TECHNICAL MEMORANDUM

To: **Alexandria Lake Area Sanitary District – ALASD**

From: **AE2S**
Miranda Kleven, Senior Consultant

Re: **2025 ALASD Cost of Service Rate Study**

Date: December 2, 2025

INTRODUCTION

The Alexandria Lake Area Sanitary District (ALASD) retained AE2S Nexus to complete a comprehensive Wastewater Cost of Service Rate Study. The purpose of this study is to evaluate the appropriateness of the District's existing wastewater rates and charges, assess the adequacy of revenues relative to operating and capital requirements, and develop rate design options that equitably distribute costs among user classes.

The objectives of this project included:

- Reviewing financial, operational, and usage data to develop test year revenue requirements representative of full cost pricing.
- Completing a cost of service analysis (COSA) for wastewater service using industry-standard methodology as outlined by the Water Environment Federation (WEF).
- Developing alternative rate design options for residential, commercial, and significant industrial users (SIUs) that align with cost-of-service principles.
- Evaluating the phasing and revenue adequacy of proposed rate adjustments considering upcoming capital improvement needs.
- Supporting ALASD in communicating rate recommendations and the value of service to its customers and member Local Government Units (LGUs).

This Technical Memorandum summarizes the methodology, assumptions, analysis, results, and recommendations for ALASD. Findings and recommendations from the study included:

- **Finding:** The Residential user class is not providing revenue commensurate with its allocated cost of service.
    - **Recommendation:** Implement phased increases to the base (fixed) monthly charge per equivalent domestic unit (EDU).
- **Finding:** The Commercial user class provides revenue in excess of its allocated cost.
    - **Recommendation:** Minimize increases to the volumetric rate to allow re-alignment of residential revenue with residential cost.
- **Finding:** The SIU class is providing revenue in excess of its allocated cost.
    - **Recommendation:** Sixty-five percent (65%) of SIU revenue is generated through the volumetric rate, and roughly 35% is generated through excess strength charges, with less than 1% generated by the base rate structure. Minimize increases to the volumetric rate and apply phased increases to the strength surcharge to keep revenues from the SIU class in line with its allocated cost.
    - **Recommendation:** Consider implementing SIU base charges that are larger than those for a residential or commercial EDU. Phase this in over several years.
- **Finding:** Historically, tax revenues from LGUs, along with Wastewater Treatment Expansion Fee (WTEF) revenue, have been adequate to address ALASD's debt service obligations. A portion of debt service associated with the upcoming Water Reclamation Facility (WRF) construction project will need to be recovered through user fees.
    - **Recommendation:** Beginning in 2026, implement a fixed monthly infrastructure charge (WRF Fee) to address capital-related and/or renewal requirements. Apply phased increases to the WRF Fee through 2030, at which time the WRF Fee should be re-evaluated to ensure adequate revenue generation.
- **Finding:** The existing WTEF has not been updated recently and does not account for the excess capacity associated with growth in the upcoming WRF capital project.
    - **Recommendation:** Adopt an increase to the WTEF based on an evaluation of existing system value and the growth-related portion of the upcoming WRF project.
- **Recommendation:** Utilize the rate model developed for this project to monitor revenues, cost of service relationships, and overall revenue adequacy. The model has been designed to be used as a tool for annual rate setting based on projected budget values, capital improvements plan (CIP), debt service obligations, and customer accounts, flows, and wastewater strength contributions.

Existing 2025 rates, proposed 2026 rates and projected 2027 -2031 rates for the Residential, Commercial, and SIU user classes are shown in Table 1 through 3, respectively.

Table 1: Existing and Projected Residential Rates

Residential Base	2025	2026	2027	2028	2029	2030	2031
200/203/204R	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
205	$ 29.70	$ 30.90	$ 30.90	$ 30.90	$ 30.90	$ 30.90	$ 30.90
206	$ 91.40	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08
207	$ 68.55	$ 71.30	$ 71.30	$ 71.30	$ 71.30	$ 71.30	$ 71.30
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
200/203/204R	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
205	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
206	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
207	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total Residential Fixed Charge, Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
200/203/204R	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
205	$ 29.70	$ 34.90	$ 38.90	$ 42.90	$ 46.90	$ 49.65	$ 49.65
206	$ 91.40	$ 99.08	$ 103.08	$ 107.08	$ 111.08	$ 113.83	$ 113.83
207	$ 68.55	$ 75.30	$ 79.30	$ 83.30	$ 87.30	$ 90.05	$ 90.05
Annual Residential Rate Change: 200/203/204R		**12.8%**	**7.8%**	**7.2%**	**6.7%**	**4.3%**	**0.0%**
Annual Residential Rate Change: 205		**17.5%**	**11.5%**	**10.3%**	**9.3%**	**5.9%**	**0.0%**
Annual Residential Rate Change: 206		**8.4%**	**4.0%**	**3.9%**	**3.7%**	**2.5%**	**0.0%**
Annual Residential Rate Change: 207		**9.8%**	**5.3%**	**5.0%**	**4.8%**	**3.2%**	**0.0%**

Table 2: Existing and Projected Commercial Rates

Commercial Base	2025	2026	2027	2028	2029	2030	2031
204/221/221OC/230/230OC	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
222/222OC/231/231OC	$ 92.15	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
204/221/221OC/230/230OC	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
222/222OC/231/231OC	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total Commercial Fixed Charge, Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
204/221/221OC/230/230OC	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
222/222OC/231/231OC	$ 92.15	$ 99.08	$ 103.08	$ 107.08	$ 111.08	$ 113.83	$ 113.83
Annual Commercial Rate Change: 204/221/221OC/230/230OC		**12.8%**	**7.8%**	**7.2%**	**6.7%**	**4.3%**	**0.0%**
Annual Commercial Rate Change: 222/222OC/231/231OC		**7.5%**	**4.0%**	**3.9%**	**3.7%**	**2.5%**	**0.0%**

Commercial Volumetric Charges	2025	2026	2027	2028	2029	2030	2031
Metered Accounts, per kgal	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Unmetered Accounts, per EDU/Month	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
Annual Volumetric Rate Change		**2.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Table 3: Existing and Projected SIU Rates

SIU Base	2025	2026	2027	2028	2029	2030	2031
TWF	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Alexandria Industries	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Minnesota Mining Mfg	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Douglas Machine	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Nelson Creamery	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
Sun Opta Ingredients	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Sun Opta Aseptic	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
TWF	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Alexandria Industries	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Minnesota Mining Mfg	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Douglas Machine	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Nelson Creamery	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Sun Opta Ingredients	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Sun Opta Aseptic	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total SIU Fixed Charge, per Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
TWF	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Alexandria Industries	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Minnesota Mining Mfg	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Douglas Machine	$ 184.30	$ 198.16	$ 263.20	$ 345.36	$ 449.75	$ 512.90	$ 512.90
Nelson Creamery	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
Sun Opta Ingredients	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Sun Opta Aseptic	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Annual SIU Fixed Rate Change		**7.5%**	**32.8%**	**31.2%**	**30.2%**	**14.0%**	**0.0%**

SIU Volumetric Charges	2025	2026	2027	2028	2029	2030	2031
Per Thousand Gallons	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Total Volumetric Charge	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Annual SIU Volumetric Rate Change		**2.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Strength Charge, in Excess of Domestic Strength	2025	2026	2027	2028	2029	2030	2031
CBOD, per pound	$ 0.3794	$ 0.3794	$ 0.4461	$ 0.5246	$ 0.6169	$ 0.7254	$ 0.8530
TSS, per pound	$ 0.3533	$ 0.3533	$ 0.3709	$ 0.3894	$ 0.4088	$ 0.4292	$ 0.4506
NH3-N per pound	$ 0.4419	$ 0.4419	$ 0.4552	$ 0.4689	$ 0.4830	$ 0.4975	$ 0.5124
P, per pound	$ 10.94	$ 10.94	$ 11.28	$ 11.64	$ 12.00	$ 12.38	$ 12.77
GAC, per kgal	$ 35.00	$ 35.97	$ 35.97	$ 35.97	$ 35.97	$ 35.97	$ 35.97
Annual Change	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
CBOD, per pound	0.0%	0.0%	17.6%	17.6%	17.6%	17.6%	17.6%
TSS, per pound	0.0%	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
NH3-N per pound	0.0%	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%
P, per pound	0.0%	0.0%	3.1%	3.1%	3.1%	3.1%	3.1%
GAC, per kgal	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%

BACKGROUND

System Overview

The ALASD provides wastewater collection and treatment services for the City of Alexandria and the surrounding townships of Alexandria, Carlos, Hudson, Ida, Lake Mary, and LaGrand. The District also provides wholesale services to the cities of Nelson and Forada, and to select state facilities within its boundaries. In total, ALASD's service area encompasses approximately 105 square miles and serves a population of over 26,500 residents.

Collection System

The collection system includes approximately 244 miles of gravity sewer, 61 miles of pressure sewer, and 4,940 manholes. Wastewater is conveyed through 172 lift stations and 110 residential grinder stations.

Wastewater Treatment Facility

The ALASD Water Reclamation Facility (WRF), in service since 1977, has undergone multiple upgrades to maintain compliance with regulatory standards and improve treatment efficiency. The facility is designed to treat 4.75 million gallons per day (MGD) average wet weather flow, with a maximum day design flow of 6.0 MGD. In 2024, the plant treated an average daily influent flow of 3.22 MGD. ALASD is currently undergoing a $76M capital project to rehabilitate aging components of the facility and improve processes to address increasingly stringent regulatory requirements. Upon completion, average wet weather flow capacity will be increased to 5.7 MGD.

Customer Classes

The ALASD customers fall into four categories:

- **Residential**: Single family dwelling that discharges wastewater at or below domestic strength. Average residential use is estimated at 5,000 gallons per month and forms the basis for 1 EDU.
- **Metered Commercial**: Multiple family residential, commercial and industrial facilities where water service is metered. Commercial EDUs are assigned based on the type or size of facility based on ALASD's EDU schedule.
- **Non-Metered Commercial**: Multiple family residential, commercial and industrial facilities where water service is not metered. Commercial EDUs are assigned based on the type or size of facility based on ALASD's EDU schedule.
- **Significant Industrial Users:** Industrial users that discharge an average or 25,000 gallons of wastewater per day and/or whose wastewater strength components exceed the domestic loading limits.

Revenue Sources

The ALASD's wastewater utility is funded through a combination of user charges, tax allocations, and special fees. In 2024, the District collected approximately $13.7 million in total revenues. The primary sources of revenue include:

- **User Charges:** Wastewater service charges billed to residential, commercial, and significant industrial users. User charges provided the largest share of revenues in 2024, totaling $10.6 million (77% of total revenues). Revenue distribution was approximately 45% residential, 32% commercial and 23% SIU.
- **Ad Valorem Tax Allocation:** A district-wide property tax allocation distributed among member LGUs based on tax capacity. In 2024, the tax allocation totaled $1.3 million, which was primarily applied toward debt service obligations.
- **Wastewater Treatment Expansion Fee (WTEF):** A one-time fee levied on new connections to the wastewater system to offset the cost of treatment facility expansions. For a single-family dwelling (1 EDU), the WTEF is currently $2,500. In 2024, total collections were approximately $499,500.
- **Other Revenues:** Additional revenue streams include investment income, grants, and miscellaneous fees.

Existing Rate Structure

ALASD currently utilizes four (4) approaches to monthly user charges:

- Fixed monthly charge for each residential connection, or EDU. Fixed monthly charges for all user accounts are based on the number of EDUs where 1 EDU equal a single family dwelling.
- Fixed monthly charge per EDU for unmetered commercial accounts plus an additional volumetric charge per EDU.
- Fixed monthly charge per EDU for metered commercial and industrial accounts plus a volumetric rate per thousand gallons of metered water use.
- Fixed monthly charge per SIU accounts plus a volumetric rate per thousand gallons of metered water and strength charges per pounds in excess of domestic strength for the following parameters:
    - Carbonaceous biochemical oxygen demand (CBOD)
    - Total suspended solids (TSS)
    - Nitrogen measured as ammonia (NH3)
    - Total phosphorous (TP)

The existing rate structures for Residential, Commercial and SIU customer classes are shown in Tables 1 through 3, respectively. Currently, the fixed cost per EDU is $45.70 per month.

Reserves and Fund Structure

The District maintains three primary funds:

- **Enterprise Fund:** Supports day-to-day operations and includes an operating reserve target equal to eight months of O&M expenses.
- **Capital/Investment Fund:** Provides cash capital funding for repair and replacement projects, supplemented by transfers when reserves exceed the operating fund target.
- **Debt Service Fund:** Supports repayment of principal and interest obligations.

Maintaining adequate fund balances across these categories is critical to meeting best practice financial management guidelines and sustaining favorable credit conditions.

Revenue Requirements

Expenditures

Operating and capital expenditures totaled $15.2 million in 2024. Major categories included:

- **Salaries and Benefits:** $2.5 million for administration, collection, plant, and seasonal staff.
- **Supplies and Services:** $1.6 million for office operations, equipment maintenance, and engineering.
- **Capital Improvements:** $6.4 million in repair and replacement projects, as detailed in the District's 5-year CIP.
- **Debt Service:** $2.5 million in principal and interest payments on ALASD's outstanding obligations, including the 2008A GO Bonds, 2015A GO Refunding Bonds, and the 2023 GO Facilities Bond.
- **Utilities, Insurance, and Other:** $701,000 for electricity, gas, and insurance.

Debt and Capital Financing

As of December 31, 2024, ALASD's outstanding bonded debt totaled $22.4 million, including the recently issued 2023 GO Facilities Bond of $15.4 million. Debt service obligations are expected to increase in the near term as repayment begins on new borrowing to fund the WRF improvements.

Work on $76M in capital improvements at the WRF commenced in the fall of 2025. ALASD is eligible for up to $12M in principal forgiveness through the state of Minnesota for this project and will issue debt for $42M in 2026, $20M in 2028 and apply $2M in existing funds to finance the project. Figure 1 illustrates existing and projected future annual debt obligations. Assumed terms for the new debt included an interest rate of 2.5% for a term of 20 years and required 110% coverage.

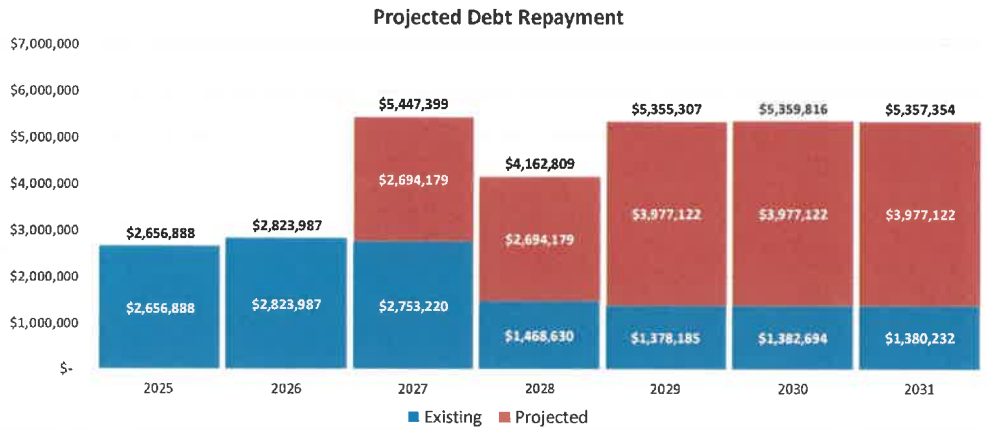


Figure 1: Existing and Projected Debt Repayment

COST OF SERVICE ANALYSIS (COSA)

Development of Revenue Requirements

The first step in evaluating the cost of service and adequacy of existing rates is to understand total revenue requirements in terms of full cost pricing. The full cost of service consists of the sum of operation and maintenance (O&M)- and capital-related revenue requirements (capital-related debt, rate funded capital improvements, or renewal/replacement (R&R) reserve contributions). Figure 2 illustrates the components of full cost pricing.

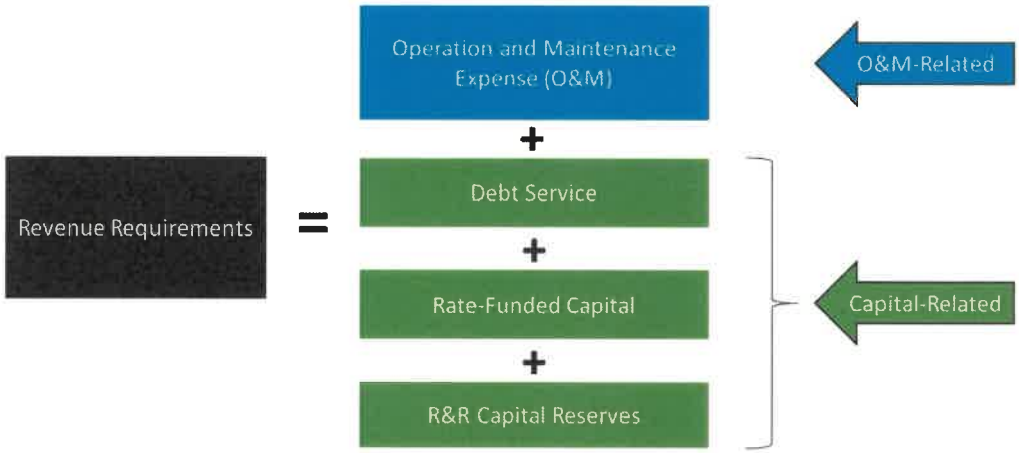


Figure 2: Components of Full Cost Pricing

The CIP maintained by ALASD includes renewal and replacement expenditures developed as part of a robust asset management program. The CIP, as well as existing debt and projected debt associated with the CIP, form the basis for the annual capital-related revenue requirements. Table 4 summarizes the total annual rate-funded capital programmed, as well as an annualized value to represent average annual capital investment. Table 5 summarizes the 2025 Test Year Revenue requirements, including O&M-related and capital-related, upon which the cost of service analysis was based.

Table 4: Summary of Capital-Related Revenue Requirements

Project	2025	2026	2027	2028	2029	2030	2031
Collection System Improvement							
Gravity Sewer Impr	$1,120,000	$1,120,000	$1,120,000	$1,120,000	$1,120,000	$1,120,000	$1,120,000
Forcemain Imp	$600,000	$600,000	$600,000	$600,000	$600,000	$600,000	$600,000
Lift Station Imp	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Lateral Facility/Equip	$330,000	$330,000	$330,000	$330,000	$330,000	$330,000	$330,000
Interceptor Fac/Equip	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000
Sewer Improvements Detail							
City of Alex – Broadway				$2,000,000			
Lift Station #4 Imp	$475,000						
Lift Station #3 Imp					$475,000		
CSAH 46-34th	$150,000						
Voyageur Dr Forcemain			$1,500,000				
Cty Road 82 – 3rd Ave					$1,500,000		
Lift Station #63 Imp						$2,000,000	
ALASR Ext (Bond)	$2,000,000						
Lift Station #28 Upsize			$700,000				
City of Alex/DOT/County							$2,000,000
Water Reclamation Facility							
Maintenance	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
Programs and Tools							
GIS	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
SCADA	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
Vehicle/Generation/Vactor							
SUV Office and Plant		$45,000				$45,000	
Collection System Truck	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Plant UTV/Dump Truck	$20,000				$200,000		
Sewer Cam/Cam Van	$435,000						
Special Projects							
Eng/Professional Svcs	$970,000	$970,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Chloride Min/Rebates	$250,000	$250,000	$200,000	$200,000	$200,000	$200,000	$200,000
WRF Capital Construction		$42,000,000		$20,000,000			
Total	**$8,275,000**	**$46,790,000**	**$6,925,000**	**$28,000,000**	**$7,050,000**	**$6,920,000**	**$6,725,000**
Rate-Funded	$6,275,000	$4,790,000	$6,925,000	$8,000,000	$7,050,000	$6,920,000	$6,725,000
Debt-Funded		$42,000,000		$20,000,000			
Average Annual Rate-Funded Capital Placeholder			**$6,200,000**	**$6,200,000**	**$6,200,000**	**$6,200,000**	**$6,200,000**

