

SANITARY SEWER RATE STUDY

PREPARED FOR THE:

CITY OF BATTLEFIELD, MISSOURI

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I. INTRODUCTION

A. General:

The City of Battlefield, Missouri (the City) operates and maintains a sanitary sewer collection system serving approximately 5,590 persons. The collection system consists of over 80,000 feet (about 15 miles) of PVC gravity sewer with more than 275 concrete manholes, and over 25,000 feet (about 5 miles) of PVC force main. As part of the collection system, 11 wastewater lift (pump) stations pump flow across and from the City. A majority of flow generated by the City is pumped through a regional lift station at approximately 1,250 gallons per minute (gpm) to the City of Springfield's Southwest Treatment Plant which operates as a regional wastewater treatment facility.

In order to operate and maintain the sanitary sewer system, the City of Battlefield charges users a fee to recoup expenses and allow wastewater to be transferred properly. As part of Battlefield's fees, a cost is included which is payable to the City of Springfield for wastewater treatment expenses. The City of Springfield charges the City of Battlefield and other communities based on the number of users and the volume of wastewater sent to them.

Costs associated with the City's wastewater system are subject to constant change as operation and maintenance costs change over time as the result of the increased size of the City, system aging, material cost increases, general inflation and other factors. Fees charged by the City of Springfield are also subject to fluctuation and it is anticipated that fees will be increased significantly in the coming years. The City of Springfield recently issued notice of a multi-year rate increase schedule that will require additional reimbursement from customers in Battlefield. Therefore, the City would like to reassess the adequacy of rates for the upcoming six years to ensure that sufficient funds are available to properly operate the system.

B. Scope:

The scope of this study is to generally review and consider projected sanitary sewer related revenue and expenses over the next six years. As part of the study, City budget information, projected maintenance per City staff, anticipated upcoming improvements, and charges anticipated by the City of Springfield were reviewed and projected.

The recommendations contained herein are based on reported and anticipated conditions. As additional or alternate information becomes available, the City will need to reassess and revise this report and/or its fees appropriately.

C. Study Period:

For purposes of this engineering report, the planning period was assumed to be a period of time from City of Battlefield fiscal year 2012 through 2017.

II. EXISTING SYSTEM

A. Facilities:

The City of Battlefield has an existing centralized collection system consisting of over 20 miles of gravity sewer mains and over 5 miles of sewer force main per information provided by the City. Gravity sewer mains are typically 8" diameter SDR 35 PVC while force mains are either Schedule 40 or Class 200 PVC of varying diameter. A network of eleven lift stations at various locations transport flow across the City. Most lift stations are wetwell mounted Smith and Loveless systems consisting of two pumps and controls. Pump horsepower is typically in a range from 5 to 15 hp at most stations while the regional lift station has 150 hp dry pit Smith and Loveless pumps. According to average monthly flow data, the existing regional lift station pumps an average of approximately 230,972 gallons per day (gpd) during dry weather and over 2.5 MGD annually. A substantial majority of Battlefield's sanitary sewer is pumped by a regional lift station to the City of Springfield's Collection System and is treated at the City of Springfield's Southwest Treatment Plant.

While a small part of the central portion of the City and the Gould's subdivision area were believed to have been sewered over 20 years ago, a majority of the City of Battlefield's sanitary sewer system was constructed in the last 15 years during a period of rapid growth. Maintenance has been routinely performed to keep the various pump systems functional, but as many approach their mechanical design life, it will be necessary to replace or substantially renovate several facilities. In addition, the collection system is experiencing substantial infiltration and has never been thoroughly cleaned, inspected or repaired as will likely be prudent to do within the next few years.

B. Financing:

The majority of the central portions of the existing gravity and force main system, including the regional lift station, were constructed with a bond issue that was passed by the voters of Battlefield in 1993. The remaining debt on the bond issue is refigured annually and included as part of the City's budget. A second bond issue for system repair and modification was made in 2005 using MDNR State Revolving Funds and is also refigured annually as part of the City's budget. A portion of the available 2005 bond issue was not utilized, approximately \$249,388, and its use in future improvements will result in an increase in the annual payment amount due by the City and should be incorporated into future user rates. Most of the local lift stations and much of the current system was constructed in the past 15 years by developers at their expense. Some portions of the system predate the central system and were subdivision based systems that discharged to developer provided small package treatment systems which were replaced with local lift stations upon inclusion into the City of Battlefield.

C. Revenues And Expenditures:

The City of Battlefield regularly reviews, assesses, and modifies its budget related to the wastewater system. A copy of the current budget is attached in Appendix A of this report.

III. EXISTING USAGE DATA

Flow data for the year 2010 showed that the City billed a total of 102.73 MGD (102,733,000 gallons) with 92.1 MGD pumped through the regional lift station (per pump logs). Evenly distributed, this would result in an average sewer flow of 281,460 gallons per day (gpd). Information provided by the City of Battlefield indicated typical commercial flows of approximately 295,000 gallons per month or about 9,700 gpd. Commercial usage is therefore believed to be about 3.3% of the total sewer volume. Overall flow varied from a dry daily volume of approximately 230,972 gpd to a maximum wet weather daily flow of approximately 818,300 gpd. Comparison of wet and dry weather flows indicated a peaking factor of 3.54 likely due to system infiltration. Infiltration is a concern as it may result in increased equipment loadings and deterioration, possible exceedence of line capacities, potential sewer overflows, substantial fines for spills, environmental damage, and increased charges for treatment by the City of Springfield. As the peaking factor during storm events can be substantial, the City will likely need to address related areas of concern.

Based on information received from the City, 1,856 residential accounts and 33 commercial accounts are currently billed. The percentage of residential users was found to be 98 percent of the total number of water customers (1,889). Utilizing the most current population estimate of 5,597 persons and an average of 1,856 residential users for the year 2010, the population density per household was determined to be 3.0 which compares favorably with typical design guidelines that typically estimate 3.0 to 3.7 persons per household. Based on the annual usage of 102,733,000 gallons, the average monthly sewer use was determined by dividing the annual sales volume by the number of users (1,889) and by 12 months per year and found to be 4,532 gallons per user per month. This includes commercial users who are a relatively small percentage of the system use. The per capita usage is therefore estimated to be approximately 49.7 gallons per person. This is substantially less than the typical 80 to 100 gallons per capita per day indicated in area design guides and it is likely that the average flow per customer will increase as the system ages and a younger population moves into the rapidly growing metropolitan area.

IV. DEMOGRAPHIC ANALYSIS

A. Population Data:

The City of Battlefield is one of the fastest growing communities in the State of Missouri. Based on information received by the U.S. Census Bureau, the historical population of the City is as indicated on Table 1:

TABLE 1 - POPULATION DATA

<u>Year</u>	<u>Population</u>	<u>Increase</u>	<u>% Increase</u>	<u>Annual Increase</u>
1990	1,500	-----	-----	-----
2000	2,350	850	56.7 %	5.7 %
<u>2010</u>	<u>5,597</u>	<u>3,247</u>	<u>138.2 %</u>	<u>13.8 %</u>
Average:		2,049	97.5 %	9.8 %

B. Population Projections:

Typically, future growth can be made based solely on historic growth trends. However, often as Cities grow the overall percentage of growth may slow as the population has increased to a level where the addition of a single subdivision will not have as large of an impact. The continued economic climate will likely continue to impact growth and it is predicted that the economy will remain depressed for at least the next two years and possibly longer. It is believed that short term growth is unlikely to continue at the same percentage it has previously, although it is anticipated that growth will occur at a rate considered strong for most communities. For purposes of this report, a conservative, but varied growth rate was assumed. The estimated population for the years 2011 through 2017 is presented below in Table 2.

TABLE 2
POPULATION PROJECTIONS

<u>Year</u>	<u>Growth Rate</u>	<u>Population</u>
2010 (Actual)	-----	5,597
2011	5.0%	5,877
2012	5.0%	6,171
2013	5.0%	6,479
2014	7.0%	6,933
2015	7.0%	7,418
2016	7.0%	7,937
2017	7.0%	8,493

V. FUTURE WASTEWATER USAGE

A. Anticipated Wastewater Usage:

Revenue for the wastewater system is substantially dependent on the volume of wastewater used and billed for. Operation, maintenance, and replacement costs also have vary with system use as increased use result in the need for more supplies and quicker deterioration. Projected future populations and historic sewer usage trends have been utilized to produce an estimate of future wastewater flows for planning purposes.

The projected future average wastewater use per population is presented in Table 3 on the next page.

TABLE 3 – ANTICIPATED WASTEWATER USAGE

Year (Fiscal)	Estimated Population (persons)	Anticipated Usage (gallons)
2010	5,597 (actual)	102,733,001 (actual)
2011	5,877	108,421,936
2012	6,171	113,843,033
2013	6,479	119,535,184
2014	6,933	127,861,095
2015	7,418	136,767,743
2016	7,937	146,295,674
2017	8,493	156,488,269

Based on information provided by the City, commercial users account for only 1.7% of the total number of users, but account for approximately 3.3% of the total flow. It is anticipated that as the City grows, additional commercial growth will occur and the percentage of commercial usage will increase significantly as high volume users, such as grocery stores and restaurants, locate in the City. As no known new significant commercial users are solidly anticipated, assumptions related to significant jumps in commercial usage would be impractical to make at this time. Therefore, the City should reconsider rates as commercial growth occurs and particularly if high volume services are added.

VI. ANTICIPATED SYSTEM IMPROVEMENTS

The City of Battlefield will need to continue to maintain the sanitary sewer collection system and provide for improvements necessary to address infiltration, deterioration and repair of the system.

A. Operation & Maintenance Costs:

Regular operation and maintenance expenses are budgeted by the City. Expenses related to salaries, collection and other fees are reflected in the City's financial records and anticipated to increase at a rate of approximately 3% per year. Changes to the current budget directly related to normal system operation and maintenance are proposed as follows:

1. As the City grows, it is recommended that additional training is provided to allow the existing staff to obtain adequate training and licensed operator status and per MDNR recommendations. Educational training will provide needed knowledge with regulatory compliance and in system operation and maintenance.
2. In previous years, the City has maintained a reserve fund for system maintenance, but a detailed schedule of replacement and maintenance items is not available. It is proposed that a replacement and maintenance schedule be made to detail items such as seal replacement at lift stations, replacement batteries for generators and other items. A

preliminary and proposed replacement schedule is attached in Appendix B as a guide and is to be modified annually or as needed to reflect known upcoming replacement items. The City should continue to maintain and fund reserve funds exceeding and in addition to the required funds indicated in the replacement schedule.

Operation and Maintenance Costs were projected based on existing information and proposed changes to the budget and are indicated in Appendix 'C' of this report. The City will need to reassess operation and maintenance costs and adjust the budget and rates accordingly as information becomes available.

B. Capital Improvement Costs:

To address sewer collection needs and replacement, the City will need to budget and fund for certain improvements and upgrades. Repairs to lift stations, the provision of emergency power, and work related to infiltration are the primary projects that the City would to consider and provide for. A preliminary list of proposed Capital Improvements is indicated in Appendix D of this report based on discussions with City personnel. Currently, proposed capital improvements are very preliminary in basis and based on assumptions that will likely change over time. It is recommended that the City frequently reassess possible projects and their impact on approved or proposed budgets.

