



City of Smithville, Missouri

Board of Aldermen - Work Session Agenda

Tuesday, April 1, 2025

6:00 p.m. – City Hall Council Chambers and Via Videoconference

Anyone who wishes to view the meeting may do so in real time as it will be streamed live on the City's YouTube page.

For Public Comment via Zoom, please email your request to the City Clerk at ldrummond@smithvillemo.org prior to the meeting to be sent the meeting Zoom link.

1. Call to Order
2. Utility Discussion
3. Adjourn

Join Zoom Meeting
<https://us02web.zoom.us/j/88957200507>

Meeting ID: 889 5720 0507
Passcode: 649344



	<div style="display: flex; align-items: center; justify-content: center;"> <div style="background-color: #8ebf40; color: white; padding: 5px 10px; margin-right: 5px;">STAFF</div> <div style="background-color: #005a87; color: white; padding: 5px 10px;">REPORT</div> </div>
Date:	March 27, 2025
Prepared By:	Rick Welch, Finance Director
Subject:	Utility Past Present and Future Discussion
Staff Report:	Finance

Historically, the City has taken a reactive approach to repairs and maintenance to ensure the continued operation of its water and wastewater systems. Recent efforts have focused on a more proactive approach to replacement and rehabilitation programs. These programs have reduced ongoing maintenance requirements. This memo provides an update on our progress, the results of our replacement and rehabilitation efforts, the history of our rates, and the development trends that will shape future infrastructure needs.

Water and Wastewater System Health

The City has remained committed to maintaining the health and functionality of its water and wastewater systems. While these efforts have successfully ensured the operational continuity of both systems, it is evident that more substantial infrastructure projects are now necessary to address long-term capacity issues and aging infrastructure.

A focus on the utility systems resulted in master plans outlining priorities for the coming years.

- *Water Master Plan:* Completed in 2018, the Water Master Plan outlined the long-term strategies for addressing the City's water infrastructure needs, aiming to provide sustainable service as the population continues to grow. This plan serves as a roadmap for upcoming water infrastructure improvements and expansion.
- *Wastewater Master Plan:* The Wastewater Master Plan, completed in 2021, identified essential projects and improvements required to maintain system reliability and support capacity expansion. The plan is a critical tool for planning future wastewater system enhancements and ensuring adequate service for the City's increasing population.

Replacement and Rehabilitation Programs and Outcomes

Recent rehabilitation programs have resulted in significant strides in improving the condition of the City's water and wastewater infrastructure. These programs have reduced the overall need for immediate repairs, enabling the City to shift resources

toward addressing the most critical infrastructure gaps. This will allow for more efficient long-term management of the City's water and wastewater systems.

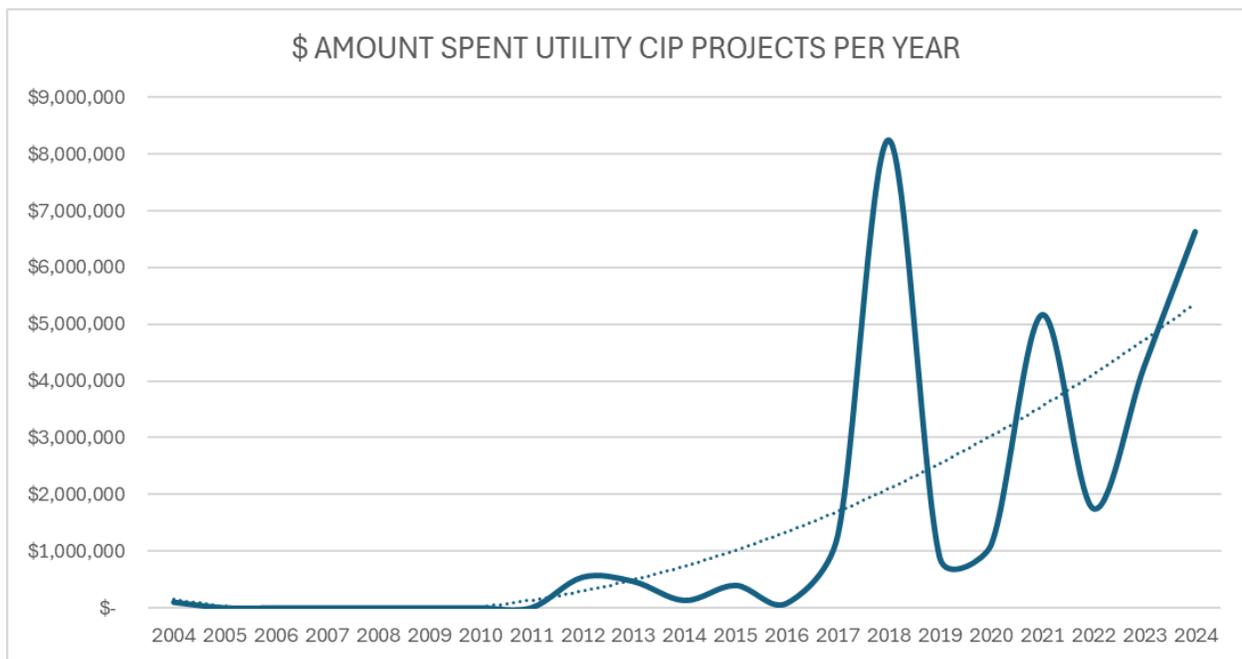
Future Infrastructure Needs and Development Trends

Ongoing development within the City, coupled with population growth, is expected to place additional strain on the existing infrastructure. The insights provided by both the Water and Wastewater Master Plans, along with current development trends, highlight the need for continued investment in expanding system capacity and upgrading aging infrastructure. This will be crucial to meeting future demand and maintaining the high level of service expected by the City's residents.