Table 5: 2025 Test Year Total Revenue Requirements

Description	2025 Test Year Budget	Adjustments	Adjusted Test Year Rate Revenue Requirements
Admin	$2,297,413	--	$2,297,413
Treatment	$856,500	--	$856,500
Electricity	$333,600	--	$333,600
Process Chemicals	$500,000	--	$500,000
Collection	$1,398,400	--	$1,398,400
Avg Annual CIP (Rate-Funded)	$6,200,000	--	$6,200,000
Misc Revenue	$2,656,888	($350,000)	$171,985
Debt/Capital – Funded with Devt Fees		($499,525)	
Debt/Capital – Funded with LGU Tax Revenue		($1,395,378)	
Debt/Capital – Funded by ALASR		($240,000)	
Total	**$14,242,801**	**($2,484,903)**	**$11,757,898**
O&M-Related Revenue Requirements	$5,385,913	--	$5,385,913
Capital-Related Revenue Requirements	$8,856,888	$2,484,903	$6,371,985

Customers and Usage Assumptions

Each step of the COSA involves the application of assumptions. General assumptions related to user characteristics are summarized in Table 6. Users are grouped into three categories – Residential, Commercial and SIU. For the purpose of the COSA, accounts within the bulk user cities of Nelson and Forada are included in the totals for Residential users. Billed sewer flows are based on water billing data for customers with meters and estimated flows for residential users. For the purpose of allocating total flow into the WRF, inflow/infiltration (I/I) was also estimated and is shown in Table 6. Figure 3 depicts billed wastewater flows based on metered water use by ALASD customers on a monthly basis, as well as estimated winter average water use for residential users.

Table 6: Existing Accounts and Billed User Flows by Customer Class

User Type	EDUs	Assumed Monthly Flow (gallons)/EDU	Estimated Annual Flow (gallons)	Calculated Monthly Flow (gallons)/EDU
Residential	9,735	5,000	402,242,861	3,443
Commercial	1,351	5,000	287,226,000	17,716
Commercial (Unmetered)	574	5,000	43,397,680	6,298
SIU (Metered)	8	25,000	166,735,796	1,736,831
I/I	--	--	296,118,898	--

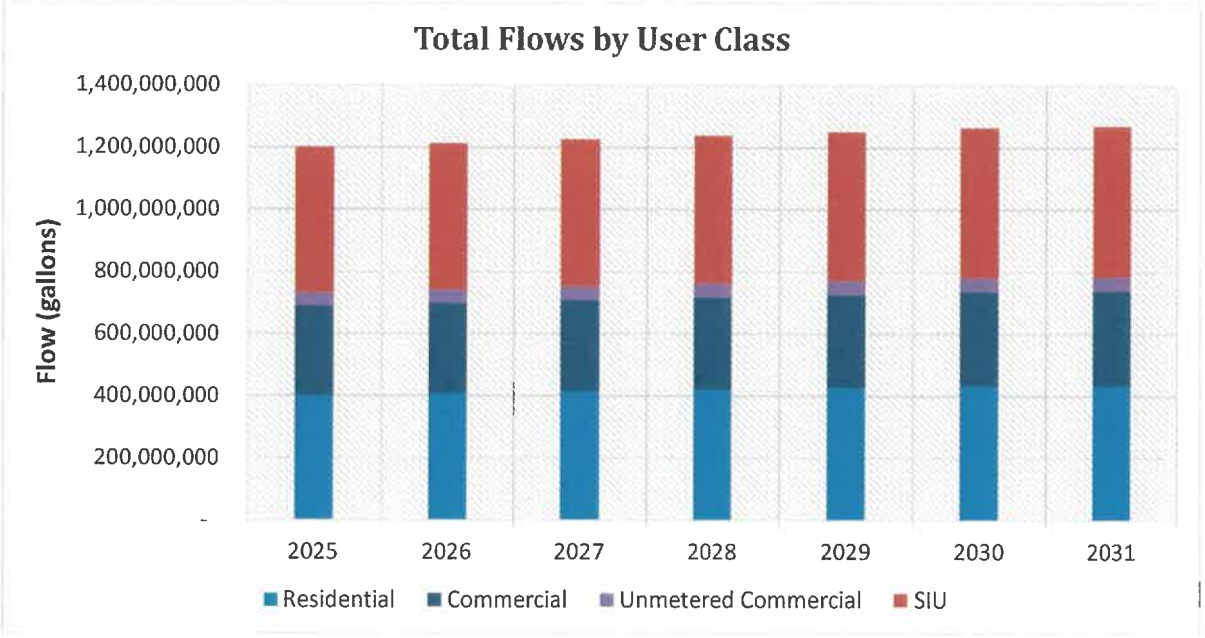


Figure 3: Projected Wastewater Flows (Gallons)

Wastewater Strength Assumptions

To appropriately distinguish the cost difference between the treatment of domestic and high strength wastewater, an analysis of flow strength contributions from the SIUs was completed and compared to overall flow and strength discharged to the WRF. Existing domestic strength limits for ALASD are:

- CBOD = 200 milligrams per liter (mg/L)
- TSS = 195 mg/L
- NH3 = 35 mg/L
- TP = 6 mg/L

Using assumptions from the literature for I/I concentrations of 15 mg/L for CBOD, 15 mg/L for TSS, 15 mg/L for NH3 and 5 mg/L for TP, actual domestic strength for 2024 was calculated based on flow and strength values into the plant and reported strength discharge from SIUs. The calculated domestic strength values for the test year of 140 mg/L CBOD, 288 mg/L TSS, 23 mg/L NH3, and 5 mg/L TP were used to distribute total strength-related costs to all user classes. All of these values are in the range of typical strength values. Table 7 summarizes the results of these calculations.

Table 7: Test Year Strength Values

User Class	CBOD lb	CBOD %	TSS lb	TSS %	NH3 lb	NH3 %	TP lb	TP %
Residential	461,472	22.5%	950,590	40.7%	76,650	36.8%	16,272	32.5%
Commercial	384,496	18.8%	792,027	33.9%	63,864	30.7%	13,558	27.1%
SIU	1,168,690	57.0%	556,483	23.9%	32,249	15.5%	8,431	16.9%
I/I	35,287	1.7%	35,287	1.5%	35,287	17.0%	11,761	23.5%
Total	**2,049,945**	**100%**	**2,334,387**	**100%**	**208,050**	**100%**	**49,302**	**100%**

Cost of Service Methodology

A COSA is an industry recognized method to ensure costs are recovered from customers in proportion to their use of the system, recognizing the impact of each class on system facilities and operations. The result of a COSA is the cost to serve each customer class based on how that respective class uses water or generates wastewater. In other words, it allocates the total revenue requirement amongst each customer class.

The cost of service methodology utilized for the wastewater COSA is detailed in the Water Environment Federation's Financing and Charges for Water Systems Manual of Practice No. 27. The basic steps of a COSA include:

1. Development of rate revenue requirements representative of full cost pricing.
2. Functionalization of rate revenue requirements based on primary categories of service:
    - Wastewater: Admin, Collection, Treatment.
3. Classification of functionalized rate revenue requirements based on how costs are driven (per account, based on average flow, based on peak flow):
    - Customer, Fixed, Variable, Assigned.
4. Allocation of rate revenue requirements based on user characteristics:
    - Per Account, based on average use, based on peak use.

Cost Functionalization

Test year budget line items were categorized into functional components based on the purpose of each revenue requirement (Table 8). Functionalization of administrative and general operational costs was correlated to expenses within the Admin, Treatment, and Collection budget subdivisions, excluding chemicals and electricity.

Table 8: Functionalization Percentages

Budget Category	Admin/ General	Biosolids	Collection	Pumping	Treatment – Fixed	Treatment – Variable	Environmental	Treatment Capital
Admin/Gen	55.8%	0.6%	25.1%		16.9%		1.6%	
Biosolids		100%						
Capital	0.2%		56.1%					43.7%
Pumping				100%				
Collection			100%					
Environmental							100%	
Treatment Fixed					100%			
Treatment Variable						100%		

Cost Classification

Functionalized costs were classified based on how users drive the costs. Classification factors included:

- Customer: Costs, such as billing costs, that vary on a per-EDU basis.
- Flow: Costs directly related to the flow contributed by each user, such as chemicals and electricity.
- Design Capacity: Costs associated with the maximum potential discharge or strength contribution associated with each user class.
- CBOD, TSS, NH3, and TP Strength: Costs associated with addressing strength concentrations for these parameters.

Treatment Plant Capital Asset Allocation Assumptions

Further evaluation of capital assets was completed for use in the Classification step. Table 9 summarizes functionalization of the new WRF project and existing assets, to develop an overall assignment of capital cost associated with flow, CBOD, TSS, nitrogen (as NH3), and TP. The following assumptions were applied to allocate capital asset costs to functional categories. These assumptions are based on engineering judgment, Facility Plan notes, and the intended purpose of each facility.

- **Equalization Storage** – Allocated primarily to flow. Some recognition of TP costs was included based on the Facility Plan note that equalization may reduce membrane bioreactor (MBR) costs; however, equalization is primarily flow-related.

