\$21.38	\$21.48	\$21.96
Light Industrial (Base)	per account	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Commercial (Base)	per account	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Variable Charges for Non-Residential Only							
Light Industrial	per gallon	\$0.010417	\$0.010023	\$0.010397	\$0.011291	\$0.011343	\$0.011599
Commercial	per gallon	\$0.003837	\$0.005783	\$0.006090	\$0.006712	\$0.006843	\$0.007099

Source: 2021 HEC rate study.

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1.6 SOLID WASTE RATE STUDY FINDINGS

Solid waste study summary and key findings are summarized here:

- Solid waste rates pay for garbage pickup and disposal by Gilton Waste Management (hereafter “Gilton”). About 78% of annual sanitation fund expenses pay for services provided by Gilton. The remaining annual expenses pay for City-provided sanitation services, including street sweeping.
- Solid waste rates need to increase 5.5% per year to pay for the projected costs of solid waste and street sweeping services.
- The calculated rates for the next five years will pay for all of the operating costs that are currently incurred, plus new costs that may be generated by the passage of Senate Bill (SB) 1383. It is anticipated that implementation of SB 1383 will increase legal, education, outreach, enforcement and inspection costs. The City may need to hire a recycling coordinator.

The updated solid waste rate schedule is provided in **Table C** on the next page.

Table C
Calculated Five-Year Solid Waste Rate Schedule

Service Type	Current	Aug-21	Jul-22	Jul-23	Jul-24	Jul-25
	<i>Rate Increase ---></i>	5.5%	5.5%	5.5%	5.5%	5.5%
<i>Rates do not include charges for special services that are scheduled between the customer and provider such as off schedule pick up, container maintenance, and delivery charges.</i>						
Single Family Residential		Once per week pickup				
96 gal. cart	\$25.16	\$26.54	\$28.00	\$29.54	\$31.17	\$32.88
Add'l cart	\$5.97	\$6.30	\$6.64	\$7.01	\$7.40	\$7.80
96 gal. cart greenwaste	\$1.33	\$1.40	\$1.48	\$1.56	\$1.65	\$1.74
Add'l greenwaste cart	\$5.97	\$6.30	\$6.64	\$7.01	\$7.40	\$7.80
Multi-Family, Commercial, and Organic		Once per week pickup				
1 cubic yard container	\$47.36	\$49.96	\$52.71	\$55.61	\$58.67	\$61.90
2 cubic yards container	\$94.41	\$99.60	\$105.08	\$110.86	\$116.96	\$123.39
3 cubic yards container	\$139.86	\$147.55	\$155.67	\$164.23	\$173.26	\$182.79
4 cubic yards container	\$179.04	\$188.89	\$199.28	\$210.24	\$221.80	\$234.00
6 cubic yards container	\$251.71	\$265.55	\$280.16	\$295.57	\$311.82	\$328.97
Recycle Bins						
4 & 6 cubic yard containers	\$71.41	\$75.34	\$79.48	\$83.85	\$88.46	\$93.33
Commercial Compacting						
3 cubic yards container	n/a	\$513.10	\$541.32	\$571.09	\$602.50	\$635.64
4 cubic yards container	n/a	\$650.83	\$686.62	\$724.39	\$764.23	\$806.26
Multi-Family, Commercial, and Organic		Twice per week pickup				
1 cubic yard container	\$93.90	\$99.06	\$104.51	\$110.26	\$116.33	\$122.72
2 cubic yards container	\$187.14	\$197.43	\$208.29	\$219.75	\$231.83	\$244.58
3 cubic yards container	\$264.56	\$279.11	\$294.46	\$310.66	\$327.74	\$345.77
4 cubic yards container	\$348.86	\$368.05	\$388.29	\$409.65	\$432.18	\$455.95
6 cubic yards container	\$490.40	\$517.37	\$545.83	\$575.85	\$607.52	\$640.93
Recycle Bins						
4 & 6 cubic yard containers	n/a	\$150.65	\$158.94	\$167.68	\$176.90	\$186.63
Commercial Compacting						
3 cubic yards container	n/a	\$988.83	\$1,043.21	\$1,100.59	\$1,161.12	\$1,224.98
4 cubic yards container	n/a	\$1,245.84	\$1,314.36	\$1,386.65	\$1,462.91	\$1,543.37
Multi-Family, Commercial, and Organic		Three times per week pickup				
1 cubic yard container	n/a	\$148.00	\$156.14	\$164.73	\$173.79	\$183.35
2 cubic yards container	n/a	\$297.64	\$314.01	\$331.28	\$349.50	\$368.72
3 cubic yards container	\$398.63	\$420.55	\$443.69	\$468.09	\$493.83	\$520.99
4 cubic yards container	\$545.64	\$575.65	\$607.31	\$640.71	\$675.95	\$713.13
6 cubic yards container	\$750.40	\$791.67	\$835.21	\$881.15	\$929.61	\$980.74
Recycle Bins						
4 & 6 cubic yard containers	n/a	\$225.98	\$238.41	\$251.53	\$265.36	\$279.95
Commercial Compacting						
3 cubic yards container	n/a	\$1,484.74	\$1,566.40	\$1,652.55	\$1,743.44	\$1,839.33
4 cubic yards container	n/a	\$1,979.65	\$2,088.53	\$2,203.40	\$2,324.59	\$2,452.44

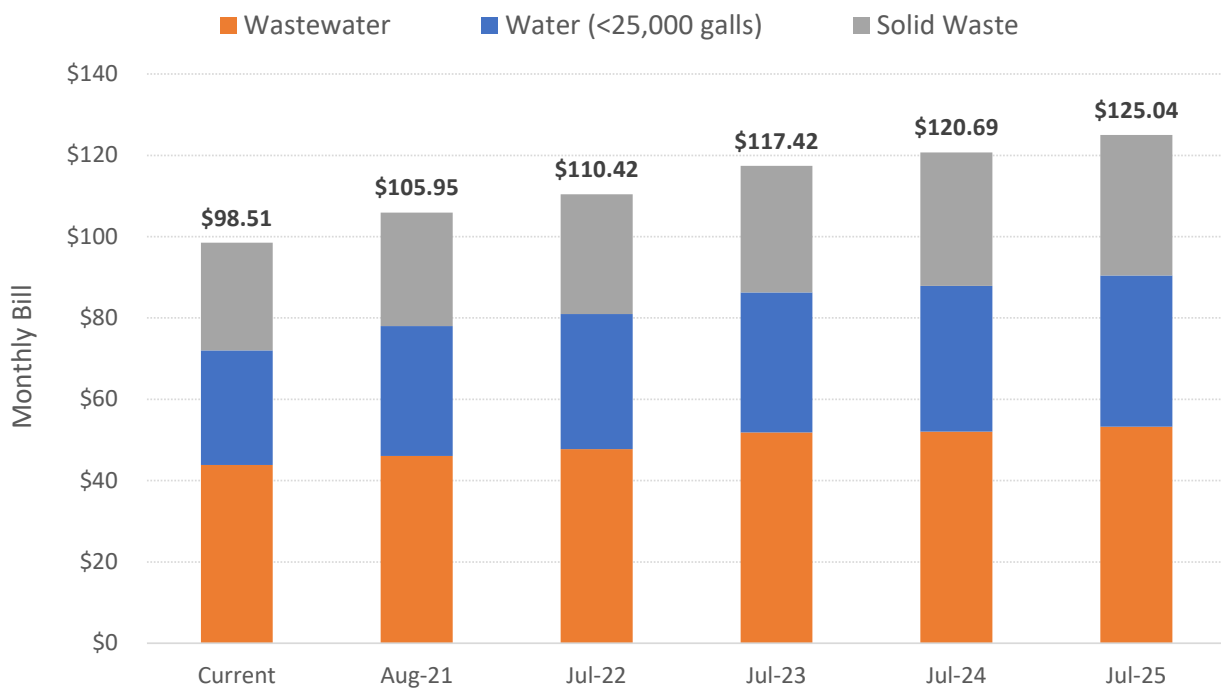
Source: City of Livingston and HEC.

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1.7 COMBINED UTILITIES BILL IMPACTS

Livingston residents receive monthly utility bills that include water, wastewater, and solid waste service costs; therefore, it is important to look at the combined impact on customer bills. **Figure A** below shows the total monthly bill impact to a typical home in Livingston using less than 25,000 gallons. In total, monthly bills would increase 7.6% August 2021, and between 2.8% and 6.3% each year for the following four fiscal year adjustments.

Figure A
Combined Utility Bill Impact for a Typical Home



Bill impacts to other customer categories are addressed in each study.

Section 2: WATER RATE STUDY

2.1 THE WATER FUND AND ITS CUSTOMERS

The City’s water enterprise fund accounts for the revenues and expenses associated with provision of water service. An enterprise fund is a fund that is intended to recover its costs through user fees and charges for a specific service. Money collected for an enterprise fund cannot be spent on other services. Generally accepted accounting principles (GAAP) require state and local government to use the enterprise fund type to account for “business type activities”. As a business type fund, enterprise funds must be self-sufficient. Enterprise funds also provide the repayment capacity for, and make debt service payments on, any debt incurred for capital projects; therefore, any water enterprise fund bond-funded projects do not diminish the City’s general fund debt capacity.

It is important for enterprise funds to be self-sufficient, without subsidies from other funds, including the City’s General Fund. General Fund cash should be used to protect against factors that could limit the City’s ability to provide critical services. Decreasing General Fund reserves could leave the City financially vulnerable, reducing funds necessary to recover from a natural disaster, for example.

Table 1 shows historical revenues and expenses for the water operating fund for fiscal years 2017 through 2020. Net revenues have been positive each year. The last water rate study included several capital improvement project costs that have not yet been incurred; therefore, revenues have deliberately been significantly greater than expenses. In the next five-year period cash reserves will be used to pay for capital improvement projects.

Table 1
Water Fund Historical Revenues and Expenses

Revenues and Expenses	Fiscal Year Ending			
	2017 actual	2018 actual	2019 actual	2020 unaudited
Revenue	\$3,484,226	\$3,736,933	\$3,873,948	\$4,381,278
Expense	\$1,868,403	\$1,952,499	\$2,009,274	\$2,399,786
Net Income	\$1,615,824	\$1,784,434	\$1,864,674	\$1,981,491
less Transfers Out	\$0	\$1,773,333	\$0	\$0
Net Revenue after Transfers	\$1,615,824	\$11,102	\$1,864,674	\$1,981,491

Appendix A Tables A-1 and A-2 show the details of historical water fund revenues and expenses.

2.1.1. Revenues

Water system operations are funded through monthly rates, meter installation fees, interest income, utility penalties, and other small miscellaneous revenues. In some years, the City receives intergovernmental revenues for special regional projects.

Rate revenue is generated by application of the water rate schedule shown in **Table 2** below. Under the current rate schedule all customers pay fixed monthly charges (which include a service charge and meter replacement fee) by meter size, and a use charge according to the quantity of water used each month. Water is measured in thousands of gallons. All customers pay the same rate for every unit of water consumed above their base allowance. The monthly base allowance varies by customer category.

**Table 2
Current Water Rates Schedule**

Charges	2019 (Current) Water Rates	
	Inside City *	
Fixed Monthly Charges	Base Charge	Meter Fee
1" and smaller	\$25.13	\$3.05
1.5"	\$50.27	\$11.11
2"	\$80.43	\$12.13
3"	\$175.94	\$25.74
4"	\$301.61	\$40.61
6"	\$628.35	\$56.33
8"	\$1,206.43	\$89.50
10"	\$1,910.18	\$204.51
Service Charge Monthly Water Allowance		
Attached Residential (per Unit)	10,000	gallons
Detached Residential (per Unit)	25,000	gallons
Non-Residential (per Meter)	35,000	gallons
Construction	0	gallons
Consumption Charge per 1,000 gallons of water in excess of allowance each month		
All Customers except Construction	\$1.57	
Construction	\$1.17	

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* Water rate schedules 1.5x outside City limits.

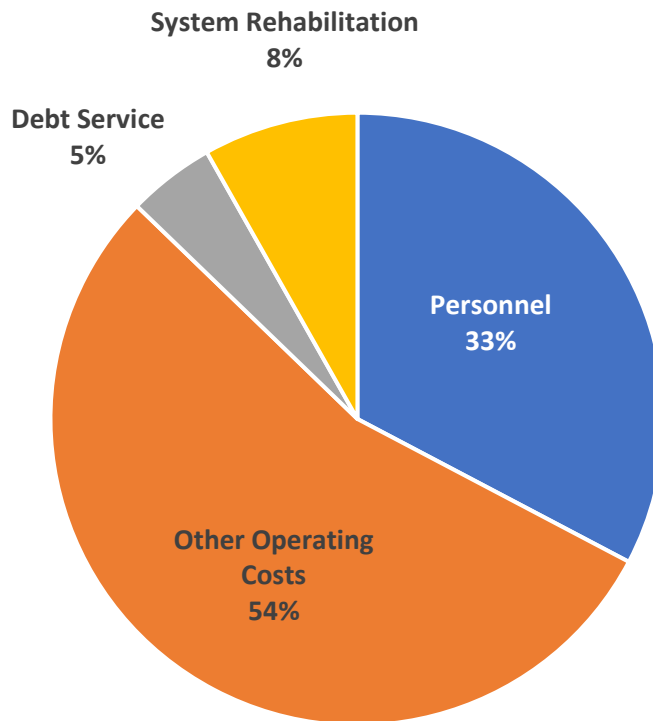
2.1.2. Expenses

Annual operating costs include all water system operating expenses, capital outlay, and debt service. Expenditures were grouped into five categories:

- Personnel (Payroll and Benefits)
- System Rehabilitation
- Debt Service
- New Infrastructure Projects
- Other Operating Costs

Personnel and other operating costs comprise the largest cost items budgeted for fiscal year ending 2021, which is the base year for the study. Fiscal year 2021 costs are illustrated in **Figure 1**.

Figure 1
Historical Water Fund Operating Expenses



2.1.3. Customer Base

Per the California Department of Finance, Livingston has a population of approximately 15,100, and it has sustained an annual average population increase of 1.8% since 2000. Population growth is shown in **Figure 2** on the next page.

The City serves water to about 3,100 households and 200 non-residential establishments, including large customers such as Foster Farms, and several irrigation-only customers. A pie chart illustrating the customer base is provided in **Figure 3** on the next page. As the pie chart shows, the City's water customers are primarily (93%) single family residential.

Figure 2
Population Growth

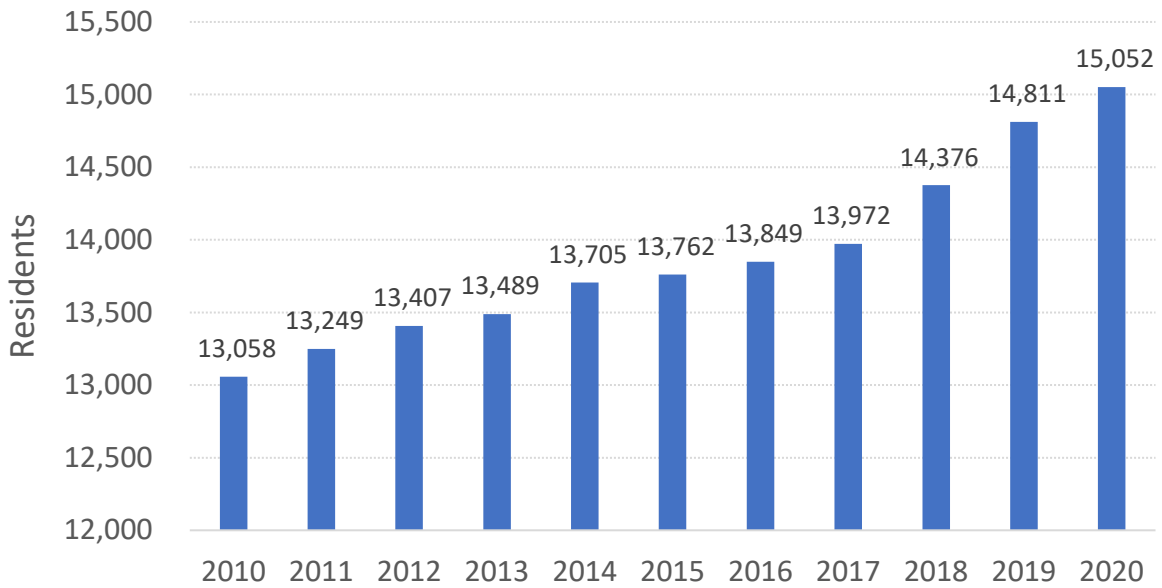
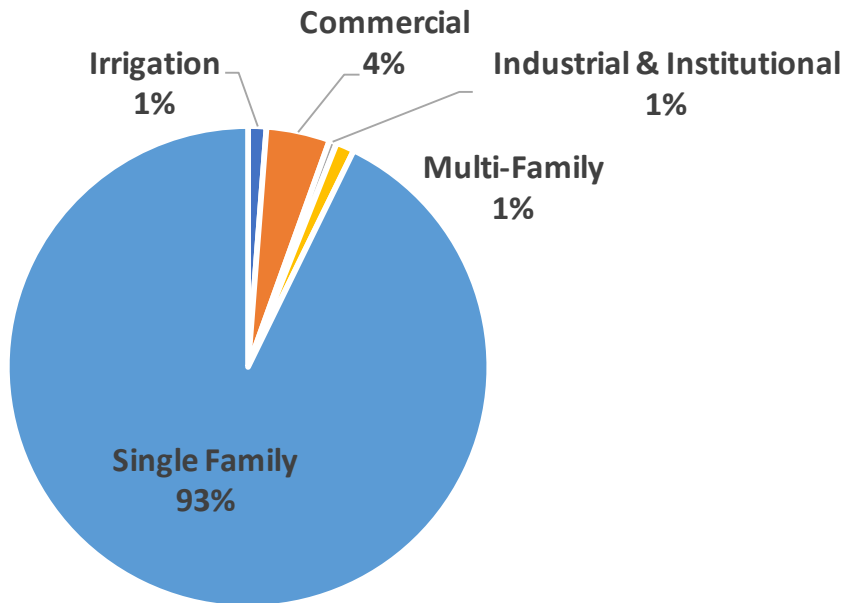


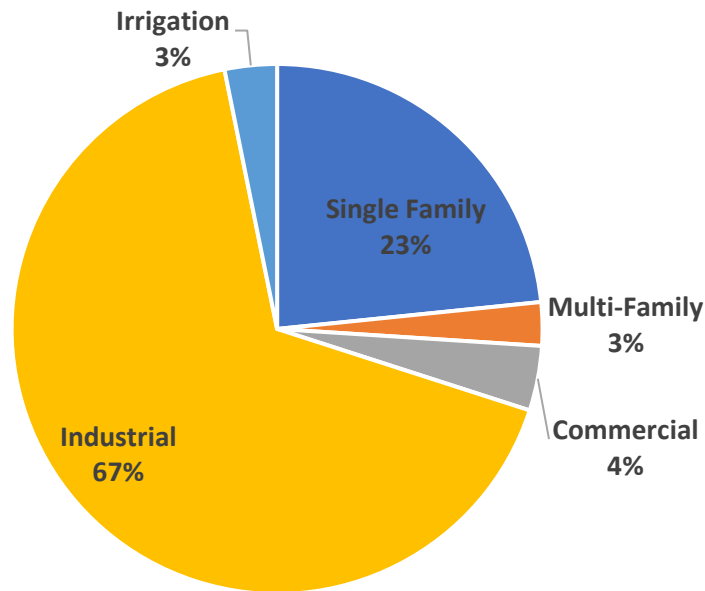
Figure 3
Customer Base



2.1.4. Water Consumption and Production

Figure 4 shows total water consumption by customer category. Although single family residential makes up 93% of the customer base, this group uses 23% of annual water consumption. Industrial customers, which make up less than 1% of the customer base, use 67% of total water consumed.

Figure 4
Water Consumption by Customer Category

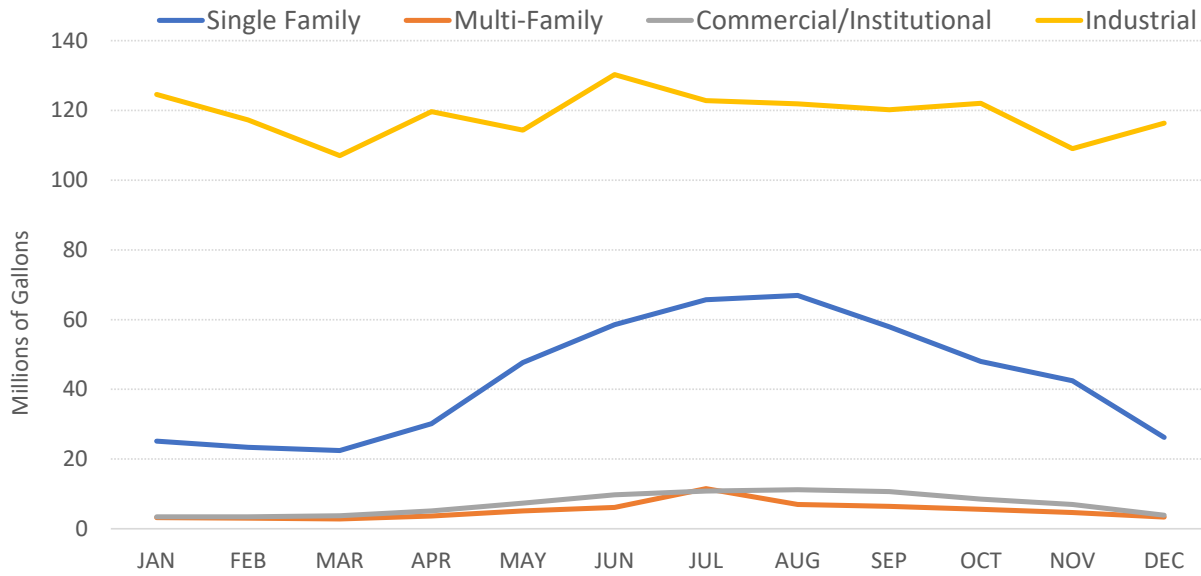


The City's water supply is 100% groundwater. Water use fluctuates from year to year depending on several factors including, but not limited to, growth, the weather, sustained drought, plumbing retrofits, and pricing of water. Historical average water use for 2015-2019 by customer category is used as the basis on which to project water use in the rate study. Historical potable water consumption is provided in **Appendix Table A-3**.

Like most cities in the western U.S., Livingston experiences greater water demand in the summer than the winter due to outside applications of water. **Figure 5** shows water use by month using 2017 through 2019 water use data provided by the City. Greater demand during the summer is driven by the single family customer category. Because such a large quantity of water is consumed by the industrial customers, with a steady water demand throughout the year, the City is not as susceptible to large swings in water use as many central valley communities.

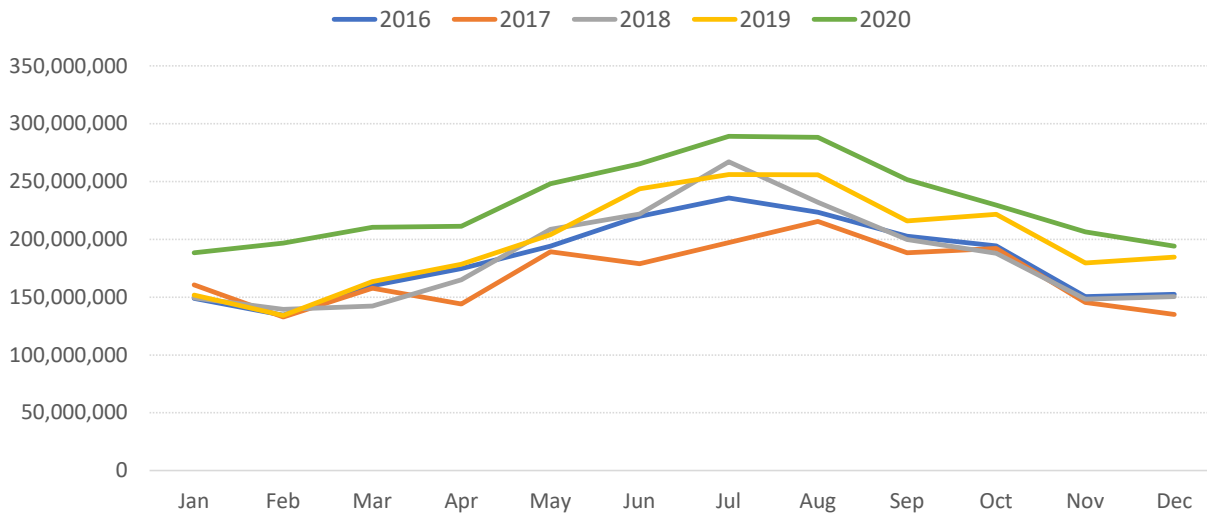
Well production data is provided in **Appendix Table A-4**. Approximately 84% of annual water production is for year-round water consumption, and approximately 16% of annual water production is additional water for increased demand during the summer months. Typically, central valley communities use 60%-65% of water for year-round demand, and 35%-40% of water additionally during the summer. Livingston has a higher year-round consumption due to water use by a large industrial customer, Foster Farms. **Figure 6** shows seasonal water production for the last three years.

Figure 5
Water Use Patterns by Customer Category



System-wide annual water production by month in gallons is shown in **Figure 7**.

Figure 6
Annual Water Production – Seasonal Trend



2.2 REVENUE REQUIREMENT

According to the American W M1 Manual, the first step in the ratemaking analysis is to determine the adequate and appropriate funding of a utility. This is referred to as the “revenue requirements” analysis. This analysis considers the short-term and long-term service objectives of the utility over a

given planning horizon, including capital facilities and system operations and maintenance, to determine the adequacy of a utility's existing rates to recover its costs. A number of factors may affect these projections, including: the number of customers served, water-use trends, nonrecurring sales, weather, conservation, use restrictions, inflation, interest rates, wholesale contracts, capital finance needs, and other changes in operating and economic conditions.

After determining a utility's revenue requirements, a utility's next step is determining the cost of service. Utilizing a public agency's approved budget, financial reports, operating data, and capital improvement plans, a rate study generally categorizes (functionalizes) the costs, expenses, and assets of the water system among major operating functions to determine the cost of service.

After the assets and the costs of operating those assets are properly categorized by function, the rate study allocates those "functionalized costs" to the various customer classes (e.g., single-family residential, multi-family residential and commercial) by determining the characteristics of those classes and the contribution of each to incurred costs such as peaking factors or different delivery costs, service characteristics and demand patterns. Rate design is the final part of the M1 Manual's rate-making procedure and generally uses the revenue requirement and cost of service analysis to determine appropriate rates for each customer class.

