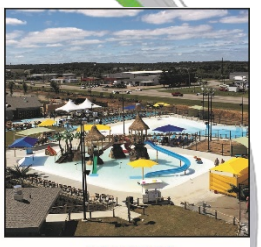

WATER


WASTEWATER


STORMWATER


MUNICIPAL STREETS


AQUATICS

WATER & SEWER RATE STUDY

For

THE CITY OF KEARNEY, MISSOURI

PROJECT NO. 0317012.01
June, 2017

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Purpose Statement

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1 INTRODUCTION

The purpose of this study is to evaluate the current water and sewer rates of the City of Kearney, Missouri, and to project rate changes necessary for the period 2018 – 2022. The analysis will determine the rates necessary to adequately cover current and future expenses as well as budget for future capital projects. Kearney recognizes that rate examination is necessary for three reasons: 1) to cover existing expenses, 2) to provide revenue to meet inflationary increases in operation and maintenance costs, and 3) fund expected capital improvements. Some expense items such as health care insurance have been increasing well beyond the overall consumer price index (CPI).

The water rate computations are based on cost of service method with a single uniform rate. Principals outlined in the American Water Works Association M1 Manual *Principles of Water Rates, Fees, and Charges* are followed. Existing and proposed rates are also compared to existing rates for other local water systems.

The City operates under a fiscal year that runs from April 1 to March 31.

2 BACKGROUND AND CURRENT WATER AND SEWER RATES

2.1 WATER SYSTEM BACKGROUND

The City has a current population of 9,261 and distributes water to its customers through 3,385 meters (as of January, 2017). Kearney operates their one-million-gallon per day (mgd) treatment facility and supplements with water purchased from the City of Kansas City, Missouri (KCMO). On average, the City purchases approximately 20% of the total water distributed. The twenty-five-year contract with KCMO, which went into effect during August 2000, allows Kearney to purchase a maximum of 2.9 mgd from KCMO. The KCMO annual rate adjustment take effect on May 1st each year. **Table 2-1** shows historic and projected costs of water purchased from KCMO.

Table 2-1 -- KCMO Water Purchases

	YEAR							
	2015	**2016***	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Purchases - gal. (5% annual Increase)	43,711,000	60,815,000	50,893,091	53,437,746	56,109,633	58,915,114	61,860,870	64,953,914
Rate** per 1,000 gallons	$2.83	$2.99	$3.18	$3.21	$3.37	$3.54	$3.71	$3.90
Assumed Increase of Wholesale Water Rate	-2.4%	5.7%	6.2%	0.8%	5%	5%	5%	5%
Meter Charge (Monthly x 12)	$4,819	$4,819	$5,500	$5,500	$5,748	$6,006	$6,276	$6,559
Cost of Water Purchased	$129,721	$183,687	$164,257	$176,482	$191,779	$211,106	$232,399	$255,859

*2016 KCMO rate data not provided. Rate was assumed

**Restricted rate + 1 re-pump charge

Additional background for the water treatment and distribution system can be found in the *Water Treatment & Distribution Engineering Study* completed by Larkin Group in January, 2013. At the time the

study was completed, data from the previous five years showed a daily water demand of 645,000 gpd, with an average 75,000 gallons per day of that demand being supplied by KCMO.

Water usage per meter over the past 3 years has remained about the same, averaging approximately 5,660 gallons per month. Historical average monthly water usages per meter can be found in **Appendix G.**

2.2 SEWER SYSTEM BACKGROUND

The City of Kearney operates a 1.125 mgd activated sludge wastewater treatment plant. Background information about the wastewater treatment plant can be found in the *Wastewater Treatment Plant Facility Plan* completed in October, 2016 by Larkin Lamp Rynearson, and the *Facility Plan on Wastewater Treatment Plant, Phase 1 – Clarifiers, Phase 2 – WWTP Expansion to 2.5 MGD* completed in July, 2012 by Larkin Group. Data analyzed during the preparation of the October, 2016 Facility Plan indicated an average influent flow of 0.82 mgd to the wastewater treatment plant. Of the 3,385 water meters, 51 meters are not subject to sewer charges. These include irrigation meters and users that have septic systems.