History of Projects

From 2004 to 2018, project-related spending was minimal, with few significant infrastructure investments. During this period, the City focused primarily on maintaining existing systems. In 2018, the South Interceptor Project marked a significant investment in sewer infrastructure, addressing critical needs for the City's growing population. In 2021, the Raw Water Pump Project began. This project aimed to improve the City's water supply system, ensuring a reliable and adequate water source. This focus on both water and wastewater infrastructure has continued and numerous projects are included in future capital planning. These projects are designed to address capacity constraints, improve system reliability, and ensure the City can meet the demands of future growth.

The following depicts capital investment in the utility system since 2004.



History of Rates

The City's rate structure has evolved over time to address the growing demands of infrastructure. From 2004 to 2014, the City used a three-tiered rate structure for water and wastewater services, where customers were billed based on usage in 1,000-gallon increments. The structure was as follows:

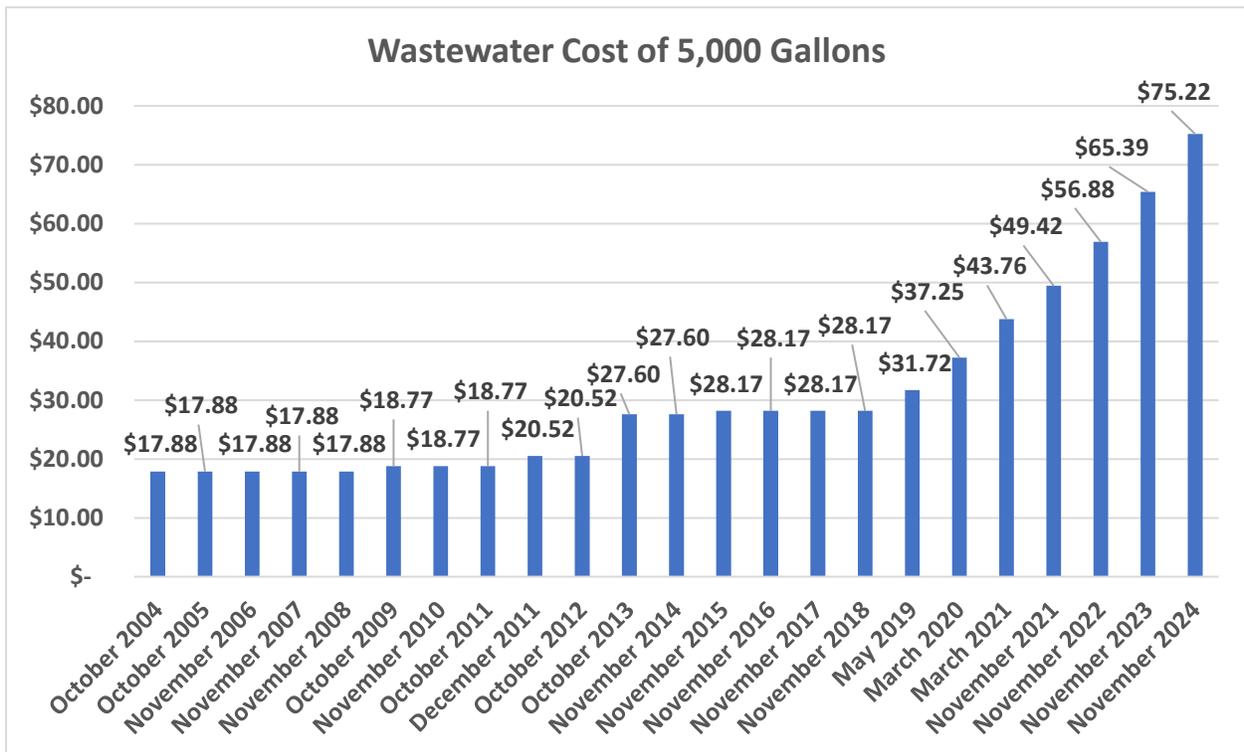
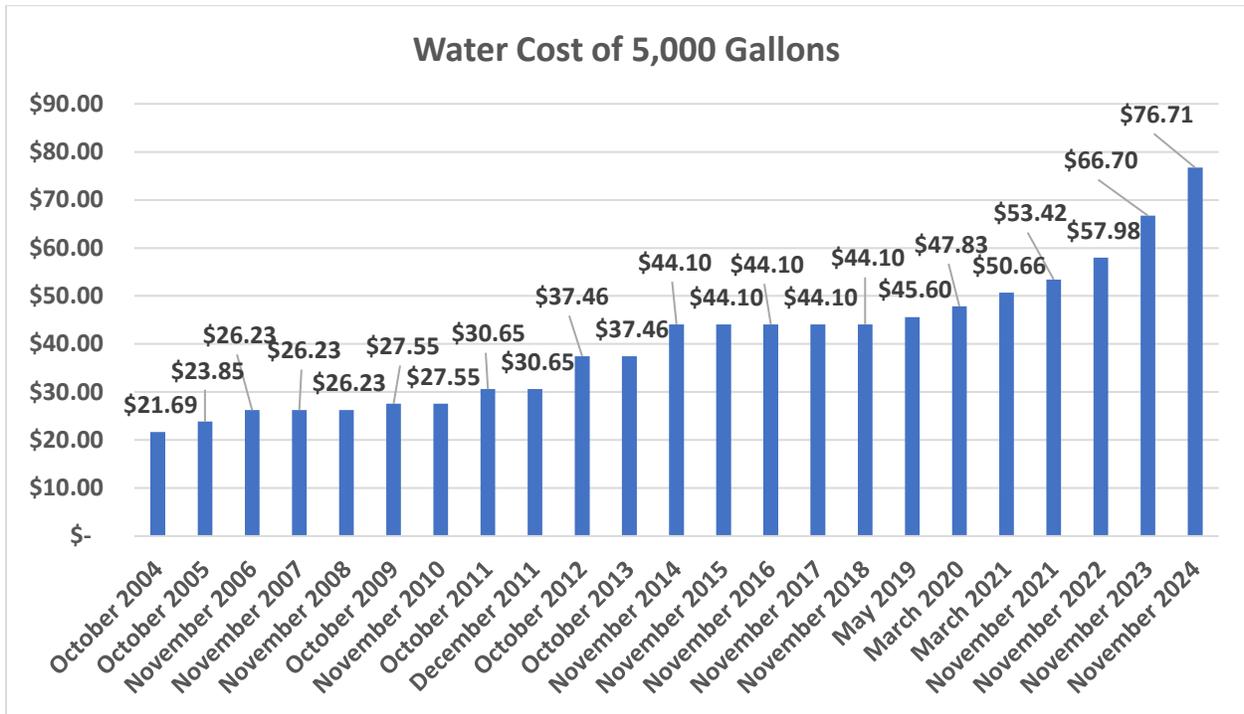
- First 1,000 gallons,
- Next 1,000 gallons (1,000 to 2,000 gallons),
- Above 2,000 gallons (charged per additional 1,000 gallons).

