Final

REPORT ON REVENUE REQUIREMENTS, COST OF SERVICE AND WATER RATES

B&V PROJECT NO. 413030

PREPARED FOR

Kansas City Board of Public Utilities

11 JUNE 2023

BLACK & VEATCH

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2.0 Executive Summary

The Kansas City Board of Public Utilities (BPU) water utