SECTION 8
CIP

8.01 INTRODUCTION

In 2024, GCEC collaborated with Strand to identify the capital projects and project timing that would be conducted in the next 10-year planning horizon. This effort used the evaluations included in this AMP, the ongoing efforts of the GCEC staff, and the known challenges in the collection system and at the WWTP.

8.02 REVENUE AND EXPENSE (PROJECTED) FISCAL YEAR (FY) 2025

Currently, GCEC's revenue can be summarized as shown in the following.

Sales	$1,688,344
Interest Income	$0
Total Estimated Revenues	$1,688,344
Estimated Carryover	$0
Total Resources Available FY 2022	**$1,688,344**
Treatment Expenses	$900,744
Administration Expenses	$89,216
Collection Expenses	$86,760
Interest Expense	$0
Debt Repayment	$325,209
Depreciation	$484,422
Total Appropriations	**$1,886,351**

This revenue, coupled with the available carryover dollars, does not put GCEC in a favorable position for FY 2025. Given the needs for improvement identified in this AMP in both the treatment and collection system, GCEC should consider external funding to move forward with a major initiative of improvements at the WWTP and collection system.

The income projected for FY 2025 does not exceed the expenses for the current year, and some rate adjustments are warranted regarding new capital project funding.

8.03 COST OF SERVICE (COS) STUDY

A COS study from the *Analysis and Recommendations for Wastewater Rates*, completed by the Kentucky Rural Water Association (KRWA) in February 2024 (Appendix D), used 2021 as the study year and determined that at that time there were 7,424 customers; the vast majority are residential (nearly 7,000). The remaining customer count consisted of commercial customers.

The primary goal of the COS study was to set utility rates and charges so that each customer provides the revenue to cover the costs it causes. The result of the COS study was the introduction of revised fees to be paid.

8.04 CAPITAL SPENDING APPROACH

In order to categorize the needed improvements, the condition and risk factors for the facilities were reviewed. The result of this effort was a priority list of actions that need to be implemented. This categorized list was used to create the recommended project list for GCEC in each of the primary areas: collection system, pump stations and force mains, and the WWTP.

Strand has conducted a review of GCEC's assets, identifying the needed repairs or replacements at each of its pump stations, in the collection system, and at the WWTP. In Sections 2 through 7, the needs were evaluated and categorized. Following this assessment, Strand identified key improvements at the WWTP, and GCEC will address the improvements as described in this AMP as its highest priority.

For the sake of financial planning, this AMP will anticipate funding through the KRWA Flex Term program (20-year loan at 4.8 percent or 30-year loan at 5.25 percent). Using KRWA funding avoids the federal funding requirements of Build America, Buy America, American Iron and Steel, and Davis-Bacon wage rates. Similar funding may be obtained through State Revolving Fund (SRF) Fund C (5.25 percent interest at a 30-year term) or on the open bond market (for larger projects). The traditional Kentucky Infrastructure Authority (KIA) Clean Water SRF loans available through Fund A are very competitive and generally under-capitalized. These 20-year, 2.75 percent interest rate loans may be available, but because GCEC ranked low on the *State Fiscal Year 2026 Draft Intended Use Plan* prepared by KIA and the Energy and Environment Cabinet, it seems more conservative to plan for KRWA Flex Term loans. Any partial grant funding or subsidized loan funding obtained would reduce the cost to GCEC customers.

8.05 CAPITAL PROJECT DISCUSSION

As discussed in Sections 2 through 7, Tables 8.05-1 to 8.05-3 show the projects needing to be included for planning purposes, including cost and need. The projects are segregated by collections, pump systems, and WWTP.

	Need	Justification	Initial Engineering Priority	Criticality	Capital Cost	Project Duration (years)
1	US 23 Sewer Replacement–Replace the existing 15-inch sewer with a 21-inch sewer to help reduce SSOs.	Capacity, Compliance	High	Critical	$845,000	2.0
2	Aerial Sewer Realignment–Reroute the aerial sewer along US 23.	Operations	Medium	Critical	$135,000	2.0
3	Interceptor Cleaning–Clean and inspect the US 23 sewer to remove accumulated grit that may be reducing capacity.	Capacity, Maintenance	Low	Semicritical	$60,000	0.25

Note: All costs are in 1st Quarter 2025 Dollars.

