HANSFORD
ECONOMIC CONSULTING LLC

Linden County Water District

Cost of Service and Rates Study: WASTEWATER

FINAL

LCWD
LINDEN COUNTY WATER DISTRICT

Submitted:
December 8, 2020

HEC Project #190309

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 Linden County Water District, 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.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Section 1: INTRODUCTION

1.1 STUDY BACKGROUND AND BEST PRACTICES

Background

The Linden County Water District (District or LCWD) provides wastewater collection, treatment and disposal services within its service territory. The District contracted with Hansford Economic Consulting LLC (HEC) to determine the level of funding required over the next five and a half years to sufficiently fund service provision, and the fees to be collected from customers to achieve that level of funding. In addition, pursuant to best management practices and Government Code 54999.7 (c)[1], this report demonstrates cost of service by customer category. The wastewater financial model presented in this report projects revenues and expenses, determines cost of service, and calculates annual property-related fees for the next five and a half years.

The property-related fees (also called "rates" in the Study) are exempt from Proposition 26 but are subject to California Constitution Article XIII D (commonly referred to as Proposition 218) requirements for water, wastewater, and solid waste property-related fees.

This Study provides an explanation of, and justification for, calculated annual wastewater fees by customer type through June 30, 2026, and documents adherence to the law regarding the setting of property-related fees by a special district. Specifically, the California Constitution requires that the fees for wastewater service shall not be extended, imposed, or increased by any agency unless all of the following requirements have been met:

(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.

[1] A cost of service study is required every ten years when service is provided to public schools.

Best Practices

Fee studies are typically conducted every three to five years to ensure revenue sufficiency. In addition, an important part of the fee study is a cost of service analysis, so that the study addresses not only revenue sufficiency, but also whether customers are paying for their share of system costs, adjusting rates and customer classifications to achieve equity to the maximum extent practicable.

Figure 1 below illustrates the fee-setting process. The District last adopted wastewater rates November 2015 and the fifth year of rates was effective July 1, 2019.

Figure 1
Fee-Setting Process

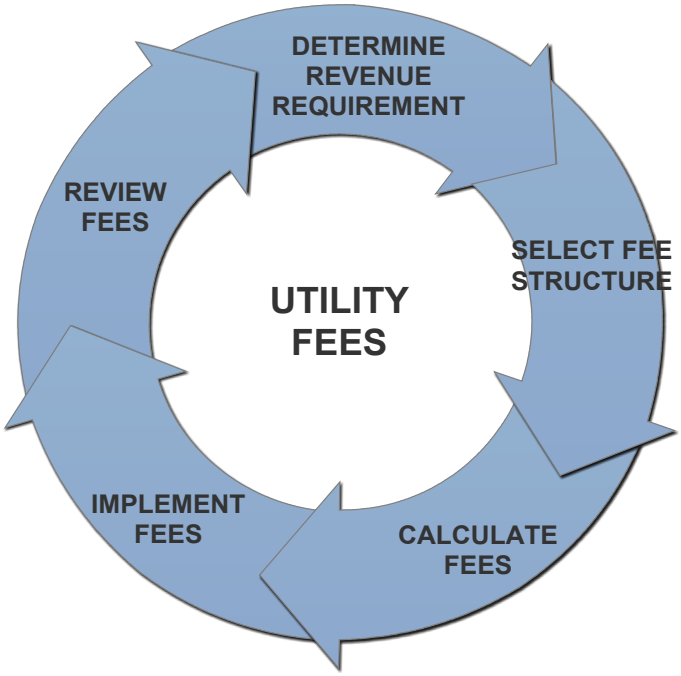


Table 1 on the next page shows utility rate-setting best practices and the District's current practices. As part of the regular periodic reviews of the utility fees, best practices include maintaining financially self-sustaining utilities, setting policies on reserve levels for utility funds, and conducting regular customer outreach/ communications to educate the community on their utility system(s) and value of the service(s) provided.

Table 1
Utility Rate-Setting Best Practices

Best Practice	Linden County Water District
Rate study every 3 to 5 years	Last rate study conducted in 2015; on 5-year cycle
Collect for system rehabilitation (for upkeep of existing infrastructure) in rates	Rehabilitation (as approximated by depreciation of assets) is currently included in the rates
Regular customer communications to educate on the utility system(s) and value of service	The District distributes inserts regularly with monthly bills to communicate with customers
Meet bond covenants	The District currently does not have any debt for the wastewater system (it will start repayment on a $2.4M loan for the water system starting in 2022)
Self-sufficient fund	Revenues cover operating costs and the District has healthy cash reserves; however, several large capital improvement projects are planned the next 5 years
Meet target cash balance	The District does not have a formal reserves policy. The rate study recommends at least $100,000 in the capital outlay fund for each system ($200,000 total including water), as well as at least 6 months of operating expenses

This report was prepared using the principles established by the Water Environment Federation Manual of Practice No. 27 and guidelines prepared by the California State Water Resources Control Board for State Revolving Fund financing. This Study uses the functional cost allocation methodology to determine rates[2].

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

1. **Establish the Wastewater Customer Base and User Characteristics** – The wastewater customer base includes residential, school, and commercial users as described in Section 2 of the Study. Section 2 also provides detail on the current rate schedule and historical financial health of the District.

2. **Project Revenue Requirement –** The revenue requirement is the amount of money to be raised from rates. 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, and operating reserve costs. Non-rate revenue credited against the projected costs include property taxes, interest income, late payments and penalties, and

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

other miscellaneous credits. Revenue requirement calculations are provided in Section 3 of the Study.

3. **Determine Cost of Service by Customer Type** – First, costs are functionalized between customer-related costs and flow-related costs. Section 4 of the Study describes the utility systems different costs and how they are categorized as being customer-related or flow-related. Cost of service by customer type in the fee model is compared to revenues currently being collected by customer type. The results of the cost of service analysis are presented in Section 4 of the Study.

4. **Add the Customer-Related and Flow-Related Charges -** Annual calculated cost of service fees by customer type are based on the functionalization of the revenue requirement projections. In Tax Area wastewater customers receive a customer-related credit for property taxes contributed to LCWD. Customer-related and flow-related charges are added together to determine total cost of service wastewater fees. Total annual cost of service for each customer type is divided by 12 to determine the monthly projected rates.

Section 5 of the report includes cash flow projections for the sewer fund 93 and wastewater portion of the capital outlay fund as well as an analysis of the impact of the calculated fees on customers.

Appendix A includes support tables for the wastewater rates analysis.

1.2 MAJOR ASSUMPTIONS OF THE STUDY

No New Debt
The rate study assumes that capital improvement projects will be completed as revenue allows; there is no new debt issued in the next five and half years to support the wastewater system. Capital Improvement costs will be paid for with money collected from customer rates, property taxes, and interest income.

Growth
The District might see growth in the customer base within the rate study timeline but no growth is included in the financial projection to be conservative in revenue estimates.

Distinction of In Tax Area and Out Tax Area Customers
All wastewater customers pay property taxes; however, LCWD does not receive a portion of property taxes from all properties it provides wastewater services to. The new rate schedule distinguishes between properties as either 'In Tax Area' or 'Out Tax Area'. Currently, there is no difference in rates for accounts that do or don't contribute property taxes to LCWD.

Property Tax Credits
Properties that contribute financially to the District by way of property taxes (In Tax Area) are given a credit in the customer charges portion of monthly fee calculations. Properties

that pay property taxes, but for which no portion is received by LCWD (Out Tax Area), pay the full customer charges portion of monthly fees.

New Customer Categories

New customer categories are proposed to simplify the billing process and to group customers with similar characteristics together better. The category changes are all for commercial and school customers. The residential customer categories would remain the same. Proposed customer category changes are shown in **Table 2** below.

Table 2
Current and Proposed Customer Categories

Current Customer Type	New Classification	Billing Code	
		Current	New
Residential	Residential	S1	S1
Dual Residential	Dual Residential	S7	S2
	Bank		SB
Restaurant	Restaurant	S5	SR
	Grocery		SG
	Laundromat & Car Wash		SL
	Light Industrial		SLI
Commercial		S2	
Light Commercial	Commercial 1 Unit	S6	SC1
Commercial x2	Commercial 2 Units	S6x2	SC2
Commercial x3	Commercial 3 Units	S6x3	SC3
Commercial x7		S6x7	
School	School	S3	
	Linden High		SCH
	Linden Elementary		SCHE

Implementation of New Rate Schedule

For the current fiscal year which ends June 30, 2021, there is no proposed change to the budgeted revenue to be collected from wastewater rates. The detailed calculation tables show cost of service fee calculations for this fiscal year but new rates are proposed to be implemented with the new fiscal year, July 1, 2021.

1.3 KEY FINDINGS AND CALCULATED FEES

Key Findings

This Study makes the following key findings:

- **Cost of Service.** The cost of service analysis shows some small corrections needed in most customer categories but a large correction necessary for grocery stores, the commercial 1-unit category, and schools. Currently, only the residential category is paying close to cost of service rates. The Linden Unified School District (LUSD) and five of the commercial categories are overpaying, and three of the commercial categories are underpaying.

- **Property In Tax Area and Out Tax Area.** In Tax Area wastewater accounts would receive a credit for their property tax contributions to the District under the proposed new rate schedule. The credit amounts to $8.85 per month July 1, 2021, and it would continue at a higher rate in future fiscal years.

- **Revenue Sufficiency.** Throughout the rate study timeline, with implementation of the proposed rates, it is projected that revenue sufficiency will be achieved to cover all projected costs and that the District will have at least $100,000 in the capital outlay fund and at least 6 months of operating expenses available in unrestricted funds, the latter of which is illustrated in **Figure 2** below.

- **Maximum Rates.** The proposed rates are the maximum that could be imposed. In the event that adopted rates produce revenues that are greater than needed in future years, the District could freeze rates, or even lower rates. The proposed maximum fees schedule is shown in **Table 3** on the next page.

Figure 2
Projected Unrestricted Sewer Fund 93 Cash Balances

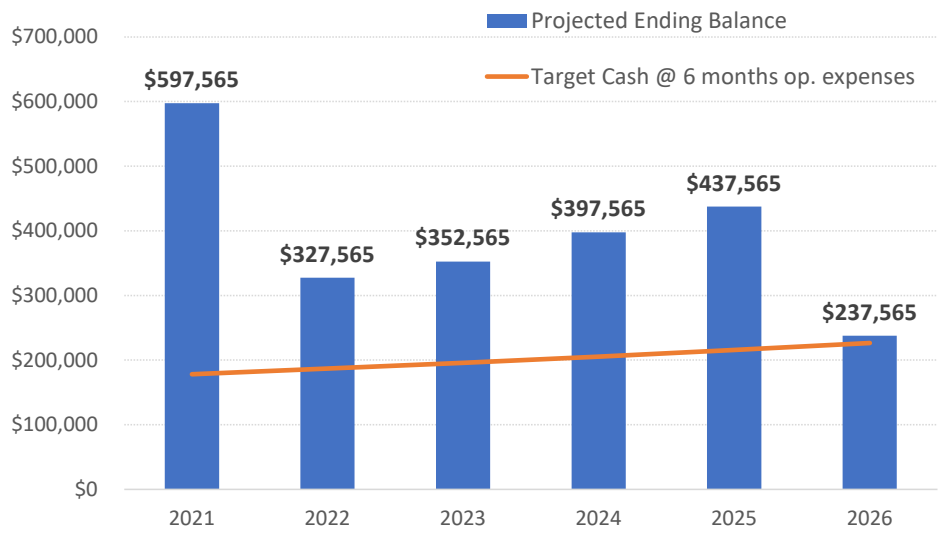


Table 3
Proposed Maximum Fees Schedule

Customer Category	Fiscal Year				
* OUT Tax Area accounts	**2022**	**2023**	**2024**	**2025**	**2026**
Residential *Effective*	*7/1/2021*	*7/1/2022*	*7/1/2023*	*7/1/2024*	*7/1/2025*
Single Family	$48.30	$52.59	$57.58	$63.11	$67.79
--SF Out Tax Area *	$57.14	$61.62	$66.79	$72.50	$77.39
Dual Unit Account	$84.27	$91.38	$99.63	$108.74	$116.51
Non-Residential			**per month**		
Commercial 1 Unit	$28.67	$31.42	$34.63	$38.20	$41.20
--Comm'l 1 Unit Out Tax Area *	$37.51	$40.45	$43.85	$47.60	$50.80
Commercial 2 Units	$42.06	$45.86	$50.29	$55.19	$59.34
Commercial 3 Units	$105.24	$113.99	$124.14	$135.35	$144.91
Bank	$182.46	$197.26	$214.40	$233.33	$249.49
Restaurant	$75.30	$81.71	$89.15	$97.37	$104.36
Grocery	$904.29	$975.61	$1,058.13	$1,149.18	$1,227.09
Laundromat & Car Wash	$273.31	$295.22	$320.59	$348.60	$372.53
Light Industrial	$100.49	$108.87	$118.59	$129.33	$138.48
Schools					
Linden High *	$600.34	$647.35	$701.72	$761.70	$813.06
Linden Elementary *	$299.76	$323.23	$350.38	$380.33	$405.98
Out Tax Area Add'l Customer Charge [1]	$8.85	$9.03	$9.21	$9.40	$9.60

[1] For a new Out Tax Area customer without a rate shown, apply the In Tax rate plus the additional customer charge.

