




Figure 1 - Downtown Smithville

City of Smithville, Missouri
Board of Aldermen - Work Session Agenda
6:00 p.m. Tuesday, April 7, 2026
City Hall Council Chambers

Meetings are live streamed on the [City's YouTube](#) page and will be posted to the City's website and FaceBook following the meeting.

- 1. Call to Order**
- 2. Update of Combined Water and Wastewater Systems Fund CIP Projects**
- 3. Rate Study Presentation**
- 4. Adjourn**



	STAFF REPORT
Date:	April 1, 2026
Prepared By:	Charles F. Soules, P.E. – Director of Public Works
Subject:	Combined Water and Wastewater Fund - Capital Improvement plan

To ensure the rate study reflects the most accurate and comprehensive information, staff and HDR conducted an in-depth review of the City’s Capital Improvement Plan (CIP) and its associated costs. The CIP is a 10-year plan extending through 2036. The first five years include detailed project planning, while funding in the later years is programmed but not yet tied to specific projects.

The CIP is developed from the Water Master plan adopted in 2018 and the Wastewater Masterplan adopted in 2021.

The updated CIP is developed using 2026 dollars, and the rate study has adjusted these figures to account for current construction cost trends. Several updates and additions have been incorporated into the CIP as part of this review.

The most significant change from the water master plan is the rescheduling of the water treatment plant expansion from 2029 to 2032, along with an updated total project cost of \$32 million, inclusive of engineering.

Additionally, in the 2026 adopted budget, the CIP included a project to address taste and odor. In 2025 the City began a raw water / lake sampling program to try to identify a source causing taste and odor issues. The lake sampling did not identify a specific improvement that would directly address taste and odor concerns; the sampling results are discussed in a later section.

Two new system enhancements have also been added: a new SCADA system and an Advanced Metering Infrastructure (AMI) program for meter reading. Both improvements are described in detail below.

Capital Improvement Program

In September of 2025 the City issued \$8.5 million in Certificates of Participation (COP) for the combined water-wastewater fund.

Projects to be completed with the COP’s included:

- **WTP (Water Treatment Plant) Improvements** - This project is nearly complete. The project included new chemical feed equipment, filter media, replacement of valves and repainting the filter gallery. During the removal of filter media, asbestos underdrain piping was discovered and replaced. The project is being completed by Ross Construction. Total cost is approximately \$1.4 million.
- **144th Pump Station and Force Main** – Regional lift station and force main that will serve southern Smithville development including Forrest Oaks and decommissioning Hills of Shannon lift station and has capacity to decommission Central Bank and McDonalds lift Station. Substantial completion for this project is May 2026. Total cost \$4.7 million, Corps grant \$1.6 million
- **Stonebridge Pump Station** – Preliminary plans are complete; project will bid this year with an estimated cost of \$1.7 million. The project is needed for capacity improvements in the southern portion of Smithville and will allow staff to decommission lift stations that are under capacity.
- **Smith Fork Force Main-** The City completed the new lift station at Smith Fork Campground and found that the force main is partially plugged. This project will also increase the pipe size to a 6” force main for additional development. This project is bid and should begin in the early summer.
- **River crossing water main** - This project is needed to ensure adequate water supply north of the Little Platte River. Currently, there is only one 8” main across the river and this improvement will provide additional capacity and reliability. This project was identified as a priority need in the Water Master Plan. The project will install a new 12” water main under the Little Platte River for capacity and reliability. The waterline will go from Main Street to 3rd Street and will be approximately 2,560’ in length. This project was bid with the Smith Fork force main. Total cost for both the river crossing and Smith Fork force main is \$1.5million. The river crossing will begin after Smith Fork force main in late summer.

Taste and Odor

In the 2025 the City began a lake sampling program to obtain data for taste and odor causing agents. The City also budgeted \$1 million in the 2026 CIP for any improvements that resulted from the lake sampling results.

- Eutrophication is the process by which water bodies become overly enriched with nutrients, particularly nitrogen (N) and phosphorus (P). Eutrophication significantly impacts water quality by causing excessive algal growth and oxygen depletion. Chlorophyll and nutrients are the primary indicators of eutrophication issues in lakes and reservoirs. Excessive levels of nutrients,

including phosphorus and nitrogen, can cause algal growth leading to harmful algal blooms and taste and odor issues. In 2025, measurements of chlorophyll-a and nutrients were inconclusive as an indicator of eutrophication issues in Smithville Lake.

- Organic carbon and solids are considered secondary indicators of eutrophication issues in lakes and reservoirs. While nutrients are the primary cause, high levels of organic matter and suspended solids are key physiological and biological symptoms of the process. Levels of organic carbon and solids measured during the 2025 period were not indicative of any significant eutrophication issues or impairments
- Methylisoborneol (MIB) is a naturally occurring compound that can affect the taste and odor of drinking water, often producing an earthy or musty smell. MIB is a compound produced by various blue-green algae and some bacteria. Measurements of geosmin and MIB exceeded the taste and odor threshold of 10 ng/L throughout much of the year. Elevated concentrations of geosmin and MIB indicates the presence of cyanobacteria, also known as blue-green algae, which are responsible for the production of these compounds and is a key indicator of eutrophication.

So, what does all this mean, while there are indications of taste and odor causing agents, the levels did not rise to a level to implement a project for treatment. Weather also plays a major role in the composition of the lake.

Staff have the tools to address the taste and odor issues. Plant operations and new chemical feeders are in place to make treatment adjustments to combat taste and odor.

It would also take two years for implementation of any size project and by that time the City should be beginning design of the new water treatment plant. Staff will continue to sample the lake so when the new plant is engineered, new treatment technology could be implemented.