The revenue requirement refers to the amount of money that must be raised for revenue sufficiency of the water fund through rates. The projection of the revenue requirement is the cornerstone for the calculation of rates. This section explains the derivation of revenue requirement for this study. Components of the revenue requirement include:

- Capital Improvements
- Debt Service
- Operations Expenses and Reserves
- System Rehabilitation

Non-water sales revenue projections are credited against projected operations costs. Non-water sales include meter replacement fees, meter installation fees, fines and forfeitures (penalties), interest income, and miscellaneous revenue.

2.2.1. Capital Improvements

Water system capital costs in any one year are dependent on the state of the current infrastructure to serve existing customers and necessary improvements to accommodate potential new customers. Over the next five years, total water system capital improvement costs are estimated at \$25.27 million. The largest project cost is anticipated to be for wells 13 and 17 conveyance, treatment plant and storage tank (\$9.02 million). The new well 11 (estimated cost \$1.23 million) will be constructed and paid for by Foster Farms under agreement with the City.

Table 3 summarizes the total estimated costs and anticipated funding sources. Total estimated costs are in future dollars (cost estimates were provided in 2020 dollars; the rate study inflates the cost estimates by 3% each year per the 10-year historical average increase in the Engineering News

Record (ENR) Construction Cost Index (CCI)). **Appendix Tables A-5 and A-6** provides greater detail of the CIP items and costs.

A \$4.0 million loan has already been executed with the State Water Resources Control Board (SWRCB) for wells 14 and 16 treatment and conveyance facilities. Improvements to wells 8, 9, 13, and 17 are anticipated to be funded with additional loans from the SWRCB. All other capital improvement projects will be funded with reserves (currently accumulated and future collections of water rate revenues), and the park surface water irrigation project will be partially funded with a grant.

Two projects are estimated to benefit future water users; 25% of the well 8 and 9, as well as the well 13 and 17 project costs, are allocated to future users. These two projects are anticipated to be funded by SRF loans; therefore, 25% of annual debt service will be paid for with accumulated water connection fees.

Table 3
Summary of CIP Costs Fiscal Years Ending 2022-2026

	Estimated Cost in Inflated Dollars 2021-2026	Funding Source
Well 8 - New Well	\$1,060,900	Reserves
Well 9 - New Well	\$1,236,000	Reserves
Well 11 - New Well	\$1,236,000	Foster Farms
Well 12 Conveyance & Treatment	\$1,993,951	Reserves
Well 8 & 9 Conveyance & Treatment Plant	\$4,774,050	SRF Loan [1]
Well 14 & 16 Conveyance & Treatment Plant - secured loan	\$4,120,000	SRF Loan
Well 13 & 17 Conveyance, Treatment Plant & Storage Tank	\$9,017,650	SRF Loan [1]
Water Line Replacement Ph 4 (Walnut, Davis, White, N Main)	\$1,454,769	Reserves
Park Surface Water Irrigation	\$381,924	Reserves [2]
Total Estimated Water Improvements Cost	\$25,275,245	

Source: City of Livingston January 2021.

cip sum

[1] A portion of debt service to be repaid with connection fees.

[2] A portion of this project will be funded by a grant.

2.2.2. Debt Service

The City has two existing loans with the SWRCB for wells 13 (\$1.35 million) and wells 14 and 16 (\$4.00 million). Repayment schedules are provided in **Appendix A Tables A-7 and A-8**.

New debt service is assumed to be incurred for wells 8 and 9 (total \$3.61 million), as well as wells 13 and 17 (total \$8.76 million). The City does not yet know what the terms of financing will be; the rate study assumes 2.50% interest with a 30-year amortization. The State requires one year of debt service be held in reserve for debt payments. The City can either collect this up-front or increase debt service 10% for the first ten years of payments. The rate study assumes that an additional 10% per year is collected for the first ten years for both of these projects. Debt calculations associated with the estimated additional two new SWRCB loans is provided in **Appendix A Table A-9**.

In addition, the City has executed an agreement with TRANE for energy efficiency projects Citywide. A portion of the total projects cost is to upgrade water system components to be more energy efficient. The water system's share of debt service associated with these projects is estimated at \$47,000 per year.

2.2.3. Operating Expenses and Reserves

Future year operating expenses are based on budgeted fiscal year 2021 operating expenses. Personnel costs are increased 6.0% each year, utilities costs are increased 4.0% each year, and all other annual expenses are increased 2.5%, 3.0%, or 3.5% each year. These cost increases were based on historical cost increases and discussions with City staff. In the past four years, City water operating expenses have increased about 7.0% per year. It is very typical for water utility annual costs, and therefore water rates, to outstrip inflation. In May 2019, the American Water Works Association released an article, "Rate survey: water cost increases outpacing other U.S. goods and services" in which it documented that between 2014 and 2018 water rates increased 5.1% per year and wastewater rates increased 5.6% per year. In June 2020 the National Association of Clean Water Agencies determined that the cost of wastewater service more than doubled the rate of inflation over the past twelve months, the 18th consecutive year that the increase in charges has outpaced inflation.

In addition to historical types of costs incurred by the water fund, the City is adding new operations and maintenance costs for (1) new personnel, and (2) facilities included in the CIP. New personnel costs include half of the costs of a new Water/Wastewater Manager, as well as one-third of the costs of a new Account Clerk. The costs of these positions are shared with the wastewater fund and the wastewater fund and solid waste fund, respectively. The estimated additional operations and maintenance costs are provided in **Appendix Table A-6**.

2.2.4. System Rehabilitation

Depreciation is used as the basis on which to collect rates to cover system rehabilitation costs. Inclusion of system rehabilitation costs demonstrates fiscal responsibility toward the assets to potential future investors and helps to establish good credit². Depreciation is calculated based on

² Per Governmental Accounting Standards Board (GASB) 34, local governments must report on the value of their infrastructure assets and plan for asset maintenance (including collecting sufficient revenue) to obtain good credit when issuing bonds or procuring other forms of financing for long-term construction projects.

existing water facilities and new facilities built in the next five-year period. **Table 4** shows the total annual amount included in the rates for system rehabilitation. The estimated cost includes replacement of existing assets and assets that are estimated to be constructed during the study time period. The water rates include 50% depreciation; in many years not all of the money collected is spent; in these years the additional amount is kept in the reserves and spent in another year in which capital costs exceed collections for system rehabilitation.

Table 4
System Rehabilitation Annual Budget Estimate

Depreciation	Fiscal Year Ending					
	2021	2022	2023	2024	2025	2026
		Year 1	Year 2	Year 3	Year 4	Year 5
Current Depreciation [1]	\$183,000	\$183,000	\$183,000	\$183,000	\$183,000	\$183,000
New Depreciation	\$756,000	\$756,000	\$756,000	\$756,000	\$756,000	\$756,000
Total Depreciation	\$939,000	\$939,000	\$939,000	\$939,000	\$939,000	\$939,000
	50%	50%	50%	50%	50%	50%
Amount in Rev. Req.	\$469,500	\$469,500	\$469,500	\$469,500	\$469,500	\$469,500

Source: City of Livingston and HEC.

depr

[1] Current book value of all water assets minus wells which are to be replaced.

2.2.5. Calculated Revenue Requirement

Table 5 provides the projection of annual costs and revenues and the resulting revenue requirement through fiscal year 2026. Over the next five years, the revenue requirement is projected to continue to increase to account for inflation, to fund capital expenditures and depreciation, and to account for new debt. The total revenue requirement is projected to increase from \$2.52 million in fiscal year 2021 to \$6.25 million in fiscal year 2026. A portion of the revenue requirement will be met with use of cash reserves; to account for this use and to smooth out the rate increases over the five-year period; the water rates will need to increase 5.0% per year.

The amount to be raised each year by water rates is the “user fees” line underneath the revenue requirement line in **Table 5**. Note that although the amount to be raised by rates increases 5.0% in the first year, not all customer categories will have the same percentage increase. The difference in customer category increases is due to the cost of service analysis.

Table 5
Projected Revenue Requirement

Expenses and Credits	Inflator	2021	2022	2023	2024	2025	2026
		budget	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Expenses							
Personnel	6.0%	\$897,994	\$951,873	\$1,008,986	\$1,069,525	\$1,133,696	\$1,201,718
New Personnel [1]	6.0%		\$77,400	\$82,044	\$86,967	\$92,185	\$97,716
Contract Services	3.0%	\$130,000	\$133,900	\$137,917	\$142,055	\$146,316	\$150,706
Utilities	4.0%	\$600,000	\$624,000	\$648,960	\$674,918	\$701,915	\$729,992
less Electricity Savings [2]	4.0%		(\$75,000)	(\$78,000)	(\$81,120)	(\$84,365)	(\$87,739)
SGMA Regulatory Fee	2.5%	\$50,000	\$51,250	\$52,531	\$53,845	\$55,191	\$56,570
Infrastructure O&M	3.5%	\$456,000	\$471,960	\$488,479	\$505,575	\$523,270	\$541,585
Other Operating Costs	2.5%	\$259,820	\$266,316	\$272,973	\$279,798	\$286,793	\$293,962
New Infrastructure Op. Costs	Table A-6	\$0	\$97,850	\$100,786	\$103,809	\$106,923	\$110,131
Total Operating Expenses		\$2,393,814	\$2,599,549	\$2,714,675	\$2,835,371	\$2,961,925	\$3,094,641
Debt Service							
SRF D15-02037 (\$1.35 Mill - well 13)	secured	\$78,778	\$78,778	\$78,778	\$78,778	\$78,778	\$78,778
SRF D18-02003 (\$4.0 Mill -wells 14 & 16)	secured	\$47,358	\$172,989	\$172,989	\$172,989	\$172,989	\$172,989
Energy Retrofits [3]	estimate		\$47,000	\$47,000	\$47,000	\$47,000	\$47,000
New Debt - Wells 13 & 17	estimate			\$355,520	\$355,520	\$355,520	\$355,520
New Debt - Wells 8 & 9	estimate			\$188,210	\$188,210	\$188,210	\$188,210
Subtotal Debt Service		\$126,136	\$298,767	\$842,497	\$842,497	\$842,497	\$842,497
System Rehabilitation and New Projects							
Meter Replacement		\$140,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Equipment Purchase		\$59,100	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Vehicle Replacement		\$25,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Wells GAC		\$0	\$0	\$424,360	\$0	\$675,305	\$0
Cash-Funded Capital Projects		\$0	\$1,236,000	\$1,259,693	\$1,454,769	\$0	\$1,993,951
Subtotal System Rehabilitation and New Projects		\$224,100	\$1,333,000	\$1,781,053	\$1,551,769	\$772,305	\$2,090,951
Additional Collection for Depreciation		\$0	\$469,500	\$469,500	\$469,500	\$469,500	\$469,500
Total Costs		\$2,744,050	\$4,700,816	\$5,807,725	\$5,699,138	\$5,046,227	\$6,497,589
Credits							
Meter Replacement Fees	2.5%	\$165,635	\$166,373	\$170,532	\$174,795	\$179,165	\$183,644
Meter Installation Fees	estimate	\$0	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Fines & Forfeitures	3.0%	\$42,000	\$43,260	\$44,558	\$45,895	\$47,271	\$48,690
Interest Income	0.0%	\$4,040	\$4,040	\$4,040	\$4,040	\$4,040	\$4,040
Loss of Highway Irrigation Area Revenue [4]	4.5%		(\$16,000)	(\$16,720)	(\$17,472)	(\$18,259)	(\$19,080)
Miscellaneous Revenue	0.0%	\$8,125	\$8,125	\$8,125	\$8,125	\$8,125	\$8,125
Subtotal Credits		\$219,800	\$225,798	\$230,535	\$235,383	\$240,343	\$245,419
Revenue Requirement		\$2,524,250	\$4,475,018	\$5,577,190	\$5,463,755	\$4,805,884	\$6,252,171
Increase in User Fees [5]			5.00%	5.00%	5.00%	5.00%	5.00%
User Fees		\$3,864,360	\$4,057,578	\$4,260,457	\$4,473,480	\$4,697,154	\$4,932,011

Source: City of Livingston fiscal year 2021 budget, and HEC.

rev req

[1] Includes the water fund's portion of two new positions: water/wastewater manager and account clerk.

[2] TRANE estimate is \$79,953 in first year. This has been rounded down to the nearest \$5,000.

[3] Bank estimate of annual payments is \$46,694. This has been rounded up to the nearest \$1,000.

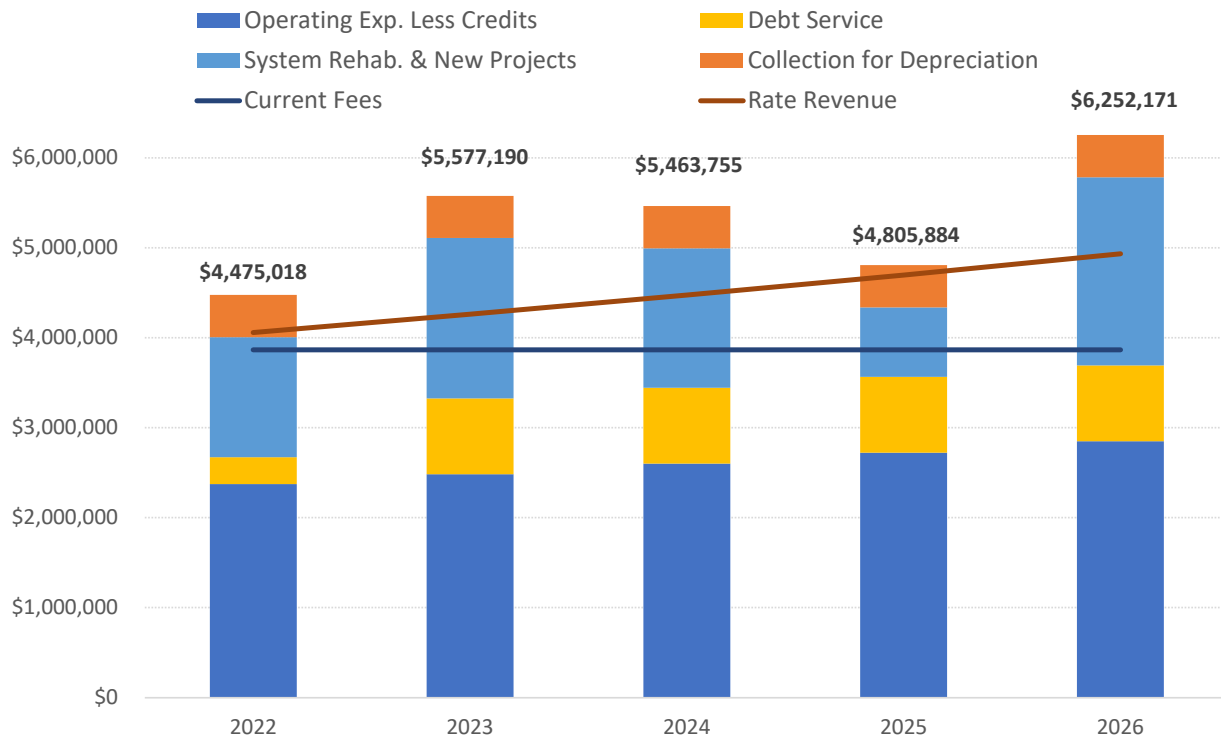
[4] Well 15 will be removed from domestic consumption supplies due to poor water quality; however, it will continue to provide irrigation water.

At this time, it is unknown what revenues might be collected from the well 15 irrigation system.

[5] The amount to be raised from water sales is increased each year by a percentage to smooth out the changes.

Components of revenue requirement and projected water sales revenues are illustrated in **Figure 7**. The total revenue requirement decreases in 2025 because of a decrease in cash spending on capital improvement projects during that year.

Figure 7
Components of Revenue Requirement



One of the credits in the revenue requirement is revenue generated by the monthly meter replacement fee. City crews replace older water meters that are near the end of their useful life, or which are inaccurately measuring water flow. The cost to replace meters by size of meter was used to determine appropriate monthly collection of fees to support routine meter replacements in **Appendix Table A-10**. Projected meter replacement fee revenue by year is shown in **Appendix Table A-11**.

The next step in calculating water rates is performing functional cost allocation and cost of service. Functional cost allocation is provided in **Appendix A, Tables A-12 and A-13**. The cost classification provides a *guideline* for the City in determining the portion of revenue requirement to collect through service charges versus usage charges. There is no set formula for determining exactly how much to collect in the service charge versus the use charge.

City water system costs were classified into two categories; fixed (service) and variable (use) costs.

- **Fixed Costs.** Included in this category are costs associated with customer-driven costs and the water system’s readiness to serve, which includes a portion of the water system’s capacity costs for typical non-peaking water use. Thirty-six percent of annual costs were determined to be fixed costs after performing a functional allocation of the 2020 actual water fund expenses.

Fixed costs are allocated to customers based on the number of equivalent meters, determined by the relative hydraulic capacity of the meter size relative to a 1-inch meter. **Table A-14** shows the calculation of equivalent meters. Note that the number of equivalent meters is calculated using current number of billing meters (rather than total number of meters) on the water system at any one time.

- **Variable Costs.** These costs vary with the quantity of water consumed. They include the peaking portion of capacity costs and commodity costs. Commodity costs are expenses that increase or decrease almost directly with the amount of water supplied. Operations and maintenance variable costs primarily include well pumping electricity costs, but also a portion of administrative costs, debt service and other costs as determined in the functional allocation. Variable costs are recovered through use charges applied per thousand gallons above the base allowance each month.

Table 6 shows allocation of the amount to be collected in user fees each year between service and use charges in the rate model for the study. The amount to be collected in monthly service charges (the “fixed” fee component) is rounded to 35%. In the last water rate study, which was conducted in 2014, it was determined that 35% was the most appropriate percentage to use because such a large amount of use of the system is from industrial users. The industrial customers do not have many water meters; therefore, capacity of the system, as measured by instantaneous flow through water meters, is much less significant in determining use of the system than it is for most water systems.

Table 6
Allocation of User Fees

Allocated Rev. Requirement	Fiscal Year Ending						
	2020	2021	2022	2023	2024	2025	
Revenue Requirement	\$3,754,022	\$3,922,953	\$4,099,486	\$4,283,963	\$4,476,741	\$4,678,195	
Fixed	35%	\$1,313,908	\$1,373,034	\$1,434,820	\$1,499,387	\$1,566,860	\$1,637,368
Variable	65%	\$2,440,115	\$2,549,920	\$2,664,666	\$2,784,576	\$2,909,882	\$3,040,827

Source: City of Livingston November 2019 and HEC.

rev alloc

2.3 WATER RATE CALCULATIONS

The calculation of monthly service charges is shown in **Table 7** below. Monthly service charges are applied to customers based on the size of their meter.

Table 7
Calculation of Monthly Service Charges

Base Meter Fee	Fiscal Year Ending				
	2022	2023	2024	2025	2026
Total Costs	\$1,420,152	\$1,491,160	\$1,565,718	\$1,644,004	\$1,726,204
Meter Equivalents	4,132	4,172	4,212	4,252	4,292

Meter Size	Ratio	Monthly Service Charge per Meter				
1" and smaller	1	\$28.64	\$29.79	\$30.98	\$32.22	\$33.52
1.5"	2	\$57.29	\$59.58	\$61.96	\$64.45	\$67.04
2"	3	\$91.66	\$95.32	\$99.14	\$103.11	\$107.26
3"	7	\$200.51	\$208.52	\$216.86	\$225.56	\$234.63
4"	12	\$343.73	\$357.46	\$371.76	\$386.68	\$402.23
6"	25	\$716.10	\$744.70	\$774.51	\$805.58	\$837.98
8"	48	\$1,374.92	\$1,429.82	\$1,487.05	\$1,546.72	\$1,608.91
10"	76	\$2,176.95	\$2,263.88	\$2,354.50	\$2,448.97	\$2,547.45

Source: City of Livingston and HEC.

base fees

The calculation of use charges is shown in **Table 8** on the next page. Beginning with the July billing cycle (the August 2021 water bill), water use greater than the monthly allowance would be billed at \$1.64 per thousand gallons.

Table 8
Calculation of Use Costs per Thousand Gallons

Customer Category	Fiscal Year Ending				
	2022	2023	2024	2025	2026
Allocated Costs	\$2,637,426	\$2,769,297	\$2,907,762	\$3,053,150	\$3,205,807
Annual Demand (Thousands of Gallons)	2,160,001	2,167,815	2,175,738	2,183,772	2,191,919
Gallons Above Monthly Allowance					
Residential	<i>All figures in thousands of gallons</i>				
Single Family	53,056	53,677	54,305	54,941	55,584
Multi-Family	16,595	16,595	16,595	16,595	16,595
Subtotal Residential	69,651	70,271	70,900	71,535	72,178
Non-Residential					
Commercial	42,537	43,448	44,378	45,328	46,298
Industrial	1,436,712	1,436,712	1,436,712	1,436,712	1,436,712
Irrigation	60,164	60,164	60,164	60,164	60,164
Subtotal Non-Residential	1,539,414	1,540,324	1,541,254	1,542,204	1,543,174
Gallons Above Monthly Allowance	1,609,064	1,610,596	1,612,154	1,613,739	1,615,352
Estimated Total Water Billed	74%	74%	74%	74%	74%
Cost per 1,000 Gallons above Base Allowance	\$1.64	\$1.72	\$1.80	\$1.89	\$1.98
Construction Water	\$1.88	\$1.97	\$2.06	\$2.15	\$2.25

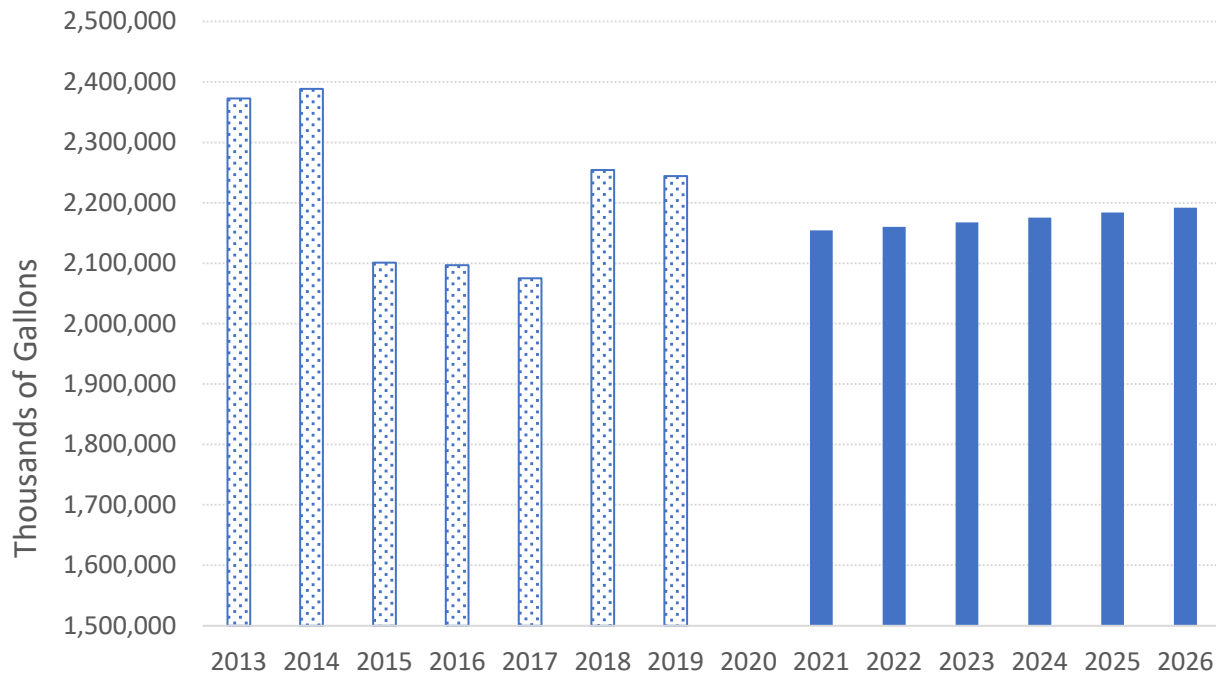
Source: City of Livingston and HEC January 2021.

use fees

The calculation of use charges is based on allocated cost and projected water demand for each customer category. Total projected water demand is shown in **Figure 8** on the next page and by customer category in **Appendix Table A-15**. The projection of water demand is based on average water use for the past three years plus the assumed growth of 45 new one-inch or smaller water meters per year. In addition, the projected water use accounts for customers' reactions to price increases. The relationship between increased prices and decreased demand is referred to as price elasticity. Price elasticity varies by geography due to many micro-economic variables. HEC applied industry knowledge to establish assumed price elasticity factors for the Study. Price elasticity analysis is shown in **Tables A-16** and **A-17**.

Construction water use fees for water pulled off fire hydrants, and which are not property-related fees, are calculated as the average cost per gallon for all water service costs excluding meter replacement. This methodology is updated from the 2014 water rate study which is why the cost increase is greater than for other water customers.

Figure 8
Historical and Projected Annual Water Demand



The calculated meter replacement fees are shown in **Table 9**. Due to updated pricing provided by the City’s water meter supplier, the monthly meter fee for 1.5”, 3”, and 10” meters decreased. All other monthly meter fees increased.

Table 9
Calculated Meter Replacement Fees by Meter Size

Meter Size	Current	Fiscal Year Ending				
		2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
<i>Annual Escalator 2.5%</i>						
1"	\$3.05	\$3.30	\$3.39	\$3.47	\$3.56	\$3.65
1-1/2"	\$11.11	\$7.79	\$7.99	\$8.18	\$8.39	\$8.60
2"	\$12.13	\$14.88	\$15.25	\$15.63	\$16.02	\$16.42
3"	\$25.74	\$18.56	\$19.03	\$19.50	\$19.99	\$20.49
4"	\$40.61	\$43.94	\$45.04	\$46.17	\$47.32	\$48.51
6"	\$56.33	\$75.94	\$77.83	\$79.78	\$81.77	\$83.82
8"	\$89.50	\$123.82	\$126.91	\$130.09	\$133.34	\$136.67
10"	\$204.51	\$159.79	\$163.78	\$167.88	\$172.07	\$176.38

Source HEC.

meter fee

Total calculated rates include the fixed monthly service charges, meter replacement fees, and consumption charges. The calculated water rate schedule is provided in **Table 10** below.