- **Main Pump Station** – Allocated entirely to flow, reflecting its role in conveying all influent through the facility.
- **Screening** – Allocated primarily to flow, with minor load-based allocations acknowledging that screens protect downstream equipment from solids.
- **Headworks Building** – Allocation mirrors screening, treated as largely flow-related with minor recognition of solids removal.
- **Primary Clarifier Expansion** – Allocation consistent with traditional clarifier function. Costs are primarily flow-driven, with recognition of solids removal, reflecting its role in handling additional capacity.
- **Fine Screen Building** – Allocation matched to membrane treatment functions. The primary purpose is to protect membranes, so costs were distributed in proportion to membrane allocations.
- **BNR Tank Expansion** – Allocation derived from a proportional breakdown of anaerobic, anoxic, and aerobic tank volumes. Costs reflect each process's relative contribution to nutrient and solids removal.
- **Membrane Filtration Building** – Allocated proportionally across flow and load parameters, consistent with its critical role in advanced treatment and effluent quality compliance. Considered an asset renewal.
- **RAS Denitrification Tank, Filter/Control Building, and Digester Improvements** – Allocated primarily toward biological nutrient removal, with emphasis on phosphorus removal functions.
- **Solids Handling** – Allocated according to general biosolids handling splits.
- **Digestion** – Allocation focused on BOD and ammonia loadings, reflecting the limiting factors associated with recycle streams.
- **Dewatering** – Allocated according to general biosolids handling splits.
- **Biosolids Storage Pad** – Allocation follows general biosolids handling splits, reflecting solids storage and phosphorus association.
- **Disinfection** – Allocated entirely to flow, since disinfection requirements apply equally to all treated effluent regardless of loading.

Variable treatment costs were classified based on electricity and chemical costs, as shown in Table 10, and other assumptions are listed below. Table 11 summarizes the classification results.

- Environmental costs are associated with sampling and treatment of high strength waste streams. These were classified equally between the four strength classifications.
- Collection costs were classified as 25% customer and 75% design capacity costs.
- Biosolids costs were classified 50% to TSS, 10% to CBOD, 10% NH3, and 30% TP.

Table 9: Capital Asset Classification

Asset	Cost $	Annualized Cost	Admin	Collect-ion	Flow %	CBOD%	TSS%	NH3%	TP%
New WRF	$73,216,748	$2,251,757			22.6%	20.7%	17.7%	13.7%	25.3%
Existing WRF	$14,887,728	$634,631			18.7%	32.1%	19.3%		30.0%
Equipment	$3,525,237	$353,371		100%					
Admin Equip	$115,270	$16,017	100%						
Collection System	Not Available	$3,350,000		100%					
Capital Allocation – All			**0.2%**	**56.1%**	**10.7%**	**11.7%**	**9.4%**	**5.6%**	**6.3%**
Capital Allocation – Treatment					**24.6%**	**26.8%**	**21.5%**	**12.7%**	**14.4%**

Table 10: Variable Treatment Cost Classification

Variable Treatment Costs	$	Flow	CBOD	TSS	NH3	TP
Electricity – WRF	**$343,750**	**25.0%**	**61.4%**		**13.6%**	
Ferric Chloride	**$85,175**			**10%**		**90%**
Electricity – Membranes	**$31,000**	**20%**	**20%**	**20%**	**10%**	**30%**
Hypo- membranes	**$2,200**	**20%**	**20%**	**20%**	**10%**	**30%**
Citric – Membranes	**$100**	**20%**	**20%**	**20%**	**10%**	**30%**
Sodium Hypochlorite	**$105,000**	**100%**				
Bisulfite	**$15,000**					
Polymers	**$200,000**		**10%**	**50%**	**10%**	**30%**
Aggregate Cost Classification		26.7%	37.8%	11.2%	10.0%	14.3%

Table 11: Classification Percentages – Total Revenue Requirements

Function	Functionalized Amount	Customer	Flow	Design Capacity	CBOD	TSS	NH3	TP
Admin/General	$1,476,200	100%						
Biosolids	$44,256				10%	50%	10%	30%
Collection	$7,855,883	25%		75%				
Pumping	$245,864		100%					
Treatment Fixed	$1,225,551			24.6%	26.8%	21.5%	12.7%	14.4%
Treatment Variable	$1,190,880		26.7%		37.8%	11.2%	10.0%	14.3%
Environmental	$119,151			24.6%	26.8%	21.5%	12.7%	14.4%
Treatment Capital	$4,701,991			24.6%	26.8%	21.5%	12.7%	14.4%

Cost Allocation

The final step is to allocate classified costs based on the number of connections and usage characteristics of the customer classes. Table 12 summarizes the allocation factors derived based on user characteristics listed in Table 6. Design capacity allocation factors were calculated based on total design capacity of 4.75 MGD and maximum historical flow values for SIUs.

To fairly share in the cost of I/I, costs allocated to I/I were further allocated to the Residential, Commercial, and SIU user classes on a split 50/50 per-EDU and per-flow basis. Total allocated revenue requirements are summarized in Table 13.

Table 12: Cost Allocation Percentages

User Type	Customer %	Flow %	Design Capacity %	CBOD	TSS	NH3	TP
Residential	83.6%	34.6%	31.6%	22.5%	40.7%	36.5%	32.2%
Commercial	16.1%	27.9%	26.3%	18.7%	33.9%	30.4%	26.8%
SIU	0.3%	13.5%	19.7%	57.0%	23.8%	15.4%	16.7%
I/I	--	24.0%	22.4%	1.8%	1.6%	17.7%	24.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 13: Total Allocated Revenue Requirements – Test Year

	Residential	Commercial	SIU	Total
Customer Cost	$2,875,724	$553,302	$11,144	$3,440,170
Treatment – Variable	$109,863	$88,536	$42,907	$241,306
Treatment – Design	$459,797	$383,101	$286,748	$1,129,646
Collection - Variable	$85,073	$68,558	$33,225	$186,856
Collection – Design	$1,859,467	$1,549,300	$1,159,638	$4,568,405
CBOD	$465,771	$388,078	$1,179,577	$2,033,426
TSS	$595,175	$495,897	$348,420	$1,439,492
NH3	$331,634	$276,316	$139,529	$747,479
TP	$342,797	$285,617	$177,602	$806,016
I/I – EDU basis	$947,511	$182,306	$3,672	$1,133,489
I/I – flow basis	$516,061	$415,880	$201,548	$1,133,489
Total	**$8,588,873**	**$4,686,891**	**$3,584,010**	**$16,859,774**
% Allocated Cost	**50.9%**	**27.8%**	**21.3%**	

The ability of a rate structure to generate revenue from each type of user in proportion to the cost associated with serving each type of user is measured by comparing the percentage difference between the cost and revenue percentages for each class. A percentage difference between cost percentage and revenue percent in the range of (+/-) ten (10) percent is generally considered equitable. Table 14 shows the cost versus revenue percentage difference comparison

based on allocated costs versus actual revenue from each user class for 2024. The results indicates a slight disparity for all user classes – the commercial and SIU user classes are providing revenue in excess of cost while the residential user class does not appear to be providing revenue commensurate with cost. This supports consideration of rate structure modifications to specifically address each user class.

Table 14: Cost of Service Results

Customer Class	% of Cost	% of Revenue	% Difference
Residential	50.9%	44.8%	-12.1%
Commercial	27.8%	31.6%	+13.7%
SIU	21.3%	23.6%	+11.0%
Total	**100.0%**	**100.0%**	

Multi-Family Institutional User Analysis

The COSA completed for this study was an inter-class analysis comparing the cost and revenue percentages between user classes as a whole. As such, an intra-class comparison of different user types within a given class was not completed in detail. However, at the request of ALASD staff, Institutional and Hospital account user characteristics and the resulting impacts on cost allocation were reviewed and compared to usage characteristics and allocated cost for Multi-Family and Nursing Home accounts. The findings of this exercise were that Institutional and Hospital/Clinic accounts provide a seasonal spike in flow to the wastewater system, resulting in a max month to average month ratio higher than typical values for other commercial accounts and specifically Multi-Family and Nursing Home accounts. This reflects the consistent indoor water use patterns associated with Multi-Family and Nursing home accounts as opposed to Institutional and Hospital/Clinic accounts. It was concluded that the current approach to charging Institutional and Hospital/Clinic accounts is fair.

RATE DESIGN

The COSA results showed that ALASD needs to generate more revenue from residential users. The existing rate structure, summarized in Table 1 through Table 3, consists of a schedule of fixed monthly charges per EDU for all accounts, plus a volumetric charge for metered commercial and SIU accounts.

The purpose of the rate design effort was to identify approaches to meet two objectives:

- Generate adequate revenue to meet total revenue requirements; and
- Generate revenue from each user class that is commensurate with the cost associated with service to each class.

Two approaches were chosen for evaluation:

- **Existing Structure:** The first approach would maintain the existing rate structure. Without modifying the structure to allow the Commercial and SIU accounts to be charged differently, this approach does not provide the ability to correct cost of service inequities. As a result, this was not the recommended approach.
- **Recommended Approach:** The second approach is to adopt fixed charges for the SIU user class that are different from and larger than those associated with the Commercial user class. This allows ALASD to correct cost of service inequities.

To address cost of service disparity for the user classes, the following were considered:

- Changes to the fixed charge disproportionately impact residential users as residential holds the greatest number of accounts.
- Changes to the existing fixed charge make little impact to the SIUs, who generate greater than 99% of their revenue through the volumetric and strength charges. Given that SIUs require additional ALASD effort due to involvement in the environmental program, the existing per EDU charge for SIUs is inadequate and should be increased.
- Changes to the volumetric rate disproportionately impact the SIUs, whose average monthly billed flow is significantly higher than commercial users.

Discussion of specific rate considerations and recommendations follows.

Fixed Monthly Rates

Existing fixed charges are based on the application of a $45.70 fee per EDU per month to each account based on number of EDUs allocated per account. ALASD has an extensive list of EDUs for properties with varying amenities. Under the current rate structure, greater than 50% of rate revenue is derived from fixed charges per EDU. This is favorable for revenue stability and is due to the nature of the customer base, of which approximately 88% of the accounts are unmetered and therefore charged only on a fixed basis per EDU.

As summarized in Table 15, approximately 0.3% of SIU revenue comes from the fixed rates, 29.2% of Commercial revenue comes through the fixed rates, and 100% of Residential revenue is associated with the fixed rate. As a result, the only way to increase revenue from Residential class is to adjust the fixed charge. Because the fixed charges for all user classes are structured based on a consistent per EDU charge, any change to the fixed charge also affects the Commercial class, as well as the SIU class, but do to a lesser degree due to the small number of accounts.