1.4 COMPARISON OF CURRENT AND PROPOSED FEES

Figure 3 on the next page shows the projection of monthly fees for residential units through June 2026. Currently the monthly fee for a residential unit is $50.02 per month. Under the proposed fee schedule, beginning July 1, 2021, the monthly fee for a residential unit In Tax Area would decrease to $48.30, and the monthly fee for a residential unit Out Tax Area would increase to $57.14.

Figure 4 compares the District's current and calculated wastewater fees with those of other regional communities. The dark orange bars show the District's current and proposed monthly fees for In Tax Area and Out Tax Area residential customers. It is important to note that this figure only shows a snapshot in time with current rates of comparison communities; rates are scheduled to increase for most of the comparison communities at the same time as Linden (July 1, 2021).

Figure 3
Projected Monthly Fees for a Residential Unit

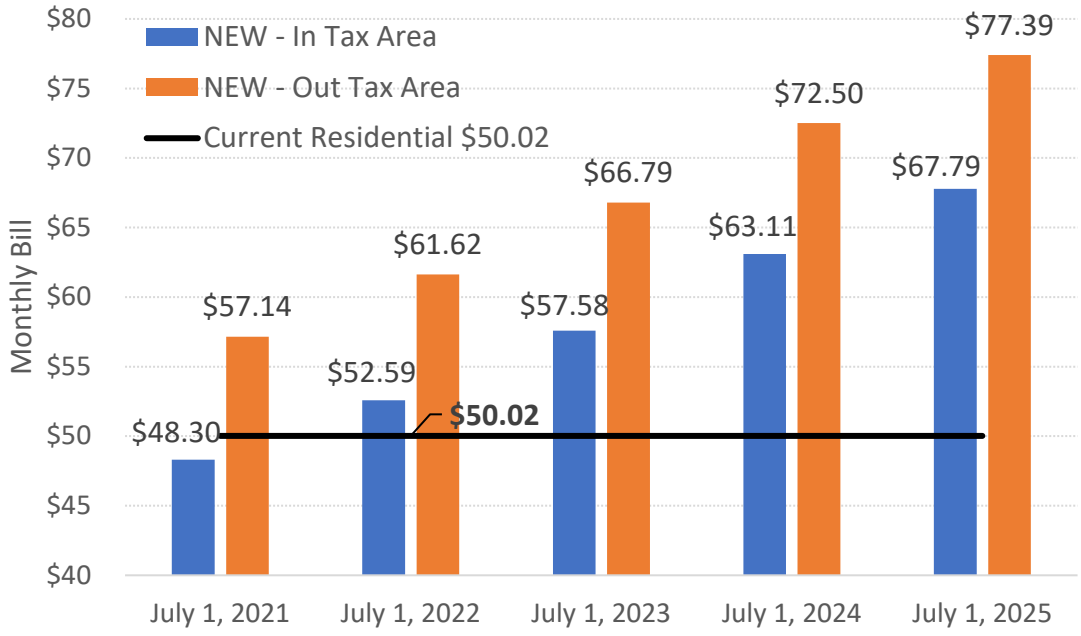
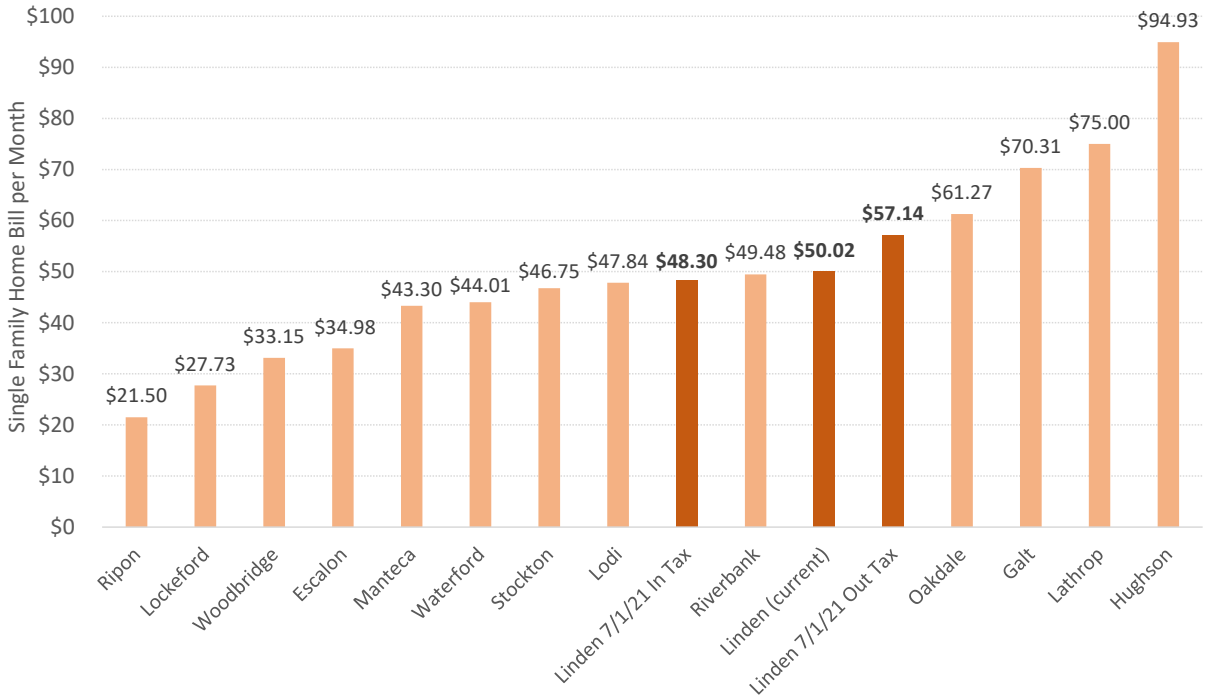


Figure 4
Comparison Wastewater Bill for a 3-Bedroom Home

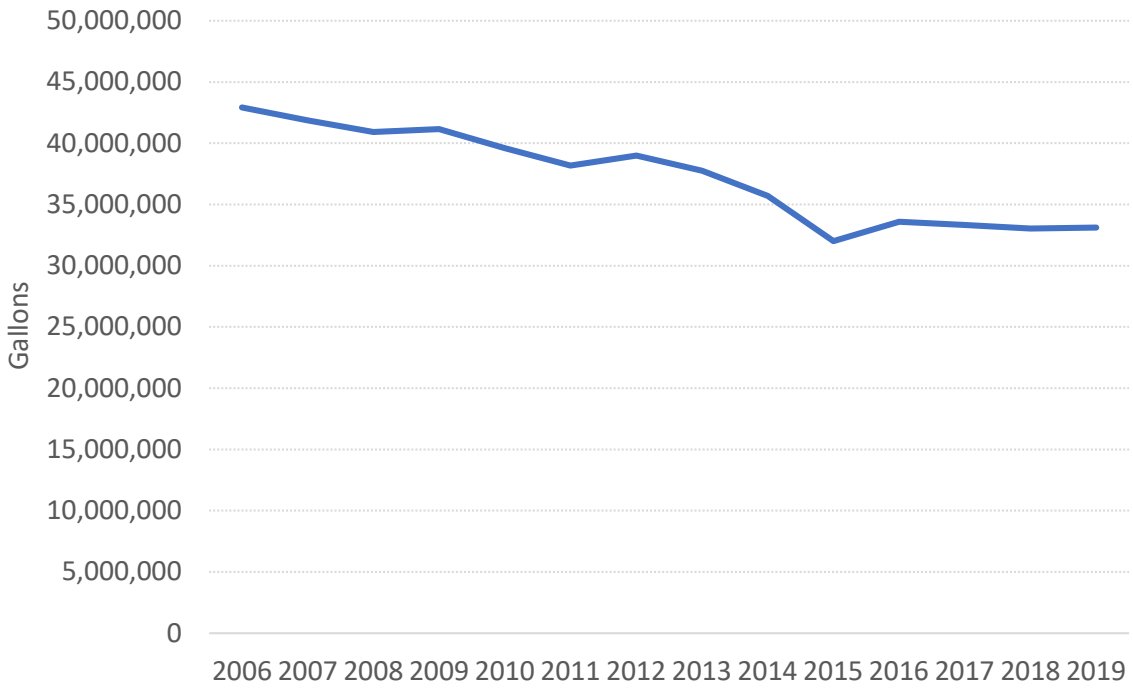


Section 2: District Customers and Financial Health

2.1 District Customers

Rate Methodology Step 1: Establish the Wastewater Customer Base and User Characteristics
The District's customers send, on average, almost 90,840 gallons of effluent to the wastewater treatment plant each day. The average annual effluent for the past three years has totaled 33.16 million gallons[3]. Treated effluent has decreased most years since 2006 as shown in **Figure 5** below.

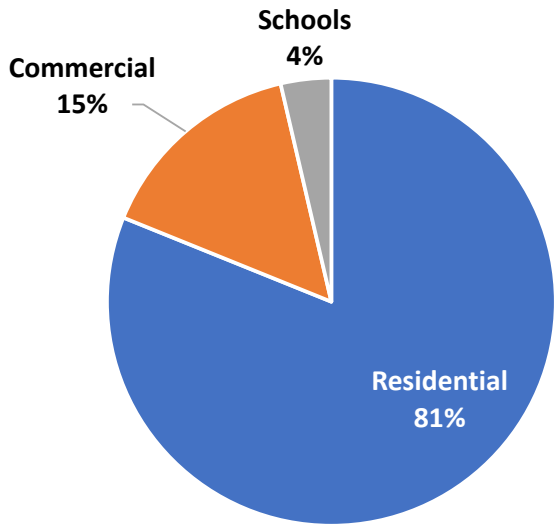
Figure 5
Annual Wastewater Treatment Plant Effluent Flows



Estimated effluent generated by customer type is illustrated in **Figure 6**. The majority of estimated effluent is generated by residential customers; schools and commercial customers generate approximately 19% of the effluent flow.

[3] Total effluent flow into the wastewater treatment plant by month and year since 2006 is provided **Appendix A Table A-1.**

Figure 6
Linden County Water District Effluent Generation



The District provides wastewater service to 573 accounts, of which 92% are residential accounts. Flow from a residential unit is about 180 gallons per day, which equates to one equivalent dwelling unit (EDU). Based on wintertime water meter reads, the District serves 656 wastewater EDUs.

It is proposed that the customer types be re-categorized to better align with wastewater effluent generation, moving away from a rate schedule that has been based on number of plumbing fixture units to one that is based on functionalized costs and best estimates of actual effluent generated by using wintertime water use data. This is an accepted industry method of estimating effluent generation[4]. **Table 4** on the following page provides the District's current number of customer accounts by current and proposed customer categories, and the calculation of number of EDUs by customer category. The total annual flow to the wastewater treatment plant would be 44.68 million gallons using the wintertime water use data. As noted previously, the average annual flow is 33.16 million gallons. The data suggests there is outdoor watering during the winter months. Because it is difficult to determine which accounts are watering outdoors, no adjustment has been made to the data that is used to calculate the number of wastewater EDUs.

Some customer accounts are In Tax Area and some Out Tax Area. **Table 5** summarizes the number of accounts and EDUs that are either In Tax Area or Out Tax Area.

[4] The M27 Manual states, "Because direct metering of wastewater volume is generally limited to large industrial or wholesale customers, it is common practice to use metered water data to estimate customer-contributed average wastewater volume units of service for the majority of customer classes…..it is generally reasonable, for allocation purposes, to estimate contributed residential (and non-residential) wastewater volumes based on winter water usage where irrigation is generally limited to summer months or as a representative percentage of total annual use where irrigation is year-round."