2.3 WATER METERS, WATER RATES AND SERVICE TAP FEES

The City has experienced steady growth during the last five years, with an increase in the number of water meters as shown in **Table 2-2** below. The average annual increase is approximately 2.2% over the past 4 years.

Table 2-2 -- Active Water Meters

ACTIVE WATER METERS	
Fiscal Year	**Number of Meters**
2014	3,169
2015	3,205
2016	3,304
2017	3,385

The current service tap fees vary with meter size. **Table 2-3** summarizes the current building/connection fee for each meter size. Currently, funds from fee are distributed between three departments: water, sewer, and parks. The water department's share is $175 of the $2,000 connection fee, which is for reimbursing part of the cost for water meter parts. $1,500 is the sewer department's fee and $325 is the parks department's fee.

Table 2-3--Existing Fees for New Water/Sewer Connections

New Service Tap Fees		
Meter Size	**First Meter**	**Secondary Meter**
⅝" X ¾"	$2,000*	$600
1"	$2,660	$800
2"	$3,460	$1,600

*$2,460 according to Section 700.110 of the City's Codes

The current Water Rates are shown in **Table 2-4**. The last rate increase (3%) was in 2017.

Table 2-4 -- Current Water Rates

City of Kearney Water Rates	
First 1,000 gallons-minimum	$ 8.14
In excess of 1,000 gallons & below 2,000 gallons	$ 7.11 per 1,000 gallons
In excess of 2,000 gallons	$ 6.37 per 1,000 gallons

2.4. Sewer Rates and Connection Fees

Currently $1,500 of the $2,000 service connection fee is the sewer department's share. The City's sewer rates are based on the monthly water usage. The current Sewer Rates are shown in **Table 2-5**. The last rate increase (5%) was in 2017.

Table 2-5 -- Current Sewer Rates

City of Kearney Sewer Rates	
First 1,000 gallons-minimum	$ 6.85
In excess of 1,000 gallons & below 2,000 gallons	$ 4.35 per 1,000 gallons
In excess of 2,000 gallons	$ 3.87 per 1,000 gallons

3 Water Rate Analysis

3.1 General

The method used to recommend proposed water rates for the City is influenced by the methods in the American Water Works Association M1 Manual *Principles of Water Rates, Fees, and Charges*.

The following information was used as a basis for rate design:

1. Water usage, water revenue, and customer information from 2014 through 2016.
2. Financial reports from the past five years.
3. Projected inflation in Operation and Maintenance expenses throughout the study period.
4. Anticipated replacement/improvement projects

Revenue requirements are determined on a cash-basis method. The objective of the cash-basis method is to determine all cash needs, including debt obligations, within the study period. Revenue requirements include operation and maintenance expenses, and water purchase expense. The effect of growth in the number of customers and expense inflation are recognized in the projections for the study period and explained within the study.

3.2 WATER USAGE AND CUSTOMER INFORMATION

Information provided by the City of Kearney included water purchased, water sold, financial reports, bill frequency analysis, water purchase contracts, KCMO wholesale water rates, and water purchase invoices.

Water production, purchases, and sales records were used to project future water purchases and sales. The City maintains a monthly calculation on unaccounted for water. This is the difference between the finished water supplied to the distribution system and the actual metered water sales. Unaccounted for water is expressed as a percentage of the finished water supplied to the distribution system. This includes water lost during water main breaks, water used for flushing dead end lines, water used for fire protection and other unmetered uses. The City has averaged approximately 7.5% unaccounted for water the last three years which is below the typical 10% to 15% level of unaccounted for water. Since water losses at any one time can vary, the Balance Sheets assumes a conservative 8% unaccounted for water loss in the distribution system. Water production, purchase, and billing data provided by the City used to estimate water losses is located in **Appendix A**.