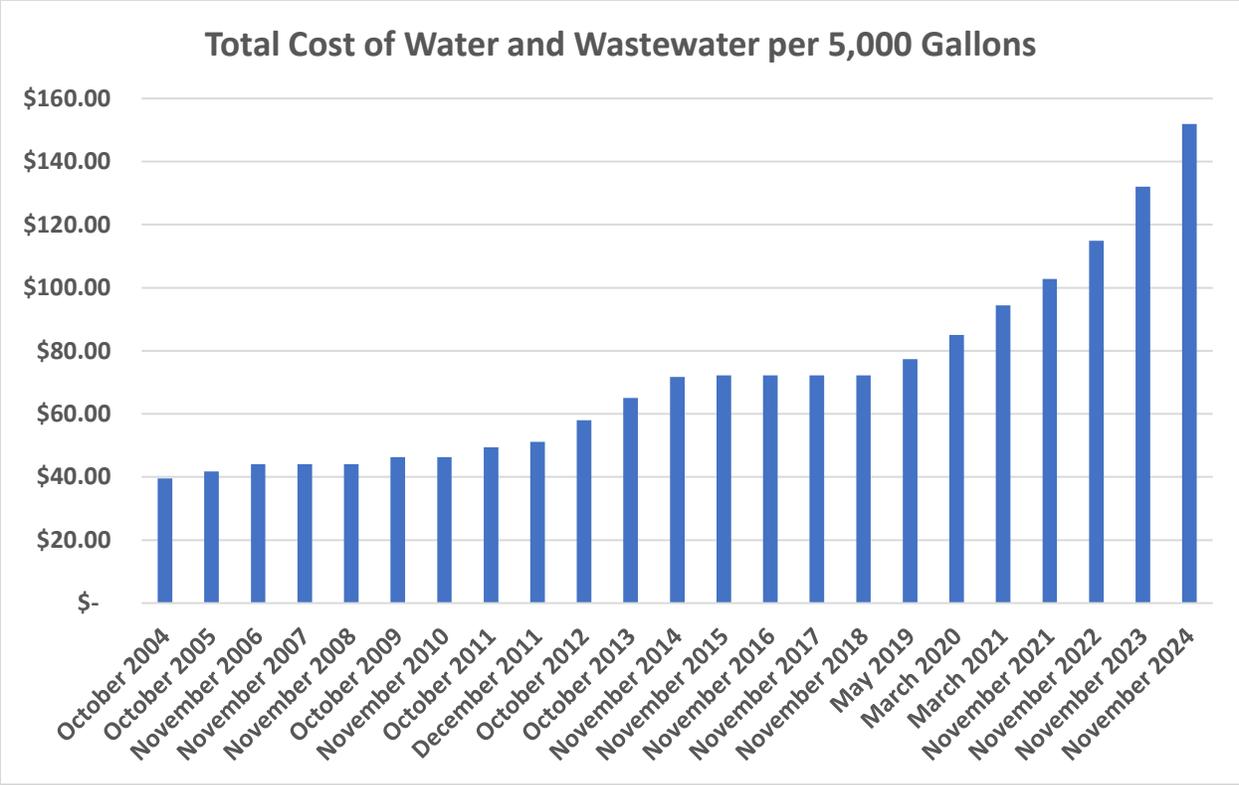
In 2014, the City introduced a new rate structure, which included a fixed monthly charge for water services. A fixed monthly charge for wastewater services was added in 2017. Customers were also charged for water and wastewater usage in 1,000-gallon increments, in addition to the fixed charges. The purpose of implementing the fixed charge was to provide a more stable revenue stream, ensuring reliable funding for infrastructure projects.

In 2018, the City contracted with Raftelis to conduct a comprehensive rate study. The study confirmed that the fixed rates were essential for maintaining ongoing operations, while the usage rates would support current and future Capital Improvement Projects (CIP) that were identified as priorities. As part of this focus on funding for infrastructure expansion, the study recommended a change to the fixed rate charge for water service based on meter size to address the impact larger commercial and industrial users have on system maintenance and operations. The Board implemented the recommendations of the rate study in 2019.