Table 10
Calculated New Water Rates Schedule

Charges	Current	Aug-21	Jul-22	Jul-23	Jul-24	Jul-25
Base Charge						
1" and smaller	\$25.13	\$28.64	\$29.79	\$30.98	\$32.22	\$33.52
1.5"	\$50.27	\$57.29	\$59.58	\$61.96	\$64.45	\$67.04
2"	\$80.43	\$91.66	\$95.32	\$99.14	\$103.11	\$107.26
3"	\$175.94	\$200.51	\$208.52	\$216.86	\$225.56	\$234.63
4"	\$301.61	\$343.73	\$357.46	\$371.76	\$386.68	\$402.23
6"	\$628.35	\$716.10	\$744.70	\$774.51	\$805.58	\$837.98
8"	\$1,206.43	\$1,374.92	\$1,429.82	\$1,487.05	\$1,546.72	\$1,608.91
10"	\$1,910.18	\$2,176.95	\$2,263.88	\$2,354.50	\$2,448.97	\$2,547.45
Meter Fee						
1" and smaller	\$3.05	\$3.30	\$3.39	\$3.47	\$3.56	\$3.65
1.5"	\$11.11	\$7.79	\$7.99	\$8.18	\$8.39	\$8.60
2"	\$12.13	\$14.88	\$15.25	\$15.63	\$16.02	\$16.42
3"	\$25.74	\$18.56	\$19.03	\$19.50	\$19.99	\$20.49
4"	\$40.61	\$43.94	\$45.04	\$46.17	\$47.32	\$48.51
6"	\$56.33	\$75.94	\$77.83	\$79.78	\$81.77	\$83.82
8"	\$89.50	\$123.82	\$126.91	\$130.09	\$133.34	\$136.67
10"	\$204.51	\$159.79	\$163.78	\$167.88	\$172.07	\$176.38
Service Charge Monthly Water Allowance						
Attached Residential (per Unit)	10,000 gallons					
Detached Residential (per Unit)	25,000 gallons					
Non-Residential (per Meter)	35,000 gallons					
Consumption Charge per 1,000 gallons of water in excess of allowance each month						
All Customers	\$1.57	\$1.64	\$1.72	\$1.80	\$1.89	\$1.98
Construction Water	\$1.17	\$1.88	\$1.97	\$2.06	\$2.15	\$2.25

Source: City of Livingston and 2021 HEC rate study.

sched

* Water rate schedules 1.5x outside City limits.

In compliance with California SB-7, which requires all new multi-family residential development to be individually metered or sub-metered, any newly constructed units will pay the same base rate per unit as all current detached residential units unless the owner of the building(s) sub-meters each unit and performs its own internal water billing of each unit.

2.4 CASH FLOW AND FUND BALANCE

Table 11 below shows the projected cash flow for the water enterprise fund through fiscal year 2026. With adoption of the calculated rates, it is anticipated that the City will be able to meet all water enterprise fund obligations, including existing and potential debt service coverage requirements, and achieve a target of at twelve months of operating expenses in unrestricted cash each year.

Table 11
Projected Cash Flow

Revenues and Expenses	Fiscal Year Ending					
	2021	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Revenues						
User Fees [1]	\$3,864,360	\$4,025,375	\$4,260,457	\$4,473,480	\$4,697,154	\$4,932,011
Meter Replacement Fees	\$165,635	\$166,250	\$170,532	\$174,795	\$179,165	\$183,644
Meter Installation Fees	\$0	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Fines & Forfeitures	\$42,000	\$43,260	\$44,558	\$45,895	\$47,271	\$48,690
Interest Income	\$4,040	\$4,040	\$4,040	\$4,040	\$4,040	\$4,040
Miscellaneous Revenue	\$0	\$8,125	\$8,125	\$8,125	\$8,125	\$8,125
Total Revenues	\$4,076,035	\$4,267,050	\$4,507,712	\$4,726,335	\$4,955,755	\$5,196,510
Operating Expenses	\$2,393,814	\$2,599,549	\$2,714,675	\$2,835,371	\$2,961,925	\$3,094,641
Net Income before Debt Service	\$1,682,221	\$1,667,501	\$1,793,036	\$1,890,964	\$1,993,831	\$2,101,870
Debt Service	\$126,136	\$298,767	\$842,497	\$842,497	\$842,497	\$842,497
<i>Debt Coverage</i>	<i>13.3</i>	<i>5.6</i>	<i>2.1</i>	<i>2.2</i>	<i>2.4</i>	<i>2.5</i>
System Rehab & New Projects Cash-Funded	\$224,100	\$1,333,000	\$1,781,053	\$1,551,769	\$772,305	\$2,090,951
Net Revenue	\$1,331,985	\$35,734	(\$830,513)	(\$503,303)	\$379,028	(\$831,579)
Beginning Cash Balance [1]	\$5,333,343	\$6,665,328	\$6,701,062	\$6,006,481	\$5,639,111	\$6,154,071
Net Revenue	\$1,331,985	\$35,734	(\$830,513)	(\$503,303)	\$379,028	(\$831,579)
Transfer In from Capital Fund for Debt			\$135,933	\$135,933	\$135,933	\$135,933
Estimated Ending Cash Balance	\$6,665,328	\$6,701,062	\$6,006,481	\$5,639,111	\$6,154,071	\$5,458,425
Restricted Balance [2]	\$126,136	\$298,767	\$842,497	\$842,497	\$842,497	\$842,497
Unrestricted Balance	\$6,539,192	\$6,402,295	\$5,163,984	\$4,796,613	\$5,311,574	\$4,615,927
Min. Unrestricted Balance [3]	\$2,393,814	\$2,599,549	\$2,714,675	\$2,835,371	\$2,961,925	\$3,094,641

Source: City of Livingston financial documents and HEC.

flow

[1] Only 10 months of the new fees will be in effect FY 2022.

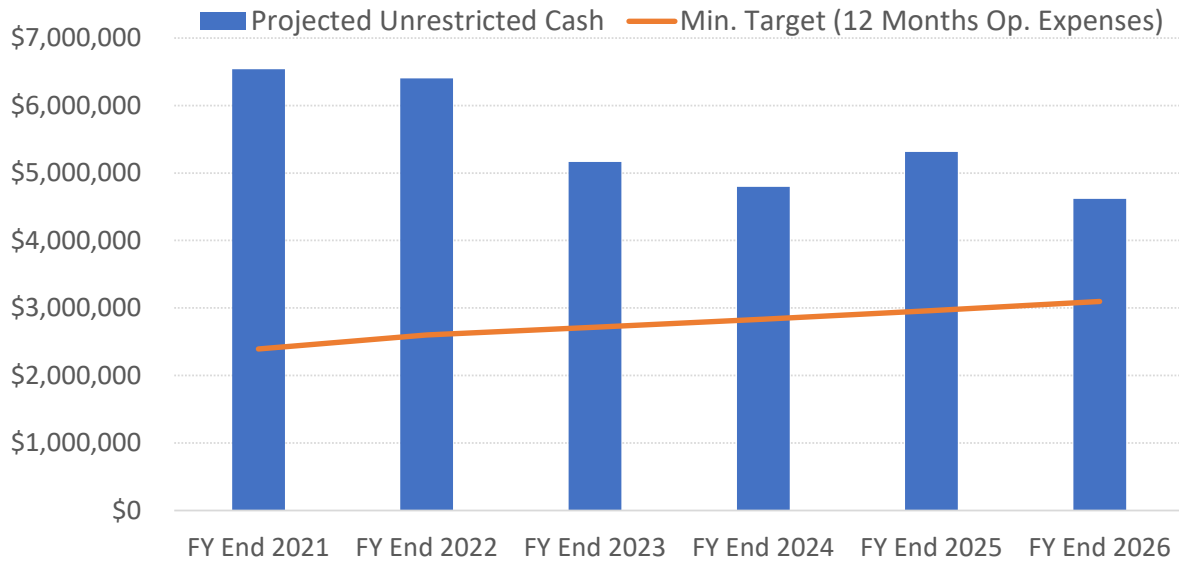
[2] Beginning cash balance as of July 1, 2020.

[3] One year of debt service.

[4] One year operating expenses.

Figure 9 illustrates projected and target water fund balances through fiscal year ending 2026.

Figure 9
Projected Water Fund Cash Balance



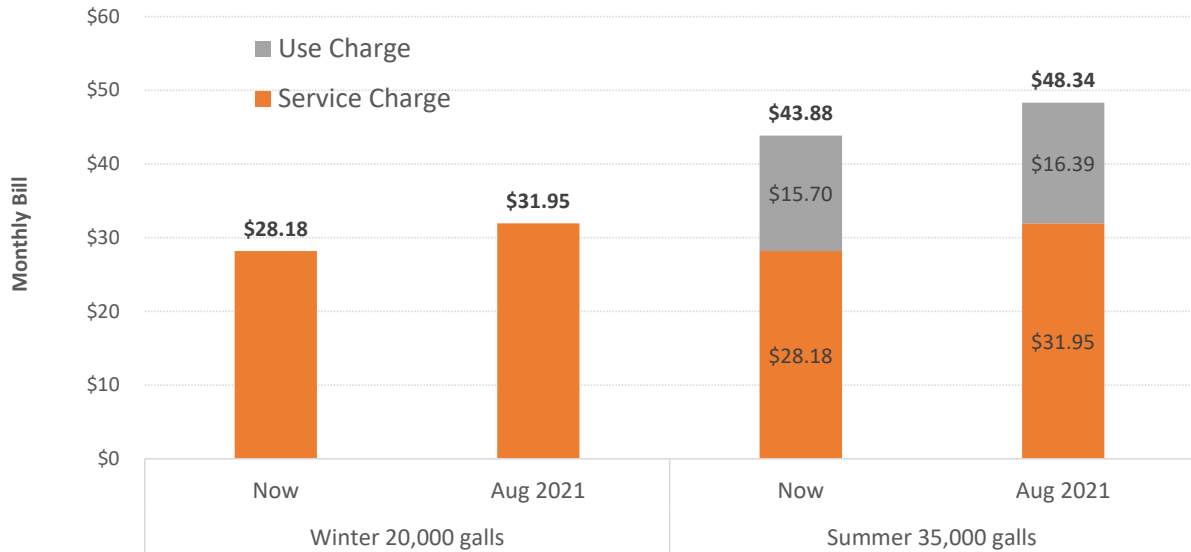
A higher than minimum cash balance at the end of five years would be prudent for the water fund because of the multiple number of CIP project planned in the next five years. Cash reserves can be used, if necessary, to pay for project cost overruns; it can also be used to pay off State loans early and complete other system rehabilitation projects not currently in the CIP.

2.5 BILL IMPACTS

2.5.1. Residential Bill Impacts

Bill impacts arising from new rates beginning August 2021 are illustrated for single family homes at different use levels in **Table 12** on page 30. During the winter, most homes would have an increase of \$3.77 per month. During the summer, most homes would have an increase of about \$4.46 per month. An illustration of bill impacts to a single-family home for winter and summer use is shown in **Figure 10** on the following page.

Figure 10
First Year Seasonal Bill Impacts for Single Family Home



The projection of a monthly bill for homes using 20,000 gallons is illustrated in **Figure 11** for the next five years.

Figure 11
Bill Impact for a Home using 20,000 Gallons



Table 12
Single Family Water Usage Monthly Bill Impacts

Monthly Use in Thousands of Gallons	Current			Total Monthly Bill	New Rates August, 2021			Total Monthly Bill	Difference New less Current
	Service Fee 1" and Smaller	Meter Fee	Use Charge > 25,000 galls		Service Fee 1" and Smaller	Meter Fee	Use Charge > 25,000 galls		
			<i>Rate per 1,000 galls</i>				<i>Rate per 1,000 galls</i>		
			<i>\$1.57</i>				<i>\$1.64</i>		
1	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
2	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
3	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
4	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
5	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
6	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
7	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
8	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
9	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
10	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
11	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
12	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
13	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
14	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
15	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
16	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
17	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
18	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
19	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
20	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
25	\$25.13	\$3.05	\$0.00	\$28.18	\$28.64	\$3.30	\$0.00	\$31.95	\$3.77
30	\$25.13	\$3.05	\$7.85	\$36.03	\$28.64	\$3.30	\$8.20	\$40.14	\$4.11
35	\$25.13	\$3.05	\$15.70	\$43.88	\$28.64	\$3.30	\$16.39	\$48.34	\$4.46
40	\$25.13	\$3.05	\$23.55	\$51.73	\$28.64	\$3.30	\$24.59	\$56.54	\$4.81
45	\$25.13	\$3.05	\$31.40	\$59.58	\$28.64	\$3.30	\$32.78	\$64.73	\$5.15
50	\$25.13	\$3.05	\$39.25	\$67.43	\$28.64	\$3.30	\$40.98	\$72.93	\$5.50

Source: HEC.

sf bill use

The SWRCB program bases its evaluation of affordability of water rates on two criteria:

1. The median household income (MHI) of the community compared to the State MHI, and
2. The percentage of MHI spent on water bills.

Generally, water rates are considered to be burdensome if they are greater than 2.0 percent of MHI. If a community's MHI is less than 80 percent of the State MHI, the community is considered "Disadvantaged", in which case a rate greater than 1.5 percent of MHI is considered burdensome. The City of Livingston meets the definition of Disadvantaged in 2021.

The affordability test is shown in **Table 13**. Under the calculated water rates for August 2021, a household using less than 25,000 gallons in a month would pay \$31.95, which is 0.70% of the estimated MHI for Livingston. The proposed water rates are, per the SWRCB definitions, affordable.

Table 13
Test of Water Bill Affordability

Item	Current Rates	Aug-21 [1]
Monthly Water Bill		
Monthly Median Household Income (MHI)	\$4,573.83	\$4,573.83
Monthly Water Bill < 25,000 Gallons	\$28.18	\$31.95
Average Monthly Water Bill as Percentage of MHI [2]	0.62%	0.70%
Median Household Income (MHI)		
Statewide California	\$75,235	
Estimated Livingston [3]	\$54,886	
Livingston MHI as a percentage of the State MHI [4]	73.0%	

Source: HEC, State Water Resources Control Board, and US Census Bureau.

aff

[1] Bills must be greater than or equal to 1.5% of MHI to qualify for Disadvantaged principal forgiveness

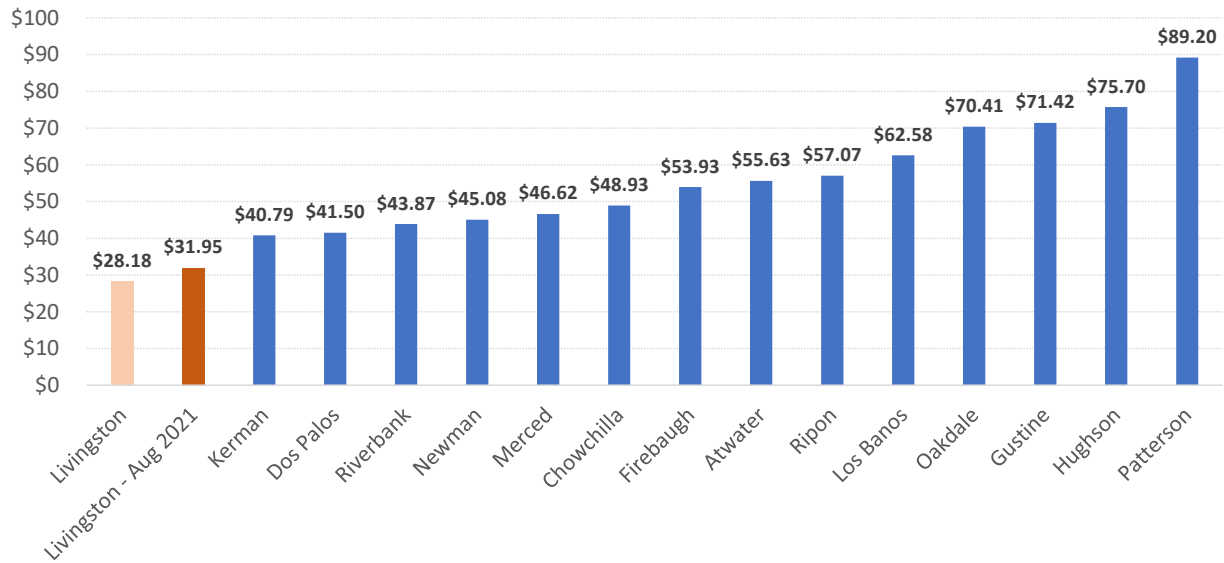
[2] Water bills that are 1.5% to 2.0% of MHI are considered affordable.

[3] 2019 5-year American Community Survey.

[4] Per SWRCB, community with an MHI <80% of the Statewide MHI is Disadvantaged. For a Disadvantaged Community to qualify for grant funding water rates must exceed 1.5% of the service area MHI.

Figure 12 on the next page displays a comparison of regional water bills for a single-family home with a one-inch water meter using 20,000 gallons in a month. Note, however, that some of the comparison cities may be in the process of rate increases as well; this is a snapshot in time.

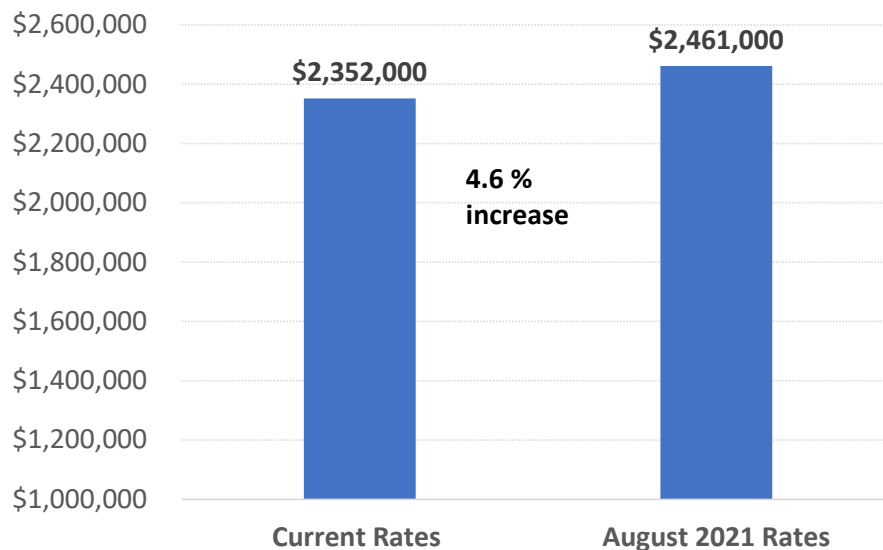
Figure 12
Comparison of Regional Water Bills



2.5.2. Non-Residential Bill Impacts

The estimated financial effect of the August 2021 rate increase on the City’s largest nonresidential customer, Foster Farms, is shown in **Figure 13** below. The total annual bill would increase from approximately \$2.35 million to \$2.46 million, depending on actual water consumption.

Figure 13
Impact of Year 1 Rate Increase on Foster Farms



Section 3: WASTEWATER RATE STUDY

The wastewater rate study was prepared using the principles established by the WEF Manual of Practice No. 27 and guidelines prepared by the SWRCB for State Revolving Fund financing. This study uses the functional cost allocation methodology to determine rates³.

The following four steps outline how wastewater rates are calculated such that the monthly wastewater rates meet California's legal requirements.

- 1. Establish the Wastewater Customer Base and User Characteristics** – Wastewater flow and strength data for each customer type is based on City flow measurements and industry standards.
- 2. Project the Revenue Requirement and Allocate to Collection and Treatment** – The revenue requirement analysis compares the revenues of the utility to its operating and capital costs to determine the adequacy of existing rates to recover the utility's costs. Components of revenue requirement include capital improvement costs, system rehabilitation costs, operations and maintenance costs, debt service costs, and operating reserve costs. Non-rate revenue credited against the projected costs include interest income, fines and forfeits, and miscellaneous revenues.
- 3. Allocate Revenue Requirement based on Flow and Strength and Determine Unit Costs** – The revenue requirement is allocated based on flow and strength depending on the percentage distribution of operations and maintenance operations attributed to flow, biological oxygen demand (BOD),⁴ and total suspended solids (SS).⁵ Per unit revenue requirement for each projected year is determined by dividing the allocated revenue requirement by the demand for each customer type.
- 4. Determine Revenue Requirement by Customer Type** – Per unit costs from step 3 are multiplied by the flow and strength characteristics of each customer category to determine the annual cost by customer type.

3.1 THE WASTEWATER FUND AND ITS CUSTOMERS

3.1.1 Revenues.

The wastewater system is funded through monthly charges, fees, and investment earnings. The existing wastewater rate schedule of monthly charges is shown in **Table 14**.

³ Chapter 6, pages 110-120, Financing and Charges for Wastewater Systems, Manual of Practice No. 27.

⁴ BOD demand is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample at certain temperature over a specific time period. The term also refers to a chemical procedure for determining this amount.

⁵ Total SS is a measure of the combined content of all inorganic and organic substances contained in a liquid in molecular, ionized or micro-granular (colloidal sol) suspended form.

Table 14
Current Wastewater Rates Schedule

Customer Category		Monthly Rates
Flat Monthly Charges		
Residential Inside City	per unit	\$43.84
Residential Outside City	per unit	\$65.76
Churches/Temples/Comm. Ctrs	per account	\$42.28
Schools (with Cafeteria)	per student	\$1.46
Hotel / Motel	per room	\$17.22
Flat and Variable Monthly Charges		
Industrial Flat Charge	per account	\$43.84
Commercial Flat Charge	per account	\$43.84
Industrial Variable Charge	per gallon	\$0.010417
Commercial Variable Charge	per gallon	\$0.003837

Source: HEC.

curr

Flat monthly charges are paid by residential, church/temple/community center, school and hotel/motel customers. Industrial and commercial customers pay a flat monthly charge plus a use charge. The use charge is applied to water meter monthly readings for industrial and commercial customers.

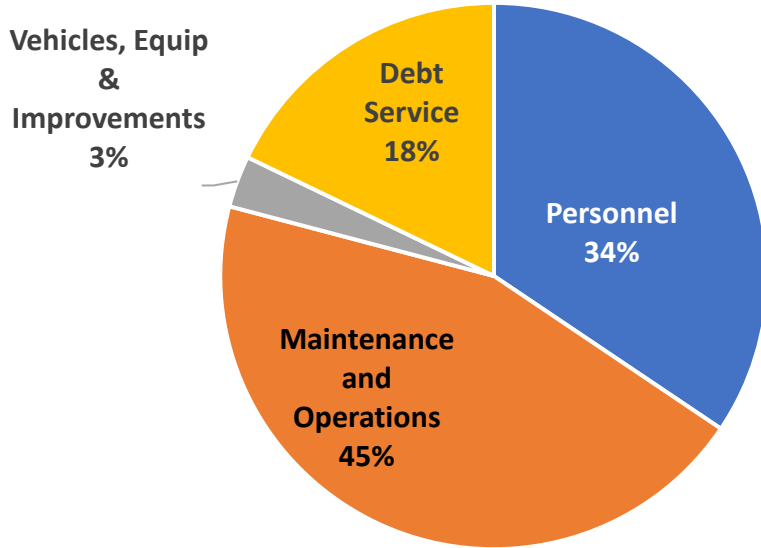
Flat monthly charges are applied to residential users per unit, to churches/temples/community centers, industrial and commercial customers per account, to schools per student, and to hotels/motels per room.

Wastewater fund revenues for the past four years are provided in **Appendix B Table B-1**.

3.1.2 Expenses.

Monthly wastewater bills pay for operating costs, including personnel costs, debt service, and vehicles, equipment and infrastructure replacement and improvements. **Figure 14** on the next page shows what monthly bills pay for. Wastewater fund expenses for the past four years are provided in **Appendix B Table B-2**.

Figure 14
Wastewater Fund Annual Expenses



For the last four years, the wastewater fund has generated sufficient revenues to pay for the costs of the wastewater system. **Table 15** on the next page shows that revenues in fiscal year 2020 were just over \$2.22 million, while expenses were approximately \$1.95 million.

Table 15
Historical Wastewater Fund Revenues and Expenses

Revenues and Expenses	Fiscal Year Ending			
	2017	2018	2019	2020
Revenues				
Intergovernmental	\$0	\$13,230	(\$3,035)	\$0
Charges for Services	\$2,038,750	\$2,078,675	\$2,198,789	\$2,143,698
Fines & Forfeits	\$24,803	\$28,702	\$22,417	\$18,098
Return on Use of Money/Property	\$16,694	\$20,976	\$25,481	\$38,412
Miscellaneous	\$10,988	\$41,847	\$66,466	\$22,752
Total Revenues	\$2,091,235	\$2,183,429	\$2,310,119	\$2,222,959
Expenses				
Personnel	\$422,346	\$543,621	\$598,896	\$724,942
Supplies	\$978,618	\$618,001	\$665,647	\$697,970
Maintenance and Operations	\$3,856	\$2,741	\$2,458	\$888
Vehicles, Equip & Improvements	\$42,348	\$64,278	\$21,381	\$74,769
Debt Service	\$247,046	\$271,950	\$214,279	\$453,000
Total Expenses	\$1,694,213	\$1,500,591	\$1,502,660	\$1,951,569
Net Revenue	\$397,022	\$682,838	\$807,458	\$271,390

Source: City of Livingston financial documents.

net

RATE METHODOLOGY STEP 1

Establish the Wastewater Customer Base and User Characteristics

Figure 15 on the next page shows the percentage of wastewater customers by customer category. Residential customers comprise 95% of the wastewater system customer base. Commercial, light industrial and other customers (such as churches and schools) comprise the remaining 5% of the customer base. The current number of wastewater accounts by customer category is provided in **Appendix B Table B-3**.

The wastewater customers generate, on average, 1.20 million gallons per day in flow that is treated at the wastewater treatment plant. Historical wastewater plant influent flow is shown in **Appendix B Table B-4**.

Figure 16 on the next page shows wastewater flows to the treatment plant for the last five years. Wastewater flows fluctuate from year to year with changes to the customer base and quantity of water consumed (that is not applied to landscapes).