The projections of water use on the Balance Sheets were used to estimate revenue generated for the 2018 to 2022 period. The projections on the Balance Sheets in **Appendix C** are estimated using City records and reasonable assumptions for growth and inflation. A Bill Frequency Analysis from January 2017 is located in **Appendix E**. The analysis summarizes the number of customers in a usage category. A usage category is a range of water use. The bill frequency provided by the City contains the number of users in each range. By using the distribution of customers in each usage range, a revenue model can be projected that is used to compute future water rates. The projected revenue for the year 2017 was slightly higher than the actual water sales revenue. To calibrate the model, the water sales for each user category were decreased by 2%. After the decrease the model was sufficiently accurate as the water sales revenue projected for 2017 by the model is very close to the actual revenue from 2017. The average percent error of the modeled projected revenue versus the historical water sales revenue from 2014-2017 is -0.1%. Based on the accuracy of the estimated revenue model, the projected water sales income was used to project the need for future rate increases. Water sales revenue projections for each scenario are located in **Appendix E.**

3.3 PROJECTED WATER NEEDS, SALES, AND REVENUE

Recent historical water purchase quantities are in **Appendix A**. The projection of water sales on the Balance Sheets in Appendix C and supporting revenue projections in **Appendix E** are used to estimate revenue that will be generated for fiscal years 2018-2022.

Projected revenue is calculated using the projected water sales based on a 2% growth rate and an assumed water rate per 1,000 gallons that will meet all expenses, debt service requirements, and provide adequate reserves. Any rate increases projected are designed to maintain positive cash balances throughout the period. Ideally, a water system should build reserves as the system ages in order to provide a portion of replacement cost out of cash. Revenue was calculated by using the projected water demands and sales and determining the appropriate water rates to generate adequate revenues over the next five years.

3.4 WATER RELATED FINANCIAL INFORMATION AND BUDGET PROJECTIONS

Annual audit reports from the past five years were used to project revenues and expenses shown on the Five-Year Balance Sheets in **Appendix C**. These figures are used to develop a five-year budget with the following assumptions:

1. A conservative annual water sales increase of 2% per year was utilized in the five-year study period. Fluctuations in demand due to climate conditions make accurate predictions difficult. The factors that influence water sales the most are the weather and the local economy.
2. Each expense item was given an annual inflation factor for the study period based on past experience and historical growth rates seen with each expense. These factors are listed in a middle column of the Five-Year Balance Sheet Projections.

Since economic factors are difficult to predict, especially in the areas of personnel and utility costs, these expenses should be evaluated periodically and adjustments made if necessary to insure adequate revenue from the water rate structure.

The projected revenues generated from sales also includes the adjustments to the rates necessary to maintain sufficient reserve funds for day-to-day operations and reasonable accumulations for system replacement. These numbers were projected over the next five years with allowances for inflation and population growth.

3.5 WATER RELATED LONG TERM DEBT

The City has several long-term debt expenses from past water capital improvements, including: AMI Meter System improvement, SRF loan payments, and 2013 Highway 69 KC water line debt payments. Anticipated debt payment schedules are included on the Five-Year Balance Sheets in **Appendix C.** These expenses were considered when developing proposed water rates.

3.6 WATER RELATED ASSET REPLACEMENT/CAPITAL IMPROVEMENT PLAN:

The City should periodically commission a Capital Improvement Plan study that projects system improvements on an annual basis for a least a five-year period. This would include in-depth review of the condition and capacity of the main system components in order to formulate a Replacement/Improvement Plan for the large system assets such as the plant components, water mains, meters, meter vaults, SCADA system, and storage tank coatings. The scope, priorities, and cost estimates should be revisited annually during the budget process. **Table 3-1** below shows costs (adjusted for inflation) remaining from the 2013 engineering study that have not yet been implemented, in addition to filter improvements and tank maintenance contracts.

Table 3-1 -- Projected Annual Water Capital Improvement Cost

		Annual Budget				
Project Name	**Opinion of Probable Cost**	**2018**	**2019**	**2020**	**2021**	**2022**
Backup power	$111,763	$111,763				
Chemical Feed Improvements	$95,781				$95,781	
Variable Frequency Drives (VFD)	$87,790				$87,790	
SCADA	$117,278					$117,278
Westside Booster Pump*	$250,000	$17,590	$17,590	$17,590	$17,590	$17,590
Filter Valve Replacement	$200,000	$100,000	$100,000			
Filter Piping Painting	$11,941	$5,970	$5,970			
Tank Maintenance Contract	$1,192,609	$281,383	$243,146	$205,995	$156,490	$135,107
Total Water Cap. Imp. Budget	**$2,069,056**	**$516,706**	**$366,707**	**$223,586**	**$357,651**	**$269,975**