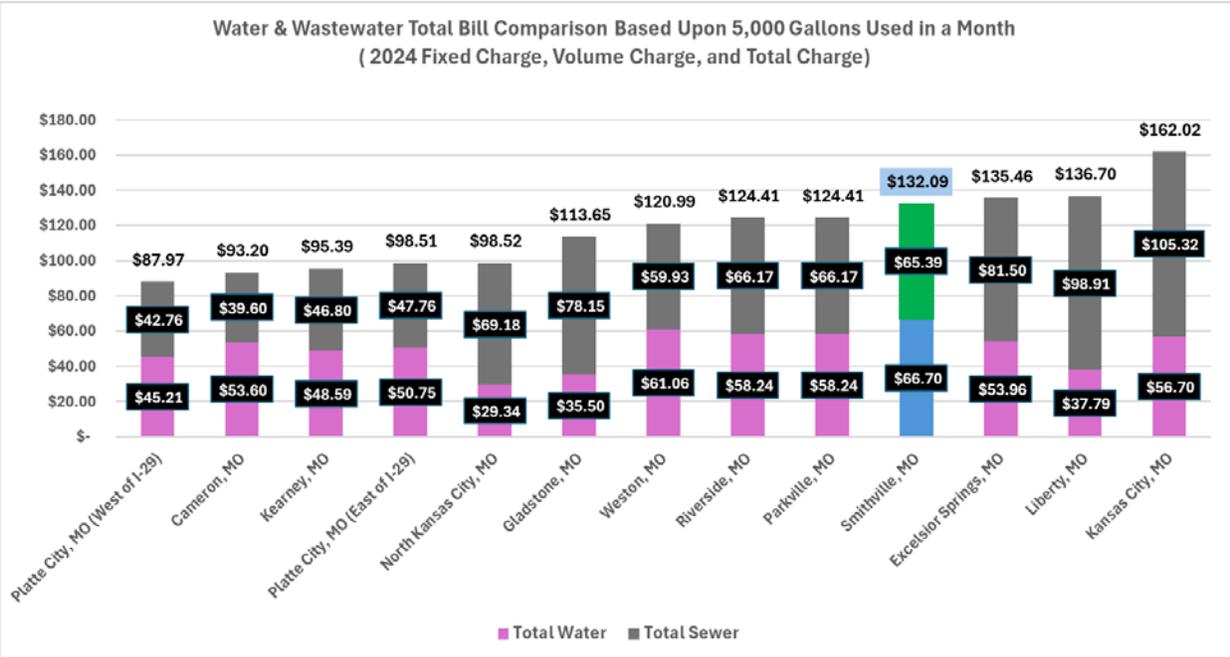
Annual increases have been implemented by the Board since 2019 in order to guarantee adequate funding for current and future infrastructure upgrades and maintenance.

The following charts illustrate the changes in water and wastewater rates from 2004 to 2024.





The following chart depicts a rate comparison between Smithville and surrounding communities:

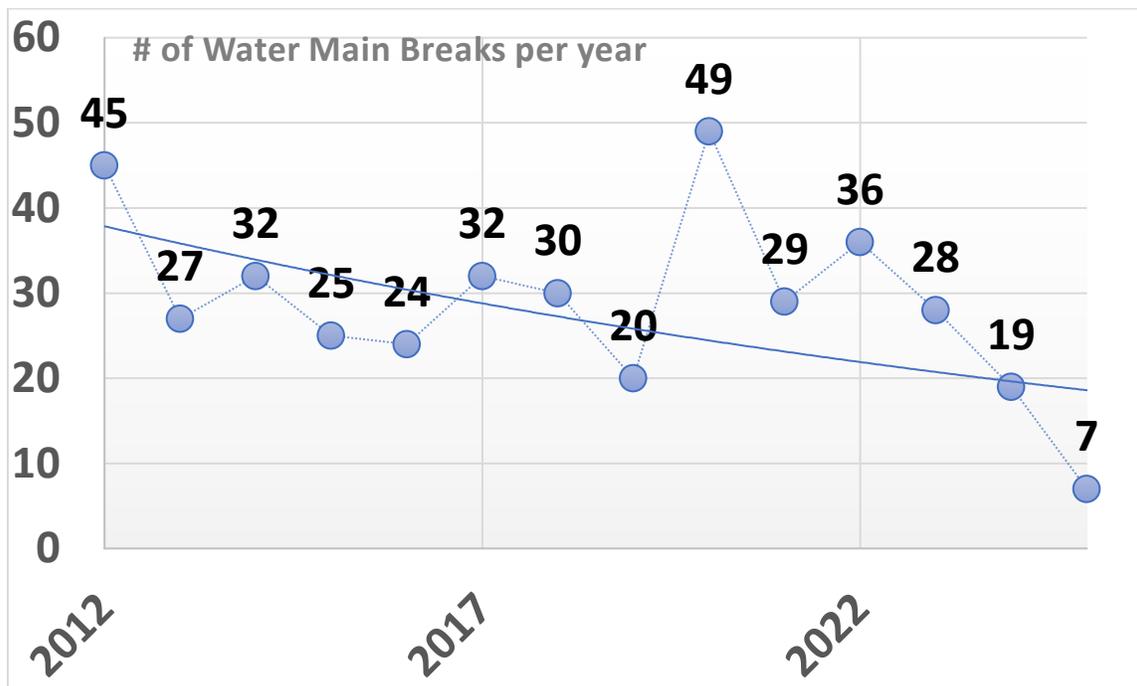


Replacement and Rehabilitation Projects

Over the past five years, the City has made significant advances in its replacement and rehabilitation programs. Starting in 2015, old systems on Hawthorne, Main and Bridge Streets were replaced. More recently, projects on Quincy, Highland, Woods and in the Fourth Terrace area have been completed. These initiatives have not only reduced the frequency of emergency repairs but have also enabled the strategic reallocation of resources toward more extensive infrastructure upgrades. This shift is essential in enhancing system reliability and effectively planning for future growth.

The City's water distribution system predominantly uses PVC piping. However, infrastructure in the older sections of the town are constructed from cast iron or ductile iron. These materials are particularly susceptible to damage from temperature fluctuations and corrosion. In the past eight years, the City has undertaken numerous water main replacements, focusing on the removal of aging cast iron pipes. These efforts have led to improvements in water quality and a reduction in the occurrence of water main breaks.