Table 4
Customer Characteristics

Current Customer Type	New Classification	Billing Code Current	Billing Code New	Number of Accounts Current	Number of Accounts Proposed	Galls per Day in Winter	Annual Flow per Unit / Acct	Total Annual Gallons	Ratio to Residential	2020 # of EDUs
							per unit			**by Flow**
Residential	Residential	S1	S1	524	524	181	66,065	34,618,060	1.0	524
Dual Residential	Dual Residential	S7	S2	4	4	181	66,065	264,260	1.0	8
							per account			
	Bank		SB	0	1	856	312,478	312,478	4.7	5
Restaurant	Restaurant	S5	SR	3	5	317	115,662	578,312	1.8	9
	Grocery		SG	0	2	4,488	1,638,234	3,276,468	24.8	50
	Laundromat & Car Wash		SL	0	1	1,313	479,335	479,335	7.3	7
	Light Industrial		SLI	0	5	444	161,927	809,636	2.5	12
Commercial		S2		7	0		n.a.	n.a.		
Light Commercial	Commercial 1 Unit	S6	SC1	30	25	82	30,008	750,198	0.5	11
Commercial x2	Commercial 2 Units	S6x2	SC2	3	1	150	54,608	54,608	0.8	1
Commercial x3	Commercial 3 Units	S6x3	SC3	1	2	468	170,649	341,299	2.6	5
Commercial x7		S6x7		0	0		n.a.	n.a.		
School	School	S3		1						[1]
	Linden High		SCH		1	5,910	2,157,008	2,157,008	32.6	16
	Linden Elementary		SCHE		1	2,843	1,037,548	1,037,548	15.7	8
	Total			**573**	**572**			**44,679,209**		**656**

Source: Linden County Water District and HEC, September 2020.

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[1] Schools EDUs adjusted for being open 180 days per year.

Table 5
In Tax Area and Out Tax Area Customer Accounts and EDUs

Current	New	Billing Code		Accounts		Total	EDU	Number	Number of EDUs	
Customer Type	Classification	Current	New	In Tax Area	Out Tax Area	Accounts	Ratio	of EDUs	In Tax Area	Out Tax Area
Residential	Residential	S1	S1	364	160	524	1.00	524.00	364.00	160.00
Dual Residential	Dual Residential	S7	S2	4	0	4	1.00	8.00	8.00	0.00
	Bank		SB	1	0	1	4.73	4.73	4.73	0.00
Restaurant	Restaurant	S5	SR	5	0	5	1.75	8.75	8.75	0.00
	Grocery		SG	2	0	2	24.80	49.59	49.59	0.00
	Laundromat & Car Wash		SL	1	0	1	7.26	7.26	7.26	0.00
	Light Industrial		SLI	5	0	5	2.45	12.26	12.26	0.00
Light Commercial	Commercial 1 Unit	S6	SC1	22	3	25	0.45	11.36	9.99	1.36
Commercial x2	Commercial 2 Units	S6x2	SC2	1	0	1	0.83	0.83	0.83	0.00
Commercial x3	Commercial 3 Units	S6x3	SC3	2	0	2	2.58	5.17	5.17	0.00
	Linden High		SCH	0	1	1	32.65	16.10	0.00	16.10
	Linden Elementary		SCHE	0	1	1	15.70	7.74	0.00	7.74
	TOTAL			**407**	**165**	**572**		**655.78**	**470.57**	**185.21**

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Source: Linden County Water District and HEC, September 2020.

2.2 FINANCIAL HEALTH OF THE DISTRICT

Table 6 summarizes the District's historical annual revenues and expenditures. Net revenues exclude depreciation, which is a non-cash item. Every year the District has had positive net revenue. Net revenues increased following the adoption of updated rates in 2015.

Table 6
Historical Revenues and Expenses

Revenues and Expenses	Fiscal Year Ending					
	2015	2016	2017	2018	2019	2020 Estimated
						Unofficial
Revenues						
Wastewater Fees [1]	$173,745	$328,978	$348,293	$372,110	$384,265	$383,237
Property Taxes	$29,867	$36,107	$37,826	$38,062	$40,392	$41,423
Interest Income	$160	$2,745	$5,385	$10,536	$18,317	$13,269
Total Revenues	**$203,772**	**$367,830**	**$391,504**	**$420,708**	**$442,974**	**$437,929**
Expenses						
Salaries	$60,021	$73,440	$75,527	$76,508	$83,491	$97,821
Utilities	$32,277	$33,526	$31,271	$33,663	$33,057	$35,100
Professional & Special Services	$43,891	$36,816	$36,295	$42,855	$39,573	$47,096
Employee Benefits	$25,545	$29,751	$29,897	$31,030	$32,442	$36,942
Repairs and Maintenance	$9,365	$26,839	$26,372	$27,291	$29,168	$27,411
Insurance	$7,145	$8,164	$8,161	$9,187	$9,605	$10,991
Office Supplies, Postage & Printing	$5,480	$7,442	$5,514	$6,210	$5,953	$6,121
Payroll Taxes	$4,778	$5,606	$5,821	$5,826	$6,360	$7,455
Testing Services	$8,165	$8,365	$7,517	$9,353	$8,639	$7,823
Weed Control	$1,597	$5,056	$3,016	$3,846	$3,160	$2,401
Total Expenses	**$198,264**	**$235,005**	**$229,391**	**$245,769**	**$251,448**	**$279,159**
Net Revenues	**$5,508**	**$132,825**	**$162,113**	**$174,939**	**$191,526**	**$158,770**
Depreciation	$43,399	$43,967	$43,349	$44,872	$43,040	n.a.

Source: Linden County Water District financial records. audits

[1] Includes late payments and penalties.

The majority of revenues (about 88% of the District's revenues) are from monthly fees, 10% from property taxes, and 2% from interest income. **Figure 7** on the next page is a pie chart of the District's revenue sources. The District's current wastewater rate schedule is provided in **Table 7** on the next page. Note that the rate for School includes both Linden Elementary and Linden High schools.

Figure 7
Historical Revenue Sources (2015-2019)

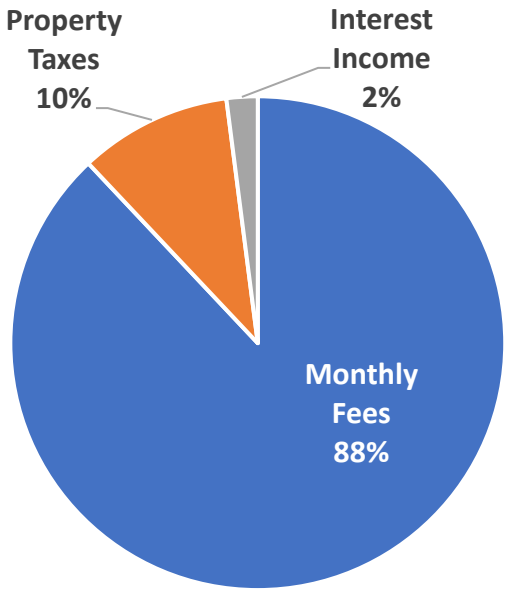
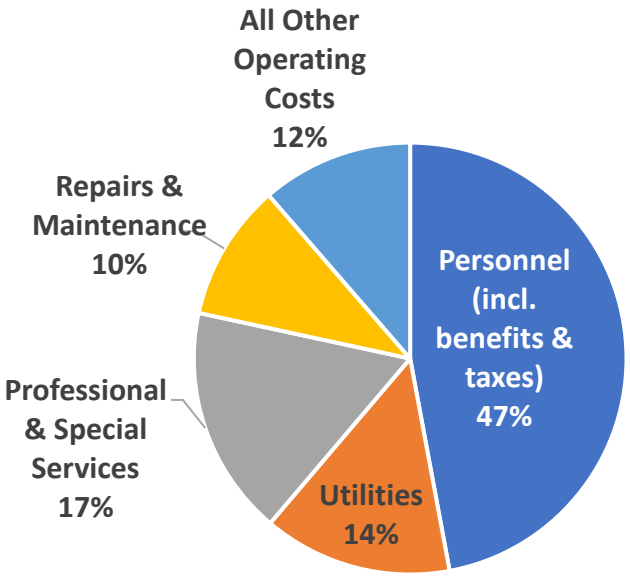


Table 7
Current Wastewater Rate Schedule

Customer	Monthly Rate
Residential	$50.02
Commercial	$92.69
Restaurant	$204.51
Light Commercial	$55.42
Commercial x2	$110.84
Commercial x3	$166.27
Commercial x7	$387.95
Dual Residential	$100.04
School	$1,472.51

Figure 8 below illustrates that management of the District (including staff, consultants, and special services) comprises approximately 64% of the total annual costs. Power cost is a large single item category, comprising 14% of the annual costs, and other costs including repairs and rehabilitation total about 22% of total annual costs.

Figure 8
Historical Annual Expenditures (2015-2019)



Reserves
As of June 30, 2020, the District had approximately $615,000 in unrestricted reserves ($60,000 in the capital reserve fund and $608,000 in the wastewater fund), the latter of which provides about 20 months of operating expenditures. Reserves are necessary for several reasons, to:

- Serve cash flow needs
- Pay for emergency and unplanned necessary repairs
- Accumulate for system rehabilitation (planned improvements)
- Provide rate stabilization

"The maintenance of reserves can be defined generally as the maintenance of cash or financial capabilities to meet unknown changes in the budgets and financial needs of a utility. These needs could arise from new laws and regulations, natural disasters, operating emergencies, financial losses in earning potential from idle cash, drop in economic conditions in the service area or the state, insurance losses, litigation, revenue collection process breakdowns, and operating emergencies in the service area. These needs may vary

according to the types and designations of the funds collected or expenses require, thereby necessitating different policies for varying areas or funds of an agency's operation."[5]

"The utility should identify the drivers affecting [its] financial activities. It should determine the maximum length of time that it might have to operate without the revenue or expense and then determine the cumulative dollar value for this period of time."[6]

The District currently does not have any reserve policies in place. It is recommended that the District maintain unrestricted operating reserves of 6 months of operating expenditures. In the capital outlay fund, which comingles wastewater and water revenues, it is recommended that at least $100,000 be comprised of wastewater revenues. It is recommended that each year the District transfer at least the amount of depreciation from the wastewater fund to the capital outlay fund to finance rehabilitation projects.

[5] Page 35, Financing and Charges for Wastewater Systems, Manual of Practice No. 27.
[6] Page 37, Financing and Charges for Wastewater Systems, Manual of Practice No. 27.

Section 3: PROJECTED REVENUE REQUIREMENT

Rate Methodology Step 2: Project the Revenue Requirement
The revenue requirement is the amount to be raised by wastewater fees. 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 Improvements Costs
- System Rehabilitation

Non-wastewater fees revenue projections are credited against projected operations costs. Non-wastewater fee revenues include property tax, late payment penalties, and interest income. In addition, the District has recently installed solar generation at the wastewater treatment plant that went into operation late fall 2020. The solar system is expected to generate sufficient electricity to power the entire wastewater treatment plant. The projected savings from the solar system are also included in credits.

3.1 OPERATING COSTS

Operating expenses are projected based on fiscal year 2021 budgeted expenditures and conversations with District staff and consultants. The fiscal year 2021 budget is provided in **Appendix A Table A-2**. 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, tools, subscriptions, and supplies. Operating expenses totaled just over $279,000 in fiscal year 2020 and are budgeted at just over $306,000 in fiscal year 2021. In addition, the revenue requirement calculation includes tv inspection, jetting and line cleaning (a routine annual occurrence), which totals $50,000 per year.

Appendix A Table A-3 shows how District expenses have increased annually, on average, compared with the Engineering News Record Construction Cost Index (ENR CCI) and the California Consumer Price Index (CPI). Overall, the District's annual operating expenses increased 5.0% per year for the last six years compared with 2.8% for the ENR CCI and 2.6% for the California CPI. It is typical for utility costs to increase at a greater pace than these two indices.

In the revenue requirement projection, operations costs are increased by an inflation factor for each cost category. Overall, the annual operating cost increases in the revenue requirement calculation are projected at 5.1% to 5.2% each year.

3.2 CAPITAL IMPROVEMENTS

The District anticipates needing several improvements at the wastewater treatment plant, improvements to the lift station, and rehabilitation of sections of the collection system. **Appendix Table A-4** lists all of the identified capital improvements for the wastewater system to be completed within the next five and a half years. The total estimated cost of improvements is $0.9 million in today's dollars. An estimated timeline for completion of the prioritized projects is shown in **Appendix Table A-5** in today's dollars.

Table 8 below summarizes the capital improvement projects and estimated costs, as provided by the District's consulting engineer. All of the costs shown in the table are in inflated dollars (the amount it is estimated that the improvement would cost at the time it is constructed). In total, it is estimated that the improvements will cost $981,600. Of this total, $142,700 is for the collection system, $245,800 for the lift station, and $593,100 is for the wastewater treatment plant. All of these costs are the responsibility of existing customers because all of the improvements are for the benefit of existing customers.