Figure 15
Wastewater Customers by Category

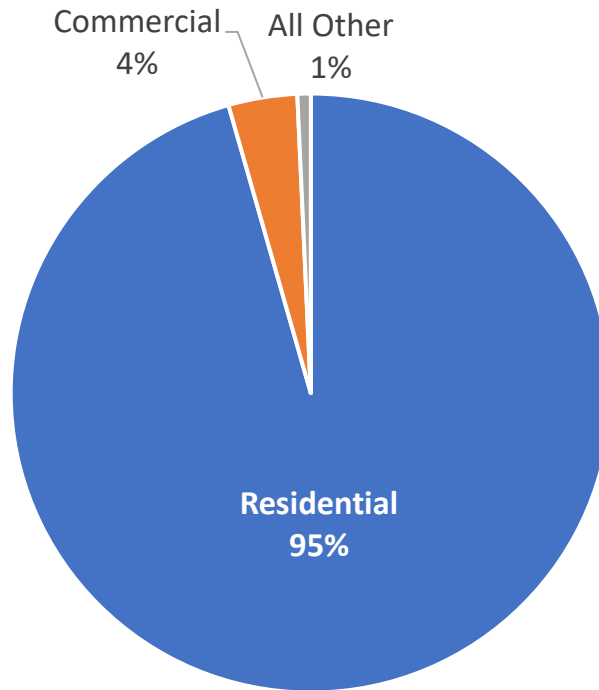
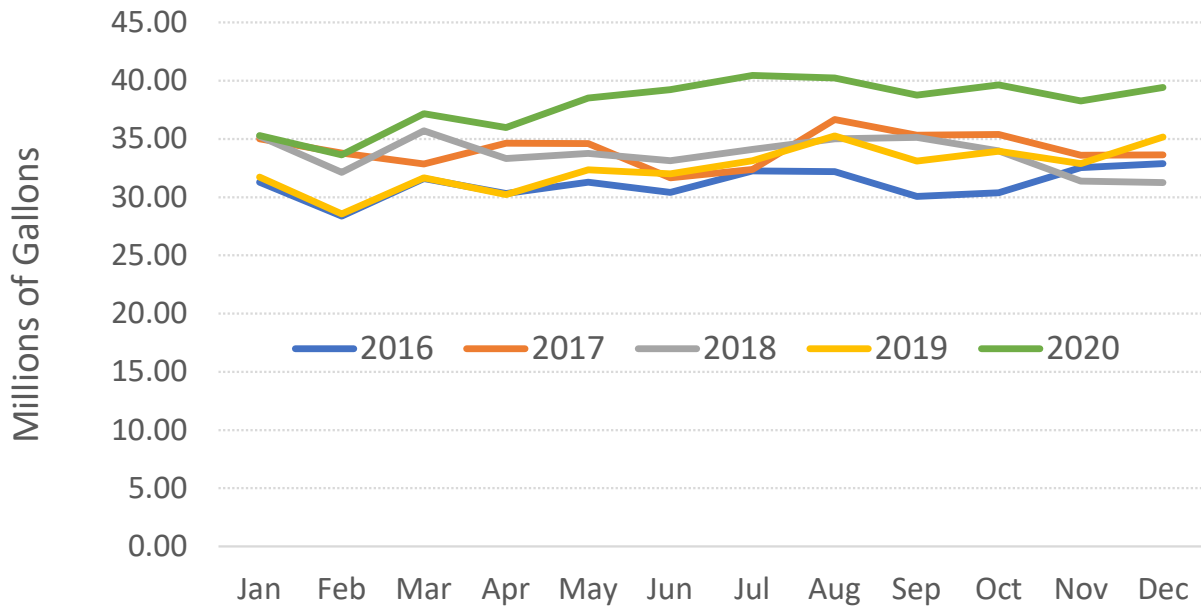


Figure 16
Wastewater Flow for the Last Five Years



The rate study allocates wastewater system costs to customer groups based on their user characteristics. The current number of wastewater customers and total calculated flow for each customer and customer category, BOD, and SS characteristics are summarized in **Table 16** on the following page.

About 80% of total annual flow is generated by residential customers and 20% by non-residential customers. Residential customers generate approximately 65% of the BOD and SS treated annually at the wastewater treatment plant. Generally, non-residential customers generate dirtier wastewater that requires greater costs to clean.

3.2 REVENUE REQUIREMENT

RATE METHODOLOGY STEP 2

Project the Revenue Requirement and Allocate to Collection and Treatment Costs

The revenue requirement is the amount to be raised by wastewater charges. The projection of the revenue requirement is the cornerstone for calculation of rates. This section explains the derivation of the revenue requirement for this Study.

Components of the revenue requirement include:

- Operating Expenses
- Capital Improvement and Debt Service
- System Rehabilitation

Non-wastewater sales revenue projections are credited against projected operations costs. Non-wastewater sales include interest income, fines and forfeits, and other miscellaneous revenues.

3.2.1 Operations Expenses

Operating expenses are projected based on budgeted fiscal year 2021 expenditures. Operating expenses include annual costs for personnel (including benefits), professional and contract services, treatment plant operations and maintenance, collection system and other wastewater facilities operations and maintenance, utilities, facilities equipment and other costs, and tools, subscriptions, and supplies. Operating expenses are budgeted at \$1.58 million in fiscal year 2021. The rate study increases each of the operating cost categories over the next five years in anticipation of cost increases.

Personnel costs are increased 6.0% per year, utilities at 4.0% per year, and other costs between 2.5% and 3.5% per year. The projected operating costs include two new staff positions: half of the costs of a new Water/Wastewater Manager, as well as one-third of the costs of a new Account Clerk. The costs of these positions are shared with the wastewater fund and the wastewater fund and solid waste fund, respectively.

**Table 16
Wastewater User Characteristics**

Customer Category	Billing Basis	No. Billing Units (A)	Wastewater Characteristics				Treatment Capacity/Load				Annual Capacity/Load					
			Flow GPD (B)	BOD MG/L (C)	SS MG/L (D)	Avg. Day Dry Weather Flow (MGD) (E)=A*(B)/1000000	BOD Lbs/Day (F)=C*(E)*8.34	SS Lbs/Day (G)=D*(E)*8.34	Flow MG (H)=E)*365	BOD Lbs/Year (I)=(C)*(H)*8.34	SS Lbs/Year (J)=(D)*(H)*8.34					
Residential																
Detached	Unit	3,341	250	250	250	0.84	1,741.50	1,741.50	304.9	635,646	635,646	89,405	89,405	635,646	89,405	
Attached	Unit	534	220	250	250	0.12	244.95	244.95	42.9	89,405	89,405	89,405	89,405	89,405	89,405	
Non-Residential																
Churches/Temples/Comm.Ctrs.	Account	16	280	155	170	0.00	5.79	6.35	1.6	2,318	2,318	2,318	2,318	2,318	2,318	
Schools (with cafeteria)	Student	3,723	20	230	165	0.07	142.83	102.46	13.4	25,709	18,444	25,709	18,444	25,709	18,444	
Hotel/Motel	Room	93	85	350	500	0.01	23.07	32.96	2.9	8,422	12,032	8,422	12,032	8,422	12,032	
Light Industrial	Account	1	51,110	1,000	800	0.05	426.26	341.01	18.7	155,584	124,467	155,584	124,467	155,584	124,467	
Commercial	Account	131	825	525	650	0.11	473.21	585.87	39.4	172,720	213,844	172,720	213,844	172,720	213,844	
TOTAL						1.20	3,057.60	3,055.10	423.8	1,089,601	1,096,157	1,089,601	1,096,157	1,089,601	1,096,157	

Source: City of Livingston customer records, and HEC.

char

3.2.2 Capital Improvements and Debt Service

Anticipated capital improvement expenses over the next five years include upgrades of the biosolids dewatering equipment at the treatment plant, as well as replacement of the SCADA tower. The collection system improvements include lift station rehabilitation, sewer line replacement, and vehicles. The CIP was provided in 2020/21 dollars (see **Appendix Table B-5**) and inflated to future dollars as shown in **Table 17**.

Table 17
Inflated Wastewater CIP

Capital Project	Funding Source	Fiscal Year Ending					
		2021	2022	2023	2024	2025	2026
Treatment Plant				3.5%			
Biosolids Dewatering Equipment	Rates	\$0	\$310,500	\$214,245	\$0	\$0	\$0
SCADA Tower	Rates	\$0	\$15,525	\$0	\$0	\$0	\$0
Total Treatment Plant		\$0	\$326,025	\$214,245	\$0	\$0	\$0
Collection System							
Lift Station Rehabilitation (Singh & Burgandy)	Rates	\$0	\$103,500	\$107,123	\$0	\$0	\$0
Sewer Line Replacement [1]	Grant	\$3,050,000	\$0	\$0	\$0	\$0	\$0
Additional Sewer Line Replacement	Rates	\$0	\$0	\$353,504	\$554,359	\$745,890	\$831,380
New Disc & Ripper Tractor	Rates	\$0	\$222,525	\$0	\$0	\$0	\$0
New Vac-On Sewer Truck	Rates	\$0	\$0	\$0	\$388,051	\$0	\$0
Total Collection System		\$3,050,000	\$326,025	\$460,627	\$942,410	\$745,890	\$831,380
Total Wastewater System		\$6,896,602	\$3,050,000	\$652,050	\$674,872	\$942,410	\$831,380
Funded by Grants		\$3,050,000	\$3,050,000	\$0	\$0	\$0	\$0
Funded by Rates		\$3,846,602	\$0	\$652,050	\$674,872	\$942,410	\$831,380
Funded by Loan		\$0	\$0	\$0	\$0	\$0	\$0

Source: City of Livingston Public Works January 2021.

inf cip

[1] The City has secured CDBG grant funding for this project.

Of the total \$6.90 million in the CIP, the City anticipates \$3.05 million will be funded by a Community Development Block Grant. The remaining \$3.85 million would be funded by wastewater rates and the projects would be funded on a pay-as-you-go basis.

No new debt is anticipated to be necessary over the next five years; however, the City does have existing wastewater system debt. The debt was refunded in 2016 with savings to the wastewater customers. The remaining debt payments are provided in **Appendix B Table B-6**. Debt service is about \$450,000 per year.

3.2.3 System Rehabilitation

All of the capital improvement plan is for system rehabilitation. As such, there is no additional collection included in the rates for depreciation. The City's current wastewater assets and estimated annual depreciation cost through the study period is provided in **Appendix B Table B-7** (with support **Table B-8**).

The projected revenue requirement is provided in **Table 18**. Included in the projection is an adjustment to allow for variances from year to year for non-residential use as well as delinquencies. The revenue requirement is projected to increase from \$1.81 million in fiscal year 2019 to \$3.04 million in fiscal year 2025. Currently, the City raises \$2.20 million in user fees. The rate study smooths out rate increases each year so that the amount to be collected from rates increases to \$2.78 million in 2022 and \$3.36 million in 2026.

Table 18
Projected Revenue Requirement for Wastewater

Expenses	inflatior	Fiscal Year Ending					
		2021	2022	2023	2024	2025	2026
			Year 1	Year 2	Year 3	Year 4	Year 5
Operating Expenses							
Personnel	6.0%	\$718,293	\$761,390	\$807,074	\$855,498	\$906,828	\$961,237
New Personnel [1]	6.0%	\$0	\$76,100	\$80,666	\$85,506	\$90,636	\$96,074
Professional & Contract Services	3.0%	\$134,822	\$138,867	\$143,033	\$147,324	\$151,743	\$156,296
Treatment Plant O&M	3.5%	\$50,000	\$51,750	\$53,561	\$55,436	\$57,376	\$59,384
Collection & Facilities O&M	3.5%	\$60,000	\$62,100	\$64,274	\$66,523	\$68,851	\$71,261
Utilities	4.0%	\$258,900	\$269,256	\$280,026	\$291,227	\$302,876	\$314,991
Facilities, Equipment & Other O&M	3.5%	\$115,000	\$119,025	\$123,191	\$127,503	\$131,965	\$136,584
Tools, Subscriptions, Supplies	2.5%	\$242,180	\$248,235	\$254,440	\$260,801	\$267,321	\$274,004
Total Operating Expenses		\$1,579,195	\$1,726,722	\$1,806,264	\$1,889,818	\$1,977,598	\$2,069,833
Debt Service							
Series 2016A Refunding		\$448,650	\$445,850	\$447,850	\$449,450	\$450,650	\$451,450
New Debt Service		\$0	\$0	\$0	\$0	\$0	\$0
Total Debt Service		\$448,650	\$445,850	\$447,850	\$449,450	\$450,650	\$451,450
System Rehabilitation and New Projects							
Equipment & Vehicle Purchases	constant	\$194,204	\$272,525	\$50,000	\$438,051	\$50,000	\$50,000
Cash-Funded Capital Projects		\$0	\$429,525	\$674,872	\$554,359	\$745,890	\$831,380
Subtotal System Rehab. And New Projects		\$194,204	\$702,050	\$724,872	\$992,410	\$795,890	\$881,380
Additional Collection for Depreciation			\$0	\$0	\$0	\$0	\$0
Total Costs		\$2,222,049	\$2,874,622	\$2,978,986	\$3,331,678	\$3,224,138	\$3,402,663
<i>Fixed</i>	70%	\$1,471,147	\$2,099,240	\$2,178,296	\$2,504,823	\$2,370,232	\$2,520,788
<i>Variable</i>	30%	\$750,902	\$775,382	\$800,690	\$826,855	\$853,906	\$881,875
Credits							
Intergovernmental	[2]	\$0	\$0	\$0	\$0	\$0	\$0
WWTP Solar Installation Utility Savings		\$0	\$0	\$0	\$0	\$0	\$0
Charges for Services	[2]	\$0	\$0	\$0	\$0	\$0	\$0
Fines & Forfeits	constant	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900
Return on Use of Money	constant	\$14,470	\$14,470	\$14,470	\$14,470	\$14,470	\$14,470
Miscellaneous	constant	\$4,550	\$4,550	\$4,550	\$4,550	\$4,550	\$4,550
Total Credits		\$52,920	\$52,920	\$52,920	\$52,920	\$52,920	\$52,920
Total Revenue Requirement		\$2,169,129	\$2,821,702	\$2,926,066	\$3,278,758	\$3,171,218	\$3,349,743
Addition/Draw on Operating Reserve			(\$41,702)	(\$11,066)	(\$78,758)	\$78,782	\$10,257
Amount to be Collected through Rates		\$2,220,000	\$2,780,000	\$2,915,000	\$3,200,000	\$3,250,000	\$3,360,000

Source: City of Livingston Financial documents, and HEC.

rev req

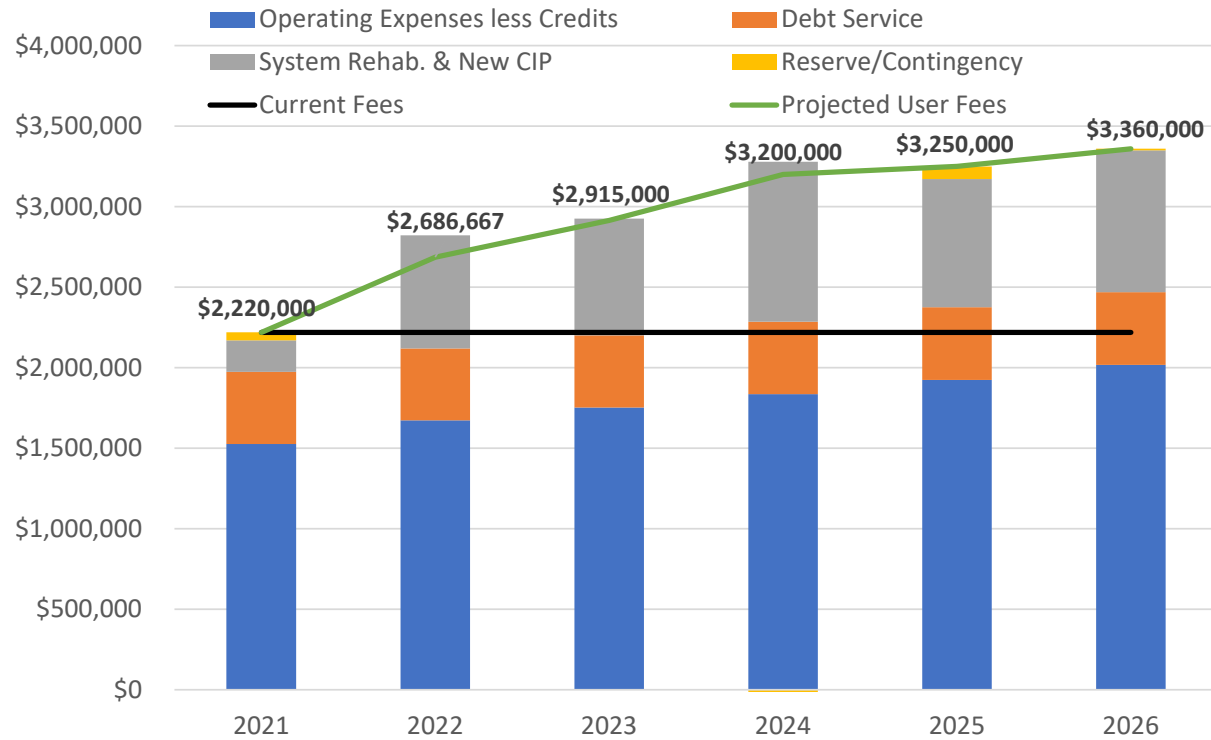
[1] Includes the sewer fund's portion of two new positions: water/wastewater manager and account clerk.

[2] Infrequent, one-time revenues.

[3] Includes allowance for variances year to year for non-residential use as well as delinquencies.

Figure 17 below shows the current fee collections, projected fee collections and components of revenue requirement for the next five years.

Figure 17
Projected Revenue Requirement and Fee Collections



3.3 WASTEWATER RATE CALCULATIONS

All of the tables in this section show the calculations for the first year of the analysis, fiscal year 2021-22 to illustrate how the rates are calculated. The same cost allocation methodology is used for all years considered in this analysis.

RATE METHODOLOGY STEP 3

Allocate Revenue Requirement based on Flow and Strength and Determine Unit Costs

The cost to treat wastewater is a function of the total volume (“flow”) and the level of pollutants (“strength”) of the wastewater discharged by a customer.

Costs are allocated to customer categories as follows:

- A. Allocate the costs (by Cost Category) to flow, BOD and SS
- B. Determine the Unit Cost by Cost Category

Each of these steps is described in greater detail below.

A. Cost Allocation to Flow, BOD, and SS

Costs are first allocated between treatment and collection functions of the wastewater system, as shown in **Table B-9**. Then, costs are allocated to flow, BOD, and SS based on percentage allocation or distribution factors. These percentage allocation factors are based on the estimated distribution of the treatment and collection facilities operations and maintenance (O&M) activities between or related to flow, BOD, and SS.

B. Unit Cost by Cost Category

The allocated costs are then divided by total annual capacity from **Table 16**. **Table B-10** in Appendix B shows the calculation of unit costs by cost category for flow, BOD, and SS. Collection costs are strictly related to flow and therefore 100 percent of the collection costs are allocated to flow. The offsetting revenues are allocated by cost category for flow, BOD and SS using the subtotal percentages from the collection and treatment cost allocations.

RATE METHODOLOGY STEP 4

Determine Revenue Requirement by Customer Type

The unit costs determined in **Table B-10** are multiplied by the flow, BOD, or SS for each customer type. These costs are then summed to determine the total costs allocated to each customer type. **Table B-11** in Appendix B shows the cost allocated to flow, BOD, and SS by customer category for fiscal year ending 2020.

Treatment Cost per Thousand Gallons

Total allocated costs to each customer category are shown in **Appendix B Table B-12**. Residential customers are responsible for 77% of the total costs. Commercial customers are responsible for 12% of the cost, and all other customer categories are responsible for 11% of the total cost. Total treatment cost per thousand gallons is greatest for the highest strength customers (which are in the light industrial customer category) and lowest for churches/temples/community centers, which have the lowest strength wastewater. This is illustrated in **Figure 18**.

Figure 18
Calculated Cost per Thousand Gallons

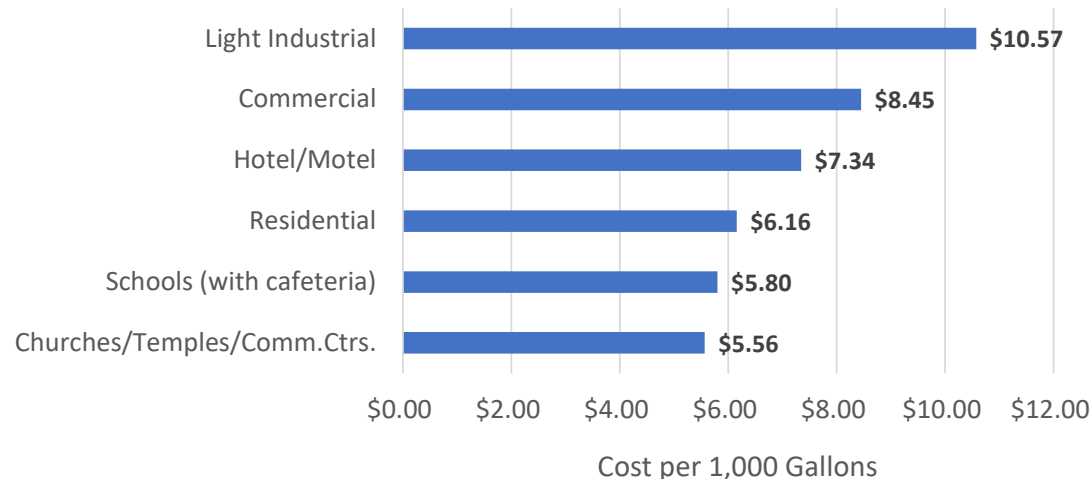


Table 19 on the following page presents the calculated rates for fiscal year ending 2022. The total allocated costs to each customer category provide the basis for the rates. All residential customers will pay for wastewater on a per unit basis. Schools will pay per student. Hotels/motels will pay monthly rates per room. Commercial wastewater customers will pay a flat monthly charge per account and flow charges based on their metered potable water use each month. Light industrial users will pay a flat monthly charge per account and flow charges based on their metered potable water use each month.

Table 20 shows the calculated rates for the next five years. The rates take into account anticipated additional growth within the City (shown in **Appendix B Table B-13**). Since 2014, the City has experienced growth in the number of commercial customers and types of commercial customer. The shift in the customer base, as well as updated cost allocation factors used in the rate calculations, results in some customers having proportionately greater increases than others.

Table 20
Calculated Wastewater Rates

Customer Category	Billing Basis	Current	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26
	<i>New Rates on Bills -----></i>		<i>Aug-21</i>	<i>Jul-22</i>	<i>Jul-23</i>	<i>Jul-24</i>	<i>Jul-25</i>
Residential	per unit	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Non-Residential							
Churches/Temples/Comm.Ctrs.	per account	\$42.28	\$47.39	\$49.14	\$53.35	\$53.59	\$54.78
Schools (with cafeteria)	per student	\$1.46	\$1.74	\$1.81	\$1.96	\$1.97	\$2.01
Hotel/Motel	per room	\$17.22	\$18.99	\$19.70	\$21.38	\$21.48	\$21.96
Light Industrial (Base)	per account	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Commercial (Base)	per account	\$43.84	\$46.05	\$47.76	\$51.86	\$52.09	\$53.25
Variable Charges for Non-Residential Only							
Light Industrial	per gallon	\$0.010417	\$0.010023	\$0.010397	\$0.011291	\$0.011343	\$0.011599
Commercial	per gallon	\$0.003837	\$0.005783	\$0.006090	\$0.006712	\$0.006843	\$0.007099

Source: 2021 HEC rate study.

sum

Table 19
Calculated Rates by Customer Category – Fiscal Year 2022

Customer Category	Billing Basis	No. Billing Units	Allocated Cost	Base 70%	Flow 30%	Annual Cost per Billing Unit		Monthly Cost	
						Base	Flow	Base	Use
Residential	Unit	3,875	\$2,141,452	\$1,499,017	\$642,436	\$386.84	\$165.79	\$552.63	\$46.05
Non-Residential									
Churches/Temples/Comm.Ctrs.	Account	16	\$9,098	\$6,369	\$2,729	\$398.04	\$170.59	\$568.63	\$47.39
Schools (with cafeteria)	Student	3,723	\$77,768	\$54,437	\$23,330	\$14.62	\$6.27	\$20.89	\$1.74
Hotel/Motel	Room	93	\$21,192	\$14,834	\$6,357	\$159.51	\$68.36	\$227.87	\$18.99
Light Industrial [1]	Account	1	\$197,238	\$553	\$196,685	\$552.63	\$552.63	\$552.63	\$46.05
Commercial [1]	Account	131	\$333,253	\$72,395	\$260,858	\$552.63	\$552.63	\$552.63	\$46.05
TOTAL			\$2,780,000	\$1,647,604	\$1,132,396				

Source: 2021 HEC wastewater rate study. calc

[1] Costs are allocated based on estimated sewer flow; however, the rates are calculated based on total water use in 2019 and 2020 shown below.

Light Industrial (laundromat)	19,624,000 gallons
Commercial Customers	45,111,200 gallons (provides for a 20% variance)

3.4 CASH FLOW AND FUND BALANCE

The projected cash flow, with revenues that are based on the calculated wastewater rates presented in **Table 20**, is shown in **Table 21**.