Supervisory Control and Data Acquisition (SCADA) - This is a computer-based system used to monitor, gather, and process real-time data while controlling all different kinds of equipment. This water plant has had several upgrades over the years with bits and pieces of the equipment needed to go fully automated through SCADA, but it was never finished to make it fully operational. When finished and running correctly it will control all VFD motors, chemical dosing, chlorine analyzer, turbidity meters, booster stations, tower levels, raw station, clarifiers, backwashes, trends, print out monthly reporting numbers and have several different types of alarms tied to it. Its main point here is to run off the levels of the tanks at the plant, to turn on and off the plant when certain elevations are reached in the tanks. A fully implemented SCADA system will also be beneficial with a more consistent water quality, allow us to more quickly respond to changes in the raw water coming from the lake and adjust chemical

feed systems to treat for taste and odor. This will also allow us to move to a different staff schedule.

Primary Clarifier and Mix Chamber – the clarifiers are the large concrete basins at the water plant with a mixer for chemicals. Throughout the years the concrete is spalling, and the mixers need to be recoated.

High Service Pump Room - is also in need of maintenance to replace rusting bolts, repaint and the addition of a finished water meter to know how much water is being sent to the system. Currently the only way to quantify the water sent to the City is through utility billing and meter reads. This will allow us to know if there are leaks in the system that are not surfacing.

Water Treatment Plant Expansion - has been moved out to 2032 based on population projections. This would take the plant capacity from 2.5 MGD to 5 MGD. This project includes a new chemical feed building, new primary and secondary basins and new filter and high service pump facility. The 2026 estimated cost is \$32 million including engineering. In the next few years, the city should start reviewing treatment options, phasing and construction costs.

Meter Replacement Program / Advance Metering Infrastructure (AMI) -The city water meters are currently a system called Hot Rod AMR (automated meter reading). The system will be going on 15 years old in 2029 and should be replaced to an AMI (advanced metering infrastructure) system. The City's current system uses a positive displacement meter which could slow and not collect all the water being used, additionally staff is required to drive by all meters monthly to gather the water usage. A new AMI system would use a magnetic flow meter with no moving parts. Mag meters are more accurate and require no maintenance. A new AMI system would send the information directly to Utility billing and a customer dashboard could be created where the customer could see their usage at any time.

Distribution System Improvements – replacement of mains that have had numerous breaks and looping of system for better system control and improved circulation:

- Church and Mill Watermain
- Highway 92, Commercial Avenue to Highway 169
- Maple Lane, Highway F to Maple Lane
- Diamond Crest looping
- Raintree Lane to Pope Lane, turn to Hillcrest Drive
- Interconnect Mains at 144th Street and Highway 169

- West Meadow from Highway 169 to South Bridge Street, Fairway to Main Street
- Highway 169, Highway 92 to Park Drive
- Tower Interconnect Armory Road, Highway 169
- Highway 169, Commercial Street to 144th Street
- Highway F, East Pope Lane to North Tower
- Highway 169, 144th Street to Southwest Tower
- Streetscape IV/ Commercial Street - watermain
- Meadow - Highway 169 to Liberty Road - watermain
- Highland Avenue - Highway 169 to cul-de-sac watermain
- Liberty Street / East Woods - watermain
- Hilltop and Carver Place - watermain
- Maple Circle - Watermain

Waste Water Treatment Plant Expansion - The wastewater plant has a rated capacity of 1.125 million gallons / day (MGD). Our average daily flow is around 1 MGD. Future growth, approved plats and development plans will exceed the plant's capacity. Improvements include the construction of a fourth SBR basin west of the existing plant the addition of a truck filling station at Sludge Storage Basin #2, and screenings management improvements at the headworks fine screen. The improvements will increase the capacity to 1.5 mgd. This project is planned to begin construction in 2027. At the March 3, 2026, the Board approved an agreement with HDR for preliminary engineering and proceeding with Construction Manager at Risk (CMAR) project delivery method.

Owens Branch – Gravity interceptor main that will extend from a manhole just east of the influent pump station at the Smithville wastewater treatment plant northward under the Little Platte River. This will install a gravity main to ensure capacity and future growth north. Phase 1 Line 1 includes 2,800 linear feet of 30-inch sanitary sewer gravity line. In this first phase of the Owens Branch extension, the line will terminate just north of Highway KK by connecting to the existing force main. Engineering is under contract with an estimated construction cost of \$4.2million in 2027. Phase 1 line 2 planned for construction in 2029 extends the gravity system further north with an estimated cost of \$5.3 million. Future phases planned for construction in mid-2030's.

Rocky Branch Sanitary Sewer – Gravity sewer extension serving Forrest Oaks in 2036.

Upsizing Hills of Shannon Sewer from 8 inch to 12 inch – this is needed for capacity of this area. Approximate Cost \$1.8 million.

Lift station replacement- One of the goals of the Master plan is the reduction of smaller lift stations such as McDonalds, Cub Cadet, Daycare and Central bank.

Also included is:

- \$200,000 annually for each of the Slipline and lift station Rehabilitation projects
- \$75,000 annually for the SBR cleaning
- \$40,000 annually influent pump station cleaning


Utility	Category	Capital Improvement Project	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036
Water	Water Treatment Plant												
		Annual Updates / Improvements		\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
		WTP Improvements	\$700,000										
		Water Treatment Plant(SCADA)	\$250,000										
		Primary Clarifier and Primary Mix Chamber (Engineering)	\$130,000										
		Primary Clarifier and Primary Mix Chamber (Construction)		\$588,700									
		High Service Pump Room Engineering		\$110,000									
		High Service Pump Room construction			\$583,000								
		Capacity Improvements (Engineering)						\$5,638,000					
		Capacity Improvements (Construction)							\$25,624,400				
	Water Distribution System												
		Annual Updates / Improvements		\$50,000	\$50,000	\$50,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
		Church And Mill Watermain	\$100,000										
		Hwy 92, Commercial Ave to 169 Hwy	\$150,000	\$700,000									
		Maple Ln, Highway F to Maple Ln		\$170,000	\$845,000								
		Diamond Crest looping		\$361,000									
		Raintree Ln to Pope Ln, turn to Hillcrest Dr.		\$200,000	\$1,036,000								
		Interconnect Mains at 144th St and 169 Hwy		\$105,000									
		W Meadow from Hwy 169 to S Bridge Street, Fairway to Main St			\$250,000	\$1,028,000							
		169 Hwy, Highway 92 to Park Dr		\$140,000	\$650,000								
		Tower Interconnect Armory Rd, 69 Hwy			\$90,000								
		169 Hwy, Commercial to 144th St		\$200,000	\$1,097,000								
		Hwy F, East pope Ln to North Tower			\$350,000	\$1,271,000							
		169 Hwy, 144th St to Southwest Tower			\$300,000	\$1,003,000							
		New South Booster Pump Station				\$700,000	\$4,783,000						
		ADVANCED METERING INFRASTRUCTURE				\$1,500,000							
Wastewater	Wastewater Treatment Plant	Water / Wastewater CIP update	\$200,000										
		Phase 1 Improvements (Engineering)	\$1,014,000										
		Phase 1 Improvements (Construction)		\$5,333,000									
		Phase 2 Improvements (Engineering)											\$1,912,000
		Annual SBR Basin Cleaning	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
		Annual Influent pump station cleaning and bypass	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
	Wastewater Collection System												
		144th PS (const)	\$3,500,000										
		144th PS (CORPSS Reimb)	-\$1,500,000										
		SF Forcemain / Rivercrossing	\$1,500,000										
		CO 1	\$250,000										
		Stonebridge Pump Station Replacement (Eng)	\$100,000										
		Stonebridge Pump Station Replacement (Const)		\$1,700,000									
		North Forcemain Metering (Construction)	\$81,000										
		Owens Branch Interceptor - Phase 1, Line 1 (Engineering)	\$334,000										
		Owens Branch Interceptor - Phase 1, Line 1 (Construction)		\$4,169,000									
		Owens Branch Interceptor - Phase 1, Line 2 (Engineering)			\$593,500								
		Upsize Existing Hills of Shannon Sewer from 8" to 12" Engineering		\$300,000									
		Upsize Existing Hills of Shannon Sewer from 8" to 12" construction			\$1,736,000								
		Gravity Sewer Connections to Eliminate Platte Valley Bank and McDonalds Pump Stations Engineering		\$100,000									
		Gravity Sewer Connections to Eliminate Platte Valley Bank and McDonalds Pump Stations Construction			\$413,000								
		Owens Branch Interceptor - Phase 1, Line 2 (Construction)				\$5,341,500							
		Cub Cadet Pump Station Replacement Engineering			\$30,000								
		Cub Cadet Pump Station Replacement Construction				\$214,000							
		Bridge Street Pump Station Generator engineering				\$70,000							
		Bridge Street Pump Station Generator construction					\$365,000						
		New Sewer Extension to West Side of Hwy 169						\$150,000	\$555,000				
		Owens Branch Phase 2							\$800,000	\$4,500,000			
		Owens Branch Phase 3								\$500,000	\$3,000,000		
		Rocky Branch									\$750,000	\$4,000,000	

Streetscape IV/ Commercial St - watermain
Meadow -169 to Liberty - watermain
Highland Ave - 169 to cul-de-sac - watermain
Liberty / East Woods - watermain
Hilltop and Carver Place - watermain
Maple Circle - Watermain

Annual Sanitary Sewer Rehabilitation	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Annual Pump Station Rehabilitation	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Water Subtotal	\$630,000	\$2,624,700	\$5,251,000	\$4,052,000	\$5,783,000	\$6,638,000	\$26,624,400	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Wastewater Subtotal	\$5,794,000	\$12,117,000	\$3,287,500	\$6,140,500	\$880,000	\$515,000	\$665,000	\$1,870,000	\$5,515,000	\$4,265,000	\$6,427,000	\$6,427,000
Total (FY)	\$6,424,000	\$14,741,700	\$8,538,500	\$10,192,500	\$6,663,000	\$7,153,000	\$27,289,400	\$2,870,000	\$6,515,000	\$5,265,000	\$7,427,000	\$7,427,000

Notes:

1. Project cost estimates are preliminary planning level estimates. HDR has no control over the cost of labor, materials, equipment, or services furnished by Others, over the contractor(s) methods of determining prices, or over competitive bidding or market conditions. HDR does not guarantee that proposals, bids, or actual project or construction costs will not vary from opinions of probable costs or cost estimates prepared by HDR. Project scopes, schedules, and costs will be refined as development plans progress and flow projections and development locations are refined.
2. Costs were prepared for the Water and Wastewater Capital Improvement Project Cost Update project and are presented in Jan 2026\$.
3. Costs shown in future planned years should be escalated by the City.
4. Phase 2 WWTP Improvements (Construction) are not shown and estimated to occur in 2038.
5. Costs for Engineering include Design Phase Engineering and Construction Phase Engineering. Refer to breakdown costs for more detailed information.

	STAFF REPORT
Date:	April 7, 2026
Prepared By:	Rick Welch, Finance Director
Subject:	2026 Raftelis Rate Study
Staff Report:	Finance Department

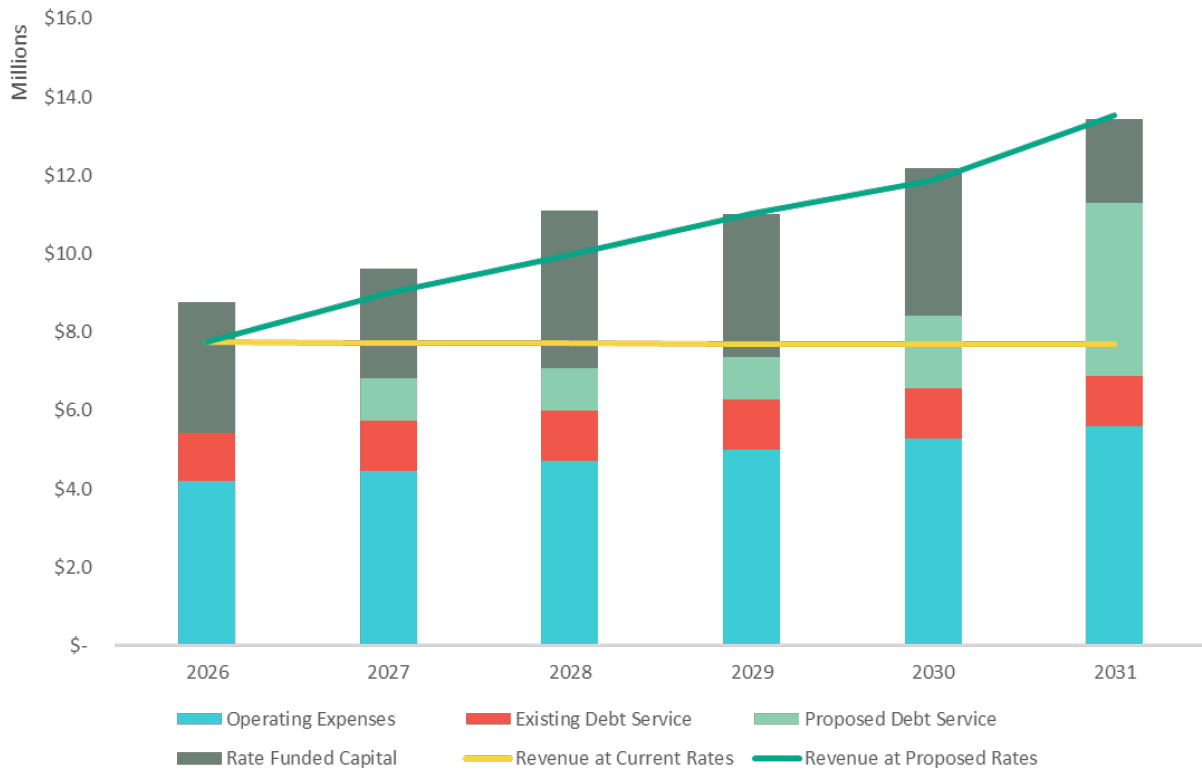
The City has contracted with Raftelis to perform an updated analysis to include utility financial forecast, including projected revenues, cash flow forecast, operating and capital expenditures, and recommended rate adjustments. Under the baseline revenue scenario, the forecast assumes a steady customer base with no growth or loss in customer base. Total annual revenue from rates and miscellaneous sources is estimated at approximately \$7.7 million. The analysis uses the adopted FY2026 budget as a foundation and incorporates an assumed annual inflation rate of 6 percent. Current annual debt service obligations are approximately \$1.3 million.

The City's capital improvement plan identifies substantial infrastructure needs totaling approximately \$56 million over the period from FY2027 through FY2031. These investments include major projects such as the Owens Branch Interceptor, sewer plant improvements, upgrades to the water main and sewer collection systems, and engineering and design for a new water treatment plant. To finance these improvements, the City plans to issue \$24 million in Certificates of Participation (COPs) in FY2027 with interest-only payments for the first three years. Additional borrowing of approximately \$46 million is anticipated between FY2030 and FY2032, primarily to fund the water treatment plant expansion, alongside approximately \$16 million in cash funding.

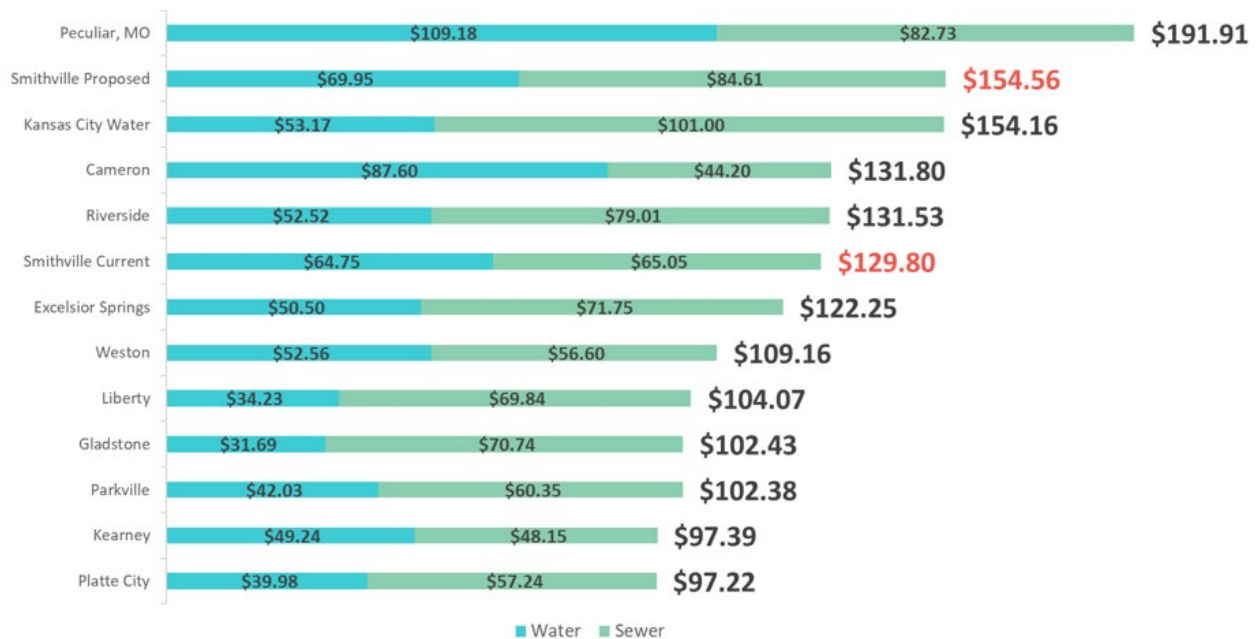
To support both operational costs and the capital program, rate adjustments are necessary. For FY2027, it is recommended that water rates increase by 8 percent and sewer rates by 30 percent, resulting in a combined impact of approximately 19 percent. In subsequent years, water rates are projected to increase by 8 percent annually from FY2028 through FY2030, followed by a 25 percent increase in FY2031 to support debt service associated with the water treatment plant expansion. Sewer rates are projected to increase by 15 percent annually in FY2028 and FY2029, 8 percent in FY2030, and 5 percent in FY2031. Overall, these adjustments equate to an average combined increase of approximately 12 percent per year from FY2028 through FY2031.