Table 15: Revenue Generation by Rate Component

Rate Component	Residential	Commercial	SIU
Fixed Charge ($/EDU)	100% of Revenue	29.2% of Revenue	0.3% of Revenue
Volumetric Charge ($/Thousand Gallons)	--	70.8% of Revenue	64.7% of Revenue
Strength Surcharge ($/Pound)	--	--	35.0% of Revenue

Volumetric Rates

The existing volumetric rate structure, applicable only to metered Commercial and SIUs, is $9.24 per thousand gallons. As shown in Table 15, the volumetric rate generates more than 60 percent of the revenue for both the Commercial and SIU user classes. The basis for the volumetric rate is to address the cost of treating domestic strength wastewater regardless of the source. As a result, any change to the volumetric rate impacts the revenue generated by both the Commercial and SIU user classes, making it difficult to correct the cost of service for one of those classes without also impacting revenue generation for the other.

Users that are classified as SIUs are monitored for strength concentration and charged for strength contributions in excess of domestic limits. It is assumed that all other flow into the WRF is at or below domestic strength levels, and it makes sense to maintain a consistent volumetric charge for wastewater flows. As a result, it is recommended that the distinction in rates between customer classes be made in the fixed rate as opposed to the flow rate, and that ALASD maintain a uniform volumetric rate to be applied to all billed wastewater flow regardless of user type.

Strength Surcharge Rates

To account for the additional cost associated with treating high strength wastewater streams, ALASD applies surcharge rates to SIUs when wastewater stream discharges exceed established domestic strength limits. Table 16 summarizes the strength limits and existing charges applicable to pounds discharged in excess of the domestic limits.

Table 16: Domestic Strength Limits and Charges (2025)

	CBOD (mg/L)	TSS (mg/L)	NH3 (mg/L)	TP (mg/L)
ALASD Domestic Strength Limit (mg/L)	200	195	35	6
Strength Surcharge ($/Pound)	$0.3794	$0.3533	$0.4419	$10.94

Only customers in the SIU user class are subject to the strength surcharge rates. As a result, adjustments to the surcharge rates can be used to keep the revenue from the SIU class in line with its cost of service without impacting the other user classes.

Capital Funding

Historically, ad valorem tax revenues from LGUs, along with WTEF revenues and a transfer from Alexandria Lake Area Service Region (ALASR), have been nearly adequate to address ALASD's full debt service obligations. In addition to debt, rate revenues annually fund $4M-$6M in capital improvements programmed based on a robust asset management plan. A portion of debt service associated with the upcoming WRF construction project, however, will need to be recovered through rate revenues.

Figure 4 illustrates the projected debt service obligations, along with a breakdown of anticipated revenue types needed to cover future debt. To be conservative, LGU revenue projections were grown by 2.5% annually and then held constant beginning in 2030. As shown in Figure 4, it is projected that a portion of the 2025 and 2026 debt obligations will be made using rate revenues, but most notably, beginning in 2027 the debt-related rate revenue requirements increase substantially. The temporary reduction in annual debt obligation in 2028 is attributable to a drop-off in existing debt obligations, which is then replaced once debt for the WRF project comes into repayment in 2029.

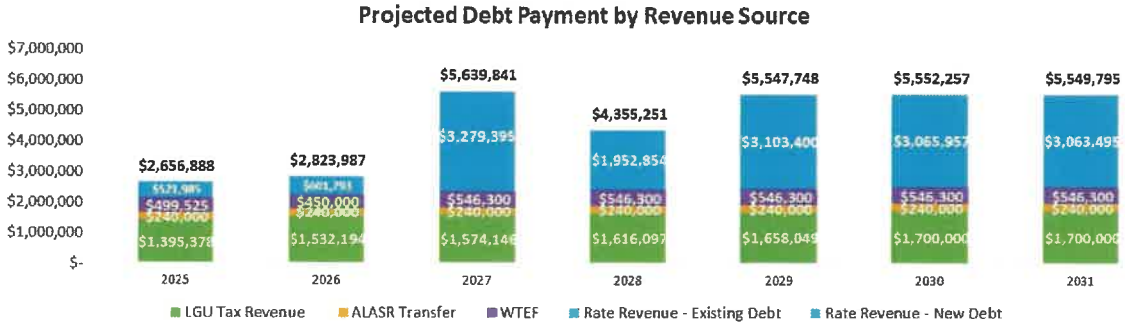


Figure 4: Future Debt Repayment Projections by Revenue Source

Infrastructure Improvement – WRF Fee

ALASD faces significant capital obligations, including renewal of collection system assets and major improvements at the WRF. The District's historic reliance on user charges, the WTEF, and LGU tax allocations is not sufficient to address these needs. Figure 4 illustrates future debt-related rate revenue requirements will increase from approximately $0.5 million to more than $3 million. Without a dedicated mechanism, large rate increases or reserve depletion would be required.

To address this challenge, it is recommended that ALASD implement a dedicated WRF Fee. The fee will provide a stable revenue source for capital renewal and debt service. This charge is in addition to the existing schedule for fixed charges and was initially estimated at a maximum of $18 to $20 per month per account, charged as a consistent value of $4.00 per month for all accounts beginning in 2026, and phased upward to match capital funding needs. This charge should be re-evaluated periodically to ensure it is capturing the desired amount of revenue. Table 17 summarizes the projected monthly WRF fees and associated revenues by year.

Table 17: Estimated Monthly WRF Fee

	2026	2027	2028	2029	2030	2031
Estimated WRF Annual Payment		$2,694,179	$2,694,179	$3,977,122	$3,977,122	$3,977,122
Monthly WRF Fee	**$4.00**	**$8.00**	**$12.00**	**$16.00**	**$18.75**	**$18.75**
Accounts	10,697	10,852	11,009	11,168	11,329	11,494
Projected WRF Fee Revenue	$513,423	$1,041,683	$1,585,105	$2,143,485	$2,548,846	$2,585,699
LGU, WTEF or Other Revenue Needed for WRF Debt	--	$1,652,496	$1,109,074	$1,833,637	$1,428,276	$1,391,423

Wastewater Treatment Expansion Fee (WTEF)

The ALASD charges a Wastewater Treatment Expansion Fee (WTEF) for new connections or expansions resulting in additional wastewater discharges. WTEF revenues are designated for capital debt retirement and related fees, or capital improvements from the CIP. This fee is currently $2,500 per dwelling unit and was last reviewed in 2021.

A review of existing system value and the CIP was completed to determine the adequacy of the existing WTEF. The approach to this analysis involved consideration of existing system capacity available for growth, along with the growth-related portion of the CIP. Figure 5 summarizes the existing system value and projected future value based on depreciation of existing assets and asset additions/deletions. For 2026, the estimated net system value is $40,825,354. Table 18 shows the projected CIP through 2035, noting the portion assumed to be available for growth.