VII. RATE COMPONENTS

Multiple components were considered as applicable to a review of sanitary sewer rates and the rate structure. In general, total system revenues generated were compared to expenses such as operation and maintenance, capital improvements, debt repayment and fees to the City of Springfield for wastewater treatment. The basic components of sanitary sewer rates are generally summarized as follows:

1. Operation and Maintenance Costs

Normal operational expenses were considered based on financial audits of the previous year and City budget information. In addition, a replacement schedule with a more detailed listing of components was developed and is to be included as part of the operation and maintenance costs. Refer to Appendices A, B & C.

2. Proposed Sanitary System Collection Capital Improvements:

Substantial system improvements including modifications and repairs are necessary from time to time to keep the sewer system in proper condition and stave off larger system failures. Improvement projects proposed within the planning period are described in Section VIII of this study.

3. Annual Debt Repayment Schedule:

The City currently has outstanding series 1993, 2001 and 2005 bonds for system improvements made in the past. The 1993 bonds will retire in 2013 while the other bonds

will not be retired before the end of the study period. Additional debt will be incurred as a result of the full use of the voter approved and DNR obligated 2005 bond issue. Payments related to debts are indicated in the expenses table in Appendix 'C' of this document. The estimated debt repayment related to full use of the 2005 SRF /DNR bond issue is estimated based on information provided by the City as follows:

Bond Amount = \$249,388
 Annual Payment: $\$249,388 * 0.06722(A/P, 3\%) = \$16,764$
 Payment per user per month: $\$16,764 / 1,889 \text{ users} / 12 \text{ months} = \$ 0.74$

This amount will need to be included in future rates.

4. Charges by the City of Springfield:

Wastewater is treated by the City of Springfield which charges fees based on the number of users and the volume of wastewater treated. Current fees to the City of Springfield are as follows:

\$9.34 per residential user
 \$14.47 per commercial user
 \$1.02 per 100 cubic feet of wastewater treated

It is anticipated that rates will be increased due to changes in City of Springfield policies and additional direct treatment costs. Per information provided by the City of Battlefield, the following percentage increases are believed to be proposed by the City of Springfield:

<u>Fiscal Year:</u>	<u>Percentage Increase:</u>
2012	24%
2013	28%
2014	5%
2015	5%
2016	5%
2017	5%

A summary of projected rates is indicated in Appendix E of this document.

5. Revenue:

Revenue projections have been made based on population and usage projections previously indicated in Tables 2 and 3 of this report as well as current City sewer rates. Current rates for the City of Battlefield are as follows:

\$14.90 per residential user
 \$18.50 per commercial user
 \$2.07 per 1,000 gallons used

Projected revenues are indicated in Appendix F of this report.

VIII. ANALYSIS OF EXISTING RATE

A comparison of revenues and expenses was used to verify the adequacy of existing funds and rates. Expenses, including replacement, capital improvements, and City of Springfield Treatment Charges were projected as previously described in this report. Appendix F contains a summary of the comparison through the study period. In general, current rates may immediately be insufficient due to potential fee increases from Springfield and increased replacement and repair requirements. The percentage that revenue is inadequate varies from 10% to over 40% depending on if proposed Capital Improvements are constructed per Appendix F. The City will therefore need to adjust sewer rates so that a shortfall does not occur or so that City services are not neglected.

IX. PROPOSED RATE ADJUSTMENT

To provide adequate revenue to meet anticipated future expenses, a rate increase will be required. The amount of increase is determined by the difference between anticipated revenue and projected expenses. Based on Appendix F, the City will need to produce an additional 14% of revenue in the 2012 fiscal year and up to 41% additional in 2013 if capital improvements are completed (15.6% if they are not). If a flat percentage increase is utilized new rates are therefore proposed as follows:

	<u>Existing Rate</u>	<u>% Increase</u>	<u>Proposed Rate</u>
Residential	\$14.90	36.0	\$20.30
Non-Residential	\$18.50	36.0	\$25.20
Volume Fee	\$2.07/1,000	36.0	\$ 2.82
5,000 gal. fee (residential)	\$25.25		\$34.36

This may be accomplished by approximately an 18% increase in the first fiscal year and an additional 18% increase after that. During each of the four subsequent years rates may be increased by 3% each year to keep up with rising expenses or as appropriate to ensure adequate funds. The following Table summarizes the rates:

Rates	Current	2012	2013	2014	2015	2016	2017
Residential	\$14.90	\$17.58	\$20.26	\$20.71	\$21.16	\$21.61	\$22.05
Non-Res.	\$18.50	\$21.83	\$25.16	\$25.72	\$26.27	\$26.83	\$27.38
Volume	\$2.07	\$2.44	\$2.82	\$2.88	\$2.94	\$3.00	\$3.06
5,000 Gal.	\$25.25	\$29.80	\$34.34	\$35.10	\$35.86	\$36.61	\$37.37

Appendix H contains a summary of projected expenses versus revenue with the above rates and Appendix I indicates the projected revenues at the proposed new rates. Surpluses generated may be applied to the next fiscal year budget and used to offset spikes in costs.

While the proposed rate increase may seem to be a substantial increase, it results in a rate considerably less than neighboring Republic and favorably compares to rates in other area cities. USDA and CDBG programs generally recommend establishing rates up to 2% of the medium household income (MHI) prior to justifying the need for grant funds to alleviate excessive rates. Per interim census information (2006-2009), the MHI for the City is a relatively high \$57,188. The proposed rate is therefore approximately 0.7% of the MHI.

The City may also consider using other funds such as State Loans, Grants or general funds to offset capital improvement costs and keeps rates reduced.