Table 8
Capital Improvement Projects Schedule in Inflated Dollars

Infrastructure Items Annual Inflation 3.2%	Estimated Total Costs	Fiscal Year Ending 2022	 2023	 2024	 2025	 2026
Collection System				*Inflated Dollars*		
Force Main Air Relief Valves	$22,686	$0	$0	$0	$22,686	$0
Manhole Channel Rehabilitation	$58,529	$0	$0	$0	$0	$58,529
Replace Manhole Covers	$61,455	$0	$0	$0	$0	$61,455
Total Collection System	**$142,669**	**$0**	**$0**	**$0**	**$22,686**	**$119,984**
Lift Station						
Replace 45 hp pumps every 10 Years	$105,352	$0	$0	$0	$0	$105,352
Upgrade Electrical Controls	$52,676	$0	$0	$0	$0	$52,676
Replace Generator	$87,793	$0	$0	$0	$0	$87,793
Total Lift Station	**$245,820**	**$0**	**$0**	**$0**	**$0**	**$245,820**
Treatment Plant						
Levee Roads Base Rock	$91,545	$21,816	$22,515	$23,235	$23,979	$0
Replace Aerators (3)	$126,989	$0	$41,003	$42,316	$43,670	$0
Sludge Removal Pond 1	$334,884	$334,884	$0	$0	$0	$0
WWTP Access Road Microsurfacing Type III	$39,700	$0	$0	$0	$39,700	$0
Total Treatment Plant	**$593,117**	**$356,700**	**$63,518**	**$65,551**	**$107,348**	**$0**
Estimated Inflated Wastewater CIP Costs	**$981,607**	**$356,700**	**$63,518**	**$65,551**	**$130,033**	**$365,804**

Source: LCWD and HEC, September 2020. cip inf

3.3 SYSTEM REHABILITATION COSTS

Depreciation is used as the basis for which to collect rates to cover system rehabilitation costs. Collecting for system rehabilitation in the rates allows the District to replace assets as

they outlive their useful lives. System rehabilitation is included in the CIP estimated costs. In years when the CIP is less than the amount collected for system rehabilitation the net amount increases the District's cash reserves which can be spent in future years on rehabilitation projects.

Table 9 shows the amount of depreciation included in the revenue requirement. Only approximately 32% of current wastewater assets depreciation is included to match the depreciation recorded in the District's audits, and 50% of future improvements depreciation is included in the rates. Supporting information is found in **Appendix A Tables A-6** through **A-8**.

Table 9
Summary of Depreciation Costs Included in Rates

Item	Fiscal Year Ending					
	2021	**2022**	**2023**	**2024**	**2025**	**2026**
Existing Assets Depreciation	$43,100	$43,100	$43,100	$43,100	$43,100	$43,100
New Assets Depreciation [1]	$0	$33,000	$34,200	$35,400	$38,800	$50,400
Annual Depreciation	**$43,100**	**$76,100**	**$77,300**	**$78,500**	**$81,900**	**$93,500**

Source: Linden CWD February 2020 and HEC July 2020. tot depr

[1] Approximated as 50% of the annual depreciation of wastewater assets.

3.4 PROJECTED REVENUE REQUIREMENT

Table 10 on the next page estimates the revenue requirement for the next 5 years. The revenue requirement is projected to increase to account for increases in some cost categories that are anticipated to increase by more than inflation, for inflation, and to fund capital expenditures. The revenue requirement also takes into account the goal of a 6-month of operating expenses unrestricted operating reserve and capital reserve of $100,000. Non-rate revenue (property tax, late payments and penalties, solar power savings, and interest income) is credited against the estimated annual costs.

Table 10
Projected Revenue Requirement

Expense Items	Inflation Factor	2021 Estimate	Fiscal Year Ending 2022	2023	2024	2025	2026
Operating Expenses							
Personnel	6.5%	$152,680	$162,700	$173,300	$184,600	$196,600	$209,400
Professional Services	2.5%	$31,350	$32,200	$33,100	$34,000	$34,900	$35,800
Utilities	2.5%	$34,000	$34,900	$35,800	$36,700	$37,700	$38,700
Dues/Subscriptions/Other	2.5%	$30,000	$30,800	$31,600	$32,400	$33,300	$34,200
Office Expenses	2.5%	$5,500	$5,700	$5,900	$6,100	$6,300	$6,500
Supplies	2.5%	$7,700	$7,900	$8,100	$8,400	$8,700	$9,000
Maintenance & Repairs	5.0%	$27,900	$29,300	$30,800	$32,400	$34,100	$35,900
Insurance	7.5%	$15,039	$16,200	$17,500	$18,900	$20,400	$22,000
Miscellaneous Other	2.5%	$2,300	$2,400	$2,500	$2,600	$2,700	$2,800
TV Inspection	3.0%	$25,000	$25,800	$26,600	$27,400	$28,300	$29,200
Jetting and Line Clean	3.0%	$25,000	$25,800	$26,600	$27,400	$28,300	$29,200
Total Operating Expenses		**$356,469**	**$373,700**	**$391,800**	**$410,900**	**$431,300**	**$452,700**
Depreciation		**$43,100**	**$76,100**	**$77,300**	**$78,500**	**$81,900**	**$93,500**
Cash-Funded CIP / Op. Reserves		**$42,510**	**$10,000**	**$25,000**	**$45,000**	**$65,000**	**$70,000**
Debt Service		$0	$0	$0	$0	$0	$0
Total Costs		**$442,079**	**$459,800**	**$494,100**	**$534,400**	**$578,200**	**$616,200**
Credits							
Property Taxes	2.0%	$42,300	$43,200	$44,100	$45,000	$45,900	$46,900
Interest Income	constant	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Penalties and Late Payments		$7,496	$7,500	$7,750	$8,750	$9,250	$10,000
Projected Savings from Solar [1]	2.5%	$9,200	$18,900	$19,400	$19,900	$20,400	$21,000
Total Credits		**$63,996**	**$74,600**	**$76,250**	**$78,650**	**$80,550**	**$82,900**
Estimated Revenue Requirement		**$378,083**	**$385,200**	**$417,850**	**$455,750**	**$497,650**	**$533,300**

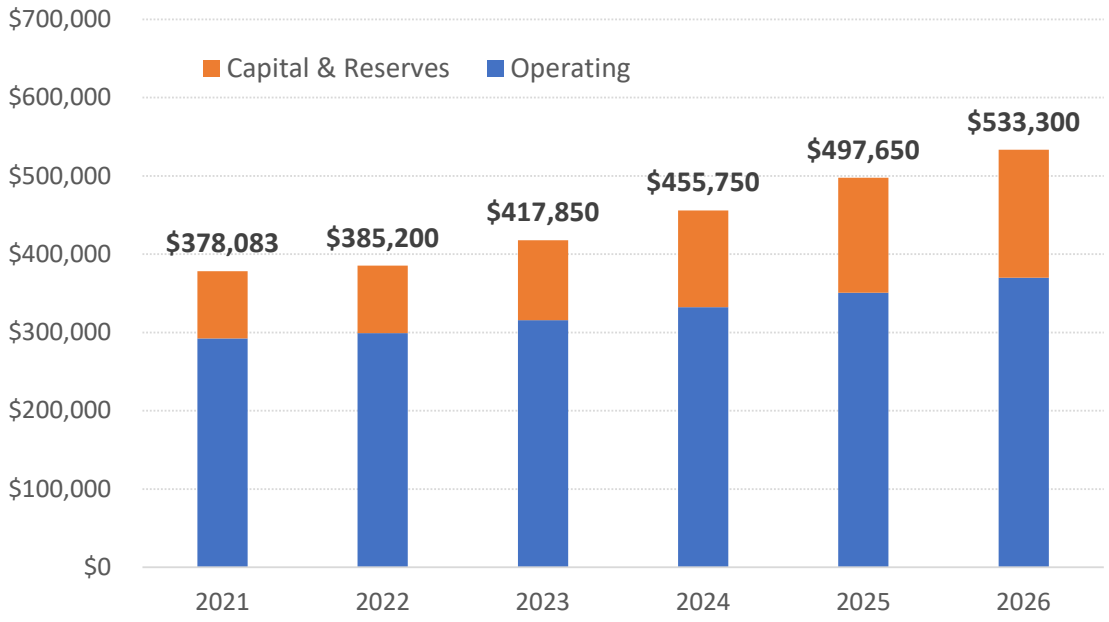
Source: Linden CWD and HEC February 2020. rev req

[1] Projected at 90% of the District's March 2019 to April 2020 electric bills at the treatment plant with partial year savings for 2020/21

In the first year (fiscal year 2021-22), the revenue requirement is projected to increase from the budgeted 2021 rate collection of $378,083 to $385,200. By year 5, the revenue requirement is projected to be $533,300.

Figure 9 on the next page illustrates the projected revenue requirement for the next 5 fiscal years.

Figure 9
Projected Revenue Requirement



SECTION 4: COST OF SERVICE WASTEWATER FEE CALCULATIONS

4.1 FUNCTIONAL COST ALLOCATION

Rate Methodology Step 3: Determine Cost of Service by Customer Type
Cost by customer type (residential, commercial, and schools) is comprised of the customer-related costs allocated by the number of accounts and flow-related costs allocated by the number of EDUs in each customer category. The cost of service by customer category includes both types of costs.

- **Customer-related costs** include those costs that are incurred regardless of the amount of wastewater produced; it includes items such as monthly billing and insurance.

- **Flow-related costs** include all other costs to operate the wastewater system.

Costs are first allocated between customer-related and flow-related cost functions of the wastewater system, as shown in **Appendix A Tables A-9 and A-10**. As a result of the analysis, the revenue requirement is split 34% to customer-related charges, and 66% to flow-related charges.

Table 11 below shows the projected revenue requirement split between the two types of charges. Note that the revenue requirement is before credit for property taxes; because LCWD receives property taxes from some properties but not others, the revenue requirement without property tax credits will be charged to those customers not contributing to property taxes received by LCWD. Credits will be applied to those customers that do contribute property taxes to LCWD.

Table 11
Allocation of Revenue Requirement

	Fiscal Year					
Cots	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Revenue Requirement w/o Property Tax	**$420,383**	**$428,400**	**$461,950**	**$500,750**	**$543,550**	**$580,200**
Customer Charges						
Functional Allocation Percentage	34%	34%	34%	34%	34%	34%
Calculated Customer Charges	**$142,618**	**$145,338**	**$156,720**	**$169,883**	**$184,403**	**$196,837**
Fixed Charges based on Flow						
Functional Allocation Percentage	66%	66%	66%	66%	66%	66%
Calculated Fixed Charges based on Flow	**$277,765**	**$283,062**	**$305,230**	**$330,867**	**$359,147**	**$383,363**

Source: LCWD and HEC August 2020. allocated

4.2 FEE CALCULATIONS METHODOLOGY

Calculate Customer-Related Charges

Table 12 below shows the calculation of customer charges for In Tax Area and Out Tax Area customers. The customer-related costs are divided by the number of accounts to determine the annual charge per account. Property tax credits are applied to In Tax Area accounts to determine the annual In Tax Area customer charge. The In Tax Area and Out Tax Area annual charges are divided by twelve to determine the monthly charge per wastewater account. Beginning July 1, 2021 the monthly credit to In Tax Area accounts is $8.85 per month per wastewater account.

Table 12
Calculated Monthly Customer-Related Charges

Item	2021	2022	2023	2024	2025	2026
Customer Charges	$142,618	$145,338	$156,720	$169,883	$184,403	$196,837
Number of Accounts	572	572	572	572	572	572
Annual Charge per Account	**$249.33**	**$254.09**	**$273.99**	**$297.00**	**$322.38**	**$344.12**
Property Taxes	$42,300	$43,200	$44,100	$45,000	$45,900	$46,900
Accounts In Tax Area	407	407	407	407	407	407
Annual Credit per In Tax Area Account	$103.93	$106.14	$108.35	$110.57	$112.78	$115.23
In Tax Areas Annual Customer Charge	**$145.40**	**$147.94**	**$165.63**	**$186.43**	**$209.61**	**$228.89**
Monthly Charge per IN Tax Area Account	**$12.12**	**$12.33**	**$13.80**	**$15.54**	**$17.47**	**$19.07**
Additional Customer Charge (OUT Tax Area)	$8.66	$8.85	$9.03	$9.21	$9.40	$9.60
Monthly Charge per OUT Tax Area Account	**$20.78**	**$21.17**	**$22.83**	**$24.75**	**$26.87**	**$28.68**

Source: LCWD and HEC August 2020. customerch

Calculate Flow-Related Charges

Table 13 on the next page shows the allocation of flow-based cost to customer categories based on number of EDUs. The annual costs are then divided by twelve and the number of customer accounts in each customer category to determine the monthly rates in **Table 14**.