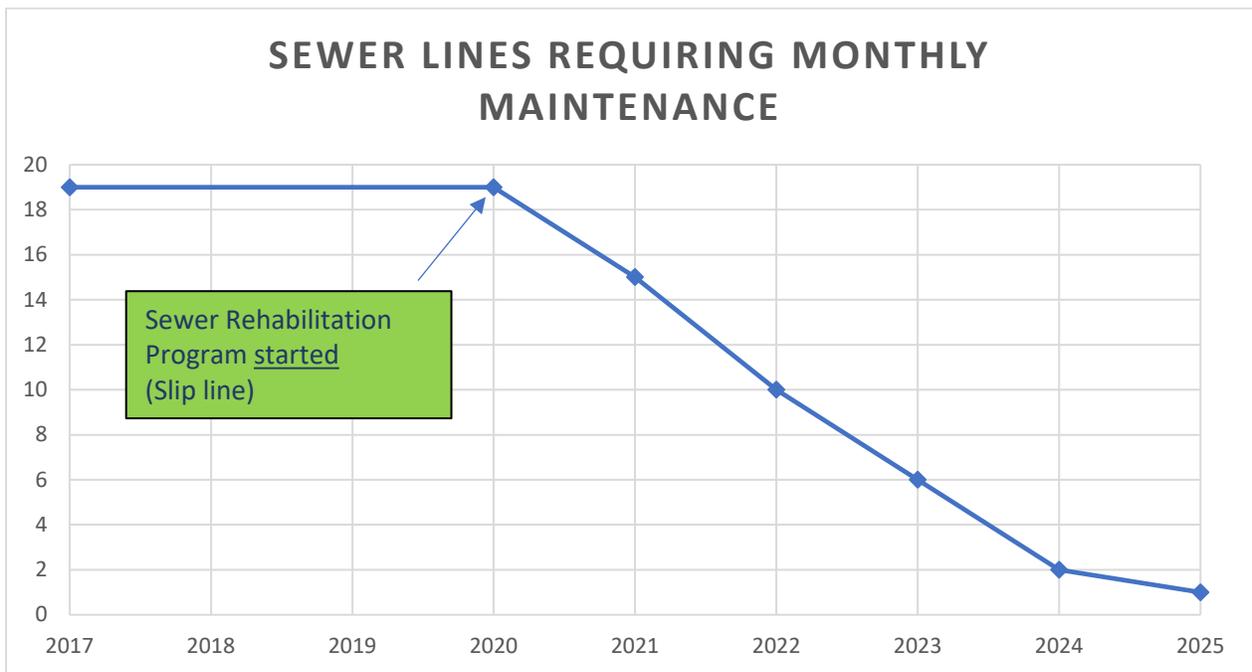
In 2012, there were 45 watermain breaks. However, through continued infrastructure enhancements and rehabilitation efforts, this number has significantly decreased, with only 19 watermain breaks recorded in 2024. A temporary increase in breaks occurred in 2020 due to an extended cold snap, while a subsequent, smaller spike in 2021 can be attributed to supply chain disruptions caused by the COVID-19 pandemic. Despite these challenges, the overall trend remains positive.



Wastewater Line Rehabilitation – Slip Lining Program

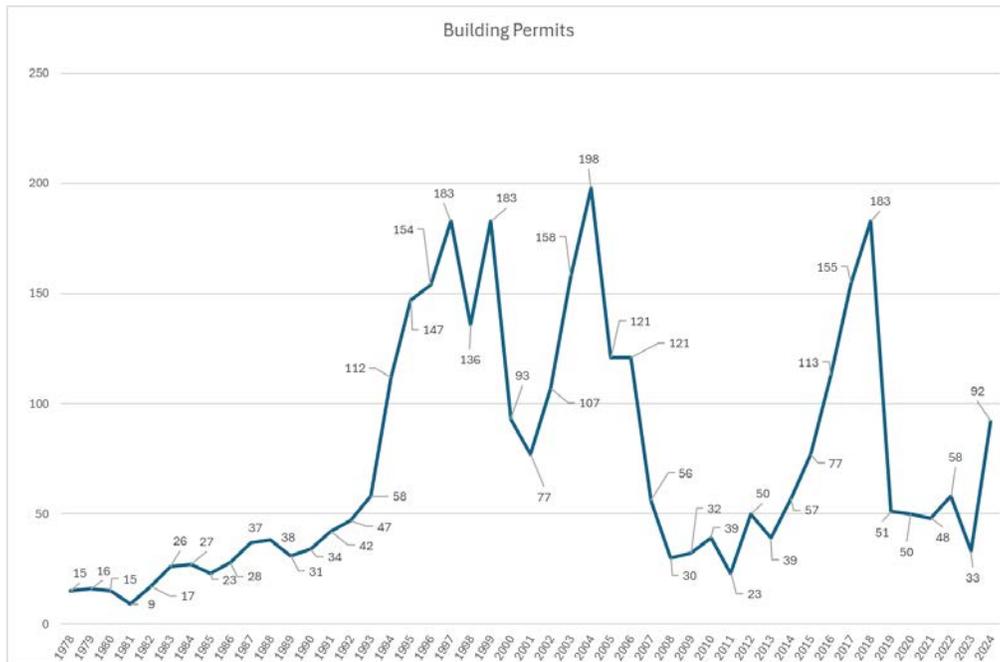
The City operates an extensive wastewater collection system, which includes both old and new pipe. The oldest sections of the system are constructed from clay tile pipe, a material that has not been used since the late 1960s. To maintain the functionality of these aging lines without the need for costly and disruptive replacements, the City employs a trenchless rehabilitation method known as slip lining.

Currently in its sixth year, the City has allocated \$150,000 annually to the slip lining program for rehabilitating the older gravity lines. Prior to the initiation of this program, the City relied on a monthly sewer run list to prevent blockages and ensure proper flow in the most problematic areas. In 2017, the City performed monthly maintenance on 19 sewer lines. Thanks to the success of the slip lining efforts, this number has decreased substantially, with only one sewer line requiring monthly maintenance in 2025.