X. CONCEPTUAL FEE STRUCTURE:

The City's sewer rate is made up of a base user charge fee component and a volume fee component. It is proposed that the base and volume rate components be adjusted in their percentage relative to each other based on changes in budget patterns. In general, it is proposed that expenses such as required debt payments that may not be voluntarily adjusted within a budget year be paid for by the base fee component of the rate and the volume component be utilized primarily for expenses related to increased system usage. Current rate structure generally follows this principal, but the City should regularly reassess its rates and fee structure particularly as changes in budget or the system occur.

APPENDIX A
CURRENT BUDGET

A	B	C	D	E	F	G	H
SEWER FUND							
Estimated Sewer Fund Expenditures							
Expenditures Category	Actual Expenses Year 2009	Actual Expenses 2010	Approved Expenses Year 2011	Actual March 31st 2011	Proposed 2011-2012	Items included:	
8 Accounting	790.00	\$ 759.00	\$ 850	\$ 1,188	\$ 1,200	Marshall Docker fees	
9 Advertising	326.24	\$ 189.03	\$ 300	\$ 118	\$ 150	Newspaper subscription hearing notices	
10 Bank Charges	632.92	\$ 993.31	\$ 1,300	\$ 110	\$ 1,250	Fees for ACH, auto deposits	
11 Building Repairs & Maint.			\$ 2,500		\$ 2,500		
12 Capital Expenditures	4,449.44	\$ -	\$ 27,700	\$ 30,856	\$ 5,000		
13 Codification		\$ 102.67	\$ 700	\$ -	\$ 750	Sullivan Publications	
14 Contract Labor	6,003.03	\$ 6,846.50	\$ 6,000	\$ 5,391	\$ 5,500	MSA quarterly, stulloffe, Terry Edmonds	
15 DNR/SRF Loan payments	9,645.97	\$ 18,763.97	\$ 43,800	\$ 16,923	\$ 5,000	regional force main project	
16 DNR/SRF Interest	26,177.45				\$ 45,000		
17 Dues & Subscriptions	3,598.32	\$ 3,881.54	\$ 4,000	\$ 3,943	\$ 4,000	MRWA, MML, CUST	
18 Engineering Fees	15,124.19	\$ 14,497.50	\$ 14,000	\$ 7,648	\$ 10,000	Anderson Engineering	
19 Equipment and Tools	569.22	\$ 17.00	\$ 1,000	\$ 6,068	\$ 5,000	hand tools	
20 Equipment Repairs & Maint.			\$ 500	\$ 816	\$ 1,000		
21 Gas	2,033.28	\$ 2,000.60	\$ 2,500	\$ 1,843	\$ 4,166	Based on \$5.00/gal	
22 Health Insurance	8,258.95	\$ 6,918.30	\$ 8,800	\$ 16,847	\$ 22,462	Clear 30% Billing Cost 100% Cost 5% Impair, 20% Maint, Super 40% Sewer 100% C.A. 35%	
23 Janitorial Services	651.38	\$ 580.00	\$ 800	\$ 420	\$ 575		
24 Legal	1,050.00	\$ 90.00	\$ 1,000	\$ 300	\$ 750		
25 Liability Insurance	9,453.58	\$ 11,558.02	\$ 11,500	\$ 11,746	\$ 12,000		
26 City Hall Loan Payment	13,670.63	\$ 13,972.01	\$ 14,300	\$ 3,915	\$ 15,000		
27 Misc.	446.79	\$ 160.85	\$ 200	\$ 268	\$ 250		
28 Mo. One Call Fees	1,070.40	\$ 1,208.50	\$ 1,100	\$ 868	\$ 1,175		
29 Office Supplies	1,194.50	\$ 1,877.53	\$ 2,500	\$ 3,060	\$ 2,500	billing statements/cards	
30 Payroll Taxes	6,875.80	\$ 5,961.18	\$ 7,254	\$ 6,044	\$ 8,000	Clear 30% Detainer, 70% Court 5% Inspect, 30% Maint, Super 40% Maint, Asst, 20% Sewer 100% C.A. 35%	
31 Postage	5,892.96	\$ 6,836.78	\$ 6,200	\$ 4,020	\$ 6,000		
32 Repairs & Maint.	15,233.75	\$ 22,035.47	\$ 17,500	\$ 28,710		degrease, lift station repairs	
33 Revenue Bond Interest/Fees	9,398.96	\$ 12,294.78	\$ 9,500	\$ 3,149	\$ 7,200	annual advertising of bonds matzre (4000)	
34 Revenue Bond Payment	25,000.00	\$ 30,000.00	\$ 30,000	\$ -	\$ 35,000		
35 Salaries	89,885.34	\$ 77,921.02	\$ 93,870	\$ 79,005	\$ 98,565	Clear 30% Billing Cost 100% Cost 5% Inspect, 30% Maint, Super 40% Maint, Asst, 20% Sewer 100% C.A. 35%	
36 Sewer Treatment Chgs.	235,427.60	\$ 260,882.80	\$ 273,000	\$ 194,870	\$ 324,783	25% increase	
37 Supplies	5,661.09	\$ 6,150.69	\$ 5,000	\$ 3,594	\$ 5,000		
38 Telephone	1,897.97	\$ 2,193.90	\$ 2,300	\$ 1,596	\$ 2,200		
39 Travel/Lodging	869.16	\$ 309.01	\$ 600	\$ 1,222	\$ 1,500		
40 Training	973.99	\$ 490.00	\$ 900	\$ 455	\$ 900	crowder college, mwa, etc	
41 Uniforms	567.13	\$ 243.40	\$ 300	\$ 322	\$ 350		
42 Utilities	27,969.31	\$ 33,382.26	\$ 32,000	\$ 23,447	\$ 35,000		
43 Vehicle Repairs	977.28	\$ 1,913.36	\$ 1,900	\$ 286	\$ 250		
44 Village Bond Interest/Fees	1,470.59	\$ 9,799.34	\$ 7,800	\$ 9,281	\$ 9,500		
45 Village Bond Payment	9,061.45	\$ 833.33	\$ 10,000	\$ -	\$ 15,000	paid off 2017	
46 Website	431.21	\$ 667.00	\$ 230	\$ 341	\$ 350		
47 Franchise Fee	25,000.00	\$ 25,000.00	\$ 25,000	\$ 25,000	\$ 25,000		
48 Retirement/remaining 2%	1,880.52	\$ 1,307.03	\$ 1,906	\$ 1,361	\$ 1,971	Clear 30% Billing Cost 100% Cost 5% Inspect, 30% Maint, Super 40% Sewer 100% C.A. 35%	
49 Total Sewer Expenses	569,620.40	\$ 582,637.64	\$ 670,610	\$ 495,031	\$ 721,797		
50							
51 Sewer Replacement Reserve fund used for major repairs on Regional Lift Station							
52 Sewer Principal and Interest used to pay Revenue Bond payments, Interest and Admin. Fees							
53							