Table 13
Calculated Annual Flow-Related Charges

Customer Category	Number of EDUs	Fiscal Year 2021	2022	2023	2024	2025	2026
Flow-Based Cost		$277,765	$283,062	$305,230	$330,867	$359,147	$383,363
Number of EDUs		656	656	656	656	656	656
Annual per EDU Cost		**$423.56**	**$431.64**	**$465.44**	**$504.54**	**$547.66**	**$584.59**
Residential				**Annual Flow Cost**			
Single Family	524.0	$221,946	$226,179	$243,892	$264,377	$286,974	$306,324
Dual Unit	8.0	$3,388	$3,453	$3,724	$4,036	$4,381	$4,677
Subtotal Residential	**532.0**	**$225,335**	**$229,632**	**$247,616**	**$268,414**	**$291,355**	**$311,001**
Non-Residential							
Commercial 1 Unit	11.4	$4,810	$4,901	$5,285	$5,729	$6,219	$6,638
Commercial 2 Units	0.8	$350	$357	$385	$417	$453	$483
Commercial 3 Units	5.2	$2,188	$2,230	$2,405	$2,606	$2,829	$3,020
Bank	4.7	$2,003	$2,042	$2,201	$2,386	$2,590	$2,765
Restaurant	8.8	$3,708	$3,778	$4,074	$4,417	$4,794	$5,117
Grocery	49.6	$21,006	$21,407	$23,083	$25,022	$27,161	$28,992
Laundromat & Car Wash	7.3	$3,073	$3,132	$3,377	$3,661	$3,974	$4,241
Light Industrial	12.3	$5,191	$5,290	$5,704	$6,183	$6,712	$7,164
Subtotal Non-Residential	**99.9**	**$42,329**	**$43,137**	**$46,515**	**$50,422**	**$54,732**	**$58,422**
Schools							
Linden High	16.1	$6,820	$6,950	$7,494	$8,124	$8,818	$9,413
Linden Elementary	7.7	$3,280	$3,343	$3,605	$3,908	$4,242	$4,528
Subtotal Schools	**23.8**	**$10,100**	**$10,293**	**$11,099**	**$12,031**	**$13,060**	**$13,940**
TOTAL	**655.8**	**$277,765**	**$283,062**	**$305,230**	**$330,867**	**$359,147**	**$383,363**

Source: LCWD and HEC August 2020. volch

Table 14
Calculated Monthly Flow-Related Charges

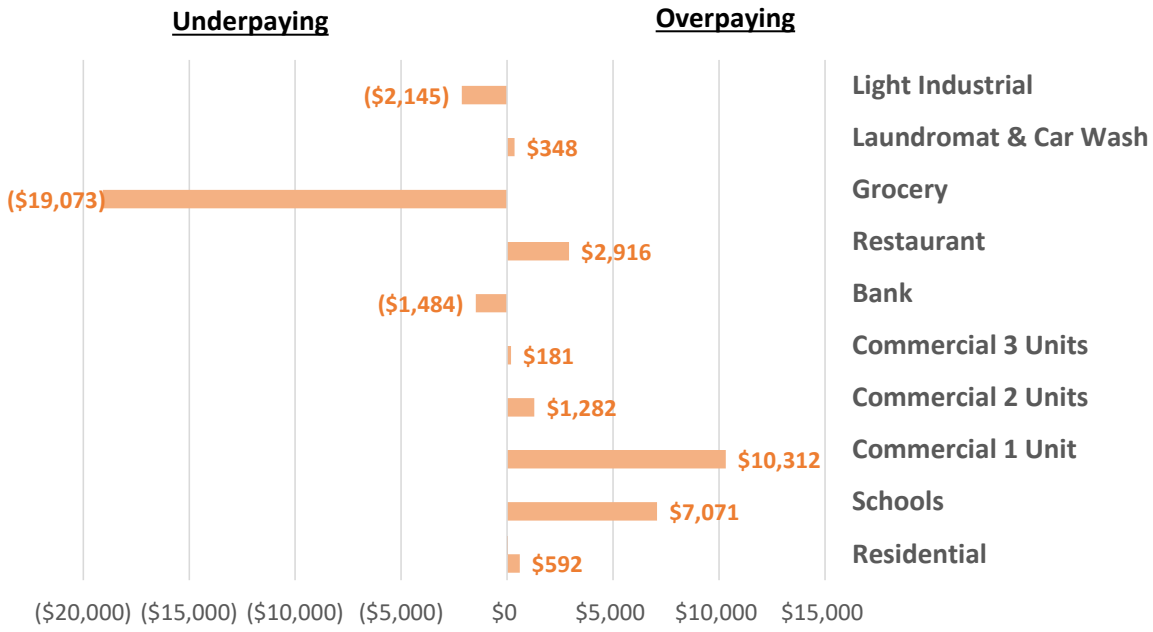
Customer Category	Billing Units	Fiscal Year 2021	2022	2023	2024	2025	2026
Residential				**Monthly Cost per Account**			
Single Family	524	$35.30	$35.97	$38.79	$42.04	$45.64	$48.72
Dual Unit	4	$70.59	$71.94	$77.57	$84.09	$91.28	$97.43
Non-Residential							
Commercial 1 Unit	25	$16.03	$16.34	$17.62	$19.10	$20.73	$22.13
Commercial 2 Units	1	$29.18	$29.73	$32.06	$34.75	$37.72	$40.27
Commercial 3 Units	2	$91.17	$92.91	$100.19	$108.60	$117.89	$125.84
Bank	1	$166.95	$170.13	$183.46	$198.87	$215.86	$230.42
Restaurant	5	$61.80	$62.97	$67.91	$73.61	$79.90	$85.29
Grocery	2	$875.27	$891.96	$961.81	$1,042.60	$1,131.71	$1,208.02
Laundromat & Car Wash	1	$256.10	$260.98	$281.42	$305.06	$331.13	$353.46
Light Industrial	5	$86.51	$88.16	$95.07	$103.05	$111.86	$119.40
Schools							
Linden High	1	$568.32	$579.16	$624.52	$676.97	$734.84	$784.38
Linden Elementary	1	$273.37	$278.58	$300.40	$325.63	$353.47	$377.30

Source: LCWD and HEC August 2020. volchmo

4.3 Cost of Service Results

The cost of service results are shown in **Figure 10** below. The cost of service analysis shows some small corrections needed in most customer categories but a large correction necessary for grocery stores, the commercial 1-unit category, and schools. Currently, only the residential category is paying close to cost of service rates. The LUSD and five of the commercial categories are overpaying, and three of the commercial categories are underpaying. **Appendix Table A-11** provides the comparison of current revenue collection and cost of service revenue collection.

Figure 10
Cost of Service Results



4.4 Monthly Fees Calculation

Rate Methodology Step 4: Add the Customer-Related and Flow-Related Charges
The customer-related charges calculated in **Table 12** and the flow-related charges calculated in **Table 14** are added together to determine the total cost of service wastewater fees. The proposed maximum fees schedule is shown in **Table 15** on the next page. For properties that are Out Tax Area there is no credit in the customer-related charges; because they pay full customer-related costs, they have an additional customer charge that would be $8.85 per month beginning July 1, 2021, and increasing each year thereafter.

Table 15
Proposed Maximum Fees Schedule

Customer Category * OUT Tax Area accounts	Fiscal Year 2022	2023	2024	2025	2026
Residential *Effective*	*7/1/2021*	*7/1/2022*	*7/1/2023*	*7/1/2024*	*7/1/2025*
Single Family	$48.30	$52.59	$57.58	$63.11	$67.79
--SF Out Tax Area *	$57.14	$61.62	$66.79	$72.50	$77.39
Dual Unit Account	$84.27	$91.38	$99.63	$108.74	$116.51
Non-Residential			**per month**		
Commercial 1 Unit	$28.67	$31.42	$34.63	$38.20	$41.20
--Comm'l 1 Unit Out Tax Area *	$37.51	$40.45	$43.85	$47.60	$50.80
Commercial 2 Units	$42.06	$45.86	$50.29	$55.19	$59.34
Commercial 3 Units	$105.24	$113.99	$124.14	$135.35	$144.91
Bank	$182.46	$197.26	$214.40	$233.33	$249.49
Restaurant	$75.30	$81.71	$89.15	$97.37	$104.36
Grocery	$904.29	$975.61	$1,058.13	$1,149.18	$1,227.09
Laundromat & Car Wash	$273.31	$295.22	$320.59	$348.60	$372.53
Light Industrial	$100.49	$108.87	$118.59	$129.33	$138.48
Schools					
Linden High *	$600.34	$647.35	$701.72	$761.70	$813.06
Linden Elementary *	$299.76	$323.23	$350.38	$380.33	$405.98
Out Tax Area Add'l Customer Charge [1]	$8.85	$9.03	$9.21	$9.40	$9.60

[1] For a new Out Tax Area customer without a rate shown, apply the In Tax rate plus the additional customer charge.

SECTION 5: CASH FLOW AND CUSTOMER IMPACTS

5.1 CASH FLOW PROJECTION

The projected cash flow for sewer fund 93 is presented in **Table 16** below. Throughout the rate study timeline, with implementation of the proposed rates, it is projected that revenue sufficiency will be achieved to cover all projected costs and that the District will have at least $100,000 in the capital outlay fund and at least 6 months of operating expenses available in unrestricted funds.

Table 16
Projected Sewer Fund 93 Cash Flow

Expenses and Revenues	Fiscal Year Ending 2021	2022	2023	2024	2025	2026
Estimated Revenues						
Current Rate Revenues	$378,083	$378,083	$378,083	$378,083	$378,083	$378,083
Rate Change Additional Revenues		$7,117	$39,767	$77,667	$119,567	$155,217
Property Taxes	$42,300	$43,200	$44,100	$45,000	$45,900	$46,900
Interest Income	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Penalties & Late Payments	$7,496	$7,500	$7,750	$8,750	$9,250	$10,000
Projected Savings from Solar	$9,200	$18,900	$19,400	$19,900	$20,400	$21,000
Total Estimated Revenues	**$442,079**	**$459,800**	**$494,100**	**$534,400**	**$578,200**	**$616,200**
Estimated Operating Expenses	**$356,469**	**$373,700**	**$391,800**	**$410,900**	**$431,300**	**$452,700**
Net Revenue before Debt Service	**$85,610**	**$86,100**	**$102,300**	**$123,500**	**$146,900**	**$163,500**
Debt Service	$0	$0	$0	$0	$0	$0
Estimated Coverage Ratio	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Estimated Net Operating Revenue	**$85,610**	**$86,100**	**$102,300**	**$123,500**	**$146,900**	**$163,500**
Beginning Balance	$555,055	$597,565	$327,565	$352,565	$397,565	$437,565
Estimated Net Revenues	$85,610	$86,100	$102,300	$123,500	$146,900	$163,500
Cash-Funded CIP	$0	($280,000)	$0	$0	($25,000)	($270,000)
Transfer Out to Special Projects Fund	($43,100)	($76,100)	($77,300)	($78,500)	($81,900)	($93,500)
Ending Balance	**$597,565**	**$327,565**	**$352,565**	**$397,565**	**$437,565**	**$237,565**
Target Balance [1]	**$178,235**	**$186,850**	**$195,900**	**$205,450**	**$215,650**	**$226,350**

Source: Linden County Water District and HEC, July 2020. cash flow

[1] Target balance is at least year of operating expenses.

The projected District ending cash balances for the sewer fund and the wastewater portion of the capital outlay fund are shown in **Table 17** on the following page.