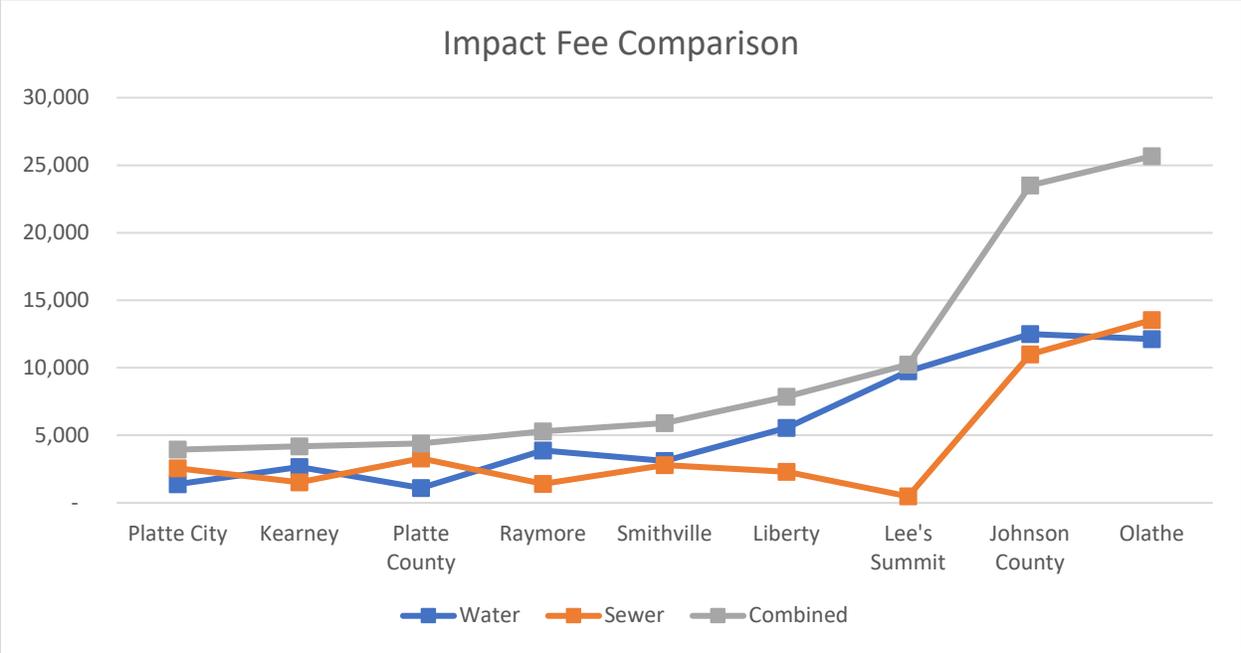
Development and Impact Fees

Development trends are reflected in building permit numbers, with the number of permits issued spiking in 2004 and 2018. Growth in 2025 is also anticipated. These building permits play a critical role in generating impact fee revenue, which is vital for funding infrastructure expansion projects.



To support future infrastructure needs, the City imposes impact fees on new developments. These fees are essential for financing the construction or expansion of the infrastructure required to accommodate growth, ensuring that new developments contribute to the costs of increased demand. The most recent project funded by Water Impact Fees was the Bridge Street waterline project in 2017. The current Water Impact Fee is set at \$3,100, and revenue from this fee is earmarked to contribute \$700,000 to the Maple Avenue and River Crossing project, scheduled for 2026.

The most recent project funded by Wastewater Impact Fees was the South Sewer Interceptor, completed in 2018-2019. The current Wastewater Impact Fee stands at \$2,800, with fee revenue budgeted to contribute \$1,150,000 toward the Owens Branch Phase #1 project, slated for 2027. Smithville's water and wastewater impact fees are positioned within the mid-range compared to neighboring communities, excluding Riverside and Parkville, whose water infrastructure is owned by American Water.



Capacity Review

Several developments are currently in the planning stages, further influencing the City's future infrastructure requirements. The Clay Creek Meadows development has been approved for 216 new units, while the Greyhawke development (Phases 5-10) will add an additional 165 units. At present, the City has the capacity to accommodate only 11 new units, given the available resources and infrastructure. To address this, expansion projects such as the Wildflower Pump Station and Owens Branch Improvements will be necessary to manage the projected increase in demand. Please see Jack Hendrix's memo for further discussion of development and concerns.

Potential Developments 2024 - 2031	Proposed Units
Clay Creek Meadows (Approved October 1, 2024)	216
Landmark Farms (Approved January 2025)	287
Greyhawke Phase 5 -10 (2025 and beyond)	165
Total	349 - 636

Currently Available	CURRENT CAPACITY	DWELLING UNITS (D.U.'s)
	Additional Development Capacity (no system improvements)	265 D.U.'s
	Greyhawke Subdivision Phase 3A, 3B, & 4 Clay Creek Meadows Phase I and II	(-95 D.U.'s) (-159 D.U.'s)
	Total Capacity Currently Available	11 D.U.'s

With improvements	NORTH SMITHVILLE DEVELOPMENT CAPACITY	DWELLING UNITS
	Additional Development Capacity with Wildflower Pump Station Improvements (Additional 320 units) (Greyhawke development responsibility)	333 lots (Existing 11 + additional 320 units)
	Owens Branch (Phase I , Segment 1 - 3)	Will accommodate 20+ years worth of growth

Future Infrastructure Needs

The City is facing substantial infrastructure investment requirements, with an estimated \$70 million in recommended utility investments over the next 8 to 10 years. In response, staff have collaborated closely with financial and bond advisors to assess cash flow and develop a comprehensive financing plan for these critical projects. This plan, along with an overview of available financing options, was presented to the Board in February. The following charts outline the proposed future projects and projected cash flow for the City.

