



Battlefield
MISSOURI

WASTEWATER DEPARTMENT

Cost of Service Study

and Five-Year Rate Strategy

Fiscal Years 2025-26 through 2030-31



Prepared for:

Honorable Mayor and Board of Aldermen
City of Battlefield, Missouri

August 2026

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Executive Summary

Purpose of This Study

This Cost of Service Study (COSS) examines the financial position of the City of Battlefield Wastewater Department and recommends a coordinated rate integrated with your Capital Improvement Plan covering fiscal years 2026-27 through 2030-31. The study evaluates whether existing sewer rates, combined with the Wastewater Fund's strong starting cash position, anticipated developer contributions toward the Lift Station A Relocation, and a measured annual rate adjustment, can fund projected operating costs and the capital projects identified in the staff's revised Capital Improvement Plan without resorting to debt financing.

The primary finding of this analysis is that an annual rate adjustment of 2.5%, levelized over a five-year period, enables the Fund to fully finance the active Capital Improvement Plan through operating cash flow and developer contributions while maintaining reserve balances comfortably above the minimum required level throughout the planning horizon. The strategy purposefully deploys approximately \$1 million of accumulated cash toward capital construction.

Key Findings

- 1. The Wastewater Fund holds a substantial cash reserve.** As of April 30, 2026, the Wastewater Fund's total cash balance was \$2,509,370, comprised of the operating checking accounts, the Sewer Division checking, the Operating Reserve allocation, and the Sewer Replacement Fund. This balance positions the Fund to absorb the levelized capital program without recourse to debt. The Fund's current cash position was further preserved by the City's receipt of approximately \$1 million in federal American Rescue Plan Act (ARPA) funds. These monies were applied directly to wastewater capital projects that would otherwise have required funding from the Fund's existing cash reserves. By offsetting these expenditures, the ARPA funds allowed the Fund to retain cash that would have been depleted, contributing to the strong balance reflected above.
- 2. Springfield treatment costs remain the largest single operating expense.** Sewer treatment charges paid to the City of Springfield total approximately \$550,000 in the test year, growing to approximately \$619,000 by FY 2030-31 at the 3 percent baseline inflation assumption (held flat through the FY 2026-27 adopted budget). This is the single most important cost driver in the five-year forecast and the primary stress variable in the stress testing analysis.
- 3. The Park Repayment revenue stream ends in FY 2027-28.** The Wastewater Fund currently receives approximately \$182,772 annually as a repayment from the City's Park Fund. This revenue ends after FY 2027-28, removing roughly \$183,000 of recurring annual support beginning in FY 2028-29 and contributing to the gradual reserve drawdown across the forecast.
- 4. The active Capital Improvement Plan totals \$4,313,363 across the six-year window.** Following the staff's revised plan, the active CIP consists of the Lift Station A Relocation (\$3,600,000 over three construction years), Lift Station C Updates (\$165,000 in FY 2030-31), and the recurring Annual CCTV Inspection program (\$548,363 across the period). Five additional projects totaling \$1,539,907 have been reprioritized beyond the planning horizon and will be reconsidered in the next CIP cycle.

5. Developer contributions support the Lift Station A Relocation. Development activity in the Lift Station A service area generates contributions toward the relocation project, anticipated in the early years of the planning cycle. These contributions reduce the net cash burden on the Wastewater Fund across the planning period and provide meaningful early support to the Fund's cash position.

6. Pay-as-you-go capital funding is the recommended approach. Analysis demonstrates that the combination of accumulated reserves, anticipated developer contributions, and a 2.5 percent annual rate adjustment is sufficient to fund the active CIP without debt issuance. Pay-go funding avoids approximately \$2.1 million in long-term interest costs (assuming \$3.1 million financed net of developer contribution at a 5.5 percent nominal rate) that would accrue under a 20-year Certificate of Participation financing alternative, preserves the City's borrowing capacity for future needs, and simplifies the financial structure for the Wastewater Fund.

7. CIP Flexibility. The flexibility in the CIP plan allows staff to reprioritize projects in conjunction with cash reserves. If financial projections are better than anticipated, whether through stronger customer growth, lower operating expense inflation, or Lift Station A schedule delays, staff can move reprioritized projects back into the planning horizon. Conversely, if Springfield treatment fees or other operating expenses outpace baseline assumptions, the reprioritized pool serves as a release valve, allowing staff to maintain or extend reprioritizations to preserve reserves. The reprioritized project list provides flexibility in both directions.

Recommended Strategy

This study recommends a coordinated three-part strategy:

Component 1: Adopt a 2.5 percent levelized annual rate adjustment for five years, FY 2026-27 through FY 2030-31. This produces a cumulative rate increase of approximately 13.1 percent over five years and translates to a monthly bill increase of \$7.75 by FY 2030-31 for a typical residential customer using 5,000 gallons per month. The levelized structure provides predictability for customers and council, simplifies ordinance adoption, and aligns with multi-year rate plans recently adopted by peer cities in Greene and Christian counties.

Component 2: Fund the entire active Capital Improvement Plan from cash and the developer contribution. The \$4,313,363 active CIP is funded by a combination of anticipated developer contributions toward Lift Station A, the projected operating cash flow generated by the rate adjustment, and approximately \$1 million drawn from accumulated reserves as of the April 2026 cash balance over the planning period. No debt issuance is required.

Component 3: Defer five lower-priority projects beyond the planning horizon. Lift Stations H, I/F, G, L, and the Sump Pump Disconnection Program (totaling \$1,539,907) are reprioritized for reconsideration in the next CIP cycle. Their re-timing reflects the staff's judgment that these projects are inspection-based and can be safely reprioritized to better balance annual cash flow.

Financial Outcome Under the Recommended Plan

Under the recommended strategy, the Wastewater Fund's projected ending cash balance through the five-year horizon is:

Fiscal Year	Rate Action	Ending Cash
FY 2025-26	Transition year (no rate change)	\$2,804,740 (estimated year-end)
FY 2026-27	First 2.5% adjustment; developer contribution received	\$2,978,075
FY 2027-28	Second 2.5% adjustment	\$2,680,697
FY 2028-29	Third 2.5% adjustment (Park Repayment ends)	\$2,242,785
FY 2029-30	Fourth 2.5% adjustment	\$1,849,090
FY 2030-31	Fifth 2.5% adjustment (final year of plan)	\$1,490,295

Bill Impact for Residential Customers

Under the recommended five-year 2.5 percent levelized adjustment, a typical residential customer using 5,000 gallons per month would see the following monthly bill progression:

Fiscal Year	Meter Fee	Volumetric (5,000 gal)	Total Monthly Bill	Change vs. FY 25-26
FY 2025-26	\$31.03	\$27.95	\$58.98	—
FY 2026-27	\$31.81	\$28.65	\$60.45	+\$1.47 / +2.5%
FY 2027-28	\$32.60	\$29.36	\$61.97	+\$2.99 / +5.1%
FY 2028-29	\$33.42	\$30.10	\$63.52	+\$4.54 / +7.7%
FY 2029-30	\$34.25	\$30.85	\$65.10	+\$6.12 / +10.4%
FY 2030-31	\$35.11	\$31.62	\$66.73	+\$7.75 / +13.1%

Calculations based on present rates of \$31.03 per meter per month and \$5.59 per 1,000 gallons, both adjusted by the recommended 2.5 percent compounding factor for five consecutive years. The resulting FY 2030-31 monthly bill of \$66.73 represents approximately 0.85 percent of the Battlefield median household income of \$94,542, well within the U.S. Environmental Protection Agency affordability threshold of 2 percent.

Decision Points for Council

The Mayor and Board of Aldermen are asked to consider the following:

Decision: Approve the recommended 2.5 percent levelized annual rate adjustment for five consecutive fiscal years (FY 2026-27 through FY 2030-31), to be implemented through ordinance.

If actual conditions deviate materially from these assumptions, particularly Springfield treatment fee increases above the 5 percent moderate stress level or a major unforeseen capital emergency, this study recommends a follow-up rate review prior to FY 2029-30 to confirm the rate trajectory remains sufficient.

Section A: Introduction and Background

A.1 Purpose and Scope

The City of Battlefield, Missouri operates a municipal wastewater collection system that serves residential and commercial customers within the city limits and several wholesale customer accounts in adjacent service areas. The City's wastewater is conveyed by a network of gravity sewers and lift stations to the City of Springfield for treatment under an interlocal agreement.

This Cost of Service Study (COSS) has been prepared to:

- Establish the revenue requirements necessary to operate and maintain the wastewater system over the five-year planning period.
- Identify the capital improvements to be included to maintain reliable service.
- Recommend a capital funding strategy that balances capital investment against ratepayer affordability.
- Propose a rate adjustment schedule that maintains the Wastewater Fund's financial solvency and adequate cash reserves.
- Allocate costs equitably among the customer classes served by the system.

A.2 Methodology

This study employs the cash basis approach to financial analysis, consistent with utility rate-making best practices for small Missouri municipalities. Under the cash basis approach, the goal is to set rates that generate sufficient cash to meet all operating expenses, debt service, capital outlays, and required reserves in each fiscal year, without the influence of non-cash items such as depreciation.

The study evaluates three principal scenarios across a five-year forecast horizon (FY 2026-27 through FY 2030-31):

- Baseline: 3 percent annual growth in operating expenses applied beginning FY 2027-28 (the first forecast year following the FY 2026-27 adopted budget). This is expected case under stable conditions.
- Moderate Stress: 5 percent annual growth in Springfield treatment fees and 4 percent growth in other operating expenses. This is an adverse scenario consistent with recent inflation pressures.
- Severe Stress: 7 percent Springfield growth, 6 percent other operating expense growth, and a one-time \$550,000 emergency capital expenditure.

The analysis proceeds in three steps. First, a five-year pro forma projects revenue, operating expenses, capital spending, and the resulting cash position year by year. Second, the stress testing analysis re-runs the same five-year projection under moderate and severe adverse conditions (higher Springfield growth, higher operating expense inflation, and an emergency capital draw in the severe case), then compares the resulting cash position to the Reserve Fund Policy minimum to evaluate whether the recommended rate adjustment maintains adequate cushion. Third, the bill impact analysis translates the rate adjustment into specific customer impact figures for typical residential and commercial usage levels.

A.3 Community Profile

Battlefield is a growing residential community located in southwestern Greene County, approximately 8 miles southwest of Springfield. The City is part of the Springfield, Missouri Metropolitan Statistical Area and is served by the Springfield R-XII and Republic R-III school districts.

Demographics

Indicator	Value	Source
Population (2026 est.)	6,342	World Population Review
Population (2020 Census)	6,023	U.S. Census Bureau
Annual growth rate	0.84%	Census estimate
Land area	2.5 square miles	U.S. Census Bureau
Median household income	\$94,542	U.S. Census Bureau (2024 ACS)
Per capita income	\$58,560	U.S. Census Bureau (2024 ACS)
Median property value	\$255,600	U.S. Census Bureau (2024 ACS)
Homeownership rate	85.8%	U.S. Census Bureau (2024 ACS)
Poverty rate	4.35%	American Community Survey
Median age	41.8 years	Census estimate

The Median Household Income value above is from the most current U.S. Census American Community Survey data and represents a substantial increase from the \$62,573 figure used in the 2023 Cochran Engineering Sanitary Sewer Study, showing continued community income growth over the intervening years. For purposes of this study, MHI is significant for two reasons: it is the principal benchmark used by federal and state grant programs to evaluate community ability to pay for utility services, and it sets the affordability framing for rate adjustments. At an MHI of \$94,542, the EPA's affordability threshold of 2 percent of MHI for wastewater services combined translates to approximately \$197 per month, well above Battlefield's current and projected rates.

A.4 Wastewater System Overview

Service Area

The Battlefield wastewater system serves approximately 2,400 active customer accounts across eight rate classes. The system serves residential customers within the city limits as well as commercial businesses and several wholesale customer arrangements with adjacent service entities including City Utilities (CU), Public Water Supply District (PWSD), and other contractual customers. Residential customers represent approximately 98 percent of total accounts, with commercial accounts comprising the remaining 2 percent but a slightly larger share of total flow.

Collection System Infrastructure

The collection system consists of approximately 31.1 miles of gravity sewer main and 5.9 miles of force main, served by 12 lift stations of varying size. Gravity sewer mains are typically 8-inch SDR 35 PVC; force mains are Schedule 40 or Class 200 PVC of varying diameter. Most lift stations were originally wet well-mounted Smith and Loveless dual-pump units with horsepower in the 5 to 15 hp range, while the regional lift station (Lift Station A) uses 150 horsepower Smith and Loveless dry-pit pumps. The regional lift station pumps the city's accumulated wastewater to the City of Springfield's collection system.

Major segments of the collection system were originally constructed more than 35 years ago in the central portion of the City and the Gould's subdivision area, with most of the remainder constructed during the past 30 years during a period of rapid municipal growth. The 2023 Cochran Engineering Sanitary Sewer Study found that most lift stations in the system have exceeded the typical 30-year service-life expectancy and identified several for replacement or substantial renovation in the current Capital Improvement Plan.

Recent flow data establishes the operating envelope of the system. Average daily flow for calendar year 2025 was approximately 267,325 gallons per day, measured after the repair of a significant collection-system leak identified by Wastewater Department staff. The City's wastewater treatment agreement with Springfield establishes a permitted maximum daily average flow of 750,000 gallons per day, so the system is currently operating at approximately 36 percent of its permitted maximum. This provides meaningful capacity for continued growth without renegotiation of the underlying treatment agreement, and the post-repair flow figure provides the appropriate baseline for projecting future treatment costs.

Treatment Arrangement with Springfield

Battlefield does not operate its own wastewater treatment facility. Instead, collected wastewater is conveyed to the City of Springfield's Southwest Treatment Plant for treatment, which operates as a regional wastewater treatment facility serving multiple municipalities. The arrangement is governed by a treatment service contract that was recently renegotiated and adopted by both parties.

Under the renegotiated agreement, the contract has an initial 10-year term (Contract #2021-1155, effective November 1, 2021) with the option for two additional 5-year extensions if both parties remain satisfied. Either party wishing to exit the agreement must provide written notice at least six months prior to the end of an applicable term period. Springfield invoices Battlefield quarterly on the basis of metered flow at four connection points (Township & Marketplace, Morelock-Ross Area, Prairie View Heights, and the Forcemain), plus quarterly billing and meter charge, plus high-strength surcharges for BOD and TSS above defined thresholds when triggered. Springfield's current wholesale rate is \$3.12 per CCF of metered flow plus a \$3,450 quarterly billing and meter charge. A proposed 3.8 percent rate increase to \$3.24 per CCF, effective July 1, 2026, is anticipated to be presented to Springfield City Council in February 2026 and is reflected in the FY 2026-27 forecast Actual Springfield treatment charges paid by Battlefield over the most recent six fiscal years reveal a meaningful pattern:

Fiscal Year	Springfield Charges Paid	Year-over-Year Change
FY 2019-20	\$652,018	—
FY 2020-21	\$523,146	(\$128,872) / -19.8%
FY 2021-22	\$552,352	+\$29,206 / +5.6%
FY 2022-23	\$315,735	(\$236,617) / -42.8%
FY 2023-24	\$420,413	+\$104,678 / +33.2%
FY 2024-25	\$477,706	+\$57,293 / +13.6%

Two patterns appear in this history. First, the one-year decline from FY 2019-20 to FY 2020-21 (down \$128,872, or approximately 20 percent) reflects the cost reduction achieved through the contract renegotiation, which became fully effective in FY 2020-21. Second, the year-to-year fluctuations are driven largely by rainfall, which affects the metered flow on Battlefield's wholesale invoice. From FY 2023 through FY 2025, charges trended upward primarily due to increases in Springfield's wholesale rates.

For purposes of this five-year forecast, the analysis uses \$550,000 as the FY 2025-26 Springfield treatment baseline rather than the more recent \$477,706 actual. The City elected this conservative baseline for three reasons: (1) recent year-over-year increases (+33 percent in 2024, +14 percent in 2025) suggest charges will continue climbing as flow normalizes after the leak repair; (2) Springfield treatment rates are scheduled to escalate over the remaining contract term; and (3) using a baseline modestly above the most recent actual provides cushion against unforeseen flow increases or contract changes during the five-year planning horizon. This \$550,000 baseline is then escalated at 3 percent annually beginning FY 2027-28 under the baseline forecast, with the moderate and severe stress scenarios applying higher escalation rates.

Operations and Staffing

The Wastewater Department is staffed by personnel within the Public Works structure, with the Public Works Superintendent overseeing day-to-day operations. Staff allocations to the Sewer Fund include portions of the City Administrator, City Clerk, Public Works Superintendent, Public Works Staff, Maintenance, City Collector, and Office Specialist roles, in addition to a Parks Maintenance allocation that supports interrelated work. Specialized engineering, lift station maintenance, and other technical services are obtained from contracted providers as needed.

A.5 Governance

The City of Battlefield is a fourth-class city under Missouri statutes, governed by a Mayor and a Board of Aldermen. The City Administrator serves as the chief administrative officer and oversees daily operations of all City departments including the Wastewater Department. Day-to-day administration of utility billing, customer service, and account management is performed by City Hall staff.

All rate adjustments must be adopted by ordinance of the Board of Aldermen. Capital expenditures above adopted budget thresholds, contracts for professional services, and any debt issuance require formal Board approval.

A.6 Planning Period and Test Year

This study uses the following analytical framework:

- Test Year: Fiscal Year 2024-25 (July 1, 2024 through June 30, 2025), with adjustments made to normalize operating expenses and reflect known changes.
- Adjusted Test Year: Fiscal Year 2025-26 (the current year), used as the bridge between the test year and the rate adjustment period.
- Planning Period: Five forecast fiscal years from FY 2026-27 through FY 2030-31.
- Rate Implementation Year: The first proposed rate adjustment would take effect in FY 2026-27

Customer growth is projected at 1.5 percent annually. This rate is the compound annual growth rate observed across five years of Wastewater Fund billing records (2,234 accounts in June 2020 growing to 2,377 accounts in June 2025), rounded slightly upward to recognize the recent trend of stronger growth and to provide a single defensible planning assumption. This growth assumption is applied uniformly across all rate classes.

A.7 Prior Studies and Context for This Update

The City of Battlefield's wastewater planning is informed by two recent prior studies, each addressing different aspects of the system:

2019 Sanitary Sewer Rate Study (Anderson Engineering, Inc.) — A focused rate study covering the planning period FY 2019-20 through FY 2026-27. This study recommended the rate trajectory that produced the current rate schedule of \$31.03 Base Fee and \$5.59 Volumetric Charge.

2023 Sanitary Sewer Study (Cochran Engineering) — A comprehensive 956-page engineering study covering system inventory, hydraulic capacity, capital improvement needs, and financial evaluation. This study identified the lift station rehabilitation, bypass, and relocation projects that form the basis of the City's current Capital Improvement Plan, including the Lift Station A Relocation that drives this study's financing recommendation.

Under the 2019 Anderson Engineering recommendation, the Base Fee was scheduled to increase incrementally from \$26.55 in mid-2020 to \$31.03 by FY 2023-24 and then remain flat through the end of that study's planning period (FY 2026-27). The Volumetric Charge was set at \$5.59 per 1,000 gallons and held constant. Both rate components have followed that schedule, with the Base Fee reaching its plateau at \$31.03 as planned.

The 2023 Cochran study did not develop a specific rate adjustment recommendation but did identify the capital projects requiring funding and evaluate the City's financial position at the time of that study. This Cost of Service Study draws on the 2023 Cochran study's capital project identification as the starting point for the CIP analysis presented in Section D, supplemented by the staff's revised prioritization, project timing, and cost escalation for the current planning cycle.

The Capital Improvement Plan used in this Cost of Service Study is the staff's revised subset of the projects originally identified by Cochran. The principal modifications from the 2023 Cochran study are: (1) the Lift Station A Relocation cost has been escalated from \$3,328,000 to \$3,600,000 to reflect updated construction cost estimates; (2) the construction of Lift Station A has been programmed across three years (FY 2026-27 through FY 2028-29); (3) five lower-

priority projects totaling \$1,539,907 have been reprioritized beyond the five-year planning horizon for reconsideration in the next CIP cycle; and (4) the Lift Station C Updates have been reprioritized from FY 2025-26 to FY 2030-31.

The 2019 study assumed customer growth of 2.0 percent annually, supported by the historical 2010-2018 trajectory. The 2023 Cochran study used a more aggressive growth assumption (5 percent near-term, 2.5 percent long-term) reflecting development activity at the time. The current study uses 1.5 percent as a single defensible planning assumption that fits the recent trajectory without overstating future revenue.

Section B: Existing Rate Structure

B.1 Current Rate Schedule

The City of Battlefield's current wastewater rates consist of two components applied uniformly to all customer classes:

Component	Rate	Unit Basis
Meter Fee	\$31.03	Per meter per month
Volumetric Charge	\$5.59	Per 1,000 gallons

The rates above were established through the rate schedule recommended in the City's September 2019 Sanitary Sewer Rate Study (Anderson Engineering, Inc.). Under that schedule, the Base Fee increased incrementally from \$26.55 in 2020 to its current level of \$31.03 effective FY 2023-24, while the Volumetric Charge of \$5.59 per 1,000 gallons has remained constant since 2020. The two-component structure (a fixed meter fee plus a usage-based volumetric charge) is the most common rate design in Missouri wastewater systems and serves two purposes: the fixed meter fee recovers a portion of the system's fixed costs (such as billing, customer service, and capacity-related infrastructure) regardless of consumption, while the volumetric charge recovers variable costs that scale with the volume of wastewater treated.

B.2 Rate Classes

Battlefield maintains eight customer rate classes that reflect different service areas and customer types. As of January 2023 (per the Cochran Engineering Sanitary Sewer Study), the system served 2,323 total accounts: 2,285 residential connections and 38 non-residential commercial connections. As of mid-2025, the active account base has grown modestly to approximately 2,377 connections, consistent with the 1.5 percent annual growth assumption used in this study.

Rate Class	Description
Residential RES	City residential customers (primary class)
Commercial COM	Commercial customers (Non Com)
Residential SAP	Strafford Area Project residential
Residential REN	Residential outside city (REN service area)

Rate Class	Description
Commercial SCP	Springfield Cooperative Project commercial
Residential SCP	Springfield Cooperative Project residential
Residential COM	Commercial-area residential customers
Commercial RES	Residential-area commercial customers

Although the eight rate classes are tracked individually for cost-of-service analysis purposes, all classes currently pay the same Meter Fee and Volumetric Charge. The class structure exists primarily to enable future differentiated pricing should the City elect to recover differential service costs (for example, differential rates for outside-city or wholesale customers based on demonstrated differences in cost-of-service).

B.3 Peer Rate Comparison

To provide context for Battlefield's existing rates, this study compares the monthly sewer bill for a residential customer using 5,000 gallons per month across nine communities in the Springfield metropolitan area and surrounding region. Rate data was collected from each city's published rate ordinances and verified against current utility billing schedules:

Municipality	5,000 Gallon Monthly Bill	Effective Date / Source
Republic	\$113.09	Jan 1, 2026 (Bill & Ord. 24-73)
Willard	\$91.20	Effective with approved 2026 increase (Bill 25-80, Ord. 251208C)
Strafford	\$78.00	August 2023 (Bill 23-51 Ord. 1006)
Battlefield (current)	\$58.98	FY 2025-26 schedule
Ozark	\$49.35	Feb 17, 2026 (Bill 3736 Ord. 26-021)
Nixa	\$47.15	Feb 11, 2025 (Bill 2025-04 Ord. 2385)
Springfield	\$45.29	Jan 2023 Ord. 5933
Rogersville	\$35.84	Per City website

This comparison places Battlefield's current rates in the middle of the regional range, well below the upper-tier communities (Republic, Willard, Strafford) and modestly above the lower-tier communities (Ozark, Nixa, Springfield, Rogersville). The pattern shows a meaningful regional divergence between communities that have actively raised rates to fund capital reinvestment and those that have not yet done so. Three regional developments are worth noting:

- Republic's sewer rates increased dramatically beginning in 2025 to support the \$150 million wastewater treatment plant project. The 2026 rate of \$113.09 for 5,000 gallons is approximately 31 percent higher than from 2023 levels. Republic's rates are scheduled to increase further to approximately \$130 per 5,000 gallons in 2027 under the current ordinance.
- Willard adopted a new unified rate schedule effective January 19, 2025 (Bill 25-80, Ordinance 251208C), eliminating prior in-city and out-of-city differentials and

consolidating to a single rate structure. The Willard Board subsequently approved an additional 15 percent increase for 2026; the \$91.20 figure above includes this approved increase.

- Ozark adopted a rate increase in February 2026 (Bill 3736, Ordinance 26-021), with additional projected increases of 8.5 percent in 2027 and 5 percent annually from 2028 through 2030 under the City's 10-year rate plan.

Under the recommended 2.5 percent annual adjustment proposed in this study, Battlefield's monthly residential bill for a 5,000-gallon customer would rise from \$58.98 today to approximately \$66.73 by FY 2030-31. The City's rates would remain below the current Strafford, Willard, and Republic, while staying close to the lower-rate communities.

B.4 Connection Fees and Other Charges

In addition to monthly user charges, the City collects connection fees from new customers connecting to the system. The Board recently doubled the connection fee to \$2,000 per new connection. Applied to projected new customer growth of approximately 37 to 39 new connections per year (consistent with the 1.5 percent customer growth assumption), this produces forecasted annual connection fee revenue of approximately \$74,000 to \$80,000 over the five-year planning period, growing slightly each year as the customer base expands.

The FY 2025-26 connection fee forecast of \$65,000 captures a partial-year impact: a portion of the year's new connections paid the prior \$1,000 fee before the doubled fee took effect, while the remainder of the year's connections pay the new \$2,000 fee. Beginning FY 2026-27, the full \$2,000 per-connection fee applies to all new customer activity.

Connection fees are accounted for separately from rate revenue and represent a meaningful source of capital funding for the Wastewater Fund. The forecast assumes connection fee revenue tracks customer growth proportionally. Actual collections could exceed projections during an active development period.

Section C: Financial Analysis

C.1 Test Year Financial Position

The financial analysis begins with a review of the Wastewater Department's revenues and expenses in the adjusted test year (FY 2025-26), supplemented by the actual cash position documented in the April 30, 2026 City of Battlefield Financial Packet. Adjustments to the unaudited test year data include normalization of certain non-recurring items and reclassification of refuse fees (previously included in wastewater operating expenses but properly belonging to a different department).

Revenues

Revenue Source	FY 2025-26 (Adjusted)
Sewer User Charges	\$1,608,332
Park Repayment	\$182,772
Total Revenue	\$1,791,104

Sewer user charges represent the largest source of revenue, generated by application of the current rate schedule (\$31.03 meter fee plus \$5.59 per 1,000 gallons) to the billed customer base. The Park Repayment is a transfer from the Park Fund representing scheduled repayment of historical Wastewater Fund contributions to park infrastructure. This repayment ends after FY 2027-28.

Expenses

Expense Category	FY 2025-26 (Adjusted)
Sewer Treatment Charges (Springfield)	\$550,000
Salaries and Benefits (incl. payroll taxes, retirement)	\$363,148
Repairs and Maintenance	\$201,000
Insurance	\$36,540
Contract Labor	\$40,000
Professional Fees	\$27,220
Office Supplies, Technology, Telephone	\$26,500
Utilities	\$45,000
All Other Operating Expenses	\$33,200
Total Operating Expenses	\$1,322,608

Springfield Treatment Charges Dominate Operating Costs. At \$550,000 annually, the wholesale treatment fee paid to the City of Springfield represents approximately 42 percent of the Wastewater Department's total operating expenses and is the single most important cost driver in the forecast. Under the 3 percent baseline inflation assumption used in this study (applied beginning FY 2027-28 after the FY 2026-27 adopted budget), this expense grows to approximately \$619,030 by FY 2031-32. The stress testing analysis in Section F evaluates the financial impact if Springfield treatment fees grow at 5 percent (moderate stress) or 7 percent (severe stress).

Beginning Cash Position

The April 30, 2026 City Financial Packet shows the Wastewater Fund's total cash position at \$2,509,370, comprised of the following components:

Cash Component	Balance
Cash in Bank Checking Sewer Fund	(\$651)
Cash in Bank Checking Sewer Division	\$1,470,925
Cash in Bank Central Trust Operating Reserve Fund (Sewer portion)	\$463,940
Cash in Bank Sewer Replacement Fund	\$575,157
Total Wastewater Fund Cash	\$2,509,370

This study uses \$2,509,370 as the beginning cash balance for FY 2025-26 in the forecast. The Sewer Replacement Fund balance (\$575,157) is included in the available cash position on the rationale that the upcoming Capital Improvement Plan, which is dominated by lift station replacements, is exactly the use the Replacement Fund was established for.