It is important to note that the City elected not to increase rates in November 2025 for FY2026. Had the City implemented the previously considered 15 percent increase in both water and sewer rates at that time, the required increases beginning in FY2027 could

have been lower, at approximately 4 percent for water and 13 percent for sewer annually through FY 2030, with an overall average increase of about 9 percent per year.



The following comparison of water and sewer bills across neighboring communities is based on a monthly usage of 4,000 gallons:



In addition to retail rates, the City's wholesale water rate was evaluated. The City currently sells treated water to PWSD #8 at a rate of \$7.14 per 1,000 gallons. A cost-of-service analysis indicates that this rate could be increased to as much as \$10.37 per 1,000 gallons to more accurately reflect the cost of providing service.

The City is also evaluating adjustments to impact fees using a "buy-in" approach, which ensures that new customers contribute equitably to the value of existing and planned infrastructure. Under this approach, the water impact fee for a ¾-inch meter could increase from \$3,100 to as much as \$4,200, while sewer impact fees are recommended to remain unchanged.

In conclusion, the City is facing significant infrastructure and financial demands that require a combination of rate adjustments and strategic financing. The proposed plan provides an approach to maintain system reliability and meet future needs.



City of Smithville

Water Rate Study

April 2026





The City delivers safe and reliable utility service to support health, safety, and economic vitality

24/7/365

Financial Planning Process

1 Forecast Baseline Revenue

How much revenue would the City collect under the status quo?

2 Forecast Operating and Capital Expenditures

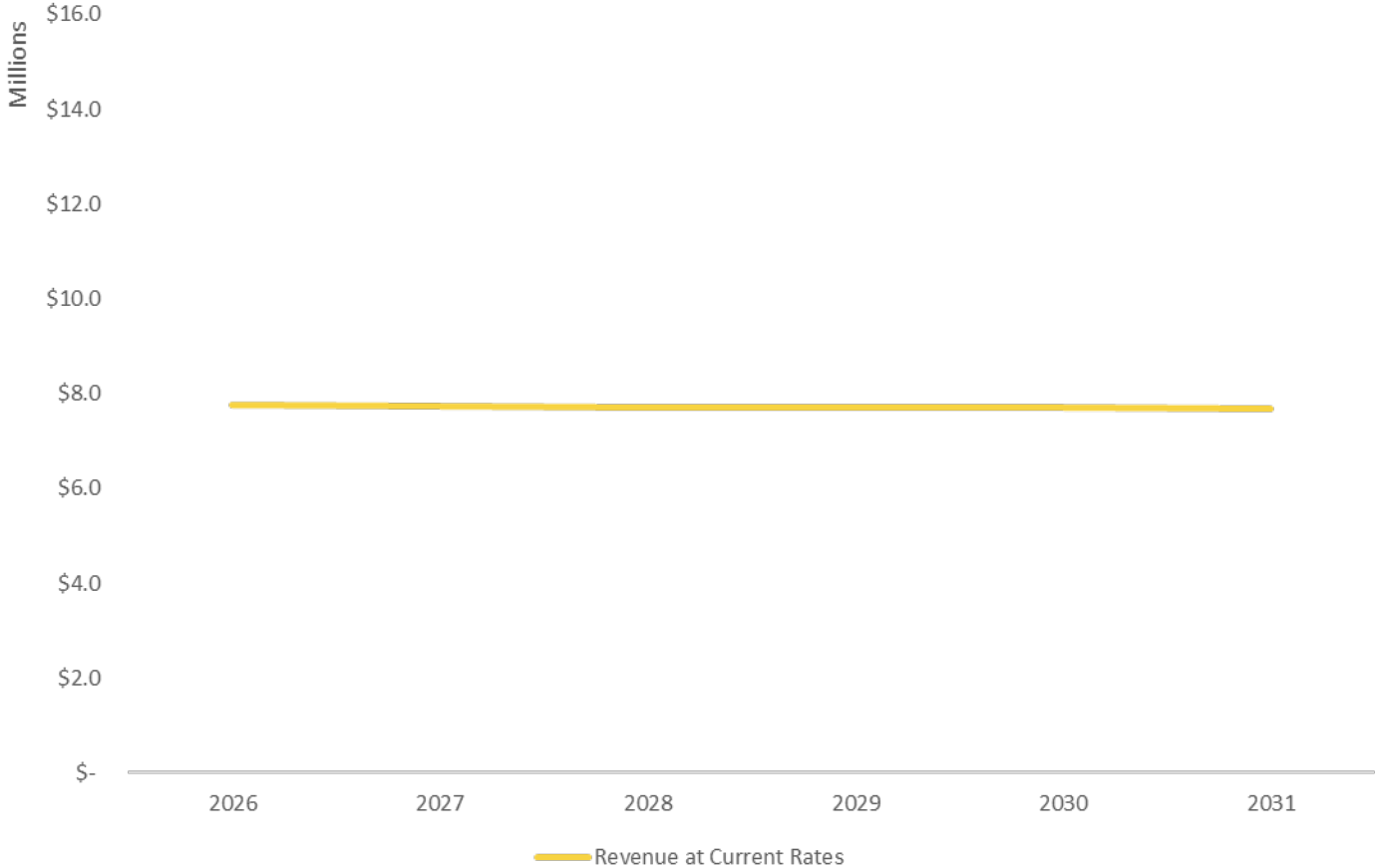
What work does the City need to do to operate the utility and how much will it cost?

3 Develop Cash Flow Forecast

Analyze revenues and expenditures together to determine the level of overall rate increases necessary.