Future CIP Projects:

Project name	Accomplishes	Estimated Net Cost to CWWS	Impact
West Bypass 144th Lift Station	The project is needed for capacity improvements in the southern portion of Smithville and will allow staff to decommission lift stations that are at capacity.	\$3,000,000	Capacity and System Integrity
Stonebridge Lift Station	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. New school bus barn has limited service.	\$1,530,000	Capacity and System Integrity
River Crossing - 12-inch Waterline	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.	\$1,10,000	Capacity and System Integrity
Smith Fork Force Main	The new pump station at Smith's Fork identified a restriction in the 4" force main. This project will provide continued service and increased capacity in north Smithville.	\$700,000	Capacity and System Integrity
Owens Branch Gravity Line	This multi-phased sanitary sewer gravity line project will provide additional capacity to the north end of town and enable removal of some lift stations	\$6,850,000	Residential Capacity
Wastewater Treatment Plant Facility Plan	Identifies existing plant systems and preliminary design for DNR permitting of WWTP expansion.	150,000	System Capacity

Project name	Accomplishes	Estimated Net Cost to CWWS	Impact
Water Treatment Plant Improvements	Maintenance and improvements to existing facility.	\$1,430,000	System Integrity and Plant Maintenance
Highway 92 & Commercial Street Waterline	This water line connection is crucial to ensure that the newly relocated booster station has an adequate water supply.	\$450,000	System Integrity
McDonalds / Central Bank Lift Station	This project will help the City eliminate two costly sewer pump stations, McDonald's, and Central Bank lift stations	\$730,000	System Integrity
Tower to Major Mall 8" Water line	The connection will accommodate the expected growth south of 92 Highway, and provides additional water supply for the southwest water tower	\$205,000	Capacity and System Integrity
Day Care Lift Station	Project is not currently in the CIP but is a system efficiency need once the Stonebridge station is decommissioned.	\$450,000	System Efficiency
Water Plant Expansion	Plant expansion for growth and taste and odor control	\$15,000,000	System Capacity
Wastewater Plant Expansion	Plant expansion to accommodate growth	\$4,000,000	Capacity and System Enhancement

Updated current cash flow model:

City of Smithville CWWS Projected Cash Flow April 2025									
	2025	2026	2027	2028	2029	2030	2031	2032	2033
Beginning Cash	\$ 7,725,820	\$ 11,568,796	\$ 4,815,569	\$ 5,209,313	\$ 3,676,787	\$ 1,568,870	\$ (876,285)	\$ (1,344,523)	\$ 289,504
Revenue *	7,143,660	7,679,435	8,255,392	8,874,546	9,495,765	10,160,468	10,871,701	11,632,720	12,447,011
Debt Issuance	7,500,000	-	8,000,000	-	13,000,000	13,000,000	7,000,000	5,000,000	-
Expense **	10,800,684	14,432,662	15,861,648	10,407,073	24,603,682	25,605,623	18,339,939	14,998,694	20,439,554
End Cash	\$ 11,568,796	\$ 4,815,569	\$ 5,209,313	\$ 3,676,787	\$ 1,568,870	\$ (876,285)	\$ (1,344,523)	\$ 289,504	\$ (7,703,040)
Required Reserve	1,186,323	1,281,179	1,451,097	1,513,273	1,728,663	1,909,012	2,041,189	2,159,765	2,239,120
Major Project Outlay (projected)	4,210,000	7,315,000	7,800,000	2,000,000	15,000,000	15,000,000	7,000,000	3,000,000	8,000,000
								Total 9 Year Outlay	\$ 69,325,000
								Additional COP	\$ 15,500,000
								Revenue Bonds	\$ 38,000,000
								Total Planned Financing	\$ 53,500,000



Date:	March 14, 2025
Prepared By:	Jack Hendrix, Development Director
Subject:	Utility Capacity History and Update

This report provides a summary of utility capacity within the City of Smithville. While we have both water and sanitary sewer utilities, the most pressure on our ability to provide services comes from the sanitary sewer side of things. The water system can be given a brief overview without detailing the capacity numbers as the delivery systems (lines and towers) are more than adequate to provide sufficient water.

Water Capacity

Water capacity was handled early on in our development, with additional water towers (original tower located south of Library) constructed on F Highway (North Tower) and on 188th Street (Northwest Tower) in the late 1990’s and early 2000’s. The Southwest Tower was constructed in 2007-08 at 169 and Amory Road. A second phase of that project included installation of a new 12” water line along 169 to 132nd Street and east to connect into Forest Oaks. This waterline loop was completed in early 2009. Throughout the life of this delivery system, various booster pumps were installed to help get water out to those towers and maintain pressure. These projects have increased water delivery capacity substantially. The current Water Master Plan completed in 2018 lists several projects that will improve fire flow, provide additional looping for protection of the delivery systems and expand capacity in various areas. The most pressing need in the water utility is upgrades to the water plant and the potential timing of those improvements as shown in the master plan.

Sanitary Sewer Capacity

The sanitary sewer capacity also has a long history of decisions that have impacted delivery capabilities. Much of our history of development has, in fact, been the major source of our current capacity issues. In addition to capacity limitations, the current system design is inefficient as it relies on numerous pumping stations. The capacity and inefficiency issues are tied together in how we developed. As you may recall from the 2024 Board retreat, Smithville developed from the outside towards the central core. This necessarily required pump stations and force mains to get the water over various hills and get it to the plant. Over time, developers were required to install force mains to get the waste to the plant.

South Capacity

In the south, it included an 8” force main system that ran from the treatment plant, south to Cliff Drive, then along Cliff Drive to its end. From there, the force main then traveled east to the former Pizza Hut station, then south along James Street, behind Littleton Ford and the gas station at 92 and 169. From there, that line continued south

along 169, eventually ending at 144th Street. That line originally served the Hills of Shannon, Emerald Ridge, Ashmont and Woods Court. Various businesses along 169 have also connected to that system. To address capacity and encourage additional growth on the south, a new sewer interceptor and pumping station was approved for design in 2013. The original concept was to construct an interceptor from the existing Forest Oaks development (drains to KCMO treatment plant) to capture that flow and end payments to KCMO. That interceptor would then run to a new pumping station at the end of 144th Street (that could eventually be removed with another interceptor running north through the Wilkerson Creek drainage area. It was also determined that some of the existing pump stations would be able to be eliminated to further improve efficiency.