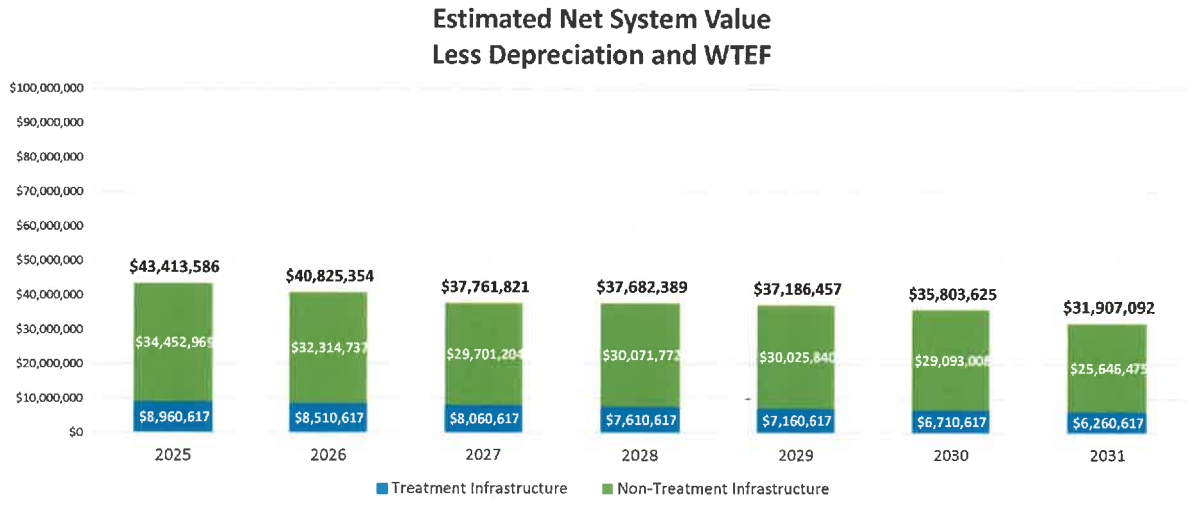


Figure 5: Estimated ALASD System Net Value

Table 18: ALASD Capital Improvement Plan

Project	Percent Growth	2026 FY26	2027 FY27	2028 FY28	2029 FY29	2030 FY30	2031 FY31	2032 FY32	2033 FY33	2034 FY34	2035 FY35	10-Yr Total	Percent Growth	Growth Total
Gravity Sewer Improvements-Desktop	0%	1,120,000	1,120,000	2,250,000	1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	1,120,000	13,450,000	0%	0
Forcemain Sewer Improvements-Desktop	0%	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	6,600,000	0%	0
Lift Station Improvements-Desktop	0%	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	11,000,000	0%	0
Lateral Facility Equipment & Equipment	0%	330,000	330,000	350,000	330,000	330,000	330,000	330,000	330,000	330,000	330,000	3,650,000	0%	0
Interceptor Facility and Equipment	0%	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,300,000	0%	0
City of Alex-Broadway	0%			1,400,000			0	0	0	0	0	1,400,000	0%	0
Lift Station #4 Improvements	0%											475,000	0%	0
Lift Station #1 Improvements (Bond)	0%	2,150,000										2,150,000	0%	0
Lift Station #3 Improvements	0%				475,000							475,000	0%	0
CSAH 46-34th Ave	0%											150,000	0%	0
Voyager Drive Forcemain	0%		0		1,500,000							1,500,000	0%	0
County Road 82-3rd Ave	0%				1,500,000							1,500,000	0%	0
Lift Station #63 Improvements	0%					2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,000,000	0%	0
ALASR Sewer Extension Project (Bond)	0%											2,000,000	0%	0
Lift Station #28 Forcemain Upsize	0%		850,000			2,000,000						2,850,000	0%	0
City of Alex-MNDOT-Douglas County	0%											-	0%	0
WRF Misc	0%	50,000	50,000	50,000	200,000	200,000	50,000	50,000	50,000	50,000	50,000	825,000	0%	0
GIS	0%	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	220,000	0%	0
SCADA	0%	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	330,000	0%	0
Software	0%	0	0	0	0	0	0	0	0	0	0	-	0%	0
SUV Office and Plant Staff	0%	45,000	0	0	0	45,000	0	0	0	45,000	0	135,000	0%	0
Collection System Truck	0%	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	825,000	0%	0
Plant UTV/Dump Truck Biosolids	0%	0	0	0	200,000	0	0	0	200,000	0	0	420,000	0%	0
Sewer Cam/New Cam Van	0%	0	0	0	0	0	0	0	0	0	0	435,000	0%	0
Engineering/Professional Services	30%	970,000	970,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	14,313,268	30%	4,293,980
Chloride Minimization/Rebates/Lake	0%	250,000	250,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,395,292	0%	0
WRF Capital Construction	30%	10,000,000	28,000,000	29,000,000	5,000,000	0	0					76,207,297	30%	19,262,189
Total		16,940,000	33,595,000	36,275,000	13,550,000	8,920,000	6,725,000	6,725,000	6,925,000	6,770,000	6,725,000	158,605,857		23,556,169

Figure 6 summarizes the components of the WTEF calculation. Based on existing system treatment capacity and average day influent values, available capacity is 1.53 MG per day. Based on the assumption that WTEF funds are expended annually on the CIP, an adjusted system value of $43,595,227 was calculated by taking into consideration net system value and cash on hand and deducting outstanding debt principal. Assumptions and highlights of the calculation include:

- Assumed 30% of capacity of new WRF facility available for growth
- 5,000 gallons per month = 164 gallons per day
- Existing system value of $40,825,354 = $8.59 per gallons based on existing capacity
- New cash on hand less debt service principal of $2,769,873 = $0.58 gallons
- **164 gallons/day x ($8.59+$0.58) = $1,507 per EDU for existing system cost**
- Capacity available for growth = 1,530,000 gpd existing system plus 1,000,000 gpd for new WRF = 2,530,000 gpd
- Growth-related CIP = 30% of WRF facility costs = $23,556,169 = $9.31 per gallon based on capacity availability for growth
- **164 gallons/day x $9.31 = $1,530 for development-related CIP**

Based on this calculation a WTEF of $3,035 per EDU can be justified.

Basis of Proposed Wastewater Treatment Expansion Fee

Year:		2026				
		Existing Treatment Capacity (gpd)	Average Day Influent (gpd)	Available Unused Capacity (gpd)	Percent for Growth	
Existing System						
1	System Capacity	4,750,000	3,220,000	1,530,000	32.2%	
2	System Capacity per EDU		164	gal per day		
Existing System Buy-In Component						
		RCNLD-Total	RCNLD-Growth	Unit cost ($/gal)	Cost / EDU	
3	Total System Value	$ 40,825,354		8.59	$ 1,412	
4	Outstanding Debt Principal	$17,835,000				
5	Cash on Hand	20,604,873	2,769,873	$ 0.58	$ 95	
6	WTEF Fund Balance	$ -				
7	Adjusted System Value	$ 43,595,227	14,042,252	$ 9.17	$ 1,507	← Existing System Cost/EDU, based on 2026
Existing System Buy-In Component					$ 1,507	
		Estimated Cost	Capacity (gpd)	Unit cost ($/gal)	Cost / EDU	
Development Related New Facility Cost						
8	CWIP & CIP - Growth	$ 23,556,169	2,530,000	$ 9.31	$ 1,530	
Development Related New Facility Cost					$ 1,530	← Growth-related CIP Cost/EDU
Total Connection Charge, $/EDU					**$ 3,038**	
			Equivalency Factor	Existing	Proposed	
By EDU						
	Per EDU		1.00	**$2,500**	**$3,035**	
	% Change				**21.4%**	

Figure 6: WTEF Calculation

REVENUE ADEQUACY AND FUTURE RATE PLANNING

For planning purposes, the results of the rate design analysis were implemented into a five-year revenue adequacy projection for the wastewater system. Assumptions upon which the revenue adequacy projections are based are summarized below.

Wastewater Revenue Requirements Assumptions

The Test Year for this analysis was established using ALASD's adopted 2025 operating budget as the starting point. Adjustments were then applied to reflect projected changes in O&M expenses, debt service, and other financial obligations over the planning period. The key objective of this process is to ensure that revenues are sufficient to meet annual financial needs through 2031 while maintaining rate stability. Key assumptions/inputs are noted below.

- Inflationary rates on O&M: 3% annual increase
- 2029 Electricity and Chemical costs: increased to reflect anticipated higher demand associated with the new WRF
- Existing debt schedules for Series 2008A, 2015A, and 2023
- The funding package assumptions for the new WRF include:
    - Total Cost: $76M
    - Principal Forgiveness: $12M
    - $2M utility case reserves
    - $42M Loan in 2026 and $20M Loan in 2028
        - 20-Year Repayment Term
        - 2.5% Interest
        - Coverage Requirement: 120%
- 2026-2030 CIP
- LGU Tax Revenue: Based on historical growth trends and staff input, LGU tax revenue was assumed to increase gradually to $1.7 million by 2030. These funds help offset revenue requirements that would otherwise need to be recovered from user charges.
- O&M Reserve Target: 274 days of annual operating expenses, per ALASD policy
- Capital Reserve: Revenue in excess of O&M and debt service reserve targets is assumed to fund the capital reserve account
- Annual account growth of 1.5% for Residential accounts and 1% for Commercial Accounts
- Flow growth was calculated based on the assumed annual increase in accounts

Tables 19 through Table 21 summarize the wastewater rate projections based on forecasted revenue requirements through 2031, as well as the monthly cost for 5,000 gallons. Table 22 summarizes the overall revenue adequacy for the same period. The rates in Tables 19 through 21 assume the strategic use of reserves in 2027 through 2029 to overcome projected revenue

deficiencies. Figure 7 depicts the projected cash balances associated with the revenue adequacy projections. The projections show elimination of the revenue deficiency by 2030.

Table 19: Existing and Projected Residential Rates

Residential Base	2025	2026	2027	2028	2029	2030	2031
200/203/204R	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
205	$ 29.70	$ 30.90	$ 30.90	$ 30.90	$ 30.90	$ 30.90	$ 30.90
206	$ 91.40	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08
207	$ 68.55	$ 71.30	$ 71.30	$ 71.30	$ 71.30	$ 71.30	$ 71.30
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
200/203/204R	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
205	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
206	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
207	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total Residential Fixed Charge, Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
200/203/204R	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
205	$ 29.70	$ 34.90	$ 38.90	$ 42.90	$ 46.90	$ 49.65	$ 49.65
206	$ 91.40	$ 99.08	$ 103.08	$ 107.08	$ 111.08	$ 113.83	$ 113.83
207	$ 68.55	$ 75.30	$ 79.30	$ 83.30	$ 87.30	$ 90.05	$ 90.05
Annual Residential Rate Change: 200/203/204R		**12.8%**	**7.8%**	**7.2%**	**6.7%**	**4.3%**	**0.0%**
Annual Residential Rate Change: 205		**17.5%**	**11.5%**	**10.3%**	**9.3%**	**5.9%**	**0.0%**
Annual Residential Rate Change: 206		**8.4%**	**4.0%**	**3.9%**	**3.7%**	**2.5%**	**0.0%**
Annual Residential Rate Change: 207		**9.8%**	**5.3%**	**5.0%**	**4.8%**	**3.2%**	**0.0%**

Table 20: Existing and Projected Commercial Rates

Commercial Base	2025	2026	2027	2028	2029	2030	2031
204/221/221OC/230/230OC	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
222/222OC/231/231OC	$ 92.15	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08	$ 95.08
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
204/221/221OC/230/230OC	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
222/222OC/231/231OC	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total Commercial Fixed Charge, Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
204/221/221OC/230/230OC	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
222/222OC/231/231OC	$ 92.15	$ 99.08	$ 103.08	$ 107.08	$ 111.08	$ 113.83	$ 113.83
Annual Commercial Rate Change: 204/221/221OC/230/230OC		**12.8%**	**7.8%**	**7.2%**	**6.7%**	**4.3%**	**0.0%**
Annual Commercial Rate Change: 222/222OC/231/231OC		**7.5%**	**4.0%**	**3.9%**	**3.7%**	**2.5%**	**0.0%**

Commercial Volumetric Charges	2025	2026	2027	2028	2029	2030	2031
Metered Accounts, per kgal	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Unmetered Accounts, per EDU/Month	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
Annual Volumetric Rate Change		**2.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Table 21: Existing and Projected SIU Rates

SIU Base	2025	2026	2027	2028	2029	2030	2031
TWF	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Alexandria Industries	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Minnesota Mining Mfg	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Douglas Machine	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Nelson Creamery	$ 45.70	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54	$ 47.54
Sun Opta Ingredients	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
Sun Opta Aseptic	$ 92.15	$ 95.08	$ 123.60	$ 160.68	$ 208.88	$ 237.70	$ 237.70
WRF Fee	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
TWF	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Alexandria Industries	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Minnesota Mining Mfg	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Douglas Machine	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Nelson Creamery	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Sun Opta Ingredients	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Sun Opta Aseptic	$ -	$ 4.00	$ 8.00	$ 12.00	$ 16.00	$ 18.75	$ 18.75
Total SIU Fixed Charge, per Month	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
TWF	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Alexandria Industries	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Minnesota Mining Mfg	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Douglas Machine	$ 184.30	$ 198.16	$ 263.20	$ 345.36	$ 449.75	$ 512.90	$ 512.90
Nelson Creamery	$ 45.70	$ 51.54	$ 55.54	$ 59.54	$ 63.54	$ 66.29	$ 66.29
Sun Opta Ingredients	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Sun Opta Aseptic	$ 92.15	$ 99.08	$ 131.60	$ 172.68	$ 224.88	$ 256.45	$ 256.45
Annual SIU Fixed Rate Change		7.5%	32.8%	31.2%	30.2%	14.0%	0.0%