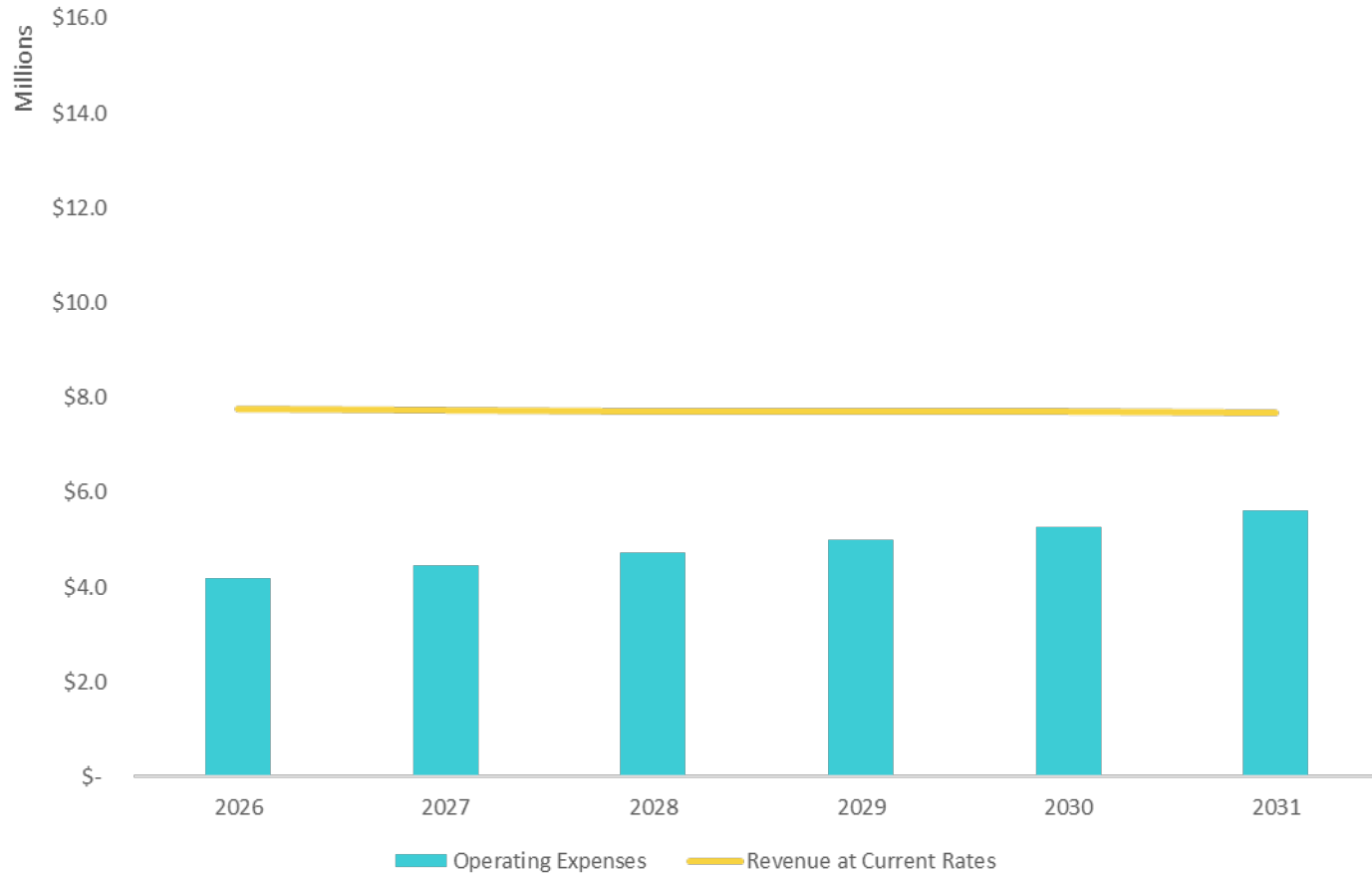
Baseline Revenue

- Assumes steady customer base – no growth or loss of customers.
- Total rate and miscellaneous revenue is about \$7.7 million per year.