Table 8.05-1 Collections Planned Projects

	Need	Justification	Initial Engineering Priority	Criticality	Capital Cost	Project Duration (years)
1	Raceland Pump Station Expansion–Increase the pump station capacity to 1 MGD. Replace the existing 6-inch force main with an 8-inch force main and extend the force main to connect into the Flatwoods force main.	Operations, Growth, Capacity, Regulatory Compliance	High	Critical	$4,125,000	3.5
2	Russell Pump Station Expansion–Increase the pump station capacity to account for the increased ADFs. Install a new 12-inch force main parallel to the existing 12-inch force main.	Growth, Capacity	High	Critical	$3,370,000	4.5
3	Riverview Pump Station Upgrade–Perform pump repairs to increase the total capacity for anticipated increased peak flows.	Growth, Capacity, Regulatory Compliance	Medium	Semicritical	$770,000	1.0
4	SD1 and SD2 Combined Force Main Lining–Line the existing 18-inch steel combined force main.	Growth, Capacity, Operations, Asset Age	High	Semicritical	$935,000	1.5

Note: All costs are in 1st Quarter 2025 Dollars.

Table 8.05-2 Pump Station and Force Main Planned Projects

	Need	Justification	Priority	Criticality	Capital Cost	Project Duration (years)
1	Headworks Upgrade–Construct a new Headworks Building with a new screening and grit removal unit.	Operations, Condition Assessment, Growth	High	Critical	$8,521,000	3.0
2	Conventional Activated Sludge Upgrade–Construct a BNR-activated sludge system within the existing oxidation ditch. Install new diffusers, blowers, submersible mixers, submersible nitrate return pumps, a chemical phosphorus removal system, and a carbon addition system. Refurbish the existing rectangular clarifiers, oxidation ditch, and round clarifiers. Add a new tank to act as an anaerobic zone. Add a third new clarifier. Add a third disinfection basin. Add SCADA for plant processes. Replace the existing MCC.	Operations, Future Regulations, Condition Assessment, Growth	High	Critical	$20,808,000	4.5
3	Aging Assets–Replace the aging valves at the RAS, Scum, and Lagoon Return Pump Stations and replace the diffuser air piping.	Operations, Condition Assessment	High	Critical	$174,000	0.5
4	Lagoon Underlay Pump Stations–Replace the aging valves and pumps.	Condition Assessment	Medium	Critical	$77,000	0.5

Note: All costs are in 1st Quarter 2025 Dollars.

Table 8.05-3 WWTP Planned Projects

The AMP's focus is a major improvement to WWTP operations; however, the AMP includes improvements of the collection system, equipment and software upgrades, improvements in redundancy, and pump station upgrades needed. The WWTP improvements will address the performance and hydraulic limitations and operational and aging asset concerns discussed in Section 7.03. As a result of these improvements, GCEC will increase the WWTP average daily and peak wet weather hydraulic capacities. The proposed GCEC WWTP should handle the projected wastewater flows and loadings, including regional customer growth within the GCEC planning area to the year 2045, and address nutrient limitations anticipated to be in the 2030 KPDES permit.

The collections, pump station and force main, and WWTP needs are significant, and the projects listed for each need to be completed in this planning effort.

8.06 10-YEAR SPENDING PLAN AND CASH FLOW

The earlier review of criticality, need, and priority identified the projects that need to be addressed in this planning horizon. The sequence of projects was established using engineering judgement and with input from GCEC. These projects are shown in Table 8.06-1.

Table 8.06-1 10-Year CIP Projects

		Need	Cost[1]	Future Cost[2]	Start Date	Project Duration (years)	Debt Service Start	Annual Loan Payment (20-Year)	Annual Loan Payment (30-Year)
1	WW	Headworks Upgrade	$8,521,000	$9,394,000	2025	3.0	2025	$750,000	NA
2	PS	Raceland Pump Station Expansion	$4,125,000	$4,775,000	2026	3.0	2026	NA	$320,000
3	C	US 23 Sewer Replacement	$845,000	$978,000	2027	2.0	2027	NA	$70,000
4	PS	SD1 and SD2 Combined Force Main Lining	$935,000	$1,136,000	2028	1.5	2028	NA	$80,000
5	WW	Conventional Activated Sludge Upgrade	$20,808,000	$29,279,000	2030	4.5	2030	$2,310,000	NA
6	C	Interceptor Cleaning	$60,000	$89,000	2033	0.25	2033	NA	NA
7	WW	Aging Assets	$174,000	$283,000	2035	0.5	2035	NA	NA
8	WW	Lagoon Underlay Pump Stations	$77,000	$125,000	2035	0.5	2035	NA	NA
9	PS	Russell Pump Station Expansion	$3,370,000	$6,355,000	2036	4.5	2036	NA	$430,000
10	PS	Riverview Pump Station Upgrade	$770,000	$1,525,000	2038	1.0	2038	NA	$110,000
11	C	Aerial Sewer Realignment	$135,000	$295,000	2040	2.0	2040	NA	NA