APPENDIX B
PROPOSED REPLACEMENT SCHEDULE

PROPOSED REPLACEMENT SCHEDULE

Year	Replacement Item	Item Cost
2012	Service Lift Station Pumps (fluids/grease)	\$750.00
	Service Lift Station Valves	\$1,000.00
	Remove Wet Well Grit	\$2,000.00
	Control Cleaning and Repair	\$500.00
	Replace Lift Station Sensors	\$1,500.00
	Replace Lift Station Base Plates (2)	\$3,000.00
	Replace Pump Bearings/Seals	\$3,000.00
	Replace Lift Station Motors: LS B	\$8,000.00
	Replace Pressure Systems: Lift Sta E and Reg	\$3,000.00
	Repair Lift Station Fences	\$1,000.00
	Replace Pole Lights at Lift Station Sites	\$500.00
	Clean Sewerlines	\$5,000.00
	Repair Gravel Surfaces at Lift Stations	\$750.00
	Repair Line (Misc.)	\$7,500.00
	Subtotal =	\$37,500.00
2013	Service Lift Station Pumps (fluids/grease)	\$772.50
	Service Lift Station Valves	\$1,030.00
	Remove Wet Well Grit	\$2,060.00
	Control Cleaning and Repair	\$515.00
	Replace Lift Station Sensors	\$1,545.00
	Replace Lift Station Base Plates (2)	\$3,090.00
	Replace Pump Bearings/Seals	\$3,090.00
	Replace Lift Station Motors: LS I	\$8,240.00
	Replace Pressure Systems: Lift Sta B and D	\$3,090.00
	Repair Lift Station Fences	\$1,030.00
	Replace Pole Lights at Lift Station Sites	\$515.00
	Clean Sewerlines	\$5,150.00
	Repair Gravel Surfaces at Lift Stations	\$772.50
	Repair Line	\$7,725.00
	Subtotal =	\$38,625.00
2014	Service Lift Station Pumps (fluids/grease)	\$795.68
	Service Lift Station Valves	\$1,060.90
	Remove Wet Well Grit	\$2,121.80
	Control Cleaning and Repair	\$530.45
	Replace Lift Station Sensors	\$1,591.35
	Replace Lift Station Base Plates (2)	\$3,182.70
	Replace Pump Bearings/Seals	\$3,182.70
	Replace Lift Station Motors: LS F	\$8,487.20
	Replace Pressure Systems: Lift Sta. C and F	\$3,182.70
	Repair Lift Station Fences	\$1,060.90
	Replace Pole Lights at Lift Station Sites	\$530.45
	Clean Sewerlines	\$5,304.50
	Repair Gravel Surfaces at Lift Stations	\$795.68
	Repair Line	\$7,956.75
	Subtotal =	\$39,783.75

PROPOSED REPLACEMENT SCHEDULE

Year	Replacement Item	Item Cost
2015	Service Lift Station Pumps (fluids/grease)	\$819.55
	Service Lift Station Valves	\$1,092.73
	Remove Wet Well Grit	\$2,185.45
	Control Cleaning and Repair	\$546.36
	Replace Lift Station Sensors	\$1,639.09
	Replace Lift Station Base Plates (2)	\$3,278.18
	Replace Pump Bearings/Seals	\$3,278.18
	Replace Lift Station Motors: LS K	\$8,741.82
	Replace Pressure Systems: Lift Sta. I and K	\$3,278.18
	Repair Lift Station Fences	\$1,092.73
	Replace Pole Lights at Lift Station Sites	\$546.36
	Clean Sewerlines	\$5,463.64
	Video & Inspect Sewerlines	\$5,000.00
	Repair Gravel Surfaces at Lift Stations	\$819.55
	Repair Line	\$15,000.00
Subtotal =	\$52,781.81	
2016	Service Lift Station Pumps (fluids/grease)	\$844.13
	Service Lift Station Valves	\$1,125.51
	Remove Wet Well Grit	\$2,251.02
	Control Cleaning and Repair	\$562.75
	Replace Lift Station Sensors	\$1,688.26
	Replace Lift Station Base Plates (2)	\$3,376.53
	Replace Pump Bearings/Seals	\$3,376.53
	Replace Lift Station Motors: Gettysburg LS	\$9,004.07
	Replace Pressure Systems: Lift Sta. J and Gettysburg	\$3,376.53
	Repair Lift Station Fences	\$1,125.51
	Replace Pole Lights at Lift Station Sites	\$562.75
	Clean Sewerlines	\$5,627.54
	Video & Inspect Sewerlines	\$5,150.00
	Repair Gravel Surfaces at Lift Stations	\$844.13
	Repair Line	\$15,450.00
Subtotal =	\$54,365.26	
2017	Service Lift Station Pumps (fluids/grease)	\$869.46
	Service Lift Station Valves	\$1,159.27
	Remove Wet Well Grit	\$2,318.55
	Control Cleaning and Repair	\$579.64
	Replace Lift Station Sensors	\$1,738.91
	Replace Lift Station Base Plates (2)	\$3,477.82
	Replace Pump Bearings/Seals	\$3,477.82
	Replace Lift Station Motors: (LS to be determined)	\$9,274.19
	Replace Pressure Systems: Regional Lift Sta. (tbd)	\$3,477.82
	Repair Lift Station Fences	\$1,159.27
	Replace Pole Lights at Lift Station Sites	\$579.64
	Clean Sewerlines	\$5,796.37
	Video & Inspect Sewerlines	\$5,304.50
	Repair Gravel Surfaces at Lift Stations	\$869.46
	Repair Line	\$15,913.50
Subtotal =	\$55,996.22	