*20-year loan at a 3.5% interest rate assumed

4 SEWER RATE ANALYSIS

4.1 GENERAL

The proposed sewer rates were developed using the same method as that used to develop the proposed water rates. The rate design was based on the following:

1. Water usage, sewer revenue, and customer information from 2014 through 2016.
2. Financial reports from the past four years.
3. Projected inflation in Operation and Maintenance expenses throughout the study period.
4. Anticipated replacement/improvement projects

4.2 SEWER REVENUE AND CUSTOMER INFORMATION

Sewer billing is based on water usages. To project sewer revenue, the Bill Frequency Analysis provided by the City including distribution of customers in each usage range, was used to develop a revenue model that is used to compute future sewer rates. Like the projected water revenue, the projected sewer revenue for the year 2017 was slightly higher than the actual revenue. The projected revenue was 10% greater than historical sewer collection revenue. One reason for this could be the 51 water only meters. To determine what usage range these meters would be in, additional information is required. To account for the 51 meters not subject to sewer charges the projected sewer revenue in each usage range was decreased by 10%. After the adjustment the model was sufficiently accurate as the sewer revenue projected for 2017 by the model is very close to the actual revenue from 2017. The average percent error of the modeled projected revenue versus the historical sewer collection revenue from 2014-2017 is 0.3%. Sewer collection revenue projections for each scenario are located in **Appendix F.**

4.3 SEWER FINANCIAL INFORMATION AND BUDGET PROJECTIONS

As with the water analysis, annual audit reports from the past five years were used to project revenues and expenses shown on the Five-Year Balance Sheets in **Appendix D**. These figures are used to develop a five-year budget with the following assumptions:

1. A conservative annual water sales increase of 2% per year was utilized in the five-year study period.
2. Each expense item was given an annual inflation factor for the study period based on past experience and historical growth rates seen with each expense. These factors are listed in a middle column of the Five-Year Balance Sheet Projections.

4.4 SEWER RELATED LONG TERM DEBT

Similar to the water department, the City has several long-term debt expenses from past sewer capital improvements, including: AMI Meter System improvement (Shared between water and sewer department), SRF loan payment, West Creek, Rotary Fan Press, and 2013 clarifier sewer plant improvements. Anticipated debt payment schedules are included on the Five-Year Balance Sheets in **Appendix D.** These expenses were considered when developing proposed sewer rates.

4.5 SEWER RELATED ASSET REPLACEMENT/CAPITAL IMPROVEMENT PLAN:

The City has several sewer system improvements scheduled for the near future. **Table 4-1** below shows costs (adjusted for inflation) for the anticipated improvements.

Table 4-1 -- Projected Annual Sewer Capital Improvement Cost

		Annual Budget				
Project Name	**Opinion of Total Probable Cost**	**2018**	**2019**	**2020**	**2021**	**2022**
Headworks Improvements*	$3,265,100	$229,736	$229,736	$229,736	$229,736	$229,736
Headworks O&M	$164,972		$39,057	$40,471	$41,949	$43,495
Aeration Basin Improvements*	$6,952,079					$489,156
West Interceptor Phase II*	$2,265,000	$159,368	$159,368	$159,368	$159,368	$159,368
Total Sewer Cap. Imp. Budget	**$12,647,162**	**$389,104**	**$428,161**	**$429,575**	**$431,053**	**$921,755**

*20-year loan at a 3.5% interest rate assumed

4.6 HIGH STRENGTH SEWER USERS:

The City currently has one high strength user that has wastewater with biochemical oxygen demand (BOD5) levels in excess of what is considered normal for domestic waste (300 mg/L). This customer is a food processor that pays a surcharge rate based on the BOD5 amount greater than 300 mg/L. Revenue projections do not factor in sewer surcharge rates.

5 PROPOSED WATER RATES

5.1 RATE DESIGN:

The American Water Works Association (AWWA) recommends for similar sized water systems two types of rate structures for consideration; a single-block rate structure and a two-block/multi-block rate structure. The City currently uses a multi-block rate structure for its customers. The City of Kearney charges a uniform rate structure for water and sewer to all of its in-city customers.