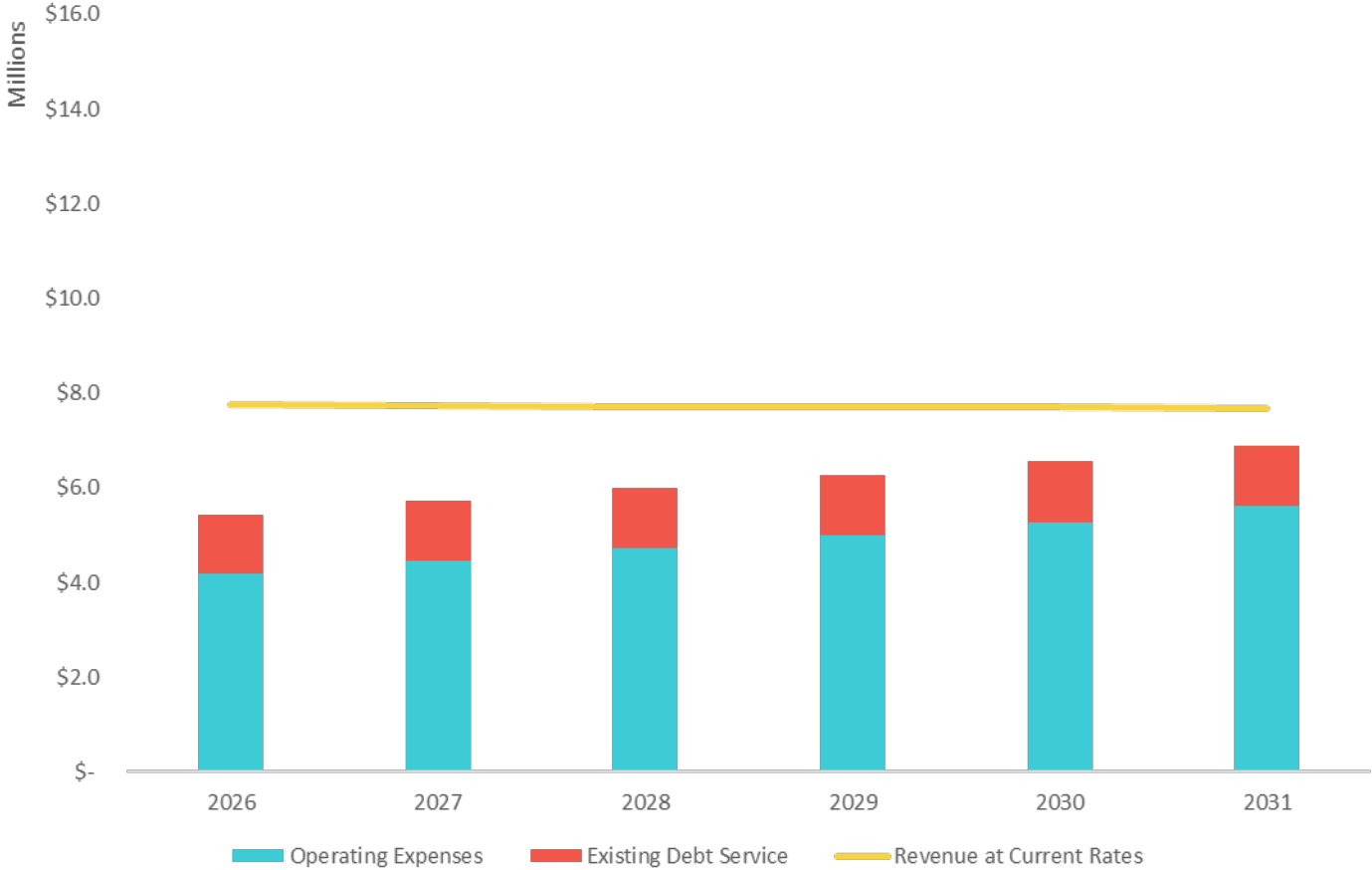
O&M Expenditures

- The forecast uses the adopted 2026 budget as the baseline.
- Assumes cost inflation of 6% per year.



Existing Debt Service

- Debt service payments are currently about \$1.3 million per year.



Capital Improvement Plan

Capital Needs

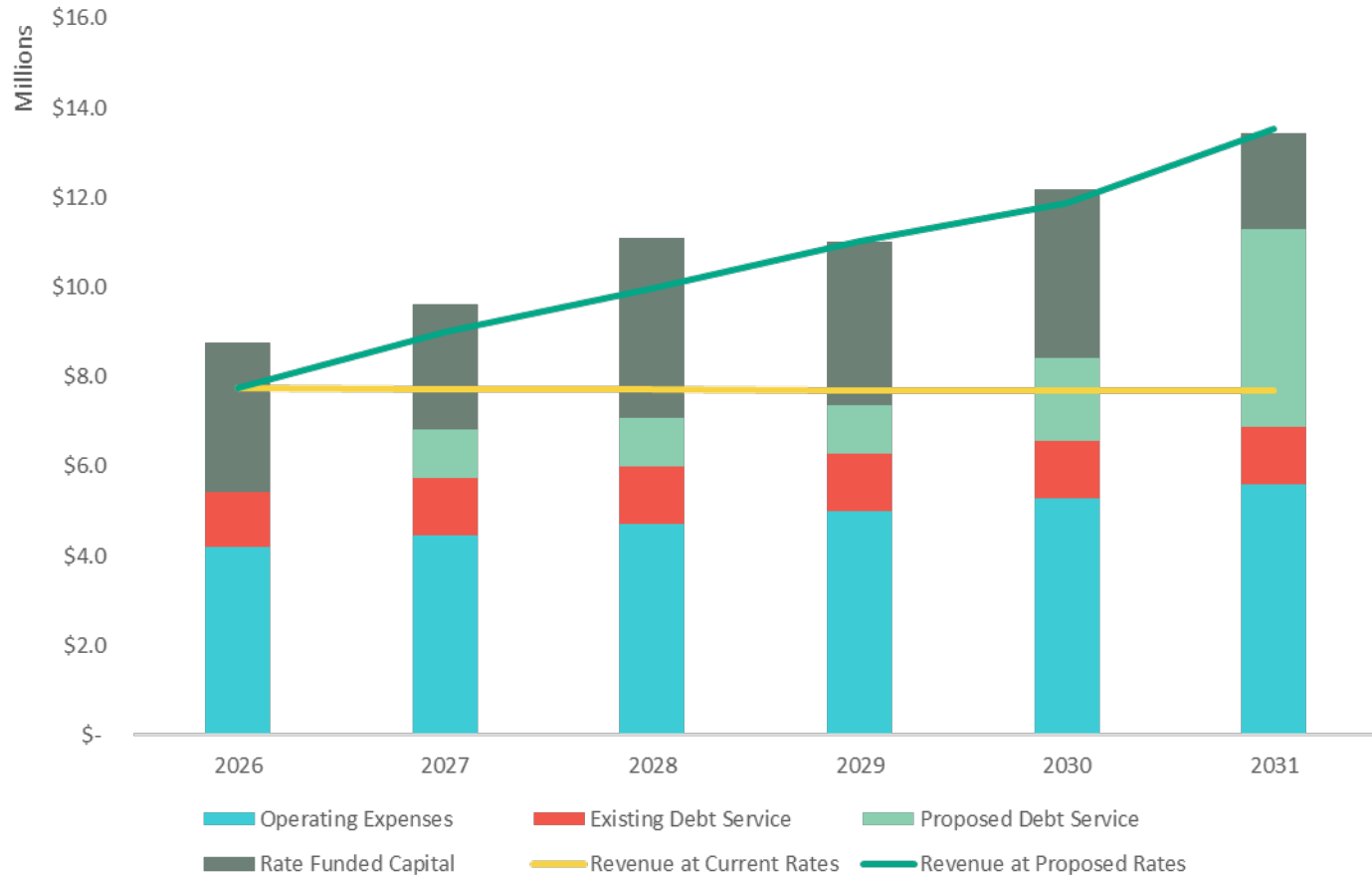
- Approximately \$56 million from FY 2027 through FY 2031.
- Owens Branch Interceptor
- Sewer plant improvements
- Water main and sewer collection system improvements
- Water plant engineering and design

Financing Plan

- \$24 million COP in FY 2027
 - Interest only payments for 3 years
- Borrow approximately \$46 million in FY 2030 to FY 2032, primarily to fund the water treatment plant expansion
- Cash funding of approximately \$16 million

Proposed FY 2027 Rate Increases

- To fully fund the capital plan, Raftelis recommends increasing water rates by 8% and sewer rates by 30% in FY 2027. The combined impact of these increases is 19%.