Table 17
Projected Sewer Funds Ending Cash Balances

Estimated Cash Flow	Fiscal Year Ending 2021	2022	2023	2024	2025	2026
Capital Outlay						
Beginning Balance [1]	$60,000	$103,100	$102,500	$116,281	$129,231	$106,097
CIP Cash from Sewer Fund	$0	$280,000	$0	$0	$25,000	$270,000
Depreciation	$43,100	$76,100	$77,300	$78,500	$81,900	$93,500
Total Collection System Projects	$0	$0	$0	$0	($22,686)	($119,984)
Total Lift Station Projects	$0	$0	$0	$0	$0	($245,820)
Total Treatment Plant Projects	$0	($356,700)	($63,518)	($65,551)	($107,348)	$0
Est. Ending Cash Balance for Capital	**$103,100**	**$102,500**	**$116,281**	**$129,231**	**$106,097**	**$103,793**
Sewer Operating Fund						
Beginning Balance	$555,055	$597,565	$327,565	$352,565	$397,565	$437,565
Net Revenues	$85,610	$86,100	$102,300	$123,500	$146,900	$163,500
CIP Cash to Special Projects Fund	$0	($280,000)	$0	$0	($25,000)	($270,000)
Transfer Depreciation	($43,100)	($76,100)	($77,300)	($78,500)	($81,900)	($93,500)
Est. Ending Cash Balance for Operatio	**$597,565**	**$327,565**	**$352,565**	**$397,565**	**$437,565**	**$237,565**

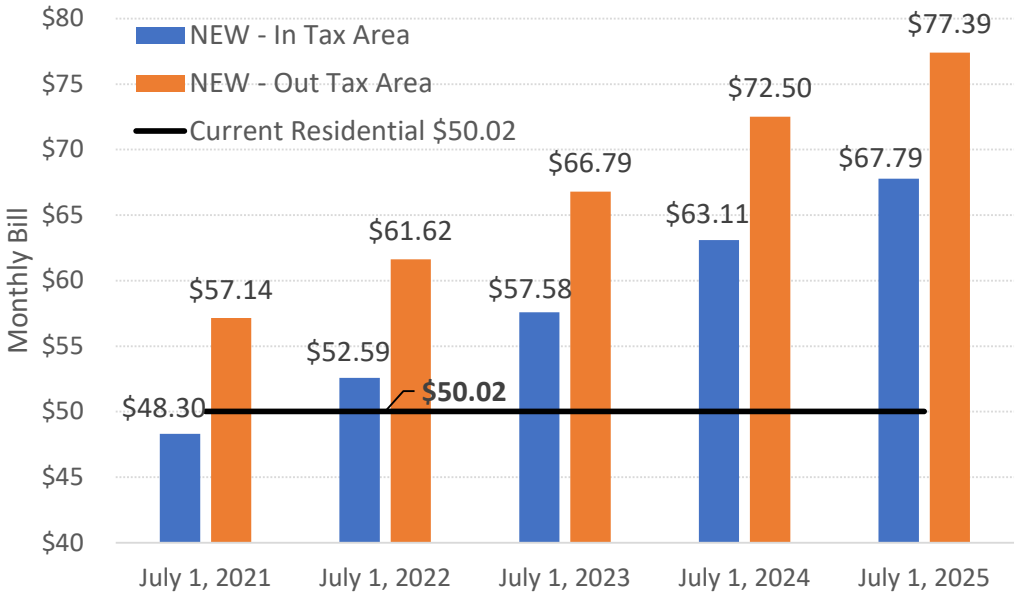
Source: Linden County Water District and HEC, July 2020. tog flow

[1] Portion of balance in Fund 91 allocated to wastewater.

5.2 RESIDENTIAL BILL IMPACTS

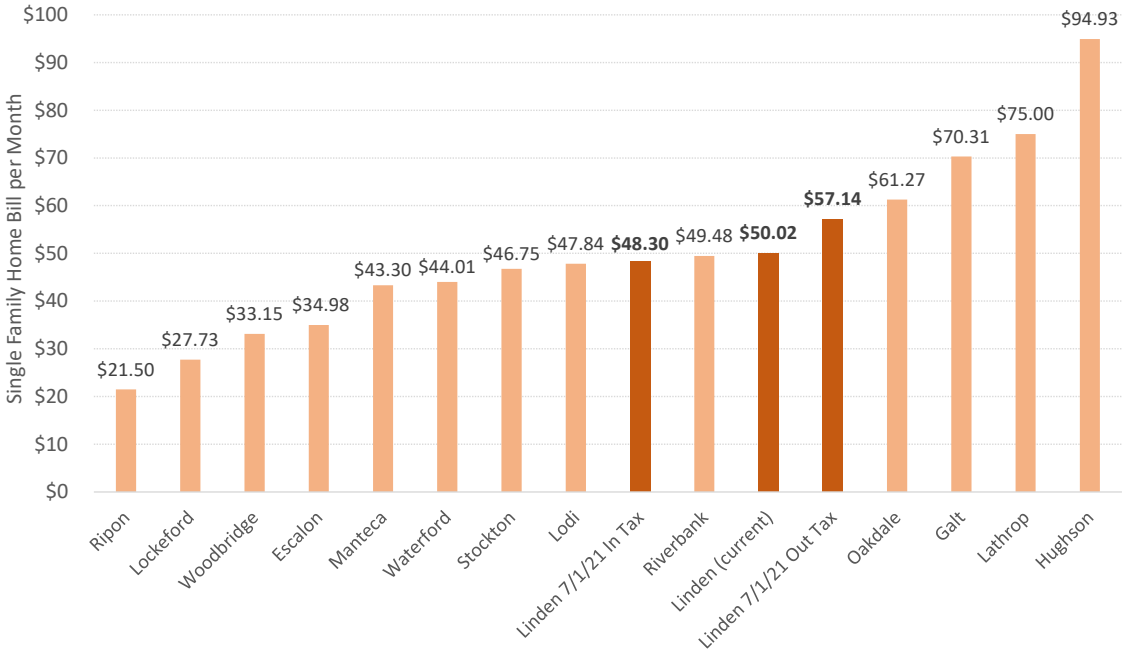
Figure 11 illustrates what a home would pay monthly for wastewater service In Tax Area and Out Tax Area for the next five and a half years.

Figure 11
Residential Monthly Wastewater Fees Projection



Linden's current and July 1, 2021 wastewater fees are compared with other regional communities in **Figure 12.** The dark orange bars show the District's current monthly fee, and the calculated monthly fee July 1, 2021 for In Tax and Out Tax areas.

Figure 12
Comparison Wastewater Bills for a 3-Bedroom Home



5.3 SCHOOL AND COMMERCIAL BILL IMPACTS

The change in LUSD wastewater bills this fiscal year and the projected school wastewater bills are shown in **Figure 13** on the following page. The LUSD elementary and high schools combined monthly wastewater bills would decrease.

Commercial customer bills might increase or decrease depending on the customer category of the commercial business. The cost of service analysis showed that grocery stores, the bank, and light industrial customers are currently underpaying. **Figures 14A** through **14C** show the monthly bill impacts for a sample of these customers. The cost of service analysis showed that restaurants, laundromat and cash wash, and other commercial customers are overpaying. **Figures 14D** through **14G** show the monthly bill impacts for a sample of these customers.