Since the water department expects future debt and capital improvement budgets to be very high at first compared to later years, all scenarios look at a 5-year total positive net revenue rather than having positive net revenue for each year. This allows for more steady rate adjustments and still maintaining a 5-year total positive net revenue.

5.2 WATER RATE ADJUSTMENT:

Appendix C includes the following 14 scenarios for the City's five-year Balance Sheet with projections of water revenues shown in **Appendix E**:

Scenario 1a: Projections at current usage trend with a 3% annual rate increase. Scenario does not include funds from new service taps.

Scenario 1b: Projections at current usage trend with a 3% annual rate increase. Scenario includes funds from new service taps.

Scenario 2a: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario has annual rate increases of approximately 8.3% starting in 2018. Water and sewer connection fees remain the same at $1,675 (water department reimbursement is $175).

Scenario 2b: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario has annual rate increases of approximately 8.5% starting in 2018. Connection fees decrease to $1,500 (water department reimbursement is $0).

Scenario 2c: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span. This scenario has annual rate increases of approximately 8.1% starting in 2018. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 3a: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario includes a monthly service charge based on the meter size and has an annual rate increases of approximately 4.5% starting in 2018. Water and sewer connection fees remain $1,675 (water department reimbursement is $175).

Scenario 3b: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario includes a monthly service charge based on the meter size and has an annual rate increases of approximately 4.7% starting in 2018. Connection fees decrease to $1,500 (water department reimbursement is $0).

Scenario 3c: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario includes a monthly service charge based on the meter size and has an annual rate increases of approximately 4.3% starting in 2018. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 4a: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a new rate structure. (First 1,000; 1,000 – 8,000 gallons; +8,000 gallons) This scenario has annual rate increases of approximately 3.0% starting in 2019. Water and sewer connection fees remain $1,675 (water department reimbursement is $175).

Scenario 4b: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a new rate structure. (First 1,000; 1,000 – 8,000 gallons; +8,000 gallons) This scenario has annual rate increases of approximately 3.0% starting in 2019. Connection fees decrease to $1,500 (water department reimbursement is $0).

Scenario 4c: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a new rate structure. (First 1,000; 1,000 – 8,000 gallons; +8,000 gallons) This scenario has annual rate increases of approximately 3.0% starting in 2019. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 5a: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a separate water rate structure for medium and major users. This scenario has a residential rate increase of approximately 8.3% proposed in 2018 and annual rate increases of approximately 8.3% for all user categories beginning in 2019. Water and sewer connection fees remain $1,675 (water department reimbursement is $175).

Scenario 5b: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a separate water rate structure for medium and major users. This scenario has a residential rate increase of approximately 8.5% proposed in 2018 and annual rate increases of approximately 8.5% for all user categories beginning in 2019. Connection fees decrease to $1,500 (water department reimbursement is $0).

Scenario 5c: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a separate water rate structure for medium and major users. This scenario has a residential rate increase of approximately 8.2% proposed in 2018 and annual rate increases of approximately 8.2% for all user categories beginning in 2019. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer).

Note: All scenarios assume that both the KCMO cost of water purchased and the amount of water purchased will continue to increase at an annual rate of 5%. "Connection fees" listed above do not included the Park's Department $325 fee.

The current water rates, with expected increases in usage and expenses, will result in large budget deficits (See scenarios 1a and 1b in **Appendix C**). To accommodate future debt payments, capital improvement projects, and inflation of O&M cost a water rate increase is necessary. The City cannot rely solely on the revenue from new customers. Inflation of expenses will continue to erode the City's reserves without a combination of growth in the customer base and a rate increase.

Within the water rate scenarios 3 different connection fee proposals were analyzed. Scenarios ending with (a) project connection fee revenue utilizing the existing water and sewer fee of $1,675 Scenarios ending with (b) exclude water connection fee revenue, utilizing connection fees decreased to $1,500 (Park's Department fee not included). Scenarios ending with (c) project connection fee revenue with an annual $100 increase split equally between the water and sewer departments.