[1]All costs are in 1st Quarter 2025 Dollars.
[2]5 percent per year of the compound cost to the midpoint of construction.
C=collection system
PS=pump station
WW=wastewater

In order to evaluate the viability of completing these projects in the planning window, the projection of expenses and revenues was prepared. The methodology for calculating the projected amounts of expense used an inflation factor of 3 percent each year. The expenses for loan payments were anticipated to begin in the year construction begins and will require a 20 percent coverage ratio. The resulting loan payments for the projects are shown in Table 8.06-2. Tabulations of the annual revenues and expenses for two different growth scenarios are shown in Tables 8.06-3 and 8.06-4.

Table 8.06-2 Planned Improvements and Debt Service for CIP

Debt Service	KRWFC Loan	New Headworks Loan	New Raceland Loan	US 23 Sewer Loan	New BNR Loan	SD1 and SD2 Loan	Interceptor Cleaning Loan	Aging Assets Loan	Lagoon Underlay Loan	Russell Loan	Riverview Loan	Aerial Sewer Loan	Total
FY 2025	$325,209												**$325,209**
FY 2026	$318,379	$750,000											**$1,068,379**
FY 2027	$321,029	$750,000	$320,000										**$1,391,029**
FY 2028	$318,029	$750,000	$320,000	$70,000									**$1,458,029**
FY 2029	$314,509	$750,000	$320,000	$70,000	$80,000								**$1,534,509**
FY 2030	$319,539	$750,000	$320,000	$70,000	$80,000								**$1,539,539**
FY 2031	$313,379	$750,000	$320,000	$70,000	$80,000	$2,310,000							**$3,843,379**
FY 2032	$311,979	$750,000	$320,000	$70,000	$80,000	$2,310,000							**$3,841,979**
FY 2033	$315,045	$750,000	$320,000	$70,000	$80,000	$2,310,000							**$3,845,045**
FY 2034	$307,626	$750,000	$320,000	$70,000	$80,000	$2,310,000	$89,000						**$3,926,626**
FY 2035	$314,634	$750,000	$320,000	$70,000	$80,000	$2,310,000							**$3,844,634**
FY 2036		$750,000	$320,000	$70,000	$80,000	$2,310,000		$283,000	$125,000				**$3,938,000**
FY 2037		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000			**$3,960,000**
FY 2038		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000			**$3,960,000**
FY 2039		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$4,070,000**
FY 2040		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$4,070,000**
FY 2041		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000	$150,000	**$4,220,000**
FY 2042		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000	$150,000	**$4,220,000**
FY 2043		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$4,070,000**
FY 2044		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$4,070,000**
FY 2045		$750,000	$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$4,070,000**
FY 2046			$320,000	$70,000	$80,000	$2,310,000				$430,000	$110,000		**$3,320,000**