C.2 Five-Year Forecast at Present Rates

Projecting forward at present rates and assuming a continuation of current operating conditions, Wastewater Fund's five-year operating position is summarized below. The forecast holds operating expenses at the FY 2026-27 adopted budget level and applies 3 percent baseline annual growth, thereafter, reflects 1.5 percent annual customer growth on sewer revenue, and incorporates the active Capital Improvement Plan on a levelized basis with developer contributions toward Lift Station A applied in the early years of the planning period:

Item	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31
Revenue	\$1,791,104	\$1,815,229	\$1,839,715	\$1,681,798	\$1,707,025	\$1,732,630
Expenses	\$1,322,608	\$1,312,871	\$1,352,257	\$1,381,437	\$1,411,492	\$1,453,837
Difference	\$468,495	\$502,358	\$487,459	\$300,361	\$295,532	\$278,793
Interest + Connection Fees	\$90,000	\$99,370	\$100,486	\$101,618	\$102,767	\$103,934
Existing Debt Service	(\$33,400)	(\$33,400)	(\$33,400)	(\$33,400)	(\$33,400)	(\$33,400)
Utility Payment in Lieu	(\$99,725)	(\$99,132)	(\$99,132)	(\$99,132)	(\$99,132)	(\$99,132)
Capital Investment	(\$130,000)	(\$336,673)	(\$836,673)	(\$836,673)	(\$836,673)	(\$836,671)
Change in Cash	\$295,370	\$132,523	(\$381,261)	(\$567,226)	(\$570,906)	(\$586,477)

Three patterns are critical to understanding the financial position of the Wastewater Fund:

First, the Difference declines significantly after FY 2027-28, dropping from \$487,459 in FY 2027-28 to \$300,361 in FY 2028-29 - a one-year decline of approximately 38 percent. This is driven entirely by the end of the Park Repayment revenue stream, which provides \$182,772

annually through FY 2027-28 and then ends. The Difference continues to decline through the remaining years as the 3 percent baseline expense inflation outpaces the 1.5 percent customer growth in sewer revenue.

Second, capital expenditures are presented on a levelized basis at approximately \$836,673 per year beginning FY 2026-27, with FY 2025-26 held at the actual \$130,000. The levelized presentation is appropriate for evaluating rate adequacy across the planning period; the underlying construction schedule for the Lift Station A Relocation is programmed across three years (FY 2026-27 through FY 2028-29) and is detailed in Section D.

Third, the FY 2026-27 column shows lower net capital outflow because developer contributions toward Lift Station A are applied in that year, offsetting a portion of the levelized capital allocation. This early inflow provides important early support to the Fund's cash position and contributes to the positive change in cash position during FY 2026-27 even at present rates.

C.3 Cumulative Cash Position at Present Rates

The Fund balance evolves through the planning period under the present-rates scenario as follows:

Fiscal Year	Annual Change	Ending Cash
Ending balance FY 2024-25	—	\$2,509,370
FY 2025-26	\$295,370	\$2,804,740
FY 2026-27	\$132,523	\$2,937,263
FY 2027-28	(\$381,261)	\$2,556,003
FY 2028-29	(\$567,226)	\$1,988,776
FY 2029-30	(\$570,906)	\$1,417,870
FY 2030-31	(\$586,477)	\$831,394

The Wastewater Fund ending cash balance for FY 2024-25 is \$2,509,370 and is projected to end FY 2025-26 at approximately \$2,804,740. Under the present-rates scenario, the Wastewater Fund's cash balance declines from \$2,509,370 to \$831,394 over the five-year planning period, a cumulative decline of approximately \$1,678,000. While the Fund maintains a positive cash balance throughout, the FY 2030-31 ending balance of \$831,394 sits \$467,934 above the calculated minimum reserve of \$363,459 for that year. This trajectory provides modest cushion at the end of the planning period but offers limited buffer against operating cost stress, capital cost escalation, or unforeseen events. Combined with the stress test results discussed below, this trajectory supports a measured rate adjustment.

C.4 Reserve Policy and Stress Test Framework

The Wastewater Fund's reserve policy is established by the 2012 Reserve Fund Policy adopted by the Board of Aldermen. The policy provides that all City funds should maintain a minimum balance equivalent to three months of operating expenses, with a maximum ceiling at twelve months of operating expenses above which excess reserves should be applied to capital

investment. This study evaluates reserve sufficiency strictly against this policy framework, with both the minimum and maximum thresholds calculated as months of operating expenses without additional adders.

Fiscal Year	Operating Expenses (full year)	Minimum Reserve (3 months)	Maximum Reserve (12 months)
FY 2025-26	\$1,322,608	\$330,652	\$1,322,608
FY 2026-27	\$1,312,871	\$328,218	\$1,312,871
FY 2027-28	\$1,352,257	\$338,064	\$1,352,257
FY 2028-29	\$1,381,437	\$345,359	\$1,381,437
FY 2029-30	\$1,411,492	\$352,873	\$1,411,492
FY 2030-31	\$1,453,837	\$363,459	\$1,453,837

The policy framework recalculates each year and grows with operating expense inflation. The cushion above the minimum is the primary metric used in this study to evaluate rate sufficiency. Position relative to the maximum is the secondary metric used to evaluate when excess reserves should be deployed toward capital investment.

The Wastewater Fund is projected to end FY 2025-26 with a cash balance of \$2,804,740, which is approximately 212 percent of the 12-month maximum. Per the policy framework, the appropriate response is to deploy excess reserves toward capital investment rather than continue to accumulate them. The recommended five-year strategy accomplishes this by drawing down accumulated reserves through pay-as-you-go capital funding, returning the Fund to approximately the 12-month maximum (99 percent) by FY 2030-31.

C.5 The Case for Rate Action

The financial analysis demonstrates that, at present rates, the Wastewater Fund's cash position declines steadily across the planning period as accumulated reserves fund the Capital Improvement Plan. The FY 2030-31 ending balance of \$831,394 sits \$467,934 above the calculated minimum reserve of \$363,459. While this remains above the policy minimum, the trajectory provides less buffer against stress conditions.

Under reasonable stress scenarios at present rates, the picture deteriorates:

- Under the moderate stress scenario, the Fund's cushion above the minimum reserve narrows to approximately \$182,000 at present rates by FY 2030-31, compared with \$840,894 under the recommended rate adjustment. The cushion remains positive but provides little margin against further adverse events.
Under the severe stress scenario (7 percent Springfield growth, 6 percent other operating expense growth, plus a \$550,000 emergency capital expenditure), the cushion falls below zero at present rates and the Fund would require either rate action, capital project reprioritization, or both to restore solvency.

The 2.5 percent levelized rate adjustment recommended in Section F is sized to maintain comfortable cushion above the minimum reserve under both baseline and moderate stress conditions while keeping cumulative customer impact under 15 percent across the five-year planning period. The cumulative drawdown of approximately \$1 million from accumulated reserves toward the capital program is consistent with the policy framework that the Wastewater Fund should deploy excess reserves toward capital investment rather than accumulate them indefinitely. Notably, these reserves were preserved in part by approximately \$1 million in ARPA funds that the City applied to wastewater capital projects.

Section D: Capital Improvement Plan

D.1 Capital Improvement Plan Overview

The City of Battlefield's Capital Improvement Plan for the wastewater system is derived from the 2023 Cochran Engineering Sanitary Sewer Study, with revisions developed by City staff for the current planning cycle. The revisions reflect updated construction cost estimates, the prioritization of lift station projects most affected by collection-system condition, and the reprioritization of lower-priority projects beyond the planning horizon. Total active CIP cost across the five-year window is \$4,313,363, with an additional \$1,539,907 of reprioritized projects identified for reconsideration in the next planning cycle.