Table 21
Projected Cash Flow for the Wastewater Fund

Revenues and Expenses	Fiscal Year Ending					
	2021	2022	2023	2024	2025	2026
	<i>New Rates on Bills -----></i>	<i>Aug-21</i>	<i>Jul-22</i>	<i>Jul-23</i>	<i>Jul-24</i>	<i>Jul-25</i>
Revenues						
User Fees	\$2,220,000	\$2,686,667	\$2,915,000	\$3,200,000	\$3,250,000	\$3,360,000
Fines & Forfeits	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900
Return on Use of Money	\$14,470	\$14,470	\$14,470	\$14,470	\$14,470	\$14,470
Miscellaneous	\$4,550	\$4,550	\$4,550	\$4,550	\$4,550	\$4,550
Subtotal Revenues	\$2,272,920	\$2,739,587	\$2,967,920	\$3,252,920	\$3,302,920	\$3,412,920
Operating Expenses	\$1,579,195	\$1,726,722	\$1,806,264	\$1,889,818	\$1,977,598	\$2,069,833
Net Income before Debt Service	\$693,725	\$1,012,864	\$1,161,656	\$1,363,102	\$1,325,322	\$1,343,087
Debt Service	\$448,650	\$445,850	\$447,850	\$449,450	\$450,650	\$451,450
<i>Debt Service Coverage</i>	<i>1.55</i>	<i>2.27</i>	<i>2.59</i>	<i>3.03</i>	<i>2.94</i>	<i>2.98</i>
Net Revenue	\$245,075	\$567,014	\$713,806	\$913,652	\$874,672	\$891,637
Beginning Balance [1]	\$1,272,837	\$1,323,708	\$1,188,673	\$1,177,607	\$1,098,849	\$1,177,631
Net Revenue	\$245,075	\$567,014	\$713,806	\$913,652	\$874,672	\$891,637
Capital Improvements	(\$194,204)	(\$702,050)	(\$724,872)	(\$992,410)	(\$795,890)	(\$881,380)
Ending Balance	\$1,323,708	\$1,188,673	\$1,177,607	\$1,098,849	\$1,177,631	\$1,187,888
Restricted Cash	\$451,850	\$451,850	\$451,850	\$451,850	\$451,850	\$451,850
Est. Ending Unrestricted Cash Balance	\$871,858	\$736,823	\$725,757	\$646,999	\$725,781	\$736,038
Target Ending Balance [2]	\$526,398	\$575,574	\$602,088	\$629,939	\$659,199	\$689,944

Source: City of Livingston financial documents and HEC.

flow

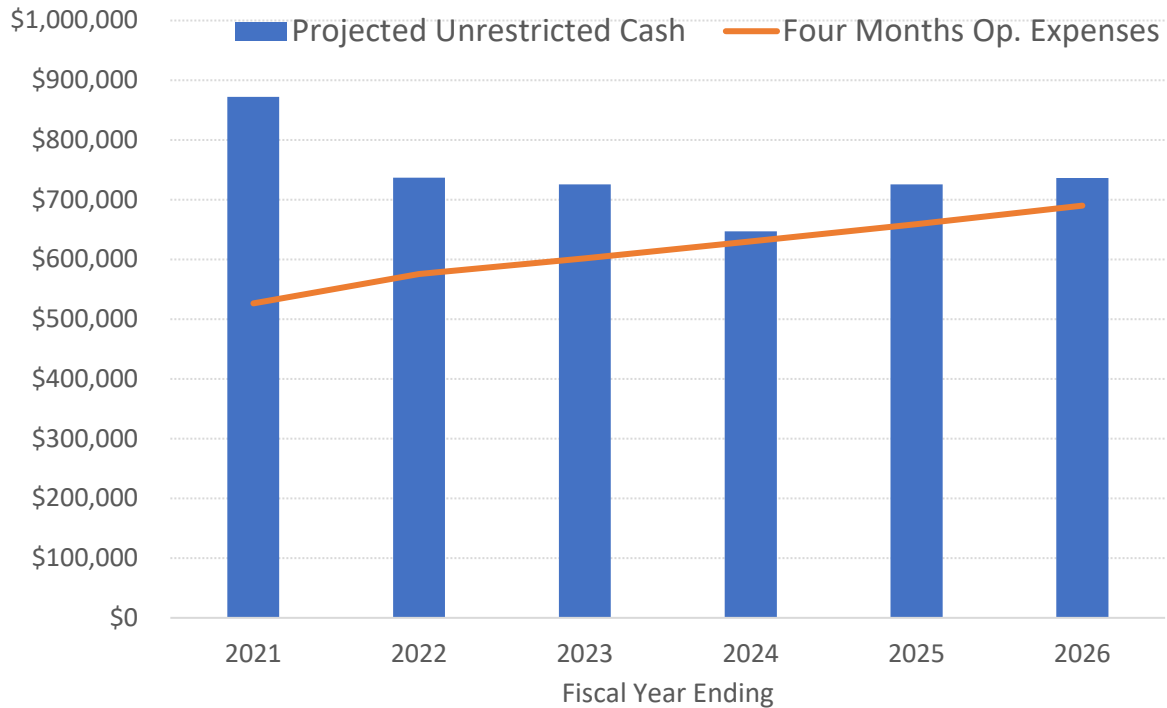
[1] Cash and investments as of July 1, 2020.

[2] Four months of operating expenses.

The projected wastewater fund ending cash balances are shown in **Figure 19** on the next page. Note that although the total cash balance is projected to be greater than illustrated, one year of debt service must be restricted making this cash unavailable for any other purpose.

The target cash balance is four months of operating expenses. If cash accumulation is greater than projected, the City would be able to accelerate sewer main replacements.

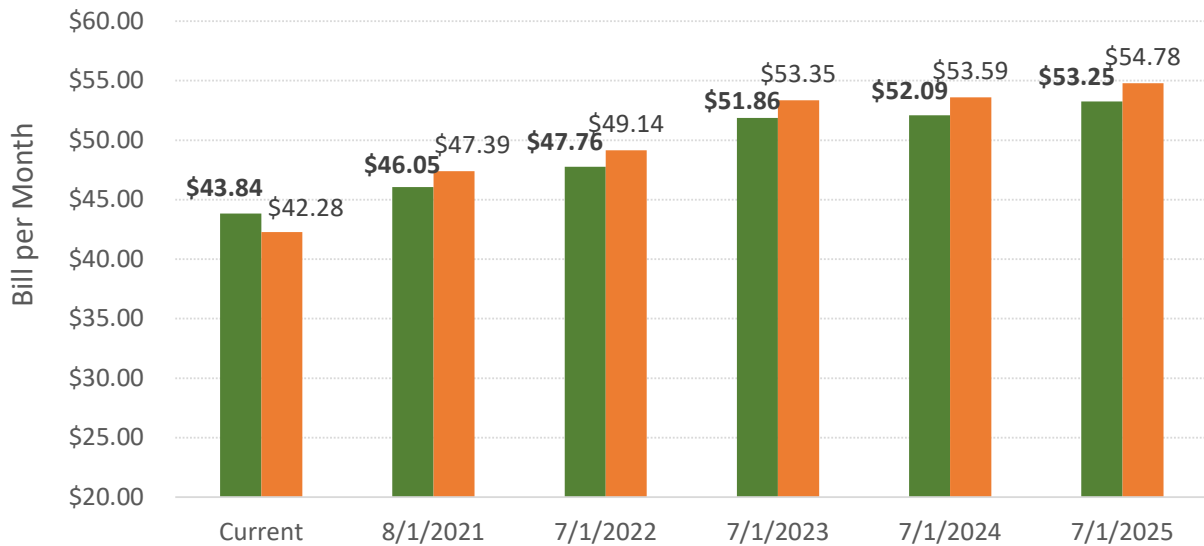
Figure 19
Projected Wastewater Cash Balance



3.5 BILL IMPACTS

Figure 20 illustrates the impact of the new rate schedule on a residential unit and a church. Currently, the monthly rate for churches is a little lower than for a residential unit but in the calculated future rates schedule the monthly charge to a church is greater than the monthly charge to a residential unit. This is because the rate study cost of service analysis assigns greater cost to the churches category in 2021 than it did in 2014. The cost allocation methodology for assigning costs to churches, and all customer categories, was updated following a review of BOD and SS parameters used in fifteen other California communities since 2014.

Figure 20
Bill Impact to a Residential Unit and a Church



Residential monthly wastewater bills are compared in **Figure 21** with other regional wastewater providers. The graph shows that Livingston’s monthly wastewater bill for a home is and will remain in the middle of the range with neighboring and regional cities.

3.5.1 Affordability

The SWRCB also administers the California Clean Water SRF (CWSRF) program and evaluates the affordability of wastewater rates on the same two criteria as water rates.

As shown in **Table 22**, under the calculated wastewater rates for August 2021, a household would pay \$46.05 each month, which is 1.01 percent of the estimated median household income for Livingston. The proposed wastewater rates are, per the SWRCB definitions, affordable.

Figure 21
Comparison of Monthly Residential Wastewater Bills



Table 22
Test of Wastewater Bill Affordability

Item	Current Rates	Aug-21 [1]
Monthly Water Bill		
Monthly Median Household Income (MHI)	\$4,573.83	\$4,573.83
Monthly Wastewater Bill	\$43.84	\$46.05
Average Monthly Bill as Percentage of MHI [2]	0.96%	1.01%
Median Household Income (MHI)		
Statewide California	\$75,235	
Estimated Livingston [3]	\$54,886	
Livingston MHI as a percentage of the State MHI [4]	73.0%	

Source: HEC, State Water Resources Control Board, and US Census Bureau.

aff

[1] Bills must be greater than or equal to 1.5% of MHI to qualify for Disadvantaged principal forgiveness.

[2] Bills that are 1.5% to 2.0% of MHI are considered affordable.

[3] 2019 5-year American Community Survey.

[4] Per SWRCB, community with an MHI <80% of the Statewide MHI is Disadvantaged. For a Disadvantaged Community to qualify for principal forgiveness must exceed 1.5% of the service area MHI.

3.5.2 Non-Residential Bill Impacts

Figure 22 illustrates the annual impact of the August 2021 rate increase to a randomly selected convenience store and a randomly selected hotel. Figure 23 illustrates the annual impact of the rate increase on the Livingston Middle School and a randomly selected gas station.

Figure 22
Impacts on a Convenience Store and a Hotel

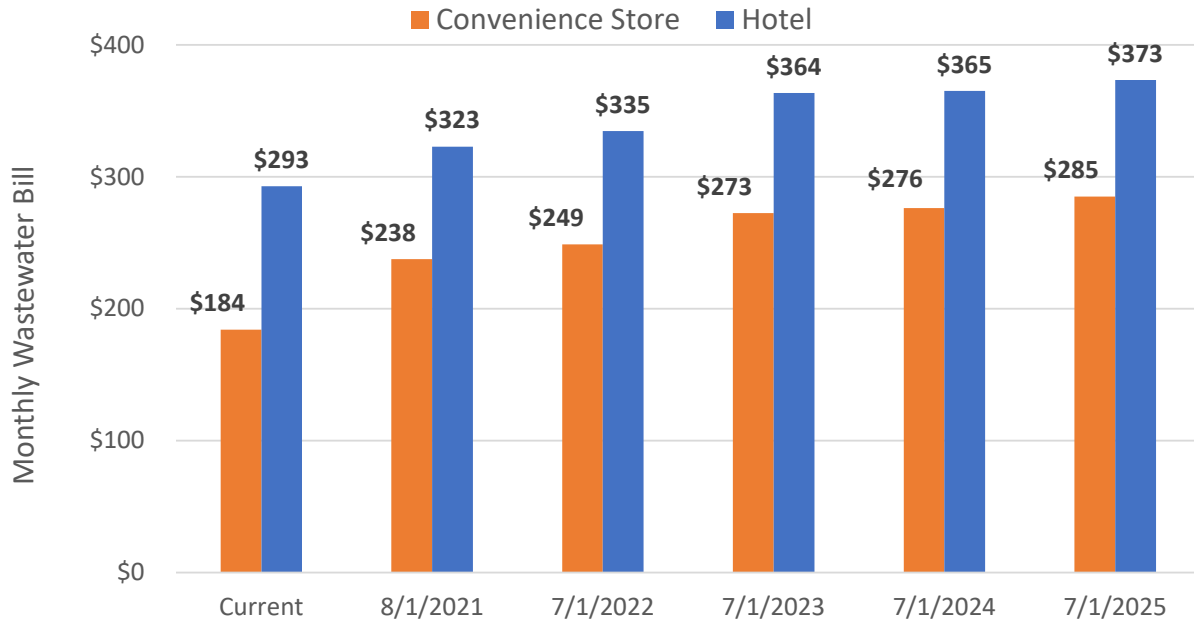
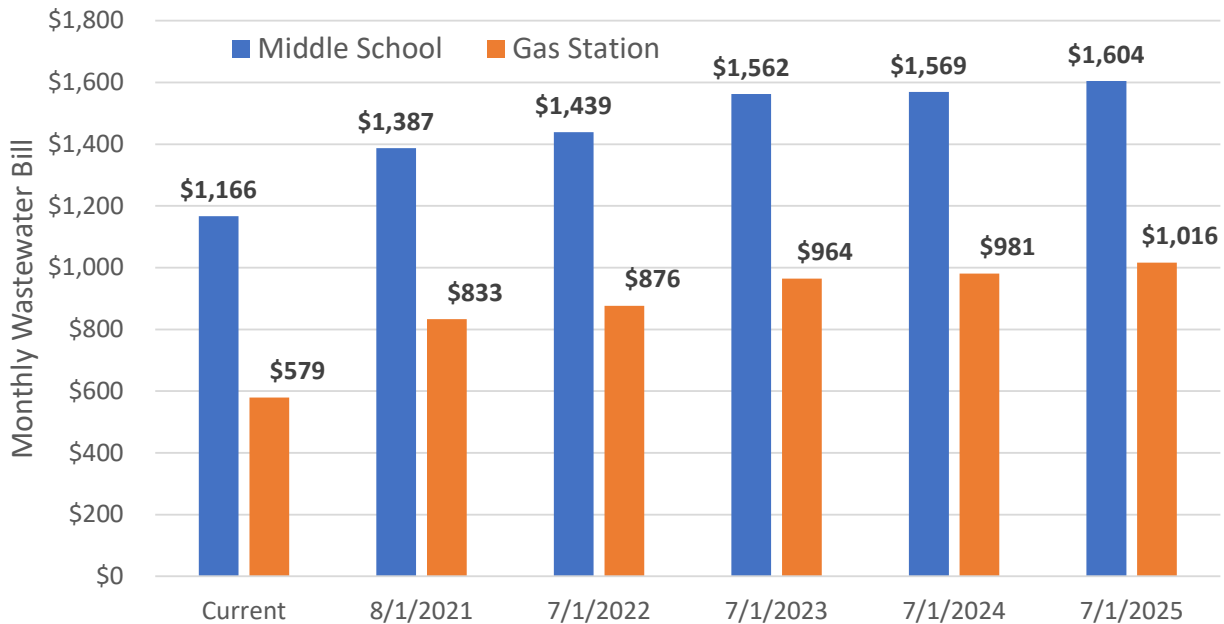


Figure 23
Impacts on a Gas Station and Livingston Middle School



Section 4: SOLID WASTE RATE STUDY

Solid waste service in Livingston is provided by Gilton under an exclusive solid waste collection franchise agreement. The agreement requires solid waste collection at least once a week to all residential customers and more frequently to commercial and industrial customers if needed. The solid waste is disposed at landfills in Merced County.

4.1 THE SOLID WASTE FUND AND ITS CUSTOMERS

The solid waste fund pays for the services provided by Gilton, landfill disposal costs, street sweeping (conducted by City staff, not Gilton), City staff costs to administer and manage both services, and associated City costs.

Historical sanitation fund revenues and expenses are shown in **Table 23**. The fund has been able to cover expenses for each of the past four years. Detail of revenues is provided **Appendix C Table C-1**. Detail of expenses is provided in **Table C-2**.

Table 23
Historical Sanitation Fund Revenues and Expenses

Expenses and Revenues	Fiscal Year Ending			
	2017	2018	2019	2020
	actual	actual	actual	unaudited
Revenues				
Intergovernmental	\$10,000	\$14,702	\$1,965	\$5,000
Charges for Services	\$1,371,342	\$1,386,815	\$1,417,249	\$1,473,678
Fines & Forfeitures	\$15,229	\$17,733	\$15,595	\$11,648
Return on Use of Money/Property	\$1,476	\$7,549	\$14,901	\$12,395
Miscellaneous	\$3,487	\$10,019	\$6,061	\$5,083
Subtotal Revenues	\$1,401,534	\$1,436,818	\$1,455,771	\$1,507,804
Expenses				
Personnel	\$91,307	\$180,716	\$194,064	\$233,479
Disposal Contract Services	\$907,749	\$919,518	\$997,084	\$1,059,650
Maintenance & Operations	\$97,734	\$75,308	\$91,808	\$107,103
Vehicles, Equip. Improvements	\$788	\$3,791	\$0	\$10,621
Subtotal Expenses	\$1,097,578	\$1,179,333	\$1,282,957	\$1,410,853
Net Operating Income	\$303,956	\$257,485	\$172,814	\$96,951

Source: City of Livingston financial documents.

net

Almost all of the revenues for solid waste provision are generated by monthly user rates. The current rate schedule is shown in **Table 24**. The table shows n/a for services that currently do not have any customers but that Gilton has provided the City a cost for. Current charges for service by Gilton are provided in **Appendix C Table C-3**.

Table 24
Current Sanitation Fund Rates

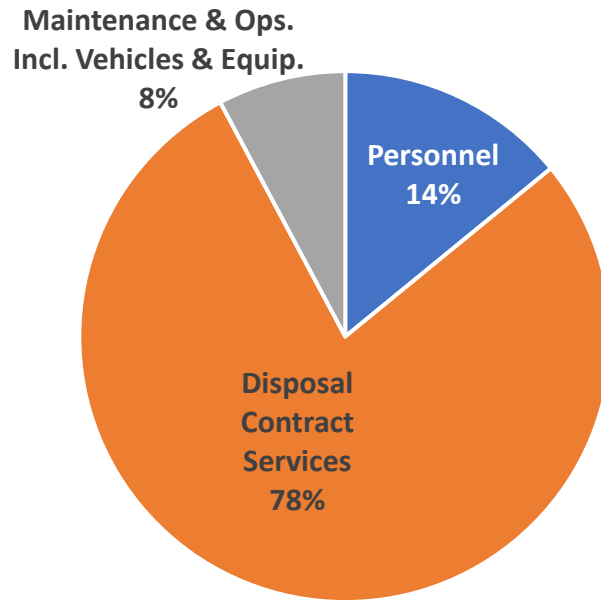
Collections per Week	Current City Rates				
	x1	x2	x3	x4	x5
Residential					
96 gal. cart	\$25.16				
Add'l cart	\$5.97				
96 gal. cart greenwaste	\$1.33				
Add'l greenwaste cart	\$5.97				
Multi-Family Residential, Commercial and Organic Services					
1 CY	\$47.36	\$93.90	n/a	n/a	n/a
2 CY	\$94.41	\$187.14	n/a	n/a	n/a
3 CY	\$139.86	\$264.56	\$398.63	n/a	n/a
4 CY	\$179.04	\$348.86	\$545.64	n/a	n/a
6 CY	\$251.71	\$490.40	\$750.40	n/a	n/a
Commercial - Compacting Bins					
3 CY	n/a	n/a	n/a	n/a	n/a
4 CY	n/a	n/a	n/a	n/a	n/a
Standard Clean, Mixed Recyclables					
4 CY	\$71.41	n/a	n/a	n/a	n/a
6 CY	\$71.41	n/a	n/a	n/a	n/a

Source: City of Livingston.

now

The majority of sanitation fund annual expenditures are for the disposal contract with Gilton. **Figure 24** shows that 78% of the total sanitation fund expenses for the last four fiscal years were for the Gilton contract.

Figure 24
Typical Annual Sanitation Fund Expenses



The City provides service to nearly 3,500 customers, of which 96% are single-family or duplex/triplex/four-plex residential. The projection of customer accounts with a 1.2% growth rate through the five-year rate period is provided in **Appendix Table C-4**.

4.2 REVENUE REQUIREMENT

The projected revenue requirement for the solid waste fund is shown in **Table 25**. The revenue requirement is projected to increase from \$1.43 million in fiscal year 2021 to \$1.88 million by fiscal year ending 2026. The rate calculations are based on the user fee increases shown at the bottom of **Table 25**.

Table 25
Projected Revenue Requirement for the Sanitation Fund

Expenses	Inflator	Fiscal Year Ending					
		2021 budget	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Operating Expenses							
Personnel	6.0%	\$248,044	\$262,927	\$278,703	\$295,425	\$313,150	\$331,939
New Personnel [1]	6.0%		\$16,900	\$17,914	\$18,989	\$20,128	\$21,336
Disposal Contract Service [2]	5.5%	\$1,052,400	\$1,110,282	\$1,171,348	\$1,235,772	\$1,303,739	\$1,375,445
Professional Services	3.0%	\$55,700	\$57,371	\$59,092	\$60,865	\$62,691	\$64,572
Computer Support Agreement	2.5%	\$25,000	\$25,625	\$26,266	\$26,922	\$27,595	\$28,285
Equipment and Repairs	3.5%	\$21,400	\$22,149	\$22,924	\$23,727	\$24,557	\$25,416
Insurance	2.5%	\$5,250	\$5,381	\$5,516	\$5,654	\$5,795	\$5,940
Supplies and Other	2.5%	\$35,140	\$36,019	\$36,919	\$37,842	\$38,788	\$39,758
Subtotal Operating Expenses		\$1,442,934	\$1,536,654	\$1,618,681	\$1,705,194	\$1,796,444	\$1,892,691
Equipment Purchase	3.5%	\$13,750	\$15,000	\$15,525	\$16,068	\$16,631	\$17,213
Estimated Annual Costs		\$1,456,684	\$1,551,654	\$1,634,206	\$1,721,263	\$1,813,074	\$1,909,903
<i>Disposal Contract Service % of Op. Costs</i>		72%	72%	72%	72%	72%	72%
Credits							
Intergovernmental	estimate	\$0	\$0	\$0	\$0	\$0	\$0
Fines & Forfeitures	3.0%	\$13,905	\$14,322	\$14,752	\$15,194	\$15,650	\$16,120
Return on Use of Money	estimate	\$5,150	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Miscellaneous	constant	\$5,150	\$5,200	\$5,200	\$5,200	\$5,200	\$5,200
Total Credits		\$24,205	\$24,522	\$24,952	\$25,394	\$25,850	\$26,320
Total Revenue Requirement		\$1,432,479	\$1,527,132	\$1,609,254	\$1,695,868	\$1,787,224	\$1,883,584
Increase in User Fees			5.50%	5.50%	5.50%	5.50%	5.50%
User Fees		\$1,426,625	\$1,505,089	\$1,587,869	\$1,675,202	\$1,767,338	\$1,864,542

Source: City of Livingston January 2021 and HEC.

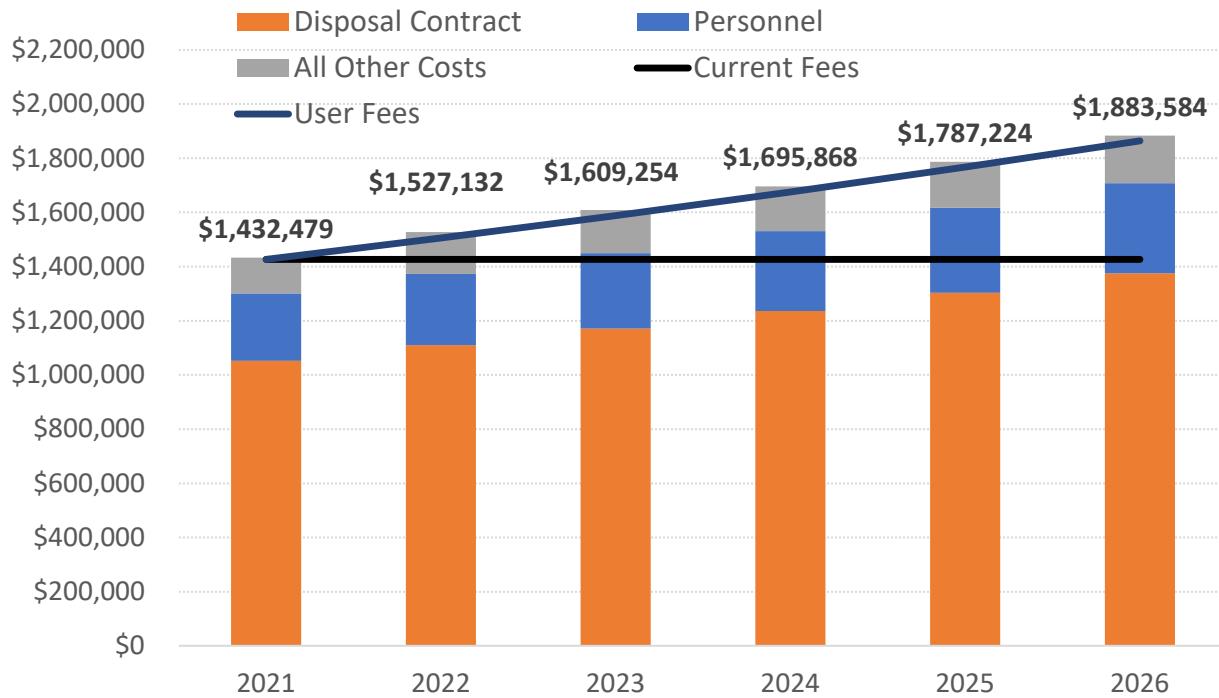
rev req

[1] Sanitation fund's portion of the cost of a new account clerk.

[2] Includes inflation in payments to Gilton, increased Merced County Regional Solid Waste Management Authority costs, and growth in number of customers.

Figure 25 on the following page illustrates the components of revenue requirement in the study period, the amount estimated to be collected in user fees, and the amount currently collected in user fees.

Figure 25
Projected Revenue Requirement and Fee Collections



4.3 SOLID WASTE RATE CALCULATIONS

The cost of service to each customer group is what the Gilton contract cost is plus additional City costs to provide sanitation and street sweeping services. Gilton contract costs are about 78% of total operating costs; however, the City should also be collecting annually for capital costs such as replacement of street sweepers and specialized equipment. In addition, the City anticipates needing additional revenue to comply with Senate Bill 1383.

The rate calculations are based on total user fees to be raised each year to provide revenue sufficiency for the sanitation fund. The calculated rates are shown in **Table 26**.