Scenarios 2a, 2b, and 2c in **Appendix C** contain a projection of the minimum water rate adjustments necessary to achieve positive net revenue using the existing rate structure. Scenarios 3a, 3b, and 3c in **Appendix C**, similar to scenarios 2a-2c, contain a projection of the minimum water rate adjustments necessary to achieve positive net revenue using the existing rate structure. However, these scenarios include a monthly service charge based on meter size. Monthly service charges are split equally between the water and sewer departments. The inclusion of a service charge will provide a source of revenue from seasonal users. Proposed service charges are in **Table 5-3.** Scenarios 4a, 4b, and 4c in **Appendix C** contains a new rate structure that bills larger users differently than residential users (<8,000 gallons of water). The rates in these scenarios are increased so that projected 5-year net revenue is positive. These scenarios also include larger minimum bills so that more revenue is collected from irrigation meters during the winter months. The scenarios 5a, 5b, and 5c in the **Appendix C** charges larger users a greater minimum rate to account for seasonal high demand users. The new rate structure separates users into three different monthly average categories:

- <100,000 gallons
- 100,000 – 250,000 gallons
- >250,000 gallons

Table 5.1 shows a summary of the recommended future rates, Scenario 3b, and **Table 5-2** shows the recommended connection fees. If the City were to implement the recommended rate structure, the 2018 average monthly water bill for 5,000 gallons would be $35.97 plus $5.00 for half of the service charge. A summary of all of the water rate analysis scenarios is located in **Appendix G.**

Table 5-1-- Proposed Water Rate Adjustments

Water Rate	2018	2019	2020	2021	2022
1st 1,000 gal. - minimum	$8.52	$8.92	$9.34	$9.77	$10.22
In Excess of 1,000 up to 2,000 gal.	$7.44	$7.79	$8.16	$8.54	$8.93
All 1,000 gal. above 2,000 gallons	$6.67	$6.98	$7.31	$7.65	$8.00
Average Water Bill (5,000 gallons)	$35.97	$37.65	$39.43	$41.26	$43.15
Monthly Service Charge	$5.00	$5.00	$5.00	$5.00	$5.00
Total Water Bill (5,000 gallons)	**$40.97**	**$42.65**	**$44.43**	**$46.26**	**$48.15**

Table 5-2--Recommended New Water/Sewer Connection Fee

New Service Tap Fees		Water Department Share
⅝" X ¾"	$1,500	$0
1"	$4,000	$1,000
2"	$5,500	$1,500

*Park's Department $325 fee not included

Table 5-3 -- Recommended Monthly Service Charge

Meter Size	Monthly Water and Sewer Service Charge*
⅝" X ¾"	$10
1"	$18
2"	$35
4"	$120

*Split equally between the water and sewer department

5.3 SEWER RATE ADJUSTMENT:

Appendix D includes the following 10 scenarios for the City's five-year Balance Sheet with projections of sewer revenues shown in **Appendix F**:

Scenario 1a: Projections at current usage trend with a 3% annual rate increase. Scenario does not include funds from new service taps.

Scenario 1b: Projections at current usage trend with a 3% annual rate increase. Scenario includes funds from new service taps.

Scenario 2a: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario has annual rate increases of approximately 24.2% starting in 2018. Sewer connection fee remains the same at $1,500.

Scenario 2b: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span. This scenario has annual rate increases of approximately 24.0% starting in 2018. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 3a: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario includes a monthly service charge based on the meter size and has an annual rate increases of approximately 20.0% starting in 2018. Sewer connection fee remains the same at $1,500.

Scenario 3b: Minimum Rate adjustment to maintain positive *Net Revenue* over a 5-year span. This scenario includes a monthly service charge based on the meter size and has an annual rate increases of approximately 19.8% starting in 2018. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 4a: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a new rate structure. (First 1,000; 1,000 – 8,000 gallons; +8,000 gallons) This scenario has annual rate increases of approximately 9.1% starting in 2019. Sewer connection fee remains the same at $1,500.

Scenario 4b: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a new rate structure. (First 1,000; 1,000 – 8,000 gallons; +8,000 gallons) This scenario has annual rate increases of approximately 9.1% starting in 2019. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Scenario 5a Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a separate sewer rate structure for medium and major users. This scenario has a residential rate increase of approximately 24.1% proposed in 2018 and annual rate increases of approximately 24.1% for all user categories beginning in 2019. Sewer connection fee remains the same at $1,500.