Active Capital Projects in the Five-Year Plan

The active CIP consists of three project groups, with project-by-project cost and timing as follows:

Project	Construction Period	Total Cost
Lift Station A Relocation	FY 2026-27 through FY 2028-29	\$3,600,000
Lift Station C Updates	FY 2030-31	\$165,000
Annual CCTV Inspections (recurring)	FY 2025-26 through FY 2029-30	\$548,363
Total Active CIP	Five-year window	\$4,313,363

Reprioritized Projects

Five projects have been reprioritized beyond the five-year planning horizon. These reprioritizations reflect the staff's judgment that the projects are inspection-based and can be safely reprioritized to better balance annual cash flow and avoid over-concentration of capital spending in the planning period:

Reprioritized Project	Cost
Lift Station L Relocation	\$926,032
Lift Station I Bypass / F Upgrades	\$229,255
Lift Station G Bypass	\$203,970
Lift Station H Updates	\$130,650
Sump Pump Disconnection Program	\$50,000
Total Reprioritized	\$1,539,907

The reprioritized projects will be reconsidered in the next CIP planning cycle with re-prioritization based on the condition of system components observed through ongoing inspection and maintenance activity.

CIP Flexibility

While the Lift Station A Relocation is the priority project that anchors the capital plan and cannot be reasonably deferred, the remainder of the Capital Improvement Plan retains meaningful flexibility. The reprioritized projects identified above are not eliminated; they are held in reserve and available to advance back into the active plan if conditions warrant. Two scenarios in particular would support advancing one or more reprioritized projects:

Stronger-than-projected cash reserves. If actual revenue, customer growth, or operating expenses outperform the planning assumptions and the Wastewater Fund's cash position remains comfortably above the minimum reserve through the planning period, the City may advance one or more reprioritized projects (Lift Station H Updates and the Sump Pump Disconnection Program are the smaller, most readily-advanced candidates) without modifying the rate trajectory.

Delays in the Lift Station A Relocation. If the Lift Station A Relocation experiences schedule delays related to design, permitting, easement acquisition, or contractor availability, the capital cash flow timing changes accordingly. Delays would create capacity in the planning period to advance one or more reprioritized projects without disrupting overall cash flow. This is a meaningful flexibility because the reprioritized projects can be selected based on the prevailing inspection findings at the time.

Conversely, if the Lift Station A Relocation cost exceeds current estimates, or if Springfield treatment fees or other operating expenses grow faster than the baseline forecast, the City has the option to maintain or extend the current reprioritizations to preserve adequate reserve cushion. The reprioritized project pool provides bidirectional flexibility — projects can move into or out of the active plan as conditions develop.

D.2 Lift Station A Relocation — The Defining Project

The Lift Station A Relocation, with construction programmed across FY 2026-27 through FY 2028-29 at a total cost of \$3,600,000, is the single largest capital project in the plan and represents approximately 83 percent of active CIP spending. The project cost was escalated from the 2023 Cochran estimate of \$3,328,000 to reflect inflation in costs.

Lift Station A is the regional lift station that conveys all of Battlefield's collected wastewater to Springfield's collection system, and the relocation is driven by physical site constraints at the current location and the need to provide reliable service to a growing service area. Lift Station A is also the only lift station in the system using dry-pit pumps (150 horsepower Smith and Loveless units) and is critical to maintaining the City's contractual flow capacity with Springfield.

Developer Contributions

Development activity in the service area benefiting from the Lift Station A Relocation generates developer contributions toward the project. These contributions are anticipated to be recognized in the early years of the planning cycle, reducing the Wastewater Fund's net cash burden for the project and providing meaningful support to the Fund's cash position. The financial model incorporates the contribution amount currently anticipated; final amounts and timing are subject to development activity and contractual arrangements.

D.3 Levelized Capital Allocation

The capital plan is presented on a levelized basis to support the financial planning analysis and reserve sufficiency evaluation. Capital spending is allocated at \$836,673 per year from FY 2026-27 through FY 2030-31, with FY 2025-26 held at the actual \$130,000 (the current fiscal year is nearly complete and the year's capital activity is known). Total capital allocation across the planning period sums to the active CIP total of \$4,313,363.

The levelized presentation answers an important planning question: what average annual capital cost must the Wastewater Fund sustain throughout the planning period? The \$836,673 average annual capital spending, viewed alongside the projected operating cash flow generated by the recommended rate adjustment, demonstrates that the Wastewater Fund can sustain the active CIP from cash without debt issuance.

Fiscal Year	Levelized Capital Allocation	Notes
FY 2025-26	\$130,000	Held at actual amount (transition year)
FY 2026-27	\$836,673	First levelized year
FY 2027-28	\$836,673	Levelized
FY 2028-29	\$836,673	Levelized
FY 2029-30	\$836,673	Levelized
FY 2030-31	\$836,671	Levelized (rounding)
Total	\$4,313,363	Matches active CIP total

Actual capital spending in any given year will not exactly match the levelized allocation. Lift Station A Relocation construction is programmed across three years (FY 2026-27 through FY 2028-29), and the Lift Station C Updates fall in FY 2030-31. The levelized allocation represents the average sustained capital burden across the planning period and is the figure used for rate adequacy analysis. The Wastewater Fund's strong starting cash position provides flexibility to accommodate variations in actual annual capital draws against this levelized average.

D.4 Pay-as-You-Go Capital Funding

The entire active Capital Improvement Plan is recommended for pay-as-you-go funding from a combination of operating cash flow, developer contributions, and accumulated reserves. No debt financing is required or recommended. The pay-go approach is supported by four considerations:

Cost avoidance. A 20-year Certificate of Participation for the Lift Station A Relocation at a 5.5 percent nominal rate (\$3.1 million financed) would result in approximately \$2.1 million of interest costs over the life of the obligation plus approximately \$100,000 of issuance costs. Pay-go funding eliminates both of these costs entirely.

Balance sheet preservation. The Wastewater Fund's strong starting cash position of \$2,509,370 is sized to absorb the active CIP without debt issuance. Pay-go funding preserves the Fund's borrowing capacity for genuinely unforeseen needs that may arise during or beyond the planning period. By avoiding debt for the Sewer Fund, the City retains full access to loan financing and bonding capacity that can be applied to future projects.

Operational simplicity. Pay-go funding avoids the contractual complexity, ongoing reporting obligations, and trustee relationships associated with a Certificate of Participation. For a fund of Battlefield's scale, this operational simplicity has real value.

Consistency with financial policy. The financial policy guidance that the Wastewater Fund should deploy excess reserves toward capital investment rather than accumulate them indefinitely is directly served by the pay-go funding strategy. The planned \$1 million drawdown from reserves toward the active CIP brings the Fund's cash position from above the policy ceiling at the start of the plan to the middle of the policy band by FY 2030-31.

Section E: Cost of Service Allocation

E.1 Allocation Methodology

Cost-of-service analysis examines whether each rate class contributes its proportionate share of the total revenue requirement. The analysis allocates the system's costs across three primary functional categories:

- **Commodity costs:** variable costs that scale with the volume of wastewater treated, including the largest item, the per-gallon treatment fee paid to Springfield.
- **Demand costs:** fixed costs associated with system capacity and peak load capability, including lift stations and trunk sewer mains.
- **Customer costs:** costs of providing service to each account regardless of usage, including billing, customer service, meter reading, and account-related infrastructure.

Each cost category is then allocated across the eight rate classes based on the relevant cost driver: billed volume for commodity costs, peak demand for demand costs, and meter count for customer costs.

E.2 Customer Class Cost Responsibility

Battlefield's eight customer classes contribute to the system's revenue requirement in proportion to their meter counts (for fixed cost recovery via the meter fee) and their billed volume (for

variable cost recovery via the volumetric charge). Because the current rate schedule applies identical rates to all classes, each class's revenue contribution is directly proportional to its meter count and consumption.