Table 26
Calculated Five-Year Solid Waste Rates

Service Type	Current	Aug-21	Jul-22	Jul-23	Jul-24	Jul-25
	<i>Rate Increase ---></i>	5.5%	5.5%	5.5%	5.5%	5.5%
<i>Rates do not include charges for special services that are scheduled between the customer and provider such as off schedule pick up, container maintenance, and delivery charges.</i>						
Single Family Residential		Once per week pickup				
96 gal. cart	\$25.16	\$26.54	\$28.00	\$29.54	\$31.17	\$32.88
Add'l cart	\$5.97	\$6.30	\$6.64	\$7.01	\$7.40	\$7.80
96 gal. cart greenwaste	\$1.33	\$1.40	\$1.48	\$1.56	\$1.65	\$1.74
Add'l greenwaste cart	\$5.97	\$6.30	\$6.64	\$7.01	\$7.40	\$7.80
Multi-Family, Commercial, and Organic		Once per week pickup				
1 cubic yard container	\$47.36	\$49.96	\$52.71	\$55.61	\$58.67	\$61.90
2 cubic yards container	\$94.41	\$99.60	\$105.08	\$110.86	\$116.96	\$123.39
3 cubic yards container	\$139.86	\$147.55	\$155.67	\$164.23	\$173.26	\$182.79
4 cubic yards container	\$179.04	\$188.89	\$199.28	\$210.24	\$221.80	\$234.00
6 cubic yards container	\$251.71	\$265.55	\$280.16	\$295.57	\$311.82	\$328.97
Recycle Bins						
4 & 6 cubic yard containers	\$71.41	\$75.34	\$79.48	\$83.85	\$88.46	\$93.33
Commercial Compacting						
3 cubic yards container	n/a	\$513.10	\$541.32	\$571.09	\$602.50	\$635.64
4 cubic yards container	n/a	\$650.83	\$686.62	\$724.39	\$764.23	\$806.26
Multi-Family, Commercial, and Organic		Twice per week pickup				
1 cubic yard container	\$93.90	\$99.06	\$104.51	\$110.26	\$116.33	\$122.72
2 cubic yards container	\$187.14	\$197.43	\$208.29	\$219.75	\$231.83	\$244.58
3 cubic yards container	\$264.56	\$279.11	\$294.46	\$310.66	\$327.74	\$345.77
4 cubic yards container	\$348.86	\$368.05	\$388.29	\$409.65	\$432.18	\$455.95
6 cubic yards container	\$490.40	\$517.37	\$545.83	\$575.85	\$607.52	\$640.93
Recycle Bins						
4 & 6 cubic yard containers	n/a	\$150.65	\$158.94	\$167.68	\$176.90	\$186.63
Commercial Compacting						
3 cubic yards container	n/a	\$988.83	\$1,043.21	\$1,100.59	\$1,161.12	\$1,224.98
4 cubic yards container	n/a	\$1,245.84	\$1,314.36	\$1,386.65	\$1,462.91	\$1,543.37
Multi-Family, Commercial, and Organic		Three times per week pickup				
1 cubic yard container	n/a	\$148.00	\$156.14	\$164.73	\$173.79	\$183.35
2 cubic yards container	n/a	\$297.64	\$314.01	\$331.28	\$349.50	\$368.72
3 cubic yards container	\$398.63	\$420.55	\$443.69	\$468.09	\$493.83	\$520.99
4 cubic yards container	\$545.64	\$575.65	\$607.31	\$640.71	\$675.95	\$713.13
6 cubic yards container	\$750.40	\$791.67	\$835.21	\$881.15	\$929.61	\$980.74
Recycle Bins						
4 & 6 cubic yard containers	n/a	\$225.98	\$238.41	\$251.53	\$265.36	\$279.95
Commercial Compacting						
3 cubic yards container	n/a	\$1,484.74	\$1,566.40	\$1,652.55	\$1,743.44	\$1,839.33
4 cubic yards container	n/a	\$1,979.65	\$2,088.53	\$2,203.40	\$2,324.59	\$2,452.44

Source: City of Livingston and HEC.

sum

Table 27 provides the revenue estimated to be generated by each customer group.

Table 27
Estimated Revenue Generation by Customer Type

Customer Type	2021	Annual Revenue with Growth in Number of Services				
		2022	2023	2024	2025	2026
Residential						
96 gal. cart	\$986,675	\$1,053,364	\$1,124,741	\$1,200,783	\$1,282,161	\$1,368,858
Add'l cart	\$22,208	\$23,732	\$25,356	\$27,087	\$28,932	\$30,898
96 gal. cart greenwaste	\$51,726	\$55,228	\$58,958	\$62,951	\$67,204	\$71,755
Add'l greenwaste cart	\$788	\$831	\$877	\$925	\$976	\$1,030
Multi-Family & Comm'l - 1x / Week						
1 CY	\$2,842	\$2,998	\$3,163	\$3,337	\$3,520	\$3,714
2 CY	\$35,121	\$37,052	\$39,090	\$41,240	\$43,508	\$45,901
3 CY	\$23,496	\$24,789	\$26,152	\$27,591	\$29,108	\$30,709
4 CY	\$40,821	\$43,066	\$45,435	\$47,934	\$50,570	\$53,352
6 CY	\$21,144	\$22,307	\$23,533	\$24,828	\$26,193	\$27,634
Organic Carts						
2 CY	\$0	\$0	\$0	\$0	\$0	\$0
4 CY	\$17,188	\$18,133	\$19,130	\$20,183	\$21,293	\$22,464
6 CY	\$0	\$0	\$0	\$0	\$0	\$0
Multi-Family & Comm'l - 2x/Week						
1 CY	\$0	\$0	\$0	\$0	\$0	\$0
2 CY	\$2,246	\$2,369	\$2,499	\$2,637	\$2,782	\$2,935
3 CY	\$6,349	\$6,699	\$7,067	\$7,456	\$7,866	\$8,298
4 CY	\$62,795	\$66,249	\$69,892	\$73,736	\$77,792	\$82,070
6 CY	\$58,848	\$62,085	\$65,499	\$69,102	\$72,902	\$76,912
Organic Carts						
2 CY	\$2,246	\$2,369	\$2,499	\$2,637	\$2,782	\$2,935
4 CY	\$20,932	\$22,083	\$23,297	\$24,579	\$25,931	\$27,357
6 CY	\$5,885	\$6,208	\$6,550	\$6,910	\$7,290	\$7,691
Multi-Family & Comm'l - 3x/Week						
1 CY	\$0	\$0	\$0	\$0	\$0	\$0
2 CY	\$0	\$0	\$0	\$0	\$0	\$0
3 CY	\$4,784	\$5,047	\$5,324	\$5,617	\$5,926	\$6,252
4 CY	\$32,738	\$34,539	\$36,439	\$38,443	\$40,557	\$42,788
6 CY	\$18,010	\$19,000	\$20,045	\$21,148	\$22,311	\$23,538
TOTAL	\$1,416,840	\$1,508,148	\$1,605,549	\$1,709,122	\$1,819,605	\$1,937,091

Source: City of Livingston and HEC January 2021.

rev proj

4.3 CASH FLOW AND FUND BALANCE

The projected sanitation fund cash flow is provided in **Table 28**. Because the new costs associated with SB 1383 are still unknown, they are not modelled in the cash flow; however, money that shown as spent on a new street sweeper in 2026 could be redirected to SB 1383 costs, as a new street sweeper shouldn't be necessary for several more years.

Table 28
Sanitation Fund Projected Cash Flow

Revenues and Expenses	Fiscal Year Ending					
	2021	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Operating Revenues						
User Fees [1]	\$1,426,625	\$1,492,012	\$1,587,869	\$1,675,202	\$1,767,338	\$1,864,542
User Fees from New Growth	\$0	\$918	\$17,680	\$33,920	\$52,266	\$72,549
Intergovernmental	\$0	\$0	\$0	\$0	\$0	\$0
Fines & Forfeitures	\$13,905	\$14,322	\$14,752	\$15,194	\$15,650	\$16,120
Return on Use of Money	\$5,150	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Miscellaneous	\$5,150	\$5,200	\$5,200	\$5,200	\$5,200	\$5,200
Total Operating Revenues	\$1,450,830	\$1,517,452	\$1,630,501	\$1,734,516	\$1,845,455	\$1,963,411
Operating Expenses						
Contract Disposal Service	\$1,052,400	\$1,110,282	\$1,171,348	\$1,235,772	\$1,303,739	\$1,375,445
All Other	\$390,534	\$426,372	\$447,333	\$469,423	\$492,704	\$517,246
Total Operating Expenses	\$1,442,934	\$1,536,654	\$1,618,681	\$1,705,194	\$1,796,444	\$1,892,691
Equipment Purchase	\$13,750	\$15,000	\$15,525	\$16,068	\$16,631	\$17,213
Net Revenues (Deficit)	(\$5,854)	(\$34,202)	(\$3,704)	\$13,253	\$32,380	\$53,507
Beginning Cash Balance [2]	\$1,225,567	\$934,712	\$900,511	\$896,806	\$910,060	\$942,440
Net Revenues (Deficit)	(\$5,854)	(\$34,202)	(\$3,704)	\$13,253	\$32,380	\$53,507
Vehicle Purchase / Replacement	(\$285,000)	\$0	\$0	\$0	\$0	(\$297,000)
Ending Cash Balance	\$934,712	\$900,511	\$896,806	\$910,060	\$942,440	\$698,947
Target Minimum Cash [3]	\$480,978	\$512,218	\$539,560	\$568,398	\$598,815	\$630,897

Source: City of Livingston January 2021 and HEC.

flow

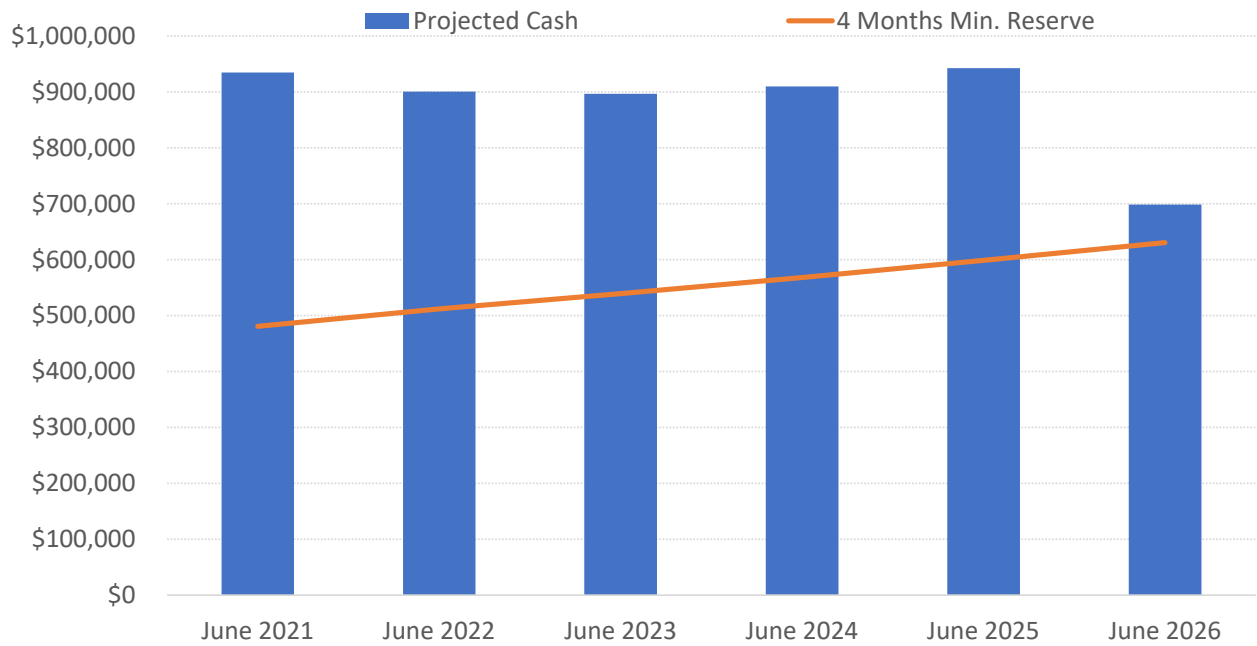
[2] Only 10 months of the new fees will be in effect FY 2022.

[3] Cash and cash equivalents as of July 1, 2020.

[2] Target minimum cash is 4 months of operating costs.

The projected ending fiscal year cash balances are illustrated in **Figure 26** on the next page.

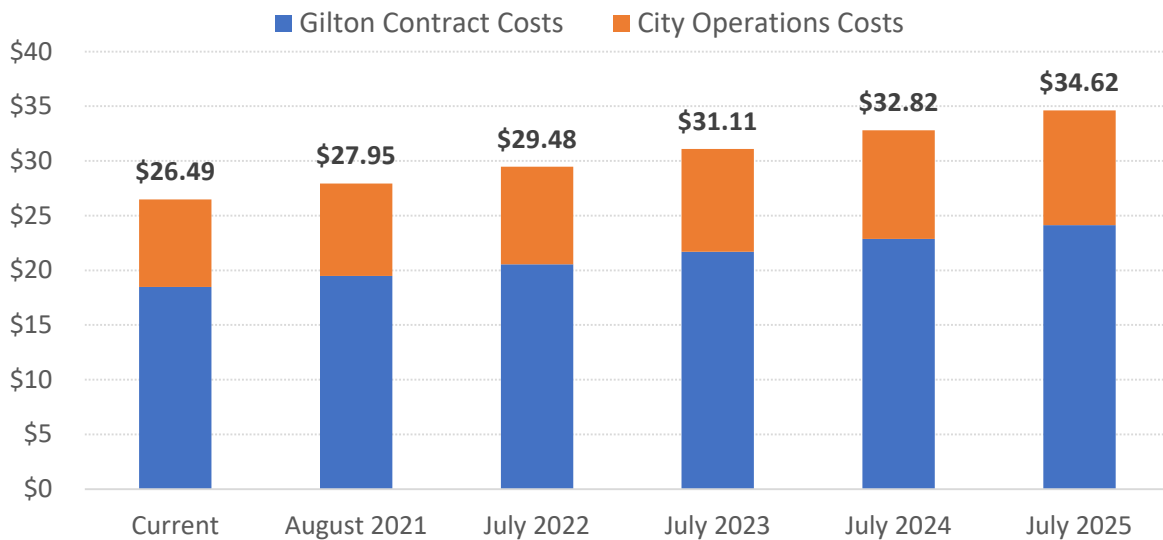
Figure 26
Projected Cash Flow and Fund Balance



4.4 BILL IMPACTS

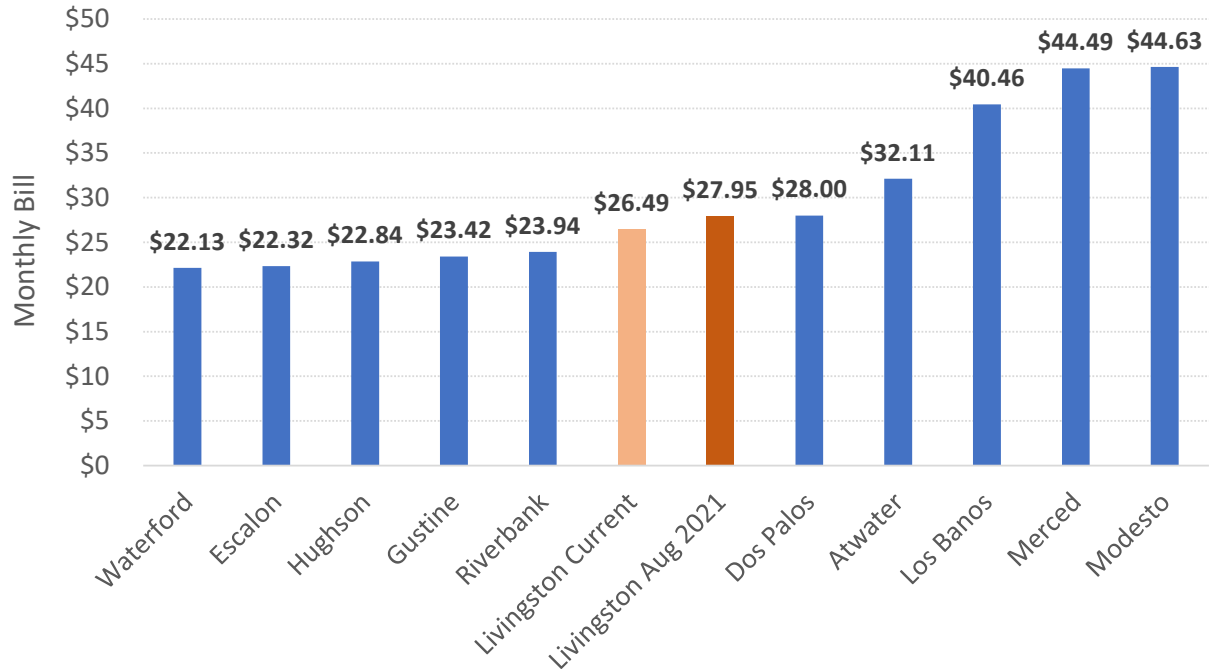
The projected five-year bill impacts for a single family home are shown in **Figure 27**. The monthly sanitation bill would increase from \$26.49 to \$34.62 over the five-year period.

Figure 27
Single Family Home Projected Bill Impact



In **Figure 28**, Livingston’s two-can monthly rate is compared with Modesto, Riverbank, Escalon, Waterford, and Hughson, all of which contract with Gilton for service provision, and several other regional communities. The rates for all comparison communities include at least two cans (one for recycle items) although not all can sizes are the same and additional cans cost more in most other communities than in Livingston. The rate for Merced includes three cans.

Figure 28
Comparison of Single Family Solid Waste Monthly Bills



APPENDIX A

WATER RATE STUDY

SUPPORT TABLES

Table A-1
City of Livingston 2021 Water Rates Update
Historical Water Fund Revenues

DRAFT

Revenues	Fiscal Year Ending				
	2017 actual	2018 actual	2019 actual	2020 unaudited	2021 budget
Intergovernmental Revenue	\$0	\$68,868	(\$3,035)	\$0	\$0
Charges for Services					
User Fees	\$3,305,476	\$3,360,495	\$3,592,366	\$4,082,854	\$3,864,360
Connection Fees	\$0	\$25	\$0	\$0	\$0
Meter Installation	\$0	\$75,563	\$51,718	\$50,121	\$0
Meter Replacement Fees	\$142,204	\$148,077	\$158,192	\$158,673	\$165,635
Subtotal Charges for Services	\$3,447,680	\$3,584,161	\$3,802,276	\$4,291,647	\$4,029,995
Fines & Forfeitures	\$21,204	\$37,322	\$17,980	\$17,693	\$42,000
Interest Income	\$4,427	\$26,788	\$48,768	\$55,588	\$4,040
Miscellaneous Revenue	\$10,916	\$19,794	\$7,959	\$16,349	\$8,125
Total Revenues	\$3,484,226	\$3,736,933	\$3,873,948	\$4,381,278	\$4,084,160

Source: City of Livingston financial documents.

revs

Table A-2
City of Livingston 2021 Water Rates Update
Historical Water Fund Expenses

DRAFT

Expenses	Fiscal Year Ending				
	2017 actual	2018 actual	2019 actual	2020 unaudited	2021 budget
Personnel	\$436,617	\$679,088	\$708,457	\$879,686	\$897,994
Maintenance and Operations					
Professional Services	\$67,097	\$12,795	\$9,632	\$4,336	\$15,000
Contract Services	\$137,619	\$117,483	\$110,320	\$87,675	\$130,000
Reg. Tuition Training	\$1,521	\$1,503	\$3,200	\$674	\$3,000
City Audit	\$7,501	\$7,600	\$7,600	\$7,600	\$7,600
Computer Support Agreements	\$24,764	\$38,631	\$28,947	\$26,376	\$37,000
Water Storage Tanks O&M	\$0	\$7,940	\$3,348	\$2,538	\$10,000
Water Wells O&M	\$330,266	\$140,513	\$279,608	\$222,882	\$350,000
Distribution O&M	\$60,431	\$33,708	\$60,746	\$48,671	\$50,000
Utilities	\$556,957	\$600,424	\$560,431	\$739,242	\$600,000
Vehicle O&M	\$18,623	\$35,258	\$19,981	\$18,366	\$22,000
Equipment O&M	\$5,625	\$3,962	\$6,855	\$4,795	\$9,000
Facilities O&M	\$7,427	\$3,306	\$5,977	\$4,597	\$15,000
Insurance	\$40,569	\$36,274	\$36,682	\$40,775	\$43,350
CommCell Phones	\$5,368	\$8,175	\$6,638	\$5,923	\$7,000
Advertisement	\$1,374	\$1,073	\$2,786	\$975	\$3,000
Printing	\$3,246	\$3,212	\$3,375	\$3,392	\$5,000
Bank Service Fees	\$5,176	\$6,467	\$7,496	\$9,318	\$8,000
Travel	\$1,966	\$992	\$3,166	\$244	\$2,500
Small Tools & Equip.	\$6,300	\$11,411	\$8,953	\$3,306	\$6,000
Office Supplies	\$3,220	\$2,540	\$2,679	\$1,186	\$3,500
Postage	\$8,453	\$7,627	\$8,105	\$3,340	\$9,000
Miscellaneous	\$1,178	\$1,270	(\$8,272)	\$1,590	\$3,500
Books/Subscriptions	\$0	\$66	\$397	\$40	\$500
Dues/Memberships	\$23,107	\$22,549	\$19,816	\$21,883	\$30,870
Reimbursements/Refunds	\$0	\$0	\$1,017	\$0	\$0
SGMA Compliance Contrib.	\$0	\$0	\$0	\$15,289	\$50,000
Water Meter Purchase	\$0	\$2,858	\$0	\$0	\$0
Water Hydrant Maint.	\$288	\$0	\$0	\$0	\$0
System Rehabilitation	(\$8,500)	\$0	(\$7,200)	\$0	\$75,000
Subtotal Maintenance and Operations	\$1,309,576	\$1,107,636	\$1,182,283	\$1,275,010	\$1,495,820
Projects					
Infrastructure	\$0	\$0	\$0	\$0	\$0
Water Tank Rehab.	\$0	\$0	\$37,364	\$2,908	\$0
Well 9 replacement	\$0	\$0	\$0	\$53,082	\$0
New Well #8	\$0	\$0	\$10,094	\$7,255	\$0
Subtotal Projects	\$0	\$0	\$47,458	\$63,245	\$0
Vehicles, Equip. & Improvements					
Equipment Purchase	\$34,280	\$11,872	\$15,370	\$45,348	\$59,100
Vehicle Purchase / Replacement	\$0	\$0	\$0	\$7,509	\$25,000
Meter Replacement	\$76,118	\$133,057	\$36,295	\$50,210	\$140,000
Furniture	\$0	\$498	\$0	\$0	\$0
Subtotal Vehicles, Equip. & Improvements	\$110,399	\$145,427	\$51,666	\$103,068	\$224,100
Total Expenses excl. Debt Service	\$1,856,591	\$1,932,151	\$1,989,865	\$2,321,008	\$2,617,914
Transfers Out	\$0	\$1,773,333	\$0	\$0	\$1,000,000
Debt Service	\$11,812	\$20,348	\$19,409	\$78,778	\$112,337

Source: City of Livingston financial documents.

exps

Table A-3
City of Livingston 2021 Water Rates Update

Historical Consumption

DRAFT

Year	Water Used
	gallons
2013	2,372,789,000
2014	2,388,570,000
2015	2,101,135,349
2016	2,096,915,212
2017	2,074,911,951
2018	2,254,177,000
2019	2,244,031,000
Average	2,218,932,787
Average last 5 Years	2,154,234,102

Source: City of Livingston billing records.

hist use

Table A-4
City of Livingston 2021 Water Rates Update

Well Production

DRAFT

Month	Calendar Year					Annual Average	% Delivery by Month
	2016	2017	2018	2019	2020		
<i>All Figures in Gallons</i>							
Jan	149,052,000	160,517,162	149,314,098	151,827,309	188,387,796	159,819,673	6.9%
Feb	134,313,000	132,900,237	139,437,808	134,267,112	196,735,774	147,530,786	6.4%
Mar	160,004,000	157,806,860	142,435,778	163,437,223	210,447,097	166,826,192	7.2%
Apr	174,700,000	144,083,799	165,066,889	178,385,022	211,326,842	174,712,510	7.5%
May	194,107,000	189,298,693	208,602,845	204,009,214	248,085,653	208,820,681	9.0%
Jun	219,983,000	178,863,153	221,974,266	243,784,833	265,249,523	225,970,955	9.7%
Jul	235,689,000	197,205,625	267,180,750	256,024,390	289,093,016	249,038,556	10.7%
Aug	223,396,000	215,617,627	231,995,178	255,857,000	288,298,196	243,032,800	10.5%
Sep	202,670,000	188,491,756	199,879,868	215,993,908	251,599,483	211,727,003	9.1%
Oct	194,270,000	192,171,330	187,961,790	221,622,859	229,561,376	205,117,471	8.8%
Nov	150,548,912	145,490,025	148,353,782	179,628,834	206,479,231	166,100,157	7.2%
Dec	152,557,513	135,045,974	150,523,769	184,704,455	194,232,084	163,412,759	7.0%
Total	2,191,290,425	2,037,492,241	2,212,726,821	2,389,542,159	2,779,496,071	A 2,322,109,543	100.0%
Peaking Period (May through October inclusive)						B 1,343,707,466	58%
Base Monthly Flow						C 163,067,013	
Base Annual Flow						D = C*12 1,956,804,154	84%
Additional Flow						E = A-D 365,305,389	16%

Source: City of Livingston records.

wells

Table A-5
City of Livingston 2021 Water Rates Update
Estimated Water Capital Improvement Plan Costs

DRAFT

Water Project	Funding Source	Fiscal Year Ending					
		2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5	
Water CIP Projects							
Well 8 - New Well	Reserves		\$1,000,000				
Well 9 - New Well	Reserves	\$1,200,000					
Well 11 - New Well	Foster Farms	\$1,200,000					
Well 12 Conveyance & Treatment	Reserves					\$1,720,000	
Well 8 & 9 Conveyance & Treatment Plant (75%)	SRF Loan		\$3,375,000				
Well 8 & 9 Conveyance & Treatment Plant (25%)	Connection Fees		\$1,125,000				
Well 14 & 16 Conveyance & Treatment Plant - <i>secured loan</i>	SRF Loan	\$4,000,000					
Well 13 & 17 Conveyance, Treatment Plant & Storage Tank (75%)	SRF Loan		\$6,375,000				
Well 13 & 17 Conveyance, Treatment Plant & Storage Tank (25%)	Connection Fees		\$2,125,000				
Water Line Replacement Ph 4 (Walnut, Davis, White, N Main)	Reserves			\$1,331,320			
Park Surface Water Irrigation	Reserves		\$187,381				
	Grant		\$172,619				
Total Estimated Water Improvements Cost		\$23,811,320	\$6,400,000	\$14,360,000	\$1,331,320	\$0	\$1,720,000
Funding Sources							
SRF Loan		\$13,750,000	\$4,000,000	\$9,750,000	\$0	\$0	\$0
Reserves		\$5,438,701	\$1,200,000	\$1,187,381	\$1,331,320	\$0	\$1,720,000
Connection Fees		\$3,250,000	\$0	\$3,250,000	\$0	\$0	\$0
Grant		\$172,619	\$0	\$172,619	\$0	\$0	\$0
Foster Farms		\$1,200,000	\$1,200,000	\$0	\$0	\$0	\$0
Total Funding		\$23,811,320	\$6,400,000	\$14,360,000	\$1,331,320	\$0	\$1,720,000
Estimated New O&M Costs from CIP Projects							
Well 8 & 9 GAC				\$200,000		\$200,000	
Well 13 & 17 GAC						\$200,000	
Well 13 Green Sand		\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Well 14 & 16 GAC				\$200,000		\$200,000	
Well 16 Green Sand		\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Well 17 Green Sand		\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Bulk Chemicals - Wells		\$65,000	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000
Estimated New Media & Chemicals Cost		\$95,000	\$495,000	\$95,000	\$695,000	\$95,000	

Source: City of Livingston January 2021.