This new pump station was intended to install a new force main that would connect to the south line at 144th Street. Thereafter, with development stalled throughout the city, the project was put on hold. However, in 2017 the project was revived with some additional detailed analysis of the existing force main capacity. That analysis revealed that the existing force main had a constricted area near the Pizza Hut station that would not allow the full flow of the 144th street station and all the connections between the plant and the new pump. In 2018, the first interceptor project was approved and constructed that included a new Main Lift Station (located at the plant) and a gravity interceptor line that now runs to the former Pizza Hut station's location that eliminated the constriction.

Between 2019 when that project was completed and now, that station was again green lighted for construction. A new analysis of the force main with the new interceptor installed revealed that some, but not all of the businesses and stations between Hills of Shannon would not be able to get flow into the line when the 144th Street station was pumping. This required adding the West Bypass force main to continue to allow existing stations on the south force main without the added 144th Street Station's flow. With the completion of this new pump and bypass line, the south sewer capacity will be resolved for many years. Eventually, the interceptor from Forest Oaks to the new pumping station will also open more development land along 169.

North Capacity

The capacity of the north development area was significantly detailed in the 2024 retreat as that area has the most acute capacity issues. A brief overview of the north area is that an 8" sewer force main was constructed from the Harborview area, west across what is now Greyhawke to Owen's Branch. From there, the line follows Owen's Branch southerly to the treatment plant. After that line was constructed, an additional line was connected (the Oak Point Force Main) to it with an 8" line to pick up the flow from Wildflower, Rock Creek, Lake Meadows, Diamond Crest, Harbor Lakes, and now Clay Creek and Clay Creek Meadows. It was identified in 2006 that eventually, the city would need to have installed either another parallel force main up north, or a gravity interceptor to improve capacity.

It was determined early on that an interceptor would be the preferred method as it would eventually be able to eliminate some of the north pump stations and thereby further improve efficiency. The remaining stations would gain additional capacity when the head pressure of all the lines when the Oak Point 8" and Harborview 8" connection was removed with an interceptor. The first Phase of that interceptor is the Owen's Branch interceptor, and the first three segments of Phase I are required to fully open capacity. The entire Phase I work is intended to be completed within 10 years. The first segment (from the plant to just north of KK Hwy) of Phase I is currently under design and is planned for construction in 2026. Prior to this Phase I work's completion, there are very specific capacity limitations.

As discussed in the 2024 Board retreat, the north force main had a current capacity of 265 total houses as stated in the 2021 Wastewater Master Plan. Since that plan was approved, an additional 95 lots have either connected or been approved for connection in Phases 3A, 3B and 4 in Greyhawke. This leaves 170 total units available in the entire area served by the north force main. Further, you were provided information that a pump station upgrade at the Wildflower station would add an additional 320 connections, leaving a new total of 490 dwellings. This capacity issue was identified in 2004 and included within the development agreement of Greyhawke as its' responsibility to pay 100% of that cost.

Later in 2024, two new developments were officially proposed (both discussed in the 2024 retreat as possible) for development, Clay Creek Meadows and Lakeside Farms. Clay Creek Meadows is adjacent to the existing Clay Creek development, and Lakeside Farms is immediately south of Wildflower. With these two developments approved, all 490 units would be utilized. We only remove units from the capacity with Final Plat approval, so the timing of the Wildflower improvements are/were critical. Staff had been working with the Lakeside Farms Developer for well over one year on plans and terms of a development agreement that would remove the Wildflower station completely from the system and convert its' flow into a new Lakeside Farms station further south. This would increase the overall capacity by those 320 dwellings. Their sewer work to replace Wildflower would be required to be completed immediately with its' first phase of development.

While the Lakeside Farms Development negotiations were ongoing, the Clay Creek Meadows project was also moving forward.

It was determined early in the negotiations for both developments that the Clay Creek Meadows project was planned to move rapidly, with all 216 dwellings to be constructed within 4 years. Lakeside was planned to be taken down by about 25-30 dwellings per year. This pace would have full completion in approximately 10 years. With this timing, it was important to place a restriction on the Clay Creek Meadows timeline. Their development agreement limits their initial phases to stop at 159 units (Phases I &

II) until such time as the Wildflower Improvements were completed. This reduces the existing capacity on the North Force Main to 11 units. This would guarantee that the 170-unit capacity was not exceeded until the capacity expanded by the 320 units. Lakeside was then required to construct those improvements to remove Wildflower's station in Phase I, which would then allow the remainder of dwellings in Clay Creek Meadows to be completed.

In the first week of March, staff was notified by the Lakeside developer that they planned to delay construction for at least two years. This effectively would pause the 320-unit addition to capacity for at least three years causing a delay in the Clay Creek Meadows development. However, included in the Lakeside development agreement was its' use of the funds to be provided by Greyhawke to replace the pumps in Wildflower. It was determined that if this developer would eliminate the Wildflower station, it would be a more efficient improvement to the system than just improving Wildflower's station. With this delay, staff plans to ask the Planning Commission to require Lakeside to resubmit its Preliminary Plat and development agreement when it is eventually ready to begin construction. If approved, this will allow staff to then have the Greyhawke developer to complete its development agreement obligation to improve Wildflower and open capacity by the 320 dwellings.

Once the Wildflower improvements are completed, this will then open the remaining capacity to any development on the north force main. All future phased developments on the north force main will include a provision in its' development agreement that restricts its' ability to lock in lot capacity until it files its final plat for any phase. This will keep the limited capacity to be used by those who plan to build the phases that do not exceed our capacity. This limitation will remain in place until such time as the entire Phase I of the Owens Branch interceptor is completed.