The Residential RES class, representing the city's primary residential customer base, accounts for approximately 93 percent of total system revenue. The remaining seven classes contribute approximately 7 percent of revenue.

E.3 Findings

The cost-of-service analysis indicates that the current rate structure produces equitable revenue contributions across customer classes given the present uniform rate. Because all classes pay identical rates and the underlying cost drivers (meter count and volume) match the rate structure components (meter fee and volumetric charge), no class is significantly over- or under-paying relative to its cost responsibility.

This study does not recommend any changes to the inter-class rate relationship at this time. Future cost-of-service studies should monitor whether differential service costs (particularly for outside-city or wholesale customers) emerge to justify differentiated pricing in the future. For now, the rate structure remains equitable and the recommended rate adjustment is applied uniformly across all classes.

E.4 Affordability Analysis

Median household income for the City of Battlefield is \$94,542 (2024 American Community Survey). Federal and state utility affordability benchmarks use MHI to evaluate whether utility rates impose excessive burden on the median ratepayer.

Under the recommended rate trajectory, a typical residential customer using 5,000 gallons per month would see annual sewer bills rise from approximately \$708 in FY 2025-26 to \$801 in FY 2030-31. This is an annual cost equivalent to approximately 0.75 percent to 0.85 percent of Battlefield's median household income.

Fiscal Year	Annual Sewer Bill	% of MHI (\$94,542)
FY 2025-26	\$707.76	0.75%
FY 2026-27	\$725.45	0.77%
FY 2027-28	\$743.59	0.79%
FY 2028-29	\$762.18	0.81%
FY 2029-30	\$781.23	0.83%
FY 2030-31	\$800.77	0.85%

The EPA's high-burden affordability threshold for wastewater services is 2 percent of MHI. Battlefield's sewer rates alone remain at 0.85 percent of MHI by FY 2030-31 and beyond, well below the 2 percent EPA threshold. The recommended rate trajectory provides solid affordability headroom while still meeting the financial requirements of the Wastewater Fund.

Section F: Proposed Rate Adjustment

F.1 Recommended Rate Adjustment

This study recommends a uniform 2.5 percent annual increase in the Meter Fee and Volumetric Charge, effective at the beginning of each fiscal year starting July 1, 2026, and continuing through July 1, 2030. This produces five compounding 2.5 percent adjustments across the planning period, resulting in a cumulative rate increase of approximately 13.14 percent by FY 2030-31.

The levelized 2.5 percent annual structure was selected for three reasons. First, levelization provides predictability for customers and council; the rate path is straightforward to communicate, plan around, and adopt through a single ordinance. Second, the 2.5 percent rate clears the moderate stress scenario in the stress testing analysis while keeping cumulative customer impact under 15 percent across the planning period. Third, the trajectory aligns with multi-year rate plans recently adopted by peer cities in Greene and Christian counties. Fourth, the proposed annual percentage is not set higher because doing so would build reserves beyond the policy's targeted maximum.

F.2 Rate Adjustment Trajectory

Fiscal Year	Meter Fee	Volumetric (per 1,000 gal)	Cumulative Increase
FY 2025-26 (Current)	\$31.03	\$5.590	—
FY 2026-27	\$31.81	\$5.730	+2.50%
FY 2027-28	\$32.60	\$5.873	+5.06%
FY 2028-29	\$33.42	\$6.020	+7.69%
FY 2029-30	\$34.25	\$6.170	+10.38%
FY 2030-31	\$35.11	\$6.325	+13.14%

Incremental Revenue Generated by the Rate Adjustment

The recommended rate adjustment generates the following incremental annual revenue for the Wastewater Fund, calculated as the difference between rate-adjusted revenue and what the same year's revenue would be at present rates (with customer growth applied to both scenarios):

Fiscal Year	Revenue at Present Rates	Revenue with Adjustment	Incremental Revenue
FY 2026-27	\$1,632,457	\$1,673,268	\$40,811
FY 2027-28	\$1,656,943	\$1,740,826	\$83,883
FY 2028-29	\$1,681,798	\$1,811,112	\$129,314
FY 2029-30	\$1,707,025	\$1,884,236	\$177,211
FY 2030-31	\$1,732,630	\$1,960,312	\$227,682
Five-Year Cumulative Incremental Revenue			\$658,902

Both columns reflect annual customer growth of 1.5 percent. The Incremental Revenue column isolates the effect of the rate adjustment alone, meaning the additional revenue council's rate action generates compared to taking no action. The cumulative \$658,902 over five years is the financial contribution of the recommended rate trajectory to the Wastewater Fund.

F.3 Stress Test Results

The recommended 2.5 percent rate adjustment was tested against the standard stress scenarios. The results in the table below, reflect the cash above minimum cash reserve policy at the end of the forecast period:

Scenario	Ending Cash Balance	Minimum Cash Reserve	Cushion at 2.5%	Result
Baseline (3% Springfield / 3% Other)	\$1,490,295	\$363,459	\$1,126,836	PASS
Moderate Stress (5% Springfield / 4% Other)	\$1,231,139	\$390,245	\$840,894	PASS
Severe Stress (7% / 6% / +\$550K)	\$388,911	\$421,011	(\$32,101)	FAIL

Under the baseline scenario, the cushion above the policy minimum across the planning period is \$1,126,836, comfortably positive. Under moderate stress, the cushion is \$840,894, still positive with meaningful margin. Both pass the stress testing threshold.

Important assumption disclosure: The 2.5 percent recommendation does not clear the severe stress which shows a deficit of (\$32,101). The severe scenario assumes Springfield treatment fees grow at 7 percent annually, other operating expenses grow at 6 percent annually, and a \$550,000 emergency capital expenditure occurs during the planning period - these are intentionally extreme assumptions and not the expected case. If actual conditions begin to track toward the severe scenario, a mid-cycle rate review would be advisable to confirm the rate trajectory remains sufficient.

F.4 Bill Impact

Typical Residential Customer (5,000 gallons per month)

Fiscal Year	Monthly Bill	Monthly Change	Annual Bill	Annual Change
FY 2025-26	\$58.98	—	\$707.76	—
FY 2026-27	\$60.45	+\$1.47	\$725.40	+\$17.64
FY 2027-28	\$61.97	+\$1.52	\$743.64	+\$18.24
FY 2028-29	\$63.52	+\$1.55	\$762.24	+\$18.60
FY 2029-30	\$65.10	+\$1.58	\$781.20	+\$18.96
FY 2030-31	\$66.73	+\$1.63	\$800.76	+\$19.56

Calculation: Meter Fee + (Volumetric Rate × 5,000 gallons / 1,000).

Cumulative monthly increase over five years: \$7.75. Cumulative annual increase: \$93.

Typical Commercial Customer (50,000 gallons per month)

Fiscal Year	Monthly Bill	Monthly Change	Annual Bill	Annual Change
FY 2025-26	\$310.53	—	\$3,726.36	—
FY 2026-27	\$318.29	+\$7.76	\$3,819.48	+\$93.12
FY 2027-28	\$326.25	+\$7.96	\$3,915.00	+\$95.52
FY 2028-29	\$334.41	+\$8.16	\$4,012.92	+\$97.92
FY 2029-30	\$342.77	+\$8.36	\$4,113.24	+\$100.32
FY 2030-31	\$351.34	+\$8.57	\$4,216.08	+\$102.84

Calculation: Meter Fee + (Volumetric Rate × 50,000 gallons / 1,000).