cip

Table A-6
City of Livingston 2021 Water Rates Update
Inflated CIP

DRAFT

Water Project	Funding Source	TOTAL	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Water CIP Projects		<i>Costs inflated each year 3%</i>					
Well 8 - New Well	Reserves	\$1,060,900	\$0	\$1,060,900	\$0	\$0	\$0
Well 9 - New Well	Reserves	\$1,236,000	\$1,236,000	\$0	\$0	\$0	\$0
Well 11 - New Well	Foster Farms	\$1,236,000	\$1,236,000	\$0	\$0	\$0	\$0
Well 12 Conveyance & Treatment	Reserves	\$1,993,951	\$0	\$0	\$0	\$0	\$1,993,951
Well 8 & 9 Conveyance & Treatment Plant (75%)	SRF Loan	\$3,580,538	\$0	\$3,580,538	\$0	\$0	\$0
Well 8 & 9 Conveyance & Treatment Plant (25%)	Connection Fees	\$1,193,513	\$0	\$1,193,513	\$0	\$0	\$0
Well 14 & 16 Conveyance & Treatment Plant - secured loan	SRF Loan	\$4,120,000	\$4,120,000	\$0	\$0	\$0	\$0
Well 13 & 17 Conveyance, Treatment Plant & Storage Tank (75%)	SRF Loan	\$6,763,238	\$0	\$6,763,238	\$0	\$0	\$0
Well 13 & 17 Conveyance, Treatment Plant & Storage Tank (25%)	Connection Fees	\$2,254,413	\$0	\$2,254,413	\$0	\$0	\$0
Water Line Replacement Ph 4 (Walnut, Davis, White, N Main)	Reserves	\$1,454,769	\$0	\$0	\$1,454,769	\$0	\$0
Park Surface Water Irrigation	Reserves	\$381,924	\$0	\$381,924	\$0	\$0	\$0
Total Estimated Water Improvements Cost		\$25,275,245	\$6,592,000	\$15,234,524	\$1,454,769	\$0	\$1,993,951
Funding Sources							
SRF Loan		\$14,463,775	\$4,120,000	\$10,343,775	\$0	\$0	\$0
Reserves		\$5,944,413	\$1,236,000	\$1,259,693	\$1,454,769	\$0	\$1,993,951
Connection Fees		\$3,447,925	\$0	\$3,447,925	\$0	\$0	\$0
Grant and Covid Relief		\$183,131	\$0	\$183,131	\$0	\$0	\$0
Foster Farms		\$1,236,000	\$1,236,000	\$0	\$0	\$0	\$0
Total Funding		\$25,275,245	\$6,592,000	\$15,234,524	\$1,454,769	\$0	\$1,993,951
Estimated New O&M Costs from CIP Projects							
Well 8 & 9 GAC			\$0	\$212,180	\$0	\$225,102	\$0
Well 13 & 17 GAC			\$0	\$0	\$0	\$225,102	\$0
Well 13 Green Sand			\$10,300	\$10,609	\$10,927	\$11,255	\$11,593
Well 14 & 16 GAC			\$0	\$212,180	\$0	\$225,102	\$0
Well 16 Green Sand			\$10,300	\$10,609	\$10,927	\$11,255	\$11,593
Well 17 Green Sand			\$10,300	\$10,609	\$10,927	\$11,255	\$11,593
Bulk Chemicals - Wells			\$66,950	\$68,959	\$71,027	\$73,158	\$75,353
Estimated New Media & Chemicals Cost			\$97,850	\$525,146	\$103,809	\$782,229	\$110,131

Source: City of Livingston January 2021.

cip inf

Table A-7
City of Livingston 2021 Water Rates Update
SRF Financing Agreement for Well 13

DRAFT

Fiscal Year				
Ending	Principal	Interest	Total Payment	Ending Balance
<i>Term</i>	<i>20 years</i>		<i>Completed Project</i>	
<i>Interest Rate</i>	<i>1.6%</i>			
				\$1,353,245
2017	\$66,967	\$11,811	\$78,778	\$1,286,278
2018	\$58,430	\$20,348	\$78,778	\$1,227,848
2019	\$59,369	\$19,409	\$78,778	\$1,168,479
2020	\$60,323	\$18,455	\$78,778	\$1,108,156
2021	\$61,292	\$17,486	\$78,778	\$1,046,864
2022	\$62,276	\$16,502	\$78,778	\$984,588
2023	\$63,277	\$15,501	\$78,778	\$921,311
2024	\$64,293	\$14,485	\$78,778	\$857,018
2025	\$65,326	\$13,452	\$78,778	\$791,692
2026	\$66,375	\$12,403	\$78,778	\$725,317
2027	\$67,442	\$11,336	\$78,778	\$657,875
2028	\$68,525	\$10,253	\$78,778	\$589,350
2029	\$69,626	\$9,152	\$78,778	\$519,724
2030	\$70,744	\$8,034	\$78,778	\$448,980
2031	\$71,881	\$6,897	\$78,778	\$377,099
2032	\$73,035	\$5,743	\$78,778	\$304,064
2033	\$74,209	\$4,569	\$78,778	\$229,855
2034	\$75,401	\$3,377	\$78,778	\$154,455
2035	\$76,612	\$2,166	\$78,778	\$77,843
2036	\$77,843	\$935	\$78,778	(\$0)
TOTAL	\$1,353,245	\$222,315	\$1,575,560	

Source: SRF Financing Agreement D15-02037 Exhibit C.

srf other

Table A-8
City of Livingston 2021 Water Rates Update
SRF Financing Agreement for Wells 14 & 16

DRAFT

Fiscal Year				
Ending	Principal	Interest	Total Payment	Ending Balance
<i>Term</i>	<i>30 years</i>		<i>Est. Construction Completion:</i>	
<i>Interest Rate</i>	<i>1.8%</i>		<i>7/1/2022</i>	
2021	\$0	\$60,758	\$47,358	\$3,224,618
2022	\$105,048	\$67,942	\$172,989	\$3,894,952
2023	\$103,343	\$69,646	\$172,989	\$3,971,609
2024	\$105,212	\$67,778	\$172,989	\$3,686,398
2025	\$107,114	\$65,875	\$172,989	\$3,579,284
2026	\$109,051	\$63,939	\$172,989	\$3,470,233
2027	\$111,022	\$61,967	\$172,989	\$3,359,211
2028	\$113,030	\$59,959	\$172,989	\$3,246,181
2029	\$115,074	\$57,916	\$172,989	\$3,131,107
2030	\$117,154	\$55,835	\$172,989	\$3,013,953
2031	\$119,272	\$53,717	\$172,989	\$2,894,681
2032	\$121,429	\$51,560	\$172,989	\$2,773,252
2033	\$123,625	\$49,365	\$172,989	\$2,649,627
2034	\$125,860	\$47,129	\$172,989	\$2,523,767
2035	\$128,136	\$44,854	\$172,989	\$2,395,632
2036	\$130,452	\$42,537	\$172,989	\$2,265,179
2037	\$132,811	\$40,178	\$172,989	\$2,132,368
2038	\$135,212	\$37,777	\$172,989	\$1,997,156
2039	\$137,657	\$35,332	\$172,989	\$1,859,499
2040	\$140,146	\$32,843	\$172,989	\$1,719,353
2041	\$142,680	\$30,309	\$172,989	\$1,576,672
2042	\$145,260	\$27,729	\$172,989	\$1,431,412
2043	\$147,886	\$25,103	\$172,989	\$1,283,526
2044	\$150,560	\$22,429	\$172,989	\$1,132,966
2045	\$153,283	\$19,707	\$172,989	\$979,683
2046	\$156,054	\$16,935	\$172,989	\$823,629
2047	\$158,876	\$14,114	\$172,989	\$664,753
2048	\$161,748	\$11,241	\$172,989	\$503,005
2049	\$164,673	\$8,316	\$172,989	\$338,332
2050	\$167,650	\$5,339	\$172,989	\$170,682
2051	\$170,682	\$2,308	\$172,989	\$0
TOTAL	\$4,000,000	\$1,250,437	\$5,237,037	

Source: SRF Financing Agreement D18-02003 Exhibit C.

srf 4M

**Table A-9
City of Livingston 2021 Water Rates Update**

Estimated New SRF Debt

DRAFT

Item	Well 8 & 9 Conveyance & Treatment Plant	Well 13 & 17 Conveyance, Treatment Plant & Storage Tank
<i>Estimated Completion Date</i>	<i>12/1/2022</i>	<i>4/1/2023</i>
Construction Proceeds	\$3,580,538	\$6,763,238
Estimated Annual Debt Service	\$171,100	\$323,200
Operations Fund	\$128,325	\$242,400
Capital Fund	\$42,775	\$80,800
Total Payments	\$5,133,000	\$9,696,000
Estimated Total Financing Costs	\$1,552,463	\$2,932,763
DWSRF loan assumptions:		
Interest Rate [1]	2.5000%	2.5000%
Term (years)	30	30

Source: City of Livingston and HEC.

new debt

[1] Estimate based on historical rates; the interest rate fluctuates year to year.

Table A-10
City of Livingston 2021 Water Rates Update

Meter Replacement Fee Calculation

DRAFT

Item	Assumption / Total	Meter Size							
		1"	1-1/2"	2"	3"	4"	6"	8"	10"
New Meter with Transponder [1]		\$246	\$579	\$1,106	\$1,380	\$3,266	\$5,644	\$9,204	\$11,877
Installation Costs [2]	25%	\$61	\$145	\$276	\$345	\$817	\$1,411	\$2,301	\$2,969
New Technology Fee [3]	20%	\$61	\$145	\$276	\$345	\$817	\$1,411	\$2,301	\$2,969
Administration Costs	5%	\$18	\$43	\$83	\$103	\$245	\$423	\$690	\$891
Total Cost per Meter		\$387	\$912	\$1,742	\$2,173	\$5,145	\$8,890	\$14,496	\$18,707
Total Number of Meters	3,533	3,418	12	73	12	13	4	0	1
Meter Cost Replacement	\$1,607,674	\$1,322,354	\$10,945	\$127,150	\$26,077	\$66,881	\$35,560	\$0	\$18,707
Replacement Interval (years)		10	10	10	10	10	10	10	10
Cost per Meter per Year		\$39	\$91	\$174	\$217	\$514	\$889	\$1,450	\$1,871
Monthly Cost per Meter		\$3.22	\$7.60	\$14.51	\$18.11	\$42.87	\$74.08	\$120.80	\$155.89
Updated Annual Fee Revenue	\$160,767	\$132,235	\$1,094	\$12,715	\$2,608	\$6,688	\$3,556	\$0	\$1,871

Source: City of Livingston and HEC.

meter prog

[1] Prices from City's meter vendor, May 2019, inflated.

[2] Actual installation costs vary by meter size as a percentage of meter cost.

[3] Estimated costs to keep meters up to date with new technology.

Table A-11
City of Livingston 2021 Water Rates Update
Estimated Meter Replacement Fee Program Revenue

DRAFT

Item	Fiscal Year Ending					
	2021	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Projected New 1" or less Meters	0	40	40	40	40	40
Projected City Water Meters	3,533	3,573	3,613	3,653	3,693	3,733
Current Revenue Inflated	\$160,767	\$164,787	\$168,906	\$173,129	\$177,457	\$181,894
New Growth Revenue	\$0	\$1,586	\$1,626	\$1,667	\$1,708	\$1,751
Estimated Meter Replacement Fee Revenue	\$160,767	\$166,373	\$170,532	\$174,795	\$179,165	\$183,644

Source: City of Livingston and HEC.

meter rev

Table A-12
City of Livingston 2021 Water Rates Update
Functional Allocation of Plant In Service

DRAFT

Plant in Service	Customer	Capacity	Commodity (Use)	Total Cost	Customer	Capacity	Commodity (Use)
Pumps		80%	20%	\$159,869	\$0	\$127,895	\$31,974
Water Lines		80%	20%	\$5,833,669	\$0	\$4,666,936	\$1,166,734
Wells		80%	20%	\$7,947,079	\$0	\$6,357,663	\$1,589,416
Tanks		80%	20%	\$833,822	\$0	\$667,058	\$166,764
Equipment	45%	30%	25%	\$280,794	\$126,357	\$84,238	\$70,198
General	15%	85%		\$556,209	\$83,431	\$472,777	\$0
Total Plant in Service				\$15,611,442	\$209,789	\$12,376,567	\$3,025,086
Percentage of Plant in Service				100%	1%	79%	19%

Source: City of Livingston and HEC.

plant

Table A-13
City of Livingston 2021 Water Rates Update

Functional Allocation of Operating Costs

DRAFT

Expenditures	ACTUAL FY 2019-20	Allocation Basis	Fixed Costs		Variable Cost	
			Customer	Capacity	Commodity (Use)	Unclassified
Personnel	\$879,686	Avg. of Classified	0%	0%	0%	100%
Professional Services	\$4,336	Avg. of Classified	0%	0%	0%	100%
Contract Services	\$87,675	Avg. of Classified	0%	0%	0%	100%
Reg. Tuition Training	\$674	Avg. of Classified	0%	0%	0%	100%
City Audit	\$7,600	Avg. of Classified	0%	0%	0%	100%
Computer Support Agreements	\$26,376	Avg. of Classified	0%	0%	0%	100%
Water Storage Tanks O&M	\$2,538	Ratio Avg. to Peak Month	84%	0%	16%	0%
Water Wells O&M	\$222,882	Ratio Avg. to Peak Month	84%	0%	16%	0%
Distribution O&M	\$48,671	Ratio Avg. to Peak Month	84%	0%	16%	0%
Utilities	\$739,242	Utilities	0%	0%	100%	0%
Vehicle O&M	\$18,366	Plant In Service	1%	79%	19%	0%
Equipment O&M	\$4,795	Plant In Service	1%	79%	19%	0%
Facilities O&M	\$4,597	Plant In Service	1%	79%	19%	0%
Insurance	\$40,775	Customers	100%	0%	0%	0%
CommCell Phones	\$5,923	Customers	100%	0%	0%	0%
Advertisement	\$975	Customers	100%	0%	0%	0%
Printing	\$3,392	Customers	100%	0%	0%	0%
Bank Service Fees	\$9,318	Customers	100%	0%	0%	0%
Travel	\$244	Customers	100%	0%	0%	0%
Small Tools & Equip.	\$3,306	Customers	100%	0%	0%	0%
Office Supplies	\$1,186	Customers	100%	0%	0%	0%
Postage	\$3,340	Customers	100%	0%	0%	0%
Miscellaneous	\$1,590	Avg. of Classified	0%	0%	0%	100%
Books/Subscriptions	\$40	Customers	100%	0%	0%	0%
Dues/Memberships	\$21,883	Avg. of Classified	0%	0%	0%	100%
SGMA Fees	\$15,289	Avg. of Classified	0%	0%	0%	100%
Refunds/Reimb	\$0	Customers	100%	0%	0%	0%
Equipment Purchase	\$45,348	Plant In Service	1%	79%	19%	0%
Vehicle Purchase / Replacement	\$7,509	Plant In Service	1%	79%	19%	0%
Meter Replacement	\$50,210	Customers	100%	0%	0%	0%
TOTAL OPERATING COSTS	\$2,257,764		\$350,762	\$63,911	\$797,982	\$1,045,109
Reallocate Unclassified	\$1,045,109		\$302,299	\$55,081	\$687,729	
ALLOCATION OF OPERATING COSTS	\$2,257,764		\$653,062	\$118,991	\$1,485,711	
Existing Debt Service	\$78,778	Plant In Service	1%	79%	19%	
Debt Service			\$1,059	\$62,454	\$15,265	
TOTAL ALLOCATED COSTS [1]	\$2,336,542		\$654,120	\$181,446	\$1,500,976	
Percentage of Allocation			28%	8%	64%	
Fixed/Variable Allocation				36%	64%	

Source: City of Livingston and HEC, January 2021.

func

[1] Excludes capital project costs.

Table A-14
City of Livingston 2021 Water Rates Update
Number of Meters and Meter Equivalents

DRAFT

Meter Size	Billing Meters	Flow (gpm)	Ratio	Meter Equivalents
< 1	3,418	50	1.0	3,418
1.5	12	100	2.0	24
2	73	160	3.2	234
3	12	350	7.0	84
4	13	600	12.0	156
6	4	1,250	25.0	100
8	0	2,400	48.0	0
10	1	3,800	76.0	76
Total	3,533			4,092

Source: City of Livingston March 2021.

meters

**Table A-15
City of Livingston 2021 Water Rates Update**

Projection of Water Demand

DRAFT

Customer Category	Fiscal Year Ending					
	2021 (uses 5-yr avg)	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Residential						
Single-Family	503,560,000	508,982,302	514,938,795	520,964,995	527,061,718	533,229,790
Multi-Family	57,007,000	56,943,791	56,943,791	56,943,791	56,943,791	56,943,791
Subtotal Residential	560,567,000	565,926,093	571,882,586	577,908,786	584,005,509	590,173,580
Non-Residential						
Commercial	85,113,000	86,774,113	88,631,435	90,528,512	92,466,194	94,445,351
Industrial	1,440,006,000	1,438,941,548	1,438,941,548	1,438,941,548	1,438,941,548	1,438,941,548
Irrigation	68,549,000	68,358,982	68,358,982	68,358,982	68,358,982	68,358,982
Subtotal Non-Residential	1,593,668,000	1,594,074,642	1,595,931,965	1,597,829,042	1,599,766,724	1,601,745,881
Total Water Demand Est.	2,154,235,000	2,160,000,735	2,167,814,550	2,175,737,827	2,183,772,233	2,191,919,461

Source: City of Livingston and HEC.

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Table A-16
City of Livingston 2021 Water Rates Update

Price Elasticity Assumptions

DRAFT

Customer Type	Estimated Elasticity	Fiscal Year Ending				
		2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Rate Increase		5.00%	5.00%	5.00%	5.00%	5.00%
Assumption for Inflation		2.20%	2.20%	2.20%	2.20%	2.20%
Price Increase Adjusted for Inflation		2.80%	2.80%	2.80%	2.80%	2.80%
Customer Type						
Attached Residential	-0.10	-0.28%	-0.28%	-0.28%	-0.28%	-0.28%
Detached Residential	-0.12	-0.34%	-0.34%	-0.34%	-0.34%	-0.34%
Commercial	-0.20	-0.56%	-0.56%	-0.56%	-0.56%	-0.56%
Industrial	-0.08	-0.22%	-0.22%	-0.22%	-0.22%	-0.22%
Irrigation	-0.30	-0.84%	-0.84%	-0.84%	-0.84%	-0.84%

Source: HEC.

elasticity

California CPI Change		
February	2009	222.181
February	2019	276.655
Total Change		54.47
Average Annual Change		2.22%

Table A-17
City of Livingston 2021 Water Rates Update

DRAFT

Projected Changes in Water Demand due to Price Changes

Customer Category	Fiscal Year Ending					
	2021	2022 Year 1	2023 Year 2	2024 Year 3	2025 Year 4	2026 Year 5
Residential	<i>Projected Growth each year is 40 SF units and five 1" commercial meters</i>					
Single-Family	503,560,000	509,453,037	515,415,038	521,446,812	527,549,174	533,722,950
Multi-Family	57,007,000	57,007,000	57,007,000	57,007,000	57,007,000	57,007,000
Subtotal Residential	560,567,000	566,460,037	572,422,038	578,453,812	584,556,174	590,729,950
Non-Residential						
Commercial	85,113,000	86,934,768	88,795,529	90,696,119	92,637,388	94,620,209
Industrial	1,440,006,000	1,440,006,000	1,440,006,000	1,440,006,000	1,440,006,000	1,440,006,000
Irrigation	68,549,000	68,549,000	68,549,000	68,549,000	68,549,000	68,549,000
Subtotal Non-Residential	1,593,668,000	1,595,489,768	1,597,350,529	1,599,251,119	1,601,192,388	1,603,175,209
Total Water Demand Est.	2,154,235,000	2,161,949,805	2,169,772,568	2,177,704,930	2,185,748,562	2,193,905,159
Change in Demand due to Price						
Residential						
Single-Family		-470,735	-476,243	-481,817	-487,455	-493,160
Multi-Family		-63,209	-63,209	-63,209	-63,209	-63,209
Subtotal Residential		-533,944	-539,453	-545,026	-550,665	-556,369
Non-Residential						
Commercial		-160,655	-164,094	-167,606	-171,194	-174,858
Industrial		-1,064,452	-1,064,452	-1,064,452	-1,064,452	-1,064,452
Irrigation		-190,018	-190,018	-190,018	-190,018	-190,018
Subtotal Non-Residential		-1,415,126	-1,418,564	-1,422,077	-1,425,664	-1,429,328
Total Water Demand Est.		-1,949,070	-1,958,017	-1,967,103	-1,976,329	-1,985,698

Source: HEC.

elas eff

[1] Change applied to summer months consumption only.

APPENDIX B

WASTEWATER RATE STUDY

SUPPORT TABLES

Table B-1
City of Livingston 2021 Wastewater Rates Update
Historical and Budgeted FY2021 Wastewater Fund Revenue

DRAFT

Revenues	Fiscal Year Ending				
	2017 actual	2018 actual	2019 actual	2020 unaudited	2021 budget
Intergovernmental					
FEMA Reimbursement	\$0	\$3,528	\$0	\$0	\$0
SJVAPCD-Grnt Veh Purchase Rev	\$0	\$9,702	(\$3,035)	\$0	\$0
Total Intergovernmental	\$0	\$13,230	(\$3,035)	\$0	\$0
Charges for Services					
User Fees	\$2,038,750	\$2,075,866	\$2,182,325	\$2,135,272	\$2,220,000
Connection Fees	\$0	\$0	\$0	\$0	\$0
MS4 Review Fees	\$0	\$2,809	\$16,464	\$8,426	\$0
Total Charges for Services	\$2,038,750	\$2,078,675	\$2,198,789	\$2,143,698	\$2,220,000
Fines & Forfeits					
Penalty Fees	\$24,803	\$28,702	\$22,417	\$18,098	\$33,900
Total Fines & Forfeits	\$24,803	\$28,702	\$22,417	\$18,098	\$33,900
Return on Use of Money/Property					
Interest Income	\$2,194	\$7,976	\$13,481	\$16,412	\$610
Rental Income	\$12,000	\$12,000	\$12,000	\$22,000	\$12,360
Doms WW Land Lease Agmt	\$2,500	\$1,000	\$0	\$0	\$1,500
Total Return on Use of Money	\$16,694	\$20,976	\$25,481	\$38,412	\$14,470
Miscellaneous					
Miscellaneous	\$4,188	\$19,281	\$0	\$0	\$0
Reimbursements	\$1,306	\$1,642	\$66,181	\$19,388	\$4,550
Other Revenue	\$5,494	\$20,923	\$285	\$3,364	\$0
Total Miscellaneous	\$10,988	\$41,847	\$66,466	\$22,752	\$4,550
Total Revenues	\$2,091,235	\$2,183,429	\$2,310,119	\$2,222,959	\$2,272,920

Source: City of Livingston financial documents.

revs

Table B-2
City of Livingston 2021 Wastewater Rates Update
Historical and Budgeted FY2021 Wastewater Fund Expenses

DRAFT

Operating Expenses	Fiscal Year Ending				
	2017 actual	2018 actual	2019 actual	2020 unaudited	2021 budget
Personnel	\$422,346	\$543,621	\$598,896	\$724,942	\$718,293
Maintenance and Operations					
Professional Services	\$29,159	\$2,627	\$3,467	\$5,101	\$20,000
Contract Services	\$170,414	\$93,526	\$84,263	\$77,160	\$107,222
RegistrationTuitionTraining	\$1,653	\$3,037	\$2,923	\$1,911	\$2,500
City Audit	\$7,420	\$7,600	\$7,600	\$7,600	\$7,600
Computer Support Agreements	\$15,757	\$21,453	\$21,012	\$20,140	\$28,000
Distribution O & M	\$6,147	\$8,141	\$6,214	\$1,591	\$10,000
Utilities	\$219,906	\$246,101	\$237,325	\$292,630	\$258,900
Soccer Field Utilities	\$1,907	\$1,890	\$0	\$0	\$0
Vehicle O & M	\$16,190	\$28,114	\$22,432	\$18,417	\$40,000
Equipment O & M	\$60,062	\$13,349	\$20,791	\$37,302	\$50,000
Facilities O & M	\$48,438	\$20,398	\$47,757	\$22,660	\$50,000
Storm Drain O & M	\$0	\$0	\$14,047	\$291	\$25,000
Wastewater Trtmnt Plant O&M	\$5,116	\$13,543	\$22,976	\$27,994	\$50,000
RentsLeases	\$8,600	\$4,390	\$5,736	\$0	\$10,000
Insurance	\$59,012	\$59,075	\$61,562	\$71,987	\$63,060
CommCell PhonesTelephone	\$4,641	\$7,844	\$7,185	\$8,353	\$9,000
Advertisement	\$140	\$1,671	\$437	\$952	\$2,000
Printing	\$463	\$366	\$1,121	\$428	\$5,000
Bank Service Fee Agreements	\$5,176	\$6,467	\$7,496	\$9,318	\$3,500
TravelConferencesMeetings	\$586	\$520	\$253	\$35	\$2,250
Lab Processing Expense	\$16,288	\$17,892	\$26,802	\$17,728	\$30,000
Small Tools & Equipment	\$7,748	\$5,897	\$7,997	\$3,540	\$7,000
Postage	\$7,763	\$7,233	\$7,911	\$1,543	\$8,500
Miscellaneous Expenditures	\$1,392	\$831	\$262	\$1,861	\$2,500
DuesMembershipFees	\$27,150	\$41,621	\$43,554	\$57,802	\$53,870
Cost of Issuance-2016ArfndBond	\$250,931	\$0	\$0	\$0	\$0
Amortizat. Exp 2016A Refunding	(\$4,548)	(\$6,822)	(\$6,822)	\$0	\$0
Merced County Taxes	\$11,106	\$11,237	\$11,342	\$11,626	\$11,500
Total Maintenance & Operations	\$978,618	\$618,001	\$665,647	\$697,970	\$857,402
Supplies					
Office Supplies	\$3,856	\$2,741	\$2,458	\$888	\$3,500
Total Supplies	\$3,856	\$2,741	\$2,458	\$888	\$3,500
Vehicles, Equip & Improvements					
Equipment Purchase	\$42,348	\$9,976	\$21,381	\$67,260	\$94,204
Vehicle Purchase	\$0	\$0	\$0	\$7,509	\$0
Vehicle Replacement Fee	\$0	\$0	\$0	\$0	\$100,000
FurnitureFixtureImprovements	\$0	\$500	\$0	\$0	\$0
ImprovementsInfrastructure	\$0	\$53,802	\$0	\$0	\$0
SJVAPCD Grnt Vehicle Purchase	\$0	\$0	\$0	\$0	\$0
Vehicles, Equip & Improvements	\$42,348	\$64,278	\$21,381	\$74,769	\$194,204
Debt Service					
Refnd Bond Ser.2016A-Principal	\$0	\$0	\$0	\$190,000	\$190,000
USDA Series A - Interest	\$31,470	\$0	\$0	\$0	\$0
USDA Series B - Interest	\$28,553	\$0	\$0	\$0	\$0
Refund Bond Ser.2016A-Interest	\$187,023	\$271,950	\$214,279	\$263,000	\$261,250
Debt Service	\$247,046	\$271,950	\$214,279	\$453,000	\$451,250
Transfer Out	\$0	\$0	\$148,566	\$0	\$0
Total Expenses	\$1,694,213	\$1,500,591	\$1,651,226	\$1,951,569	\$2,224,649