APPENDIX C
PROJECTED OPERATION AND MAINTENANCE BUDGET

CITY OF BATTLEFIELD - PROJECTED OPERATING AND MAINTENANCE EXPENSES

Operation and Maintenance	2011	2012	2013	2014	2015	2016	2017
Accounting	\$ 1,188	\$ 1,200	\$ 1,236	\$ 1,273	\$ 1,311	\$ 1,351	\$ 1,391
Advertising	\$ 118	\$ 150	\$ 155	\$ 159	\$ 164	\$ 169	\$ 174
Bank Charges	\$ 1,300	\$ 1,250	\$ 1,288	\$ 1,326	\$ 1,366	\$ 1,407	\$ 1,449
Building Repairs & Maintenance	\$ 2,500	\$ 2,500	\$ 2,575	\$ 2,652	\$ 2,732	\$ 2,814	\$ 2,898
Capital Expenditures	\$ 27,700	\$ 28,531	\$ 29,387	\$ 30,269	\$ 31,177	\$ 32,112	\$ 33,075
Codification	\$ 700	\$ 750	\$ 773	\$ 796	\$ 820	\$ 844	\$ 869
Contract Labor	\$ 6,000	\$ 5,500	\$ 5,665	\$ 5,835	\$ 6,010	\$ 6,190	\$ 6,376
Dues & Subscriptions	\$ 4,000	\$ 4,000	\$ 4,120	\$ 4,244	\$ 4,371	\$ 4,502	\$ 4,637
Engineering Fees	\$ 14,000	\$ 14,420	\$ 14,853	\$ 15,298	\$ 15,757	\$ 16,230	\$ 16,717
Equipment and Tools	\$ 1,000	\$ 5,000	\$ 5,150	\$ 5,305	\$ 5,464	\$ 5,628	\$ 5,796
Gas	\$ 2,500	\$ 4,166	\$ 4,291	\$ 4,420	\$ 4,552	\$ 4,689	\$ 4,830
Health Insurance	\$ 8,800	\$ 22,462	\$ 23,136	\$ 23,830	\$ 24,545	\$ 25,281	\$ 26,040
Janitorial Services	\$ 800	\$ 575	\$ 592	\$ 610	\$ 628	\$ 647	\$ 667
Legal	\$ 1,000	\$ 750	\$ 773	\$ 796	\$ 820	\$ 844	\$ 869
Liability Insurance	\$ 11,500	\$ 12,000	\$ 12,360	\$ 12,731	\$ 13,113	\$ 13,506	\$ 13,911
City Hall Loan Payment	\$ 14,300	\$ 15,000	\$ 15,450	\$ 15,914	\$ 16,391	\$ 16,883	\$ 17,389
Misc.	\$ 200	\$ 250	\$ 258	\$ 265	\$ 273	\$ 281	\$ 290
Mo. One Call Fees	\$ 1,100	\$ 1,175	\$ 1,210	\$ 1,247	\$ 1,284	\$ 1,322	\$ 1,362
Office Supplies	\$ 2,500	\$ 2,500	\$ 2,575	\$ 2,652	\$ 2,732	\$ 2,814	\$ 2,898
Payroll Taxes	\$ 7,254	\$ 8,000	\$ 8,240	\$ 8,487	\$ 8,742	\$ 9,004	\$ 9,274
Postage	\$ 6,200	\$ 6,000	\$ 6,180	\$ 6,365	\$ 6,556	\$ 6,753	\$ 6,956
Repairs & Maint.	\$ -	\$ 5,000	\$ 5,150	\$ 5,305	\$ 5,464	\$ 5,628	\$ 5,796
Salaries	\$ 93,870	\$ 98,565	\$ 101,522	\$ 104,568	\$ 107,705	\$ 110,936	\$ 114,264
Supplies	\$ 5,000	\$ 5,000	\$ 5,150	\$ 5,305	\$ 5,464	\$ 5,628	\$ 5,796
Telephone	\$ 2,300	\$ 2,200	\$ 2,266	\$ 2,334	\$ 2,404	\$ 2,476	\$ 2,550
Travel/ Lodging	\$ 600	\$ 1,500	\$ 1,545	\$ 1,591	\$ 1,639	\$ 1,688	\$ 1,739
Training	\$ 900	\$ 900	\$ 927	\$ 955	\$ 983	\$ 1,013	\$ 1,043
Uniforms	\$ 300	\$ 350	\$ 361	\$ 371	\$ 382	\$ 394	\$ 406
Utilities	\$ 32,000	\$ 35,000	\$ 36,050	\$ 37,132	\$ 38,245	\$ 39,393	\$ 40,575
Vehicle Repairs	\$ 1,900	\$ 250	\$ 258	\$ 265	\$ 273	\$ 281	\$ 290
Website	\$ 230	\$ 350	\$ 361	\$ 371	\$ 382	\$ 394	\$ 406
Franchise Fee	\$ 25,000	\$ 25,000	\$ 25,750	\$ 26,523	\$ 27,318	\$ 28,138	\$ 28,982
Retirement/ remaining 2%	\$ 1,906	\$ 1,971	\$ 2,030	\$ 2,091	\$ 2,154	\$ 2,218	\$ 2,285
Replacement Expenses:	\$17,500.00	\$37,500.00	\$39,783.75	\$52,781.81	\$54,365.26	\$54,365.26	\$55,996.22
BUDGET EXPENSES =	\$ 296,166	\$ 349,765	\$ 361,417	\$ 384,064	\$ 395,586	\$ 405,822	\$ 417,997
CAPITAL IMPROVEMENTS=		\$ 150,000	\$ 188,500	\$ 199,000	\$ 122,000	\$ 175,000	\$ 235,000
DEBT RETIREMENT	Annual Expense						
Village Bond & Interest (1993)	\$ 17,800	\$ 17,800	\$ 17,800	\$ 17,800	\$ 17,800	\$ 17,800	\$ 17,800
Revenue Bond (2001)	\$ 39,500	\$ 39,500	\$ 39,500				
SRF Bond (2006)	\$ 43,800	\$ 43,800	\$ 43,800	\$ 43,800	\$ 43,800	\$ 43,800	\$ 43,800
SRF Bond (2011)		\$ 16,764	\$ 16,764	\$ 16,764	\$ 16,764	\$ 16,764	\$ 16,764
Debt Surplus (20%)	\$ -	\$ 20,220	\$ 20,220	\$ 12,320	\$ 12,320	\$ 12,320	\$ 12,320
TOTAL DEBT RETIREMENT	\$ 101,100	\$ 138,084	\$ 138,084	\$ 90,684	\$ 90,684	\$ 90,684	\$ 90,684
SPRINGFIELD CHARGES							
Residential Charge	\$ 164,669	\$ 214,399	\$ 288,153	\$ 323,740	\$ 363,722	\$ 408,641	\$ 459,108
Non-Residential Charge	\$ 4,512	\$ 5,875	\$ 7,896	\$ 8,706	\$ 9,598	\$ 10,582	\$ 11,666
Flow Charge	\$ 110,886	\$ 116,430	\$ 122,252	\$ 130,767	\$ 139,876	\$ 149,621	\$ 160,045
TOTAL TO SPRINGFIELD =	\$ 280,068	\$ 336,705	\$ 418,301	\$ 463,212	\$ 513,196	\$ 568,844	\$ 630,820
TOTAL EXPENSES	\$ 677,334	\$ 974,554	\$ 1,106,302	\$ 1,136,960	\$ 1,121,465	\$ 1,240,350	\$ 1,374,501