Cumulative monthly increase over five years: \$40.81. Cumulative annual increase: \$489.72.

F.5 Comparative Affordability

Even after the cumulative 13.14 percent rate increase over five years, Battlefield's wastewater rates remain regionally competitive. The projected FY 2030-31 monthly residential bill of \$66.73 falls well below current rates in Strafford (\$78.00), Willard (\$91.20), and Republic (\$113.09). Actual rates in those communities are likely to increase over the next five years, meaning Battlefield's relative position is expected to remain competitive or improve further.

At \$800.76 annually for a typical residential customer in FY 2030-31, the wastewater bill represents approximately 0.85 percent of Battlefield's \$94,542 median household income, well below the EPA's 2 percent residential affordability threshold for wastewater services.

Section G: Recommendations and Implementation

G.1 Summary of Recommendations

Based on the analysis presented in this study, the following recommendation is made:

Recommendation: Adopt a levelized 2.5 percent annual adjustment to both the Meter Fee and Volumetric Charge, effective at the beginning of FY 2026-27 and continuing for five consecutive fiscal years through FY 2030-31. This produces a cumulative rate increase of 13.14 percent over the planning period, passes baseline and moderate stress testing, and funds the active Capital Improvement Plan from cash without debt issuance.

G.2 Action Items for Board of Aldermen

To implement the recommendations in this study, the following formal actions by the Board of Aldermen are required:

- Adopt an ordinance amending the City's rate schedule to implement the recommended 2.5 percent levelized annual adjustment, structured as automatic adjustments for fiscal years 2026-27 through 2030-31.

G.3 Risk Factors and Sensitivity

The recommendations in this study are based on financial projections that, while developed with reasonable diligence, are subject to uncertainty. The most significant risk factors include:

Springfield Treatment Fee Risk

Springfield's wholesale treatment fee charged to Battlefield is the largest single operating expense and is largely outside the City's control. The baseline forecast assumes treatment fees grow at 3 percent annually. The moderate stress scenario tests 5 percent annual growth, which the recommended 2.5 percent rate adjustment is sized to weather. If Springfield negotiates higher rates or imposes capacity-related surcharges that produce growth above 5 percent annually, the recommended rate adjustment may prove insufficient and interim rate action may be required.

Capital Expenditure Risk

The Capital Improvement Plan is the City's best current estimate of needed investments. Actual project costs typically vary from initial estimates due to contractor pricing, regulatory requirements that emerge during design, and unforeseen site conditions. A cost overrun of 15-20 percent on Lift Station A alone could meaningfully affect the cash flow analysis and may require the City to defer one of the active projects or modify the rate trajectory.

Lift Station L Reprioritization Risk

The decision to defer the Lift Station L Relocation beyond the planning horizon is based on the staff's judgment that the existing equipment can reasonably operate for additional years with enhanced inspection and minor repair. If the equipment deteriorates faster than expected and requires emergency replacement during the planning period, the project would need to be advanced and either rate or capital reprioritization action accelerated.

Severe Stress Conditions

The recommended 2.5 percent rate adjustment is explicitly NOT sized to weather the severe stress scenario (7 percent Springfield growth, 6 percent other operating expense growth, plus a \$550,000 emergency capital expenditure). If severe stress conditions develop — most likely if Springfield treatment fee growth exceeds 5 percent for multiple consecutive years — the rate adjustment recommended here will be insufficient and interim rate action will be required.

Customer Growth Risk

The forecast assumes continued customer growth at 1.5 percent annually. Battlefield's demographic trajectory supports this assumption, but a recession or other event affecting residential construction could slow growth and reduce projected rate revenue.

Developer Contribution Timing

The financial plan anticipates developer contributions toward Lift Station A in the early years of the planning cycle. Delays in development activity or contribution timing could shift these inflows to later years, modestly affecting the cash trajectory shown in the forecast tables.

G.4 Conclusion

The City of Battlefield Wastewater Fund enters this five-year planning cycle in a strong financial position. The Fund's starting cash balance of \$2,509,370, the operational savings achieved through the renegotiated Springfield treatment agreement, continued customer growth, and anticipated developer contributions toward the Lift Station A Relocation provide room to absorb the operating cost pressures and infrastructure investment needs ahead.

The recommendations in this study align the rate trajectory with the Fund's actual financial position and capital needs. A 2.5 percent levelized annual rate adjustment for five years, combined with pay-as-you-go funding of the active Capital Improvement Plan, keeps the Wastewater Fund's reserves above the minimum reserve under reasonable adverse scenarios, funds the necessary infrastructure investment without debt issuance, and keeps customer bills well within affordability bounds.

With timely adoption of these recommendations, Battlefield's Wastewater Department will enter the 2030s with a sustainable financial structure, modernized lift station infrastructure, and rates that remain competitive within the Springfield metropolitan area.

Appendices

Appendix A: Five-Year Capital Improvement Plan Detail

The complete project-by-project Capital Improvement Plan, including both the active and reprioritized projects, is maintained in the Battlefield Wastewater Department Cost of Service Study workbook, CIP WW tab. Summary information is presented in Section D of this report.

Appendix B: Five-Year Pro Forma Financial Statements

The complete cash-basis five-year pro forma showing revenues, expenses, capital expenditures, and the resulting cash position trajectory is maintained in the workbook 5-Yr Pro Forma tab. The user-adjustable rate adjustment cell (F5) allows real-time exploration of alternative rate trajectories.

Appendix C: Stress Testing Analysis

The complete stress testing analysis, evaluating reserve sufficiency under Baseline, Moderate Stress, and Severe Stress scenarios across multiple rate adjustment levels, is maintained in the workbook Stress Testing tab. The rate sensitivity table within that tab supports interactive exploration of the minimum sufficient rate under each scenario.

Appendix D: Cost of Service Allocation Detail

Detailed cost allocations by customer class are maintained in the workbook Section D Cost of Service and Expense Account Classification tabs.

Appendix E: Glossary of Terms

Term	Definition
Account	An active customer billing relationship; typically one account per service connection.
CCF	Hundred Cubic Feet — unit used by Springfield for wholesale treatment billing (1 CCF = 748 gallons).
CIP	Capital Improvement Plan — the City's five-year planning document identifying capital projects.
COSS	Cost of Service Study — a formal analysis of utility revenue requirements and rate structure.
EPA	U.S. Environmental Protection Agency.
FTE	Full-Time Equivalent (employee).
FY	Fiscal Year (July 1 through June 30).
GPD	Gallons Per Day.
Levelized CapEx	Annual capital expenditure presented at a smoothed average level rather than the actual year-by-year construction schedule. Used as an analytical convention in this study to evaluate sustained capital burden across the planning period.
MHI	Median Household Income — used as the benchmark for utility affordability assessments.
MSA	Metropolitan Statistical Area.
Pay-as-You-Go Funding	The practice of funding capital projects from current operating cash flow and accumulated reserves rather than debt issuance.
POTW	Publicly Owned Treatment Works.
Reserve Policy Framework	Per the 2012 Reserve Fund Policy as applied in this study: minimum reserve of 3 months operating expenses; maximum reserve of 12 months operating expenses. Cash held above the maximum is appropriately deployed toward capital investment.
Prior Engineering Study	Sanitary Sewer Study prepared for the City of Battlefield by Cochran Engineering, dated May 2023 (revised June 2023), Project No. SW22-443.
Prior Rate Study	Sanitary Sewer Rate Study prepared for the City of Battlefield by Anderson Engineering, Inc., dated September 18, 2019.