Figure 13
Linden Unified School District Monthly Wastewater Bills Projection

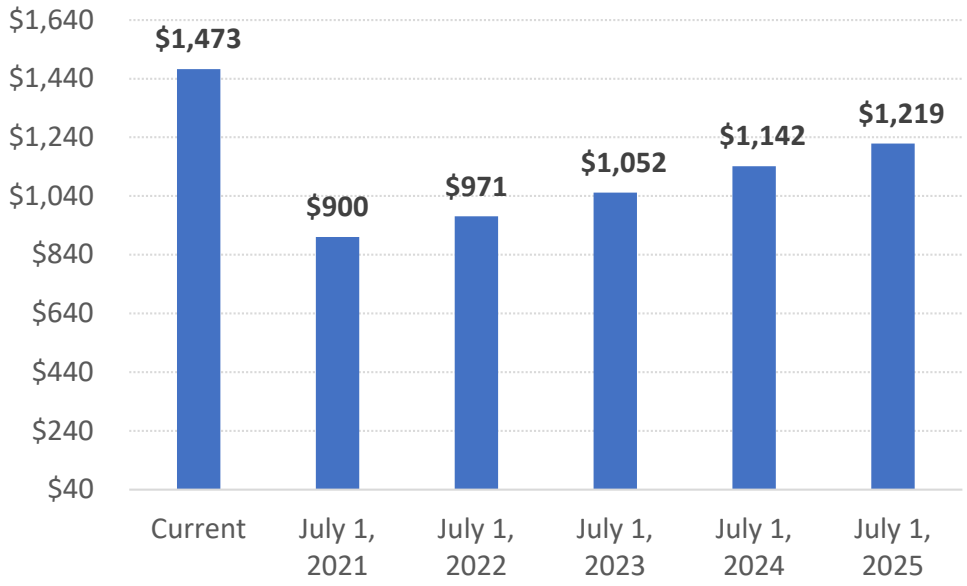


Figure 14A

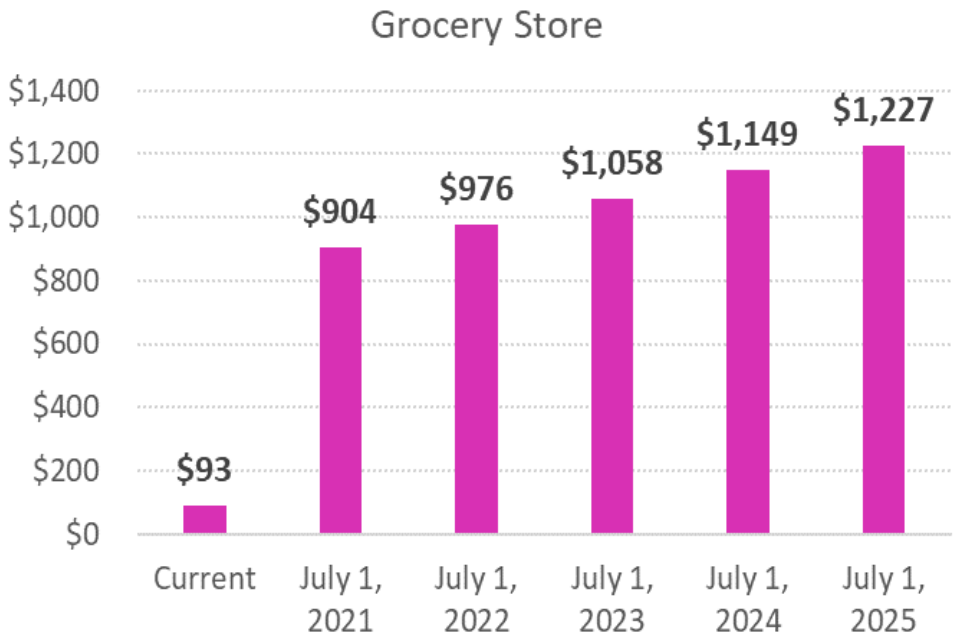


Figure 14B

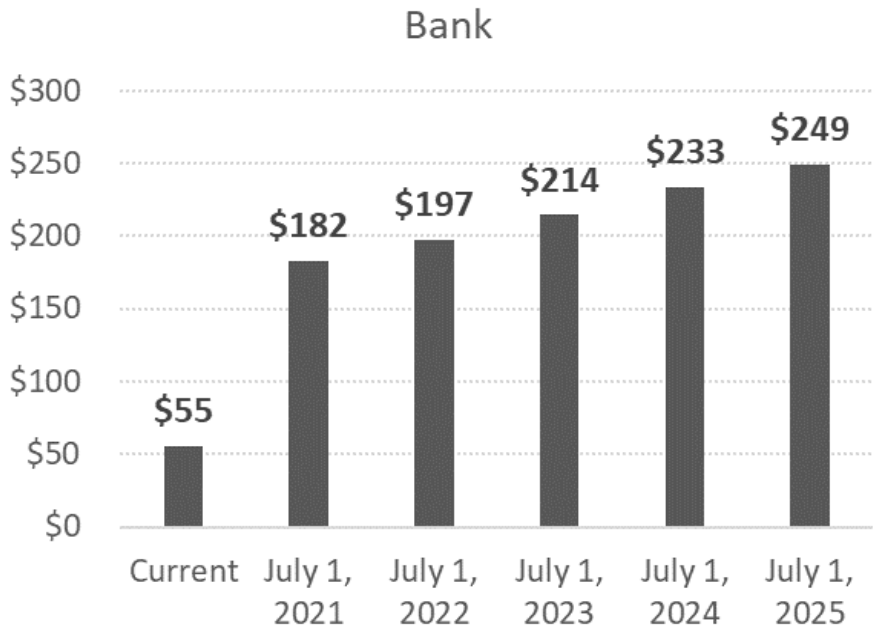


Figure 14C

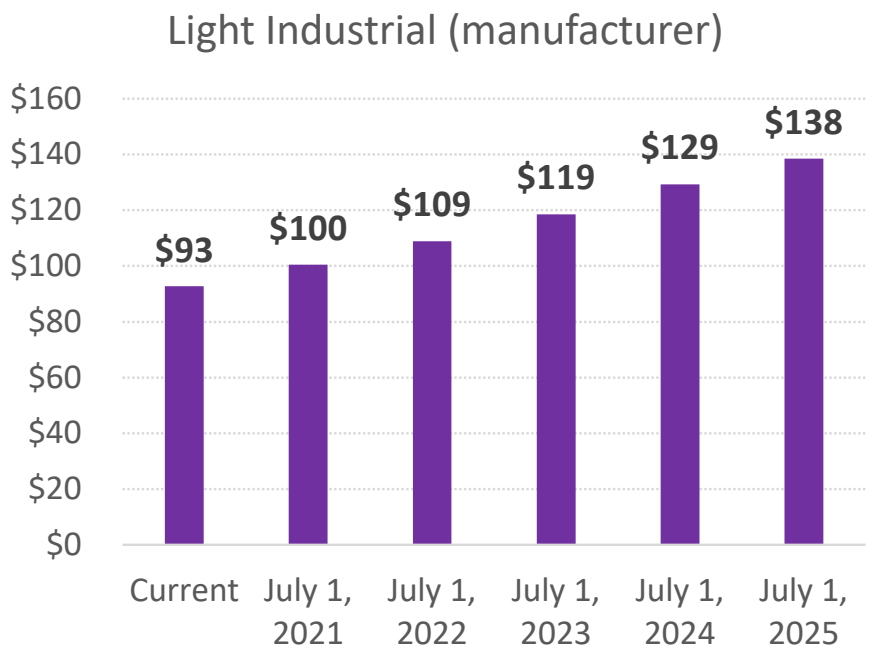


Figure 14D

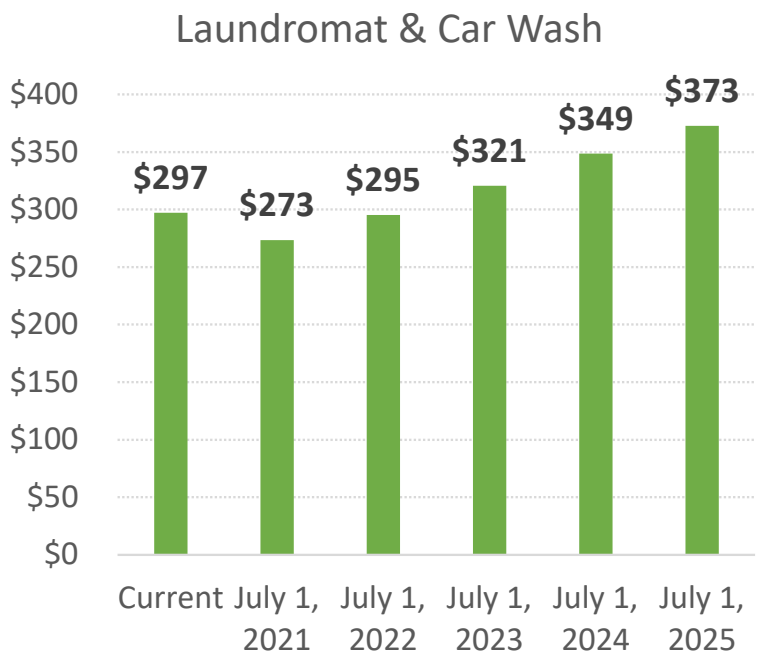


Figure 14E

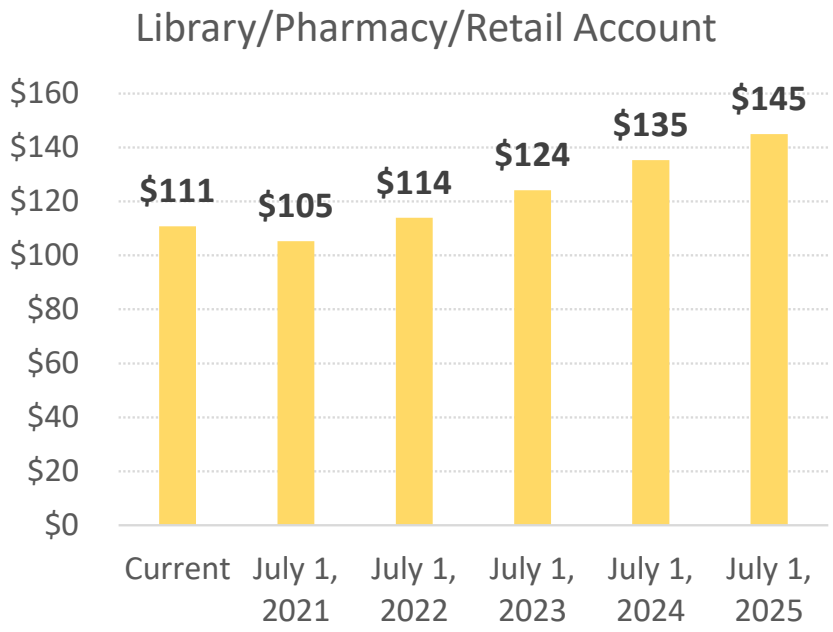


Figure 14F

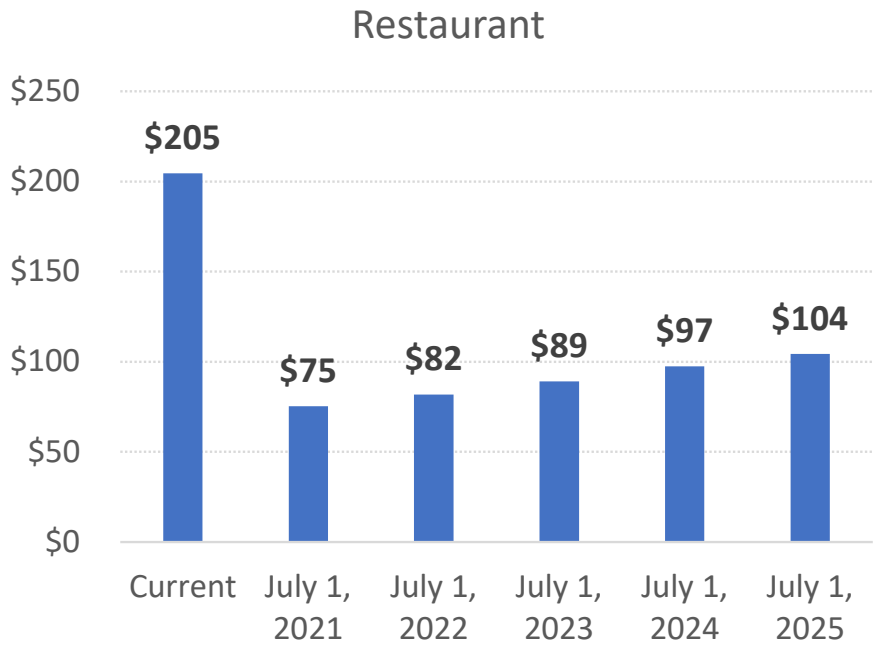


Figure 14G

APPENDIX A

WASTEWATER RATE STUDY

SUPPORT TABLES

Table A-1
Linden County Water District
Wastewater Rate Study
Monthly Wastewater Flows

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
				All Figures in Gallons							*All Figures in Gallons*			
Jan	4,056,368	3,737,000	3,449,000	3,605,000	3,426,000	3,295,000	3,347,000	3,345,000	3,287,000	2,863,000	2,986,000	2,998,000	2,706,000	2,802,000
Feb	3,490,006	3,123,000	3,607,000	3,027,000	3,184,000	3,018,000	2,985,000	2,867,000	3,024,000	2,520,000	2,537,000	2,770,000	2,503,000	2,671,000
Mar	3,681,834	3,245,000	3,543,000	3,558,000	3,738,000	3,173,000	3,181,000	3,250,000	2,912,000	2,753,000	2,837,000	2,817,000	2,747,000	2,817,000
Apr	3,681,000	3,635,000	3,574,000	3,498,000	3,337,000	3,051,000	3,207,000	2,942,000	2,914,000	2,609,000	2,699,000	2,778,000	2,830,000	2,732,000
May	3,799,000	3,538,000	3,511,000	3,507,000	3,059,000	3,403,000	3,235,000	3,230,000	3,081,000	2,678,000	2,736,000	2,845,000	2,795,000	3,018,000
Jun	3,482,000	3,584,000	3,325,000	3,154,000	3,500,000	3,134,000	3,252,000	3,202,000	2,977,000	2,765,000	2,625,000	2,746,000	2,659,000	2,682,000
Jul	3,580,000	3,472,000	3,324,000	3,357,000	3,012,000	3,253,000	3,277,000	3,009,000	3,013,000	2,626,000	2,789,000	2,635,000	2,840,000	2,675,000
Aug	3,550,000	3,630,000	3,030,000	3,478,000	3,412,000	3,080,000	3,400,000	3,153,000	2,900,000	2,635,000	2,855,000	2,706,000	3,016,000	2,927,000
Sep	3,353,000	3,462,000	3,480,000	3,434,000	3,275,000	3,176,000	3,216,000	3,187,000	2,766,000	2,606,000	2,857,000	2,594,000	2,701,000	2,727,000
Oct	3,714,000	3,645,000	3,433,000	3,419,000	3,132,000	3,251,000	3,224,000	3,258,000	2,838,000	2,665,000	2,966,000	2,884,000	2,725,000	2,656,000
Nov	3,414,000	3,355,000	3,373,000	3,464,000	3,348,000	3,245,000	3,214,000	3,316,000	2,808,000	2,556,000	2,793,000	2,776,000	2,718,000	2,655,000
Dec	3,131,000	3,447,000	3,273,000	3,667,000	3,188,000	3,106,000	3,446,000	2,989,000	3,167,000	2,721,000	2,911,000	2,772,000	2,798,000	2,747,000
Total	**42,932,208**	**41,873,000**	**40,922,000**	**41,168,000**	**39,611,000**	**38,185,000**	**38,984,000**	**37,748,000**	**35,687,000**	**31,997,000**	**33,591,000**	**33,321,000**	**33,038,000**	**33,109,000**

Source: LCWD January 2020.

ww flow

Table A-2
Linden County Water District
Wastewater Rate Study
Sewer Fund Fiscal Year 2021 Budget

Sewer Fund #93 **Expenses**	**Budget** **FY 2020/21**
Salaries	$107,130
Unemployment	$750
Retirement	$6,600
Social Security	$8,200
Health Insurance	$30,000
Subtotal Personnel	**$152,680**
Office Expense	$5,500
Fuel, Oil & Lube	$3,800
Miscellaneous Tools & Equipment	$2,500
Maintenance & Repairs	$25,000
Equipment Servicing	$2,900
Auditors Payroll & AP	$2,150
Accounting	$2,900
Testing	$9,000
Tax Admin Charge	$800
Engineers - General	$11,000
Legal Fees - General	$3,000
Weed Control	$3,300
Directors Fees	$1,500
Workers Comp	$3,823
Liability Insurance	$11,216
Uniforms, Rags, Towels & Mats	$1,400
Utilities	$34,000
Dues, Subscriptions & Fees	$30,000
Subtotal Other	**$153,789**
Total Budgeted Expenses	**$306,469**

Source: Linden CWD February 2020. budget

Table A-3
Linden County Water District
Wastewater Rate Study
Increase in Operating Expenses

Historical Operating Expenses	Actual Financials Fiscal Year Ending						Change	
	2014	2015	2016	2017	2018	2019	Total	Avg. Annual
Salaries	$57,451	$60,021	$73,440	$75,527	$76,508	$83,491	26,040	7.8%
Utilities	$29,282	$32,277	$33,526	$31,271	$33,663	$33,057	3,775	2.5%
Professional & Special Services	$35,479	$43,891	$36,816	$36,295	$42,855	$39,573	4,094	2.2%
Employee Benefits	$24,472	$25,545	$29,751	$29,897	$31,030	$32,442	7,970	5.8%
Repairs and Maintenance	$22,904	$9,365	$26,839	$26,372	$27,291	$29,168	6,264	5.0%
Insurance	$6,667	$7,145	$8,164	$8,161	$9,187	$9,605	2,938	7.6%
Office Supplies, Postage & Printing	$6,535	$5,480	$7,442	$5,514	$6,210	$5,953	(582)	-1.8%
Payroll Taxes	$4,358	$4,778	$5,606	$5,821	$5,826	$6,360	2,002	7.9%
Testing Services	$8,033	$8,165	$8,365	$7,517	$9,353	$8,639	606	1.5%
Weed Control	$1,470	$1,597	$5,056	$3,016	$3,846	$3,160	1,690	16.5%
Subtotal Expenses	**$196,651**	**$198,264**	**$235,005**	**$229,391**	**$245,769**	**$251,448**	**54,797**	**5.0%**
Engineering News Record	*Jun 2014*	*Jun 2015*	*Jun 2016*	*Jun 2017*	*Jun 2018*	*Jun 2019*		
ENR Construction Cost Index 20-City	9,800	10,039	10,337	10,703	11,069	11,268	1,468	2.8%
ENR Construction Cost Index San Fr	10,900	11,155	11,548	11,722	12,015	12,354	1,455	2.5%
Bureau of Labor Statistics								
Consumer Price Index - California	247	250	256	262	272	281	34	2.6%
Consumer Price Index - San Francisc	253	259	266	275	286	295	42	3.1%