SIU Volumetric Charges	2025	2026	2027	2028	2029	2030	2031
Per Thousand Gallons	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Total Volumetric Charge	$ 9.24	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50	$ 9.50
Annual SIU Volumetric Rate Change		2.8%	0.0%	0.0%	0.0%	0.0%	0.0%

Strength Charge, in Excess of Domestic Strength	2025	2026	2027	2028	2029	2030	2031
CBOD, per pound	$ 0.3794	$ 0.3794	$ 0.4461	$ 0.5246	$ 0.6169	$ 0.7254	$ 0.8530
TSS, per pound	$ 0.3533	$ 0.3533	$ 0.3709	$ 0.3894	$ 0.4088	$ 0.4292	$ 0.4506
NH3-N per pound	$ 0.4419	$ 0.4419	$ 0.4552	$ 0.4689	$ 0.4830	$ 0.4975	$ 0.5124
P, per pound	$ 10.94	$ 10.94	$ 11.28	$ 11.64	$ 12.00	$ 12.38	$ 12.77
GAC, per kgal	$ 35.00	$ 35.97	$ 35.97	$ 35.97	$ 35.97	$ 35.97	$ 35.97
Annual Change	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
CBOD, per pound	0.0%	0.0%	17.6%	17.6%	17.6%	17.6%	17.6%
TSS, per pound	0.0%	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
NH3-N per pound	0.0%	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%
P, per pound	0.0%	0.0%	3.1%	3.1%	3.1%	3.1%	3.1%
GAC, per kgal	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 22: Projected Revenue Adequacy

	2025	2026	2027	2028	2029	2030	2031
O&M	$5,385,913	$5,547,490	$5,713,915	$5,885,333	$6,348,893	$6,539,359	$6,735,540
Rate Funded Capital/Reserves	$6,275,000	$4,790,000	$6,925,000	$8,000,000	$7,050,000	$6,920,000	$6,725,000
Debt Service P&I	$2,656,888	$2,823,987	$5,447,399	$4,162,809	$5,355,307	$5,359,816	$5,357,354
Total Revenue Requirements	**$14,317,801**	**$13,161,477**	**$18,086,314**	**$18,048,142**	**$18,754,199**	**$18,819,175**	**$18,817,894**
Projected Rate Revenue	$12,083,500	$12,598,517	$12,853,633	$13,133,040	$13,440,606	$13,778,205	$14,150,329
Infrastructure Fee	$0	$513,423	$1,041,683	$1,585,105	$2,143,485	$2,548,846	$2,585,699
LGU Tax Revenue	$1,395,378	$1,532,194	$1,574,146	$1,616,097	$1,658,049	$1,700,000	$1,700,000
Connection Fees	$499,525	$450,000	$546,300	$546,300	$546,300	$546,300	$546,300
Misc. Revenue	$590,000	$1,140,000	$440,000	$390,000	$390,000	$390,000	$390,000
Total Revenues	**$14,568,403**	**$16,234,134**	**$16,455,761**	**$17,270,542**	**$18,178,440**	**$18,963,351**	**$19,372,329**
Projected Revenue Surplus/(Deficiency)	***$250,603***	***$3,072,657***	***($1,630,553)***	***($777,600)***	***($575,759)***	***$144,176***	***$554,435***
Debt Service Coverage	276%	321%	227%	288%	221%	225%	230%

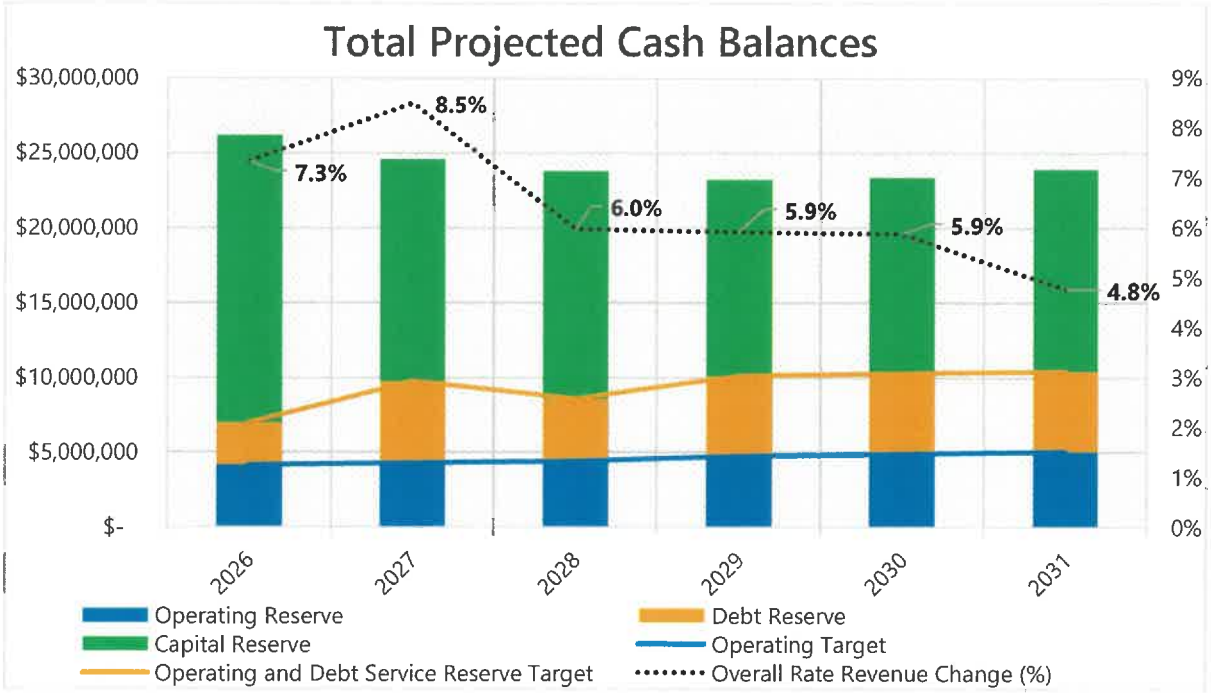


Figure 7: Projected ALASD Cash Balances

Figure 8 illustrates a regional comparison of ALASD's existing residential rate as compared to 2025 charges for 6,000 gallons of wastewater for other wastewater utilities in Minnesota. The figure also identifies how the projected ALASD rates through 2030 will change in comparison to the 2025 charges for systems in the region. Note that on average, average wastewater rates in Minnesota historically increase by four to six percent per year. Using the 2025 charge for Cloquet as the median, by 2030 the median rate in Minnesota will likely be within the range of $62.54 to $68.78, the range in which ALASD's rate is forecast to fall.

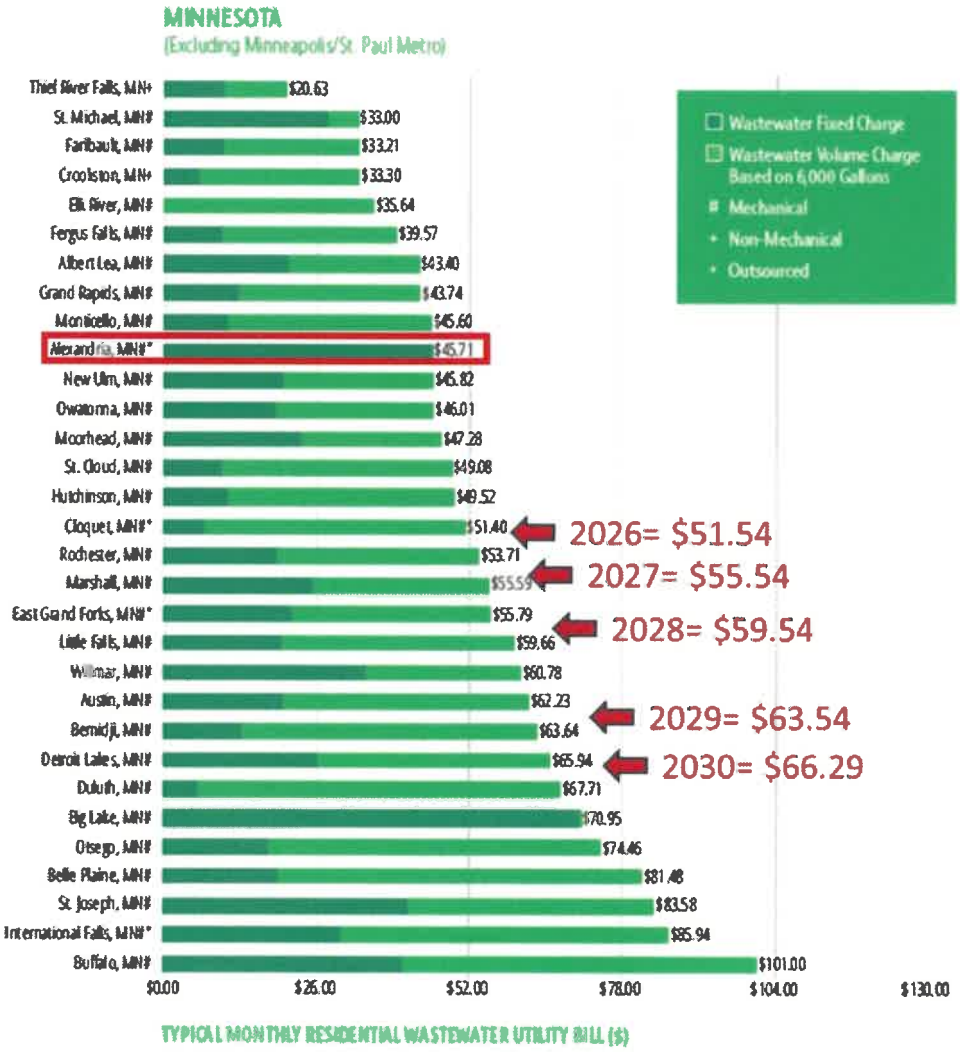
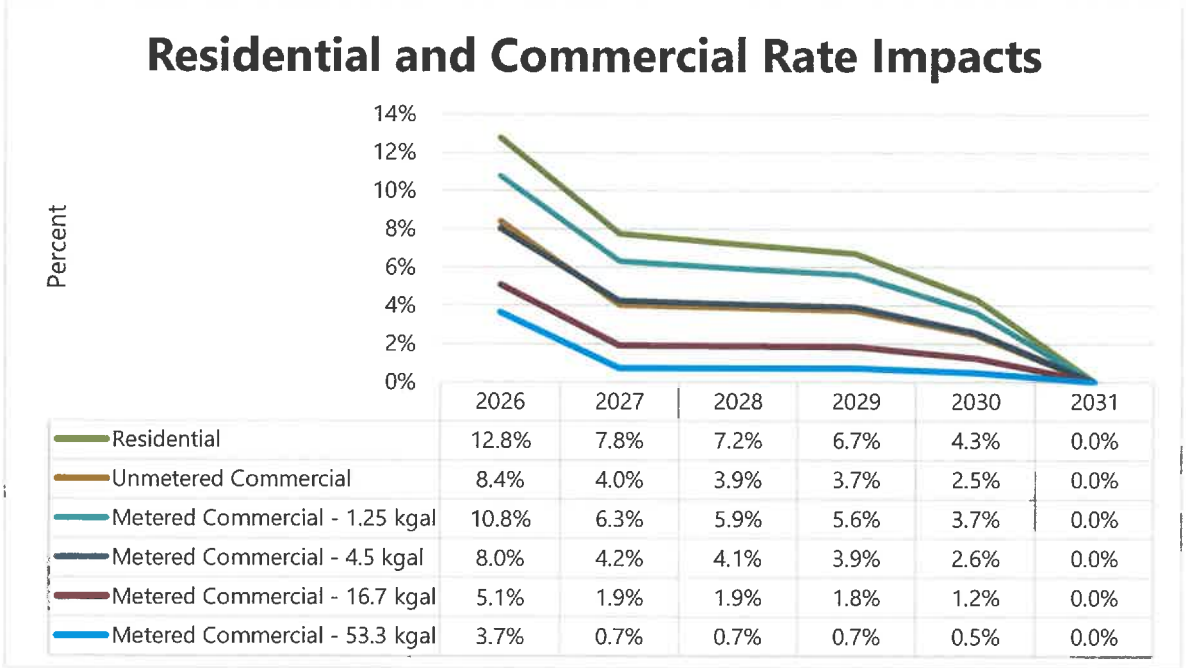