KRWFC=Kentucky Rural Water Finance Corporation

	Revenue[1]	Debt Service and Operating Expenses[2]	New Flow (gpd)[3]	New Revenue[4]	Rate Increase from Prior Year (%)	Deficit or Surplus
FY 2025	$1,688,344	($1,886,351)	0	$0		($198,007)
FY 2026	$2,601,738	($2,752,432)	140,000	$365,377	54	$214,684
FY 2027	$3,382,512	($3,131,200)	10,000	$29,752	14	$281,063
FY 2028	$3,531,693	($3,256,171)	10,000	$29,752	4	$305,275
FY 2029	$3,704,986	($3,392,533)	10,000	$32,025	4	$344,478
FY 2030	$3,737,011	($3,899,776)	730,000	$2,337,841	0	$2,175,076
FY 2031	$6,986,079	($6,293,322)	30,000	$110,487	15	$803,245
FY 2032	$7,096,566	($6,384,886)	30,000	$110,487	0	$822,168
FY 2033	$7,207,053	($6,484,288)	30,000	$110,487	0	$833,252
FY2034	$7,317,540	($6,672,581)	40,000	$147,316	0	$792,275
FY 2035	$7,464,856	($6,814,772)	200,000	$736,580	0	$1,386,664
FY 2036	$8,201,436	($7,019,151)	30,000	$110,487	0	$1,292,772
FY 2037	$8,311,923	($7,156,151)	30,000	$110,487	0	$1,266,259
FY 2038	$8,422,410	($7,283,026)	40,000	$147,316	0	$1,286,700
FY 2039	$8,569,726	($7,516,657)	30,000	$110,487	0	$1,163,556
FY 2040	$8,680,213	($7,652,935)	40,000	$147,316	0	$1,174,594
FY 2041	$8,827,529	($7,927,355)	20,000	$73,658	0	$973,832
FY 2042	$8,901,187	($8,056,016)	20,000	$73,658	0	$918,829
FY 2043	$8,974,845	($8,030,078)	10,000	$36,829	0	$981,596
FY 2044	$9,011,674	($8,158,131)	10,000	$36,829	0	$890,372
FY 2045	$9,048,503	($8,299,832)	20,000	$73,658	0	$822,329
FY 2046	$9,122,161	($7,676,727)	0	$0	0	$1,445,434

[1]Previous year revenue plus the previous year new sales using the corresponding FY rate.
[2]Previous year expense increased by 3 percent.
[3]In accordance with the projected flows for growth and regional customers.
[4]Uses the current FY rate.
gpd=gallons per day

Table 8.06-3 CIP Cash Flow for the Planning Period–All Projected Flows

	Revenue[1]	Debt Service and Operating Expenses[2]	New Flow (gpd)[3]	New Revenue[4]	Rate Increase from Prior Year (%)	Deficit or Surplus
FY 2025	$1,688,344	($1,886,351)	0	$0	62	($198,007)
FY 2026	$2,736,806	($2,714,393)	70,000	$192,173	15	$214,585
FY 2027	$3,368,325	($3,089,222)	5,000	$15,786	3	$294,888
FY 2028	$3,485,634	($3,210,051)	5,000	$16,259	4	$291,843
FY 2029	$3,641,969	($3,342,060)	5,000	$16,910	0	$316,818
FY 2030	$3,658,879	($3,624,553)	365,000	$1,234,398	37	$1,268,723
FY 2031	$6,703,789	($6,000,393)	15,000	$69,498	0	$772,894
FY 2032	$6,773,287	($6,073,436)	15,000	$69,498	0	$769,349
FY 2033	$6,856,471	($6,153,471)	15,000	$69,637	1	$772,637
FY 2034	$7,016,147	($6,318,072)	20,000	$94,057	0	$792,133
FY 2035	$7,110,204	($6,378,725)	100,000	$470,284	0	$1,201,763
FY 2036	$7,580,488	($6,559,068)	15,000	$70,543	0	$1,091,962
FY 2037	$7,651,031	($6,670,983)	15,000	$70,543	0	$1,050,590
FY 2038	$7,721,573	($6,767,808)	20,000	$94,057	0	$1,047,822
FY 2039	$7,815,630	($6,974,012)	15,000	$70,543	0	$912,160
FY 2040	$7,886,172	($7,077,572)	20,000	$94,057	3	$902,658
FY 2041	$8,219,636	($7,326,265)	10,000	$48,439	0	$941,811
FY 2042	$8,268,075	($7,428,173)	10,000	$48,439	0	$888,342
FY 2043	$8,316,515	($7,378,909)	5,000	$24,220	0	$961,825
FY 2044	$8,340,734	($7,482,802)	5,000	$24,220	1	$882,152
FY 2045	$8,448,603	($7,594,714)	10,000	$48,924	0	$902,813
FY 2046	$8,497,527	($6,950,456)	0	$0	62	$1,547,071

[1]Previous year revenue plus the previous year new sales using the corresponding FY rate.
[2]Previous year expense increased by 3 percent.
[3]In accordance with the projected flows for growth and regional customers.
[4]Uses the current FY rate.

Table 8.06-4 CIP Cash Flow for the Planning Period–One-Half Projected Flows