Source: LCWD, California Department of Finance, and the Engineering News Record. indices

[1] Engineering News Record (ENR) Consumer Cost Index (CCI) change June 1999 to June 2019:

ENR CCI	1999	6,039	Change	Annual Avg. % Change
ENR CCI	2019	11,268	5,229	**3.2%**

Table A-4
Linden County Water District
Wastewater Rate Study
Capital Improvements Plan

Wastewater System	Estimated Cost
Collection System	**2020 $'s**
Force Main Air Relief Valves	$20,000
Manhole Channel Rehabilitation	$50,000
Replace Manhole Covers	$52,500
Total Collection System	**$122,500**
Lift Station	
Replace 45 hp pumps every 10 Years	$90,000
Upgrade Electrical Controls	$45,000
Replace Generator	$75,000
Total Lift Station	**$210,000**
Treatment Plant	
Levee Roads Base Rock	$84,560
Replace Aerators (3)	$115,500
Sludge Removal Pond 1	$324,500
WWTP Access Road Microsurfacing Type III	$35,000
Total Treatment Plant	**$559,560**
Total Wastewater System Costs	**$892,060**

Source: Weber, Ghio & Associates, September 2020. cip

Table A-5
Linden County Water District
Wastewater Rate Study
Estimated CIP Timeline

Infrastructure Type	Estimated Total Cost in 2020 $s	Fiscal Year Ending 2022	2023	2024	2025	2026
Collection System				*2020 Dollars*		
Force Main Air Relief Valves	$20,000				$20,000	
Manhole Channel Rehabilitation	$50,000					$50,000
Replace Manhole Covers	$52,500					$52,500
Total Collection System	**$122,500**	**$0**	**$0**	**$0**	**$20,000**	**$102,500**
Lift Station						
Replace 45 hp pumps every 10 Years	$90,000					$90,000
Upgrade Electrical Controls	$45,000					$45,000
Replace Generator	$75,000					$75,000
Total Lift Station	**$210,000**	**$0**	**$0**	**$0**	**$0**	**$210,000**
Treatment Plant						
Levee Roads Base Rock	$84,560	$21,140	$21,140	$21,140	$21,140	
Replace Aerators (3)	$115,500		$38,500	$38,500	$38,500	
Sludge Removal Pond 1	$324,500	$324,500				
WWTP Access Road Microsurfacing Type III	$35,000				$35,000	
Total Treatment Plant	**$559,560**	**$345,640**	**$59,640**	**$59,640**	**$94,640**	**$0**
Total Wastewater System Costs	**$892,060**	**$345,640**	**$59,640**	**$59,640**	**$114,640**	**$312,500**

Source: LCWD and HEC, September 2020.

cip time

Table A-6
Linden County Water District
Wastewater Rate Study
Wastewater Assets

QTY	ASSET DESCRIPTION	ORIGINAL COST	TOTAL EST. COST	ESTIMATED LIFE, YEARS	ANNUAL DEPRECIATION
Collection system					
	1968				
6143	VC 6"	$75	$460,725	50	$9,215
10584	VC 8"	$100	$1,058,400	50	$21,168
200	CI 10"	$125	$25,000	50	$500
1295	VC 10"	$125	$161,875	50	$3,238
200	CI 12"	$150	$30,000	50	$600
3658	VC 12"	$150	$548,700	50	$10,974
52	VC 15"	$188	$9,750	50	$195
	1979				
200	VC 6"	$75	$15,000	50	$300
1017	VC 8"	$100	$101,700	50	$2,034
18	CI 8"	$100	$1,800	50	$36
	1980				
4440	VC 10"	$125	$555,000	50	$11,100
18	CI 10"	$125	$2,250	50	$45
	1984				
1035	6"	$75	$77,625	50	$1,553
620	10"	$75	$46,500	50	$930
	2000 - Flor Ranch II				
651	PVC 6"	$75	$48,825	80	$610
2199	PVC 8"	$100	$219,900	80	$2,749
	2001 - Flor Ranch II				
945	PVC 6"	$75	$70,875	80	$886
5842	PVC 8"	$100	$584,200	80	$7,303
	1968				
7700	AC 6"	$75	$577,500	80	$7,219
	2000				
4250	PVC 8"	$100	$425,000	80	$5,313
	2003				
3700	PVC 8"	$100	$370,000	80	$4,625
122	Manholes	$7,500	$915,000	50	$18,300
Subtotal Collection System			**$6,305,625**		**$108,890**
Lift Station					
2	47 hp - 6" sewage pump complete w/rail guide	$25,000	$50,000	5	$10,000
2	Check valves 8"	$500	$1,000	10	$100
4	Gate valves 8"	$1,500	$6,000	30	$200
6	Gate valves 6"	$1,500	$9,000	30	$300
2	Air relief valves 8"	$350	$700	10	$70
1	8 ft. X 25 ft. concrete deep well pit	$35,000	$35,000	30	$1,167
2	Check valve 6"	$500	$1,000	10	$100
1	Electric control panel, transducer and floats	$3,750	$3,750	15	$250
1	Standby generator control panel	$2,500	$2,500	15	$167
Subtotal Lift Station			**$108,950**		**$12,353**
Wastewater Treatment Plant					
1	Electric control panel WWTP complete w/alarm system	$5,000	$5,000	15	$333
2	Paddle wheel aerators 7.5 hp complete w/ emergency off	$25,000	$50,000	10	$5,000
1	Diesel engine generator 7.5L turbo charged	$85,000	$85,000	20	$4,250
1	Fencing around WWTP		$195,000	50	$3,900
1	Fencing around solar system		$25,414	50	$508
1	Solar PV Ground Mount System		$109,920	80	$1,374
Subtotal Wastewater Treatment Plant			**$470,334**		**$15,366**
Total Wastewater System			**$6,305,625**		**$136,609**

Source: Linden CWD Asset Records, February 2020. asset list

Table A-7
Linden County Water District
Wastewater Rate Study
Depreciation of Existing Assets

Wastewater Asset	Annual Depreciation
Collection System	
Pipes	$90,590
Manholes	$18,300
Total Collection System	**$108,890**
Lift Station	
47 hp - 6" sewage pump complete w/rail guide	$10,000
Check valves 8"	$100
Gate valves 8"	$200
Gate valves 6"	$300
Air relief valves 8"	$70
8 ft. X 25 ft. concrete deep well pit	$1,167
Check valve 6"	$100
Electric control panel, transducer and floats	$250
Standby generator control panel	$167
Total Lift Station	**$12,353**
Wastewater Treatment Plant	
Electric control panel WWTP complete w/alarm system	$333
Paddle wheel aerators 7.5 hp complete w/ emergency off	$5,000
Diesel engine generator 7.5L turbo charged	$4,250
Fencing around WWTP	$3,900
Fencing around solar system	$508
Solar PV Ground Mount System	$1,374
Total WWTP	**$15,366**
Total Estimated Annual Depreciation	**$136,609**
2019 Audit Reported Wastewater Depreciation	**$43,040**

Source: Linden CWD February 2020. depr

Table A-8
Linden County Water District
Wastewater Rate Study
New Assets Depreciation

Wastewater Asset	Average Life years	Fiscal Year Ending 2021	2022	2023	2024	2025	2026
Collection System							
Force Main Air Relief Valves	20	$0	$0	$0	$0	$1,000	$1,000
Manhole Channel Rehabilitation	40	$0	$0	$0	$0	$0	$1,250
Replace Manhole Covers	60	$0	$0	$0	$0	$0	$875
Total Collection System		**$0**	**$0**	**$0**	**$0**	**$1,000**	**$3,125**
Lift Station							
Replace 45 hp pumps every 10 Years	10	$0	$0	$0	$0	$0	$9,000
Upgrade Electrical Controls	10	$0	$0	$0	$0	$0	$4,500
Replace Generator	10	$0	$0	$0	$0	$0	$7,500
Total Lift Station		**$0**	**$0**	**$0**	**$0**	**$0**	**$21,000**
Treatment Plant							
Levee Roads Base Rock	20	$0	$1,057	$2,114	$3,171	$4,228	$4,228
Replace Aerators (3)	30	$0	$0	$1,283	$2,567	$3,850	$3,850
Sludge Removal Pond 1	5	$0	$64,900	$64,900	$64,900	$64,900	$64,900
WWTP Access Road Microsurfacing Type III	10	$0	$0	$0	$0	$3,500	$3,500
Total Treatment Plant		**$0**	**$65,957**	**$68,297**	**$70,638**	**$76,478**	**$76,478**
Total Wastewater System Costs		**$0**	**$65,957**	**$68,297**	**$70,638**	**$77,478**	**$100,603**

Source: Linden County Water District and HEC, September 2020. new depr

Table A-9
Linden County Water District
Wastewater Rate Study
Plant In Service

Plant In Service	Customer	Flow	Total Cost	Customer-Related	Flow-Related
Pipes	10%	90%	$5,390,625	$539,063	$4,851,563
Manholes	10%	90%	$915,000	$91,500	$823,500
Lift Station		100%	$108,950	$0	$108,950
Treatment Plant		100%	$140,000	$0	$140,000
Fencing	100%		$220,414	$220,414	$0
Solar	10%	90%	$109,920	$10,992	$98,928
Total			**$6,884,909**	**$861,968**	**$6,022,941**
Percentage of Plant In Service				**13%**	**87%**

Source: LCWD and HEC August 2020. plant

Table A-10
Linden County Water District
Wastewater Rate Study
Functional Allocation of Wastewater Costs

Expenditures	ACTUAL FY 2018-19	Allocation Basis	Customer-Related	Flow-Related	Unclassified
Salaries, Employee Benefits & Taxes - 50%	$61,147	Plant in Service	13%	87%	0%
Salaries, Employee Benefits & Taxes - 50%	$61,147	Customers	100%	0%	0%
Utilities	$33,057	Utilities	10%	90%	0%
Professional & Special Services	$39,573	Plant in Service	13%	87%	0%
Repairs and Maintenance	$29,168	Plant in Service	13%	87%	0%
Insurance	$9,605	Avg. of Classified	0%	0%	100%
Office Supplies, Postage & Printing	$5,953	Customers	100%	0%	0%
Testing Services	$8,639	Plant in Service	13%	87%	0%
Weed Control	$3,160	Customers	100%	0%	0%
Total Expenses	**$251,448**		**$90,908**	**$150,935**	**$9,605**
Reallocation of Unclassified			$3,610	$5,995	
Allocation of Operating Expenses	**$251,448**		**$94,519**	**$156,929**	
Depreciation	$43,040	Plant in Service	13%	87%	
			$5,388	$37,652	
TOTAL ALLOCATED EXPENSES	**$294,488**		**$99,907**	**$194,581**	
Percentage of Allocation			**34%**	**66%**	

Source: LCWD and HEC August 2020.

func alloc

Table A-11
Linden County Water District
Wastewater Rate Study
Cost of Service Summary

Customer Classification	Current	Cost of Service	COS Over / (Under)	Percentage Difference
Residential	**$319,328**	**$318,735**	**$592**	**0.2%**
Schools				
Linden Elementary		$3,530		
Linden High		$7,069		
Subtotal LUSD	**$17,670**	**$10,599**	**$7,071**	**66.7%**
Commercial				
Commercial 1 Unit	$19,068	$8,757	$10,312	117.8%
Commercial 2 Units	$1,777	$496	$1,282	258.7%
Commercial 3 Units	$2,660	$2,479	$181	7.3%
Bank	$665	$2,149	($1,484)	-69.1%
Restaurant	$7,351	$4,435	$2,916	65.8%
Grocery	$2,225	$21,297	($19,073)	-89.6%
Laundromat & Car Wash	$3,566	$3,219	$348	10.8%
Light Industrial	$3,772	$5,918	($2,145)	-36.3%
Subtotal Commercial	**$41,085**	**$48,748**	**($7,663)**	**-15.7%**
Total	**$378,083**	**$378,083**	**$0**	**0.0%**

Source: LCWD and HEC September 2020. cos