Figure 8: Regional Wastewater Rate Comparison – Minnesota Systems Serving more than 5,000 (AE2S Rate Survey, 2025)

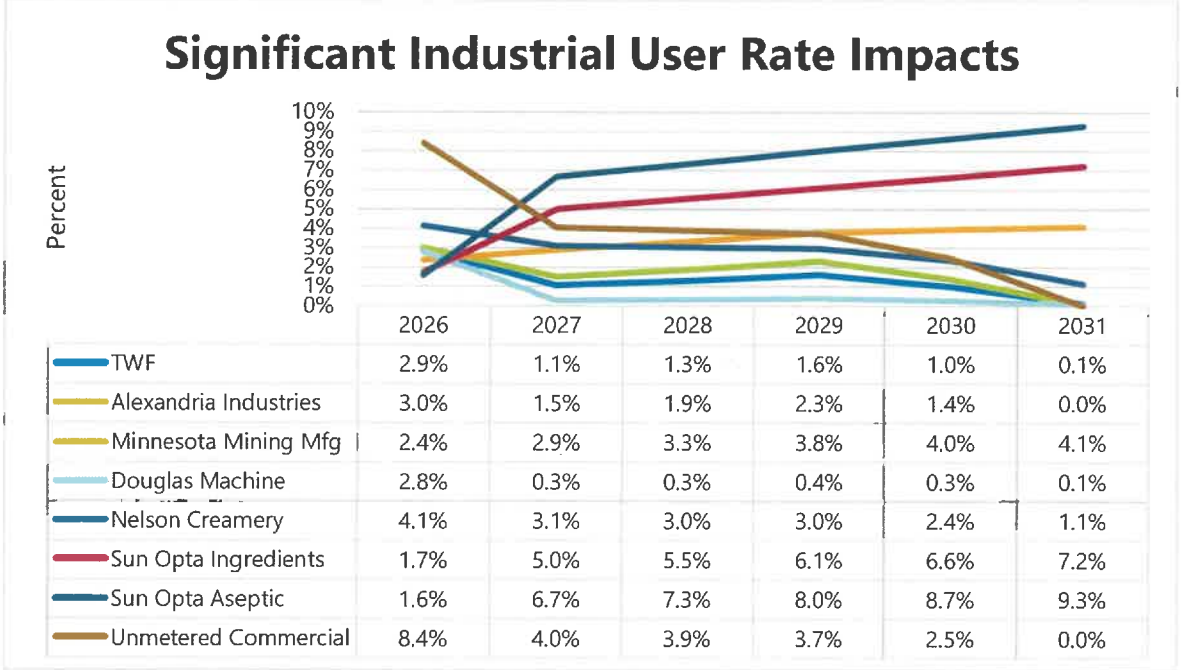
Bill Impacts

Figure 9 and Figure 10 illustrate the annual impacts of the projected rates for a selected of customers.



	2026	2027	2028	2029	2030	2031
Residential	12.8%	7.8%	7.2%	6.7%	4.3%	0.0%
Unmetered Commercial	8.4%	4.0%	3.9%	3.7%	2.5%	0.0%
Metered Commercial - 1.25 kgal	10.8%	6.3%	5.9%	5.6%	3.7%	0.0%
Metered Commercial - 4.5 kgal	8.0%	4.2%	4.1%	3.9%	2.6%	0.0%
Metered Commercial - 16.7 kgal	5.1%	1.9%	1.9%	1.8%	1.2%	0.0%
Metered Commercial - 53.3 kgal	3.7%	0.7%	0.7%	0.7%	0.5%	0.0%

Figure 9: Bill Impacts at Projected Rates – Residential and Commercial



	2026	2027	2028	2029	2030	2031
TWF	2.9%	1.1%	1.3%	1.6%	1.0%	0.1%
Alexandria Industries	3.0%	1.5%	1.9%	2.3%	1.4%	0.0%
Minnesota Mining Mfg	2.4%	2.9%	3.3%	3.8%	4.0%	4.1%
Douglas Machine	2.8%	0.3%	0.3%	0.4%	0.3%	0.1%
Nelson Creamery	4.1%	3.1%	3.0%	3.0%	2.4%	1.1%
Sun Opta Ingredients	1.7%	5.0%	5.5%	6.1%	6.6%	7.2%
Sun Opta Aseptic	1.6%	6.7%	7.3%	8.0%	8.7%	9.3%
Unmetered Commercial	8.4%	4.0%	3.9%	3.7%	2.5%	0.0%

Figure 10: Bill Impacts at Projected Rates - SIUs

WASTEWATER RATE RECOMMENDATIONS

The following recommendations, along with the recommended 2026 wastewater rate adjustments shown in Table 1 through Table 3, have been developed for consideration moving forward.

- **Evaluate the need for rate adjustments annually in conjunction with budget and capital planning.** Utilize the Excel rate model to update O&M and capital revenue requirements, billed wastewater flows, number of accounts, and cash balances. Review revenues associated with the projected rates to evaluate whether adjustments need to be made.
- **Implement an increase to the base (fixed) monthly charge per EDU.** This will position ALASD to meet increasing revenue requirements and increase the revenue percentage from the Residential user class, which is not currently generating revenue commensurate with cost.
- **Increase fixed monthly charges for Significant Industrial Users (SIUs).** Currently, revenue generation from the SIU class is almost entirely dependent on volume (flow) and strength of the wastewater stream. Although generally consistent customers, it is recommended that ALASD take steps to improve revenue stability from the SIUs. It is recommended that ALASD establishing fixed charges not tied to those for other users for the SIUs. If a cost of service disparity emerges for the SIUs, adjustment to the strength or flow rates can be made to keep revenue and cost percentages within the desired range.
- **Adjust strength charges for CBOD, TSS, NH_3-N, and P to align with cost of service.** Strength surcharges should be incrementally increased to ensure that SIUs with higher-than-domestic strength loadings pay in proportion to the additional treatment burden they create. This adjustment will allow ALASD to balance revenue generation from the SIUs to maintain a level consistent with cost of service without impacting rates to which commercial users are subject.
- **Implement a monthly WRF Fee with a series of increases to reach desired annual increases.** Beginning in 2026, phase in a new fixed WRF Fee applied to all user classes. The fee will provide a dedicated and stable revenue source to support system renewal and replacement and debt service needs. Annual increases in the WRF Fee should be front-loaded in the initial years, with the escalation percentage gradually declining over the five-year period to ease long-term rate impacts. The WRF Fee is an essential step toward full cost pricing. It improves revenue stability, reduces reliance on LGU tax allocations, and ensures that ALASD can meet upcoming capital and debt obligations in a predictable and equitable manner.
- **Adopt an increase to the WTEF.** An evaluation of current system value and the growth-related portion of the new WRF project found that a WTEF of $3,035 per EDU can be justified.
- **Review cost of service relationships annually.** While the recommendations include a planned five-year path of fixed, strength, and WRF Fee adjustments, actual revenues and

expenditures may vary from projections. In addition to annually updating the rate model to evaluate the need for rate increases, it is recommended that ALASD continue to monitor financial performance on a periodic basis throughout the year, tracking project revenues and cash balances ensure the utility is on track to meet reserve policy targets and maintain fair and equitable cost of service relationships.

AE2S Nexus appreciates the opportunity to assist the ALASD with this effort. If there are any questions regarding information within this Memorandum or with the rate model, please do not hesitate to contact us at (701) 746-8087.