Future Rate Increases

- Water Rate Increases
 - 8% per year from FY 2028 to FY 2030.
 - 25% in FY 2031 to fund debt service for the water treatment plant expansion.
- Sewer Rate Increases
 - 15% per year in FY 2028 and FY 2029, 8% in FY 2030, and 5% in FY 2031.
- Overall impact of about 12% per year from FY 2028 to FY 2031.

No FY 2026 Rate Increase

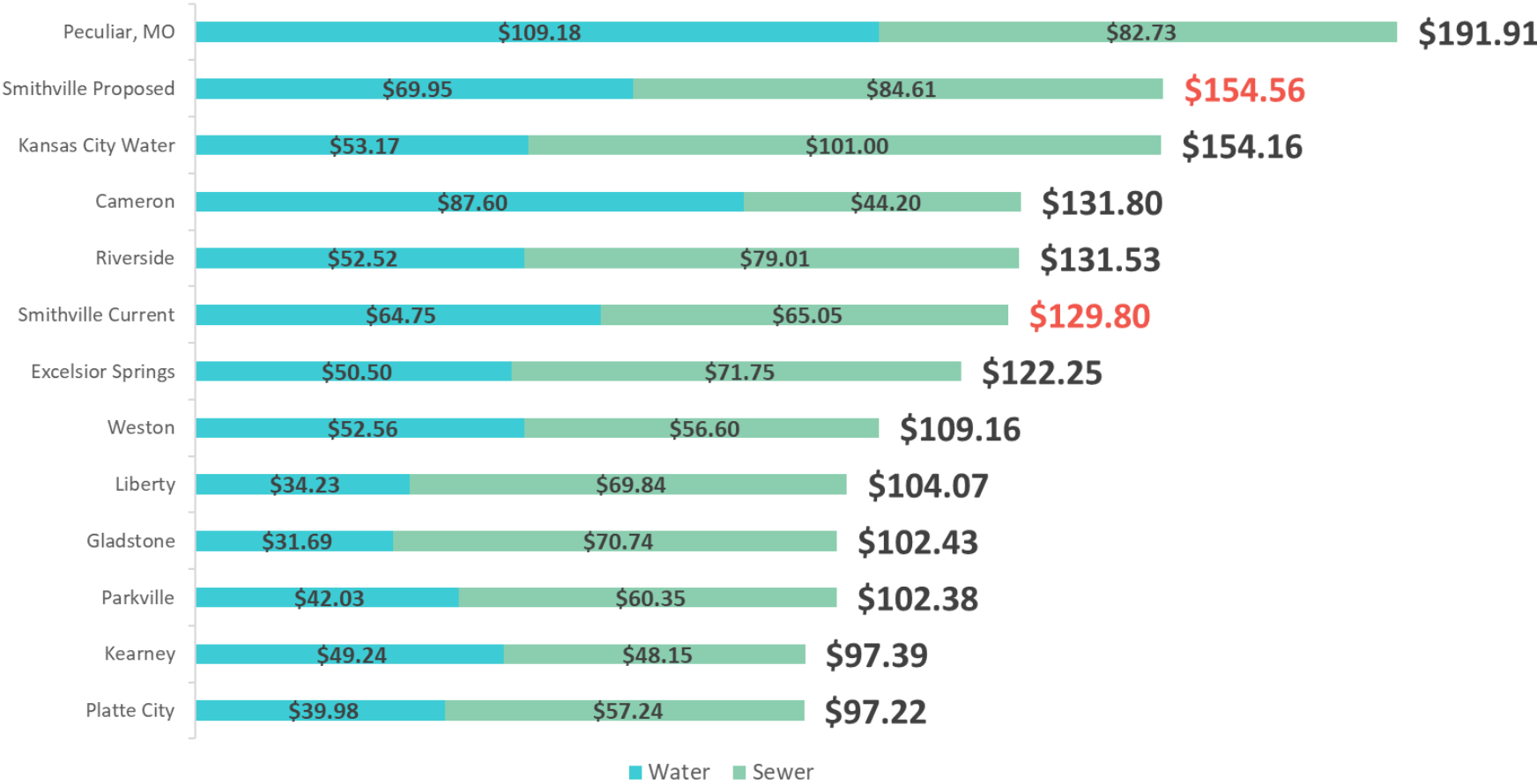
- The City chose to maintain rates without an increase in November 2025 (FY 2026).
- If the City had implemented 15% water and sewer rate increases as considered, the proposed FY 2027 rate increases could have been lower:
 - Approximately 4% water rate increases and 13% sewer increases each year through FY 2030.
 - Approximately 9% per year overall.

Wholesale Rate

- The City is contracted to sell treated water to PWSD #8.
 - The current rate is \$7.14 per 1,000 gallons.
- Raftelis performed a cost of service analysis to review costs associated with providing retail and wholesale water service.
 - The rate could be as high as \$10.37 per 1,000 gallons.

Bill Comparison to Other Communities

Monthly Bill for a Customer Using 4,000 Gallons per Month



Impact Fees

- Buy in approach: new customers should buy in to the equity in the water and sewer systems.
- Recognize the cost of new water treatment plant and existing supply, transmission, storage assets.
- Water impact fee could increase from \$3,100 to as much as \$4,200 for a $\frac{3}{4}$ " meter.
- Sewer impact fees should remain unchanged.

Current Water and Sewer Bill Affordability

A common guideline suggests that a water and sewer bill should not be more than 4% of income.

1.54%

Median Household

The average bill for 4,000 gallons per month requires 1.54% of the Median Household Income in Smithville.

2.89%

Lowest Quintile

The same bill requires 2.89% of income for households with income at the 20th percentile in Smithville.