APPENDIX D
PRELIMINARY LIST OF CAPITAL IMPROVEMENTS

PROPOSED CAPITAL IMPROVEMENTS

2012	Complete CMOM Report	\$7,000.00
	Video & Test Sewerlines (I and Regional Phase I)	\$32,000.00
	Repair Reline Lines (2,000 ft.)	\$70,000.00
	Gravity Sewer Construction (Eliminate Lift Station E)	\$150,000.00
	Subtotal =	\$259,000.00
2013	Replace Lift Station H	\$30,000.00
	Video & Test Sewerlines (H and Regional Phase II)	\$28,000.00
	Repair Reline Lines (2,000 ft.)	\$70,000.00
	Purchase Trailer Mounted Generator	\$28,000.00
	Purchase Trailer Mounted Pump	\$25,000.00
	Update Mapping	\$7,500.00
	Subtotal =	\$188,500.00
2014	Install Generator: Lift Station B	\$40,000.00
	Video & Test Sewerlines (A-1 and Misc.)	\$20,000.00
	Repair Reline Lines (1,000 ft.)	\$40,000.00
	Install Generator: Lift Station D	\$38,000.00
	Install Transfer Switches: Lif Stations F,J and K	\$28,000.00
	Rebuild Pumps/Controls: Lift Station C	\$33,000.00
	Subtotal =	\$199,000.00
2015	Install Generator: Lift Station F	\$42,000.00
	Install Transfer Switches: Lif Stations C,H and I	\$30,000.00
	Replace Pumps/Controls: Lift Station J	\$35,000.00
	Update I & I Study	\$15,000.00
	Subtotal =	\$122,000.00
2016	Eliminate Lift Station G	\$150,000.00
	Complete Facilities Plan	\$25,000.00
	Subtotal =	\$175,000.00
2017	Replace Pumps/Controls: Gettysburg Lift Station	\$35,000.00
	Sewerline Replacements (Misc.)	\$50,000.00
	Lift Station Replacement (to be determined)	\$150,000.00
	Subtotal =	\$235,000.00

APPENDIX E

ANTICIPATED CITY OF SPRINGFIELD CHARGES

ANTICIPATED CITY OF SPRINGFIELD TREATMENT CHARGES

	2011	2012	2013	2014	2015	2016	2017
Fiscal Year:							
Residential:	\$9.34	\$11.58	\$14.82	\$15.57	\$16.34	\$17.16	\$18.02
Commercial:	\$14.47	\$17.94	\$22.97	\$24.12	\$25.32	\$26.59	\$27.92
Gallons:	\$1.02	\$1.26	\$1.62	\$1.70	\$1.78	\$1.87	\$1.97

CITY OF BATTLEFIELD EXPENSES FOR CITY OF SPRINGFIELD SEWER TREATMENT

	2011	2012	2013	2014	2015	2016	2017
Fiscal Year:							
Residential:	\$164,669.34	\$214,399.48	\$288,152.90	\$323,739.78	\$363,721.64	\$408,641.27	\$459,108.46
Commercial:	\$4,512.47	\$5,875.24	\$7,896.32	\$8,705.69	\$9,598.02	\$10,581.82	\$11,666.46
Gallons:	\$110,886.07	\$116,430.37	\$122,251.89	\$130,767.03	\$139,876.10	\$149,620.58	\$160,044.82
Total =	\$280,067.88	\$336,705.09	\$418,301.11	\$463,212.50	\$513,195.76	\$568,843.66	\$630,819.74