Scenario 5b: Minimum Rate adjustment for positive *Net Revenue* over a 5-year span with a separate sewer rate structure for medium and major users. This scenario has a residential rate increase of approximately 24.0% proposed in 2018 and annual rate increases of approximately 24.0% for all user categories beginning in 2019. Water and sewer connection fees increase by $100 annually (fee increase is split equally between the water and sewer department).

Note: "Connection fees" listed above do not included the Park's Department $325 fee.

The current trend of 3% annual sewer rate increases will result in large annual budget deficits. (See scenarios 1a and 1b in **Appendix D**) To accommodate future debt payments, capital improvement projects, and inflation of O&M costs a greater sewer rate increase is necessary. The City cannot rely solely on the increased revenue from new customers. Inflation of expenses will continue to erode the City's reserves without a combination of growth in the customer base and larger rate increases.

The sewer rate scenarios contain 2 different connection fee proposals. Scenarios ending with (a) project connection fee revenue utilizing the existing sewer fee of $1,500. Scenarios ending with (b) project connection fee revenue with an annual $100 increase split equally between the water and sewer departments. Unlike the water scenarios a sewer connection fee decrease was not considered due to the anticipated large sewer rate increases necessary if sewer connection revenue decreased. Connection fee revenue is also necessary to cover future development improvements.

Similar to the water rate analysis, Scenarios 2a and 2b in **Appendix D** contains a projection of the minimum sewer rate adjustments necessary to achieve positive net revenue using the existing rate structure. Scenarios 3a and 3b in **Appendix D**, similar to scenarios 2a and 2b, contain a projection of the minimum sewer rate adjustments necessary to achieve positive net revenue using the existing rate structure. However, these scenarios include a monthly service charge based on meter size. Monthly service charges are split equally between the water and sewer departments. Proposed service charges are in **Table 5-3.** Scenarios 4a and 4b in the **Appendix D** contains a new rate structure that bills larger users differently than residential users (<8,000 gallons of water). The rates in these scenarios are increased so that projected 5-year net revenue is positive. The minimum bill amount for these scenarios is increased significantly while preserving a fair average bill for 5,000 gallons. The scenarios 5a and 5b in the **Appendix D** charge larger users a greater minimum rate to account for seasonal high demand users. The new rate structure separates users into three different monthly average categories:

- <100,000 gallons
- 100,000 – 250,000 gallons
- >250,000 gallons

Table 5-4 shows a summary of the recommended future rates, Scenario 3a, and **Table 5-5** shows the recommended connection fees. If the City were to implement the recommended rate structures the 2018 monthly sewer bill for 5,000 gallons would be $32.36. A summary of all of the sewer rate analysis scenarios is located in **Appendix H.**

Table 5-4 -- Proposed Sewer Rate Adjustments

Sewer Rate	2018	2019	2020	2021	2022
1st 1,000 gal. - minimum	$8.22	$9.86	$11.83	$14.20	$17.04
In Excess of 1,000 up to 2,000 gal.	$5.22	$6.26	$7.51	$9.01	$10.81
All 1,000 gal. above 2,000 gallons	$4.64	$5.57	$6.68	$8.02	$9.62
Average Sewer Bill (5,000 gallons)	$27.36	$32.83	$39.38	$47.27	$56.71
Monthly Service Charge	$5.00	$5.00	$5.00	$5.00	$5.00
Total Sewer Bill (5,000 gallons)	**$32.36**	**$37.83**	**$44.38**	**$52.27**	**$61.71**

Table 5-5--Recommended New Water/Sewer Connection Fee

New Service Tap Fees		Sewer Department Share
⅝" X ¾"	$1,500	$1,500
1"	$4,000	$3,000
2"	$5,500	$4,000

*Park's Department $325 fee not included

6 RATE COMPARISONS

The City's water rates compare favorably to other area water systems. Water rates for several surrounding communities are listed below:

Table 6-1 -- Water and Sewer Rate Comparison

Comparison with Area Residential Water and Sewer Rates			
Community	5,000 gal Water Bill	5,000 gal Sewer Bill	Total Water/Sewer Bill for 5,000gal.
Kearney (current)	**$34.36**	**$22.81**	**$57.17**
Cameron	$34.10	$25.23	$59.33
Lee's Summit	$29.98	$39.40	$69.38
Kearney (proposed)	***$40.97***	***$32.36***	***$73.33***
Higginsville	$20.90	$62.50	$83.40
Pleasant Hill	$41.33	$42.45	$83.78
Harrisonville	$48.73	$37.65	$86.38
Belton	$46.56	$45.58	$92.14
Liberty	$31.10	$63.65	$94.75
Excelsior Springs	$38.77	$58.57	$97.34
Kansas City	$44.96	$66.01	$110.97
Raymore	$77.44	$37.35	$114.79
Odessa (Inside City)	$50.10	$77.24	$127.34
Peculiar (Inside City)	$94.54	$49.15	$143.69
Peculiar (Outside City)	$101.28	$94.15	$195.43
Odessa (Outside City)	$85.74	$112.99	$198.73

Table 6-2 -- New Connection Fee Comparison

	Meter Size		
Community	5/8"x3/4"	1"	2"
Kansas City, MO	$1,018	$1,076	$2,588
Liberty	$1,237	$8,590	$28,110
Kearney (proposed)	***$1,500***	***$4,000***	***$5,500***
Kearney (current)	**$1,675**	**$2,335**	**$3,135**
Raymore	$2,759	$4,163	$9,049
Smithville	$2,800	$5,600	$5,600
Pleasant Hill	$3,300	N/A	N/A
Belton	$3,490	$5,426	$13,480
Platte City	$4,041	N/A	N/A

*Public Works excavation, impact, and building fees are not included

7 RECOMMENDATIONS

1. When considering the projected future debt payments and capital improvement plans, neither the current water rates nor the sewer rates are adequate to meet budgetary requirements. Water and sewer rate increases are recommended. Projected growth rates are not high enough for the City to rely only on revenue from connections fees and increased sales. If the City wants sustainable water and sewer rates, an increase is required in order to keep up with the inflation of expenses and capital improvement budgets. Scenarios 4a and 4b provide a better way to charge larger users based on demand. However, the Missouri Department of Natural Resources (MoDNR) "Drinking Water State Revolving Fund User Charge Ordinance" states that user charge rates must be apply to "all users" of the water system. This scenario is not recommended due to the separation of user charges based on annual average water usage. **Scenario 3b, the inclusion of a monthly service charge based on meter size with the existing rate structure is recommended for the future.** This scenario is simple to implement and will cover anticipated operation and maintenance costs of the water and sewer systems and plants. This scenario will also cover capital improvement costs necessary in the next 5 years. **Table 5-3** has recommended service charges based on meter size. The service charge revenue would be split equally between the water and sewer department and will increase water and sewer revenues collected in the winter, which are normally lower due to the absence of irrigation. This scenario has proposed annual rate increases of approximately 4.7% starting in 2018. **Scenario 3a is recommended for the future sewer rates**. This scenario like the recommended water rate scenario proposes a monthly service charge based on meter size. The proposed annual rate increases for this scenario are approximately 20.0% starting in 2018. Since annual capital improvement projections are not uniform over the future 5 years, all of the analyzed scenarios look at the total 5-year net revenue rather than the net revenue on an annual basis. This allows for rate increases to be more uniform and not as significant as any one year may require.
2. When comparing the City's residential connection fees with the main competitors, KCMO and Liberty's fees, Kearney at first glance appears to be on the high end. However, it should be kept in mind that Kansas City's fees are complicated and the connection fee shown in **Table 6-2** does not show the total cost of connections. To facilitate future growth in residential development and be competitive with neighboring communities a slight reduction in the City's fees for new residential connections is recommended. **Table 5-2** and **5-5** include recommendations for connections fees based on meter size.
3. The Revenue and Expense projections should be updated annually to ensure adequate revenue will be available to keep up with inflation. Actual revenue and expenses should be entered into the spreadsheets after completion of the year-end financial report. Active meter numbers and inflation rates should be reviewed annually for needed adjustments. If necessary, the water and rates can be adjusted annually as needed.