Source: City of Livingston financial documents.

exps

Table B-3
City of Livingston 2021 Wastewater Rates Update
Current Number of Wastewater Accounts

DRAFT

Customer Code	Billing Cycle					TOTAL
	1	2	3	4	999	
Flat Monthly Charges						
SCOO Commercial Base	3		126			129
SOUT Residential Outside City	2		1			3
SRES Residential	3,235	57	4	2		3,298
SMU Multi Unit Residential		22	4			26
SC02 Churches/Temples/Comm Ctrs			16			16
SC16 Schools			6			6
SHM Hotels /Motels			2			2
SCC2 Laudromat					1	1
TOTAL	3,240	79	159	2	1	3,481

Source: City of Livingston Utility billing records.

accounts

Table B-4
City of Livingston 2021 Wastewater Rates Update

Wastewater Treatment Plant Flow

DRAFT

Month	2016	2017	2018	2019	2020	Average	
						BOD	SS
	Millions of Gallons					Mg/L	Mg/L
Jan	31.27	35.02	35.24	31.72	35.28	288	346
Feb	28.38	33.80	32.14	28.57	33.64	425	1,115
Mar	31.61	32.85	35.69	31.65	37.18	288	368
Apr	30.32	34.64	33.33	30.22	35.98	250	177
May	31.28	34.60	33.77	32.34	38.51	200	155
Jun	30.40	31.65	33.12	31.99	39.23	350	403
Jul	32.26	32.38	34.11	33.14	40.45	313	320
Aug	32.20	36.66	35.00	35.25	40.24	353	630
Sep	30.08	35.31	35.14	33.09	38.76	280	353
Oct	30.39	35.38	33.98	33.96	39.65	265	440
Nov	32.55	33.60	31.39	32.89	38.27	310	411
Dec	32.89	33.62	31.26	35.18	39.42	263	193
Total	373.63	409.51	404.17	390.00	456.61	299	409
Avg. Flow per Day	1.02	1.12	1.11	1.07	1.25		

Source: City of Livingston treatment plant records.

param

**Table B-5
City of Livingston 2021 Wastewater Rates Update**

Wastewater Capital Improvements Plan

DRAFT

No COVID Relief Funding

Capital Project	Funding Source	Fiscal Year Ending					
		2021	2022	2023	2024	2025	2026
Treatment Plant							
Biosolids Dewatering Equipment	Rates		\$300,000	\$200,000			
SCADA Tower	Rates		\$15,000				
Total Treatment Plant		\$0	\$315,000	\$200,000	\$0	\$0	\$0
Collection System							
Lift Station Rehabilitation (Singh & Burgandy)	Rates		\$100,000	\$100,000			
Sewer Line Replacement [1]	Grant	\$3,050,000					
Additional Sewer Line Replacement	Rates			\$330,000	\$500,000	\$650,000	\$700,000
New Disc & Ripper Tractor	Rates		\$215,000				
New Vac-On Sewer Truck	Rates				\$350,000		
Total Collection System		\$3,050,000	\$315,000	\$430,000	\$850,000	\$650,000	\$700,000
Total Wastewater System		\$6,510,000	\$3,050,000	\$630,000	\$630,000	\$850,000	\$700,000
Funded by Grants		\$3,050,000	\$3,050,000	\$0	\$0	\$0	\$0
Funded by Rates		\$3,460,000	\$0	\$630,000	\$630,000	\$850,000	\$700,000
Funded by Loan		\$0	\$0	\$0	\$0	\$0	\$0

Source: City of Livingston Public Works January 2021.

cip

[1] The City has secured CDBG grant funding for this project.

Table B-6
City of Livingston 2021 Wastewater Rates Update
2016A Sewer Revenue Refunding Bonds **DRAFT**

Fiscal Year Ending	Principal	Interest	Total Debt Service
2017	\$220,000	\$95,790	\$315,790
2018	\$175,000	\$273,700	\$448,700
2019	\$180,000	\$268,450	\$448,450
2020	\$190,000	\$261,250	\$451,250
2021	\$195,000	\$253,650	\$448,650
2022	\$200,000	\$245,850	\$445,850
2023	\$210,000	\$237,850	\$447,850
2024	\$220,000	\$229,450	\$449,450
2025	\$230,000	\$220,650	\$450,650
2026	\$240,000	\$211,450	\$451,450
2027	\$250,000	\$201,850	\$451,850
2028	\$260,000	\$191,850	\$451,850
2029	\$265,000	\$181,450	\$446,450
2030	\$280,000	\$170,850	\$450,850
2031	\$290,000	\$159,650	\$449,650
2032	\$300,000	\$148,050	\$448,050
2033	\$315,000	\$136,050	\$451,050
2034	\$325,000	\$123,450	\$448,450
2035	\$335,000	\$112,888	\$447,888
2036	\$345,000	\$102,000	\$447,000
2037	\$355,000	\$90,788	\$445,788
2038	\$365,000	\$78,806	\$443,806
2039	\$385,000	\$66,488	\$451,488
2040	\$395,000	\$53,494	\$448,494
2041	\$410,000	\$40,163	\$450,163
2042	\$420,000	\$26,325	\$446,325
2043	\$360,000	\$12,150	\$372,150

Source: Revenue Bond documents.

ref bonds

Table B-7
City of Livingston 2021 Wastewater Rates Update

Summary of Depreciation in Rates

DRAFT

Facility Depreciation	Fiscal Year Ending					
	2021	2022	2023	2024	2025	2026
Existing System [1]	\$375,112	\$375,112	\$375,112	\$375,112	\$375,112	\$375,112
New Facilities	\$38,125	\$73,626	\$87,864	\$133,598	\$142,922	\$153,314
Total Depreciation	\$413,237	\$448,738	\$462,976	\$508,711	\$518,034	\$528,427
Percentage in Rates	0%	0%	0%	0%	0%	0%
Depreciation in Rates	\$0	\$0	\$0	\$0	\$0	\$0

Source: City of Livingston and HEC.

depr

[1] Current annual depreciation:

Lift Stations	\$30,424
Collection System	\$9,932
Treatment Plant	\$317,635
Equipment & Vehicles	\$17,122
Total Annual Depreciation	\$375,112

Table B-8
City of Livingston 2021 Wastewater Rates Update
Depreciation for New CIP

DRAFT

Wastewater System	Useful Life	Fiscal Year Ending					
		2021	2022	2023	2024	2025	2026
Treatment Plant							
	years						
Biosolids Dewatering Equipment	30	\$0	\$10,350	\$17,492	\$17,492	\$17,492	\$17,492
SCADA Tower	50	\$0	\$311	\$311	\$311	\$311	\$311
Total Treatment Plant		\$0	\$10,661	\$17,802	\$17,802	\$17,802	\$17,802
Collection System							
Lift Station Rehabilitation (Singh & Burgandy)	40	\$0	\$2,588	\$5,266	\$5,266	\$5,266	\$5,266
Sewer Line Replacement	80	\$38,125	\$38,125	\$38,125	\$38,125	\$38,125	\$38,125
Additional Sewer Line Replacement	80	\$0	\$0	\$4,419	\$11,348	\$20,672	\$31,064
New Disc & Ripper Tractor	10	\$0	\$22,253	\$22,253	\$22,253	\$22,253	\$22,253
New Vac-On Sewer Truck	10	\$0	\$0	\$0	\$38,805	\$38,805	\$38,805
Total Collection System		\$38,125	\$62,965	\$70,062	\$115,796	\$125,120	\$135,512
TOTAL		\$38,125	\$73,626	\$87,864	\$133,598	\$142,922	\$153,314

Source: City of Livingston capital improvement plan, and HEC.

new depr

Table B-9

City of Livingston 2021 Wastewater Rates Update

Projected Costs and Distribution between Collection and Treatment System

DRAFT

Year 1

Fiscal Year Ending 2022

Expenditures	Projected Total	Allocation		Collection			Treatment		
		Collection	Treatment	Operations	Capital	Total	Operations	Capital	Total
Personnel	\$761,390	20%	80%	\$152,278		\$152,278	\$609,112		\$609,112
New Personnel [1]	\$76,100	20%	80%	\$15,220		\$15,220	\$60,880		\$60,880
Professional & Contract Services	\$138,867	20%	80%	\$27,773		\$27,773	\$111,093		\$111,093
Treatment Plant O&M	\$51,750	20%	80%	\$10,350		\$10,350	\$41,400		\$41,400
Collection & Facilities O&M	\$62,100	20%	80%	\$12,420		\$12,420	\$49,680		\$49,680
Utilities	\$269,256	20%	80%	\$53,851		\$53,851	\$215,405		\$215,405
Facilities, Equipment & Other O&M	\$119,025	20%	80%	\$23,805		\$23,805	\$95,220		\$95,220
Tools, Subscriptions, Supplies	\$248,235	20%	80%	\$49,647		\$49,647	\$198,588		\$198,588
Series 2016A Refunding	\$445,850	20%	80%		\$89,170	\$89,170		\$356,680	\$356,680
New Debt Service	\$0	20%	80%		\$0	\$0		\$0	\$0
System Rehabilitation and New Projects	\$702,050	20%	80%		\$140,410	\$140,410		\$561,640	\$561,640
Additional Collection for Depreciation	\$0	20%	80%		\$0	\$0		\$0	\$0
Subtotal Costs	\$2,874,622			\$345,344	\$229,580	\$574,924	\$1,381,378	\$918,320	\$2,299,698
Less Offsetting Credits	(\$52,920)								
Adjustment for Rate Collection	(\$41,702)								
Total	\$2,780,000								

Source: City of Livingston financial documents and HEC.

distr

Table B-10
City of Livingston 2021 Wastewater Rates Update
Unit Cost Determination

Year 1
DRAFT **Fiscal Year Ending 2022**

Cost Category	Allocated Costs	Percent Allocation			Cost			Total Influent			Unit Cost Per:		
		Flow	BOD	SS	Flow	BOD	SS	Flow	BOD	SS	Mgal of Flow	Klb of BOD	Klb of SS
	(A)	(B)	(C)	(D)	(E) = (A)*(B)	(F)=(A)*(C)	(G)=(A)*(D)	(H)	(I)	(J)	(K)=(E)/(H)	(L)=(F)/(I)	(M)=(G)/(J)
Operating Costs													
Collection System Costs	\$345,344	100%	0%	0%	\$345,344	\$0	\$0	424	1,090	1,096	\$815	\$0	\$0
Treatment Costs	\$1,381,378	60%	20%	20%	\$828,827	\$276,276	\$276,276	424	1,090	1,096	\$1,956	\$254	\$252
Capital Costs													
Collection System Costs	\$229,580	100%	0%	0%	\$229,580	\$0	\$0	424	1,090	1,096	\$542	\$0	\$0
Treatment Costs	\$918,320	60%	20%	20%	\$550,992	\$183,664	\$183,664	424	1,090	1,096	\$1,300	\$169	\$168
Subtotal Collection Costs	\$574,924	100%	0%	0%	\$574,924	\$0	\$0				\$1,357	\$0	\$0
Subtotal Treatment Costs	\$2,299,698	60%	20%	20%	\$1,379,819	\$459,940	\$459,940				\$3,256	\$422	\$420
Subtotal Costs	\$2,874,622	68%	16%	16%	\$1,954,743	\$459,940	\$459,940				\$4,613	\$422	\$420
Less Offsetting Credits	(\$52,920)	68%	16%	16%	(\$35,986)	(\$8,467)	(\$8,467)	424	1,090	1,096	(\$85)	(\$8)	(\$8)
Adjustment for Rate Collector	(\$41,702)	68%	16%	16%	(\$28,358)	(\$6,672)	(\$6,672)	424	1,090	1,096	(\$67)	(\$6)	(\$6)
TOTAL COSTS	\$2,780,000				\$1,890,400	\$444,800	\$444,800				\$4,461	\$408	\$406

Source: City of Livingston financial documents and HEC.

units

Table B-11

City of Livingston 2021 Wastewater Rates Update

Allocation of Costs to Flow, BOD and SS by Customer Category

DRAFT

Year 1
Fiscal Year Ending 2022

Unit Cost / Customer Category	Flow MG/Yr	BOD Klb/Yr	SS Klb/Yr	Collection	Treatment			Other			TOTAL
				Flow \$/Mgal	Flow \$/Mgal	BOD \$/Klb	SS \$/Klb	Flow \$/Mgal	BOD \$/Klb	SS \$/Klb	
Unit Cost				\$1,357	\$3,256	\$422	\$420	(\$152)	(\$14)	(\$14)	
Residential											
Detached	304.9	635.6	635.6	\$413,607	\$992,656	\$268,317	\$266,713	(\$46,289)	(\$8,832)	(\$8,779)	\$1,877,392
Attached	42.9	89.4	89.4	\$58,175	\$139,620	\$37,740	\$37,514	(\$6,511)	(\$1,242)	(\$1,235)	\$264,060
Non-Residential											
Churches/Temples/Comm.Ctrs.	1.6	2.1	2.3	\$2,218	\$5,324	\$892	\$973	(\$248)	(\$29)	(\$32)	\$9,098
Schools (with cafeteria)	13.4	25.7	18.4	\$18,183	\$43,640	\$10,852	\$7,739	(\$2,035)	(\$357)	(\$255)	\$77,768
Hotel/Motel	2.9	8.4	12.0	\$3,914	\$9,395	\$3,555	\$5,048	(\$438)	(\$117)	(\$166)	\$21,192
Light Industrial	18.7	155.6	124.5	\$25,309	\$60,742	\$65,675	\$52,226	(\$2,832)	(\$2,162)	(\$1,719)	\$197,238
Commercial	39.4	172.7	213.8	\$53,518	\$128,442	\$72,908	\$89,728	(\$5,989)	(\$2,400)	(\$2,954)	\$333,253
TOTAL	423.8	1,089.6	1,096.2	\$574,924	\$1,379,819	\$459,940	\$459,940	(\$64,343)	(\$15,140)	(\$15,140)	\$2,780,000

Source: City of Livingston financial documents and HEC.

alloc

Table B-12

City of Livingston 2021 Wastewater Rates Update
Calculated Cost per Thousand Gallons

DRAFT Year 1
Fiscal Year Ending 2022

Customer Type	Allocated Cost	Percentage of Cost	Annual Flow (MG)	Cost per 1,000 Gallons
Residential				
Detached	\$1,877,392	67.5%	304.87	\$6.16
Attached	\$264,060	9.5%	42.88	\$6.16
Subtotal Residential	\$2,141,452	77.0%	347.75	\$6.16
Non-Residential				
Churches/Temples/Comm.Ctrs.	\$9,098	0.3%	1.64	\$5.56
Schools (with cafeteria)	\$77,768	2.8%	13.40	\$5.80
Hotel/Motel	\$21,192	0.8%	2.89	\$7.34
Light Industrial	\$197,238	7.1%	18.66	\$10.57
Commercial	\$333,253	12.0%	39.45	\$8.45
Subtotal Non-Residential	\$638,548	23.0%	76.03	\$8.40
TOTAL	\$2,780,000	100.0%	423.77	\$6.56

Source: City of Livingston financial documents and HEC.

cos

Table B-13
City of Livingston 2021 Wastewater Rates Update

Projected Number of Billing Units

DRAFT

Customer Categories		2021	2022	2023	2024	2025	2026
	<i>Growth Rate [1] ---></i>		<i>1.2%</i>	<i>1.2%</i>	<i>1.2%</i>	<i>1.2%</i>	<i>1.2%</i>
Residential							
Detached	Units	3,301	3,341	3,381	3,422	3,463	3,505
Attached	Units	528	534	540	546	553	560
Subtotal Residential		3,829	3,875	3,921	3,968	4,016	4,065
Non-Residential							
Churches/Temples/Comm.Ctrs.	Accounts	16	16	16	16	16	16
Schools (with cafeteria) [2]	Students	3,723	3,723	3,723	3,723	3,723	3,723
Hotel/Motel	Rooms	93	93	93	93	93	93
Light Industrial	Accounts	1	1	1	1	1	1
Commercial	Accounts	129	131	133	135	137	139

Source: City of Livingston customer records, and HEC.

services

[1] Growth rate applied to residential and commercial categories only.

[2] No growth - historical data for last 5 years shows no growth.

APPENDIX C

SOLID WASTE RATE STUDY

SUPPORT TABLES

Table C-1
City of Livingston 2021 Solid Waste Rates Update
Historical and Budgeted Sanitation Fund Revenues

DRAFT

Revenues	Fiscal Year Ending				
	2017	2018	2019	2020	2021
	actual	actual	actual	unaudited	budget
Intergovernmental					
Grant Funds	\$10,000	\$5,000	\$5,000	\$5,000	\$0
CMAQ Grant For CNG Sweeper	\$0	\$0	\$0	\$0	\$0
SJVAPCD-Grnt Veh Purchase Rev	\$0	\$9,702	(\$3,035)	\$0	\$0
Subtotal Intergovernmental	\$10,000	\$14,702	\$1,965	\$5,000	\$0
Charges for Services					
User Fees	\$1,371,342	\$1,386,815	\$1,417,249	\$1,473,678	\$1,426,625
Developer Impact Fees	\$0	\$0	\$0	\$0	\$0
Subtotal Charges for Services	\$1,371,342	\$1,386,815	\$1,417,249	\$1,473,678	\$1,426,625
Fines & Forfeitures					
Penalty Fees	\$15,229	\$17,733	\$15,595	\$11,648	\$13,905
Subtotal Fines & Forfeitures	\$15,229	\$17,733	\$15,595	\$11,648	\$13,905
Return on Use of Money/Property					
True Value Parking Lot Maint	\$0	\$0	\$0	\$0	\$0
Plaza Parking Lot Maint	\$0	\$0	\$0	\$0	\$0
Interest Income	\$1,476	\$7,549	\$14,901	\$12,395	\$5,150
Subtotal Return on Use of Money/Property	\$1,476	\$7,549	\$14,901	\$12,395	\$5,150
Miscellaneous					
Reimbursements/Refunds	\$3,080	\$9,782	\$5,991	\$4,956	\$5,150
Other Revenue	\$407	\$236	\$71	\$127	\$0
RMA Insurance Refunds	\$0	\$0	\$0	\$0	\$0
Subtotal Miscellaneous	\$3,487	\$10,019	\$6,061	\$5,083	\$5,150
Total Revenues	\$1,401,534	\$1,436,818	\$1,455,771	\$1,507,804	\$1,450,830

Source: City of Livingston financial documents.

rev

Table C-2
City of Livingston 2021 Solid Waste Rates Update
Historical and Budgeted Sanitation Fund Expenses

DRAFT

Expenses	Fiscal Year Ending				
	2017	2018	2019	2020	2021
	actual	actual	actual	unaudited	budget
Personnel	\$91,307	\$180,716	\$194,064	\$233,479	\$248,044
Maintenance and Operations					
Professional Services	\$3,727	\$1,123	\$1,180	\$3,031	\$2,700
Contract Services	\$54,788	\$18,930	\$17,060	\$44,120	\$45,000
Service Agreements	\$0	\$0	\$0	\$0	\$0
Disposal Contract Services	\$907,749	\$919,518	\$997,084	\$1,059,650	\$1,052,400
RegistrationTuitionTraining	\$81	\$0	\$0	\$78	\$750
City Attorney	\$0	\$0	\$0	\$0	\$0
City Audit	\$7,420	\$7,600	\$8,000	\$8,000	\$8,000
Computer Support Agreements	\$14,639	\$22,009	\$21,136	\$20,432	\$25,000
Plaza Parking Lot O & M	\$0	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$0	\$0
Vehicle O & M	\$2,807	\$942	\$5,050	\$6,858	\$8,700
Equipment O & M	\$13	\$39	\$0	\$64	\$6,700
Facilities O & M	\$810	\$120	\$0	\$87	\$6,000
True Value Parking Lot O & M	\$0	\$0	\$0	\$0	\$0
RentsLeases	\$0	\$0	\$0	\$0	\$0
Street Sweeper O & M	\$0	\$0	\$0	\$0	\$0
Insurance	\$5,594	\$4,811	\$4,831	\$5,220	\$5,250
CommCell PhonesTelephone	\$134	\$2,201	\$2,447	\$2,481	\$3,000
Advertisement	\$0	\$0	\$417	\$58	\$800
Printing	\$463	\$366	\$507	\$428	\$2,000
Bank Service Fee Agreements	\$5,176	\$6,467	\$7,496	\$9,318	\$6,000
Trustee Fees	\$0	\$0	\$0	\$0	\$0
TravelConferencesMeetings	\$586	\$102	\$146	\$87	\$1,000
Small Tools & Equipment	\$351	\$434	\$82	\$198	\$750
Office Supplies	\$3,230	\$2,412	\$2,178	\$737	\$3,800
Postage	\$7,774	\$7,192	\$7,905	\$1,433	\$10,500
ReimbursementRefunds	\$0	\$0	\$0	\$0	\$0
Miscellaneous Expenditures	\$0	\$78	(\$56)	\$0	\$0
BooksSubscriptionsPeriodical	\$0	\$0	\$0	\$0	\$0
DuesMembershipFees	\$2,088	\$482	\$732	\$3,172	\$2,290
RecycleLitter Grant Expense	(\$11,947)	\$0	\$12,698	\$1,301	\$5,000
Payment In Lieu Tax	\$0	\$0	\$0	\$0	\$0
Bad Debt Write Offs	\$0	\$0	\$0	\$0	\$0
Subtotal Maintenance and Operations	\$1,005,483	\$994,826	\$1,088,893	\$1,166,753	\$1,195,640
Vehicles, Equip & Improvements					
Equipment Purchase	\$788	\$3,592	\$0	\$3,111	\$13,750
Garbage Container Purchase	\$0	\$0	\$0	\$0	\$0
Vehicle Purchase	\$0	\$0	\$0	\$7,509	\$285,000
Vehicle Replacement Fee	\$0	\$0	\$0	\$0	\$0
Purchase Street Sweeper	\$0	\$0	\$0	\$0	\$0
FurnitureFixtureImprovements	\$0	\$199	\$0	\$0	\$0
SJVAPCD Grant Vehicle Purchase	\$0	\$0	\$0	\$0	\$0
Subtotal Vehicles, Equip. & Improvements	\$788	\$3,791	\$0	\$10,621	\$298,750
Total Expenses	\$1,097,578	\$1,179,333	\$1,282,957	\$1,410,853	\$1,742,434

Source: City of Livingston financial documents.

exp

Table C-3
City of Livingston 2021 Solid Waste Rates Update
Gilton Rates Fiscal Year 2020/21

DRAFT

Collections per Week	Rates Effective 1 July 2020				
	x1	x2	x3	x4	x5
Residential					
96 gal. cart	\$17.54				
Add'l cart	\$4.63				
96 gal. cart greenwaste	\$0.93				
Add'l greenwaste cart	\$4.63				
Multi-Family Residential, Commercial and Organic Services					
1 CY	\$33.03	\$65.49	\$97.84	\$130.26	\$162.67
2 CY	\$65.84	\$130.50	\$196.76	\$261.95	\$327.13
3 CY	\$97.54	\$184.49	\$277.99	\$365.78	\$445.00
4 CY	\$124.85	\$243.29	\$380.49	\$465.25	\$557.42
6 CY	\$175.54	\$342.18	\$523.29	\$652.47	\$821.32
Commercial - Compacting Bins					
3 CY	\$339.19	\$653.68	\$981.51	\$1,308.68	\$1,635.84
4 CY	\$430.24	\$823.58	\$1,308.68	\$1,744.90	\$2,181.14
Standard Clean, Mixed Recyclables					
4 CY	\$49.79	\$99.59	\$149.39	\$199.19	\$248.98
6 CY	\$49.79	\$99.59	\$149.39	\$199.19	\$248.98

Source: Letter 5/1/20 from Gilton Solid Waste Management, Inc.

gilton

Table C-4
City of Livingston 2021 Solid Waste Rates Update

Projected Number of Sanitation Services

DRAFT

Customer Type	Current No. of Customers	Projected Number of Services				
		2022	2023	2024	2025	2026
<i>Estimated Growth Rate --></i>		1.2%	1.2%	1.2%	1.2%	1.2%
Residential						
96 gal. cart	3,268	3,307	3,347	3,387	3,428	3,469
Add'l cart	310	314	318	322	326	330
96 gal. cart greenwaste	3,241	3,280	3,319	3,359	3,399	3,440
Add'l greenwaste cart	11	11	11	11	11	11
Multi-Family & Comm'l - 1x / Week						
1 CY	5	5	5	5	5	5
2 CY	31	31	31	31	31	31
3 CY	14	14	14	14	14	14
4 CY	19	19	19	19	19	19
6 CY	7	7	7	7	7	7
Organic Carts						
2 CY	0	0	0	0	0	0
4 CY	8	8	8	8	8	8
6 CY	0	0	0	0	0	0
Multi-Family & Comm'l - 2x/Week						
1 CY	0	0	0	0	0	0
2 CY	1	1	1	1	1	1
3 CY	2	2	2	2	2	2
4 CY	15	15	15	15	15	15
6 CY	10	10	10	10	10	10
Organic Carts						
2 CY	1	1	1	1	1	1
4 CY	5	5	5	5	5	5
6 CY	1	1	1	1	1	1
Multi-Family & Comm'l - 3x/Week						
1 CY	0	0	0	0	0	0
2 CY	0	0	0	0	0	0
3 CY	1	1	1	1	1	1
4 CY	5	5	5	5	5	5
6 CY	2	2	2	2	2	2
TOTAL	3,395	3,434	3,474	3,514	3,555	3,596

Source: City of Livingston and HEC January 2021.

services