APPENDIX F
PROJECTED ANNUAL REVEUNES

PROJECTED REVENUES WITH CURRENT SEWER RATES

	2011	2012	2013	2014	2015	2016	2017
Connection Fees							
New Customers Month	13.88889	14	14	16	16	16	16
Collected Fees =	\$12,500	\$12,600	\$12,600	\$14,400	\$14,400	\$14,400	\$14,400
Other Fees							
Interest	\$18,500	\$18,500	\$18,500	\$18,778	\$18,778	\$19,059	\$19,059
Late Fees	7500	7500	7500	7612.5	\$7,613	\$7,727	\$7,727
Permits	400	400	400	406	\$406	\$412	\$412
Equipment Sales	500	500	500	507.5	\$508	\$515	\$515
Subtotal =	\$26,900	\$26,900	\$26,900	\$27,304	\$27,304	\$27,713	\$27,713
User Charge Rates							
Residential Customer Service	\$350,260	\$367,773	\$413,193	\$442,117	\$473,065	\$506,180	\$541,612
Non-Res. Service Charge	\$7,692	\$8,077	\$8,905	\$9,350	\$9,818	\$10,308	\$10,824
Flow Charge	\$292,739	\$307,376	\$322,745	\$345,225	\$369,273	\$394,998	\$422,518
Subtotal =	\$650,692	\$683,226	\$744,843	\$796,692	\$852,155	\$911,486	\$974,954
Grants & Bond Issues							
DNR SRF Loan		\$249,388					
Other Revenue							
DNR SRF Loan		\$249,388					
TOTAL REVENUE	\$690,092	\$972,114	\$784,343	\$838,395	\$893,859	\$953,599	\$1,017,067

APPENDIX G

ANTICIPATED EXPENSES VS. EXISTING RATES

REVENUES WITH CURRENT RATES VS. ANTICIPATED EXPENDITURES

Fiscal Year:	2011	2012	2013	2014	2015	2016	2017
Revenue =	\$690,092	\$972,114	\$784,343	\$838,395	\$893,859	\$953,599	\$1,017,067
Expenditures =	\$677,334	\$974,554	\$1,106,302	\$1,136,960	\$1,121,465	\$1,240,350	\$1,374,501
Surplus/Shortfall:							
w/ Cap. Imp. =	\$12,758	(\$2,440)	(\$321,959)	(\$298,565)	(\$227,607)	(\$286,751)	(\$357,433)
w/o Cap. Imp. =	\$12,758	(\$101,828)	(\$133,459)	(\$99,565)	(\$105,607)	(\$111,751)	(\$122,433)
% Increase Req'd= w/ Cap. Imp.		0.4%	43.2%	37.5%	26.7%	31.5%	36.7%
% Increase Req'd= w/o Cap. Imp.		14.9%	17.9%	12.5%	12.4%	12.3%	12.6%

APPENDIX H
ANTICIPATED EXPENSES VS. PROPOSED RATES

PROPOSED RATES VS. ANTICIPATED EXPENDITURES

Fiscal Year:	2011	2012	2013	2014	2015	2016	2017
Revenue =	\$690,092	\$1,095,095	\$1,052,487	\$1,138,468	\$1,229,019	\$1,327,291	\$1,433,044
Expenditures =	\$677,334	\$974,554	\$1,106,302	\$1,136,960	\$1,121,465	\$1,240,350	\$1,374,501
Surplus/Shortfall:							
w/ Cap. Imp. =	\$12,758	\$120,541	(\$53,815)	\$1,508	\$107,553	\$86,941	\$58,544
w/o Cap. Imp. =	\$12,758	\$21,153	\$134,685	\$200,508	\$229,553	\$261,941	\$293,544
Net Surplus =	\$12,758	\$133,299	\$79,484	\$80,991	\$188,545	\$275,485	\$334,029

APPENDIX I
PROPOSED FEE STRUCTURE

PROJECTED REVENUES WITH NEW SEWER RATES

	2011	2012	2013	2014	2015	2016	2017
Connection Fees							
New Customers Month	13.88889	14	14	16	16	16	16
Collected Fees =	\$12,500	\$12,600	\$12,600	\$14,400	\$14,400	\$14,400	\$14,400
Other Fees							
Interest	\$18,500	\$18,500	\$18,500	\$18,778	\$18,778	\$19,059	\$19,059
Late Fees	7500	7500	7500	7612.5	\$7,613	\$7,727	\$7,727
Permits	400	400	400	406	\$406	\$412	\$412
Equipment Sales	500	500	500	507.5	\$508	\$515	\$515
Subtotal =	\$26,900	\$26,900	\$26,900	\$27,304	\$27,304	\$27,713	\$27,713
User Charge Rates							
Residential Customer Service	\$350,260	\$433,972	\$561,943	\$614,542	\$671,752	\$733,960	\$801,586
Non-Residential Customer Serv	\$7,692	\$9,531	\$12,111	\$12,716	\$13,352	\$14,019	\$14,720
Flow Charge	\$292,739	\$362,704	\$438,933	\$469,506	\$502,211	\$537,198	\$574,625
Subtotal =	\$650,692	\$806,207	\$1,012,987	\$1,096,764	\$1,187,315	\$1,285,177	\$1,390,931
Other Revenue							
DNR SRF Loan		\$249,388					
TOTAL REVENUE	\$690,092	\$1,095,095	\$1,052,487	\$1,138,468	\$1,229,019	\$1,327,291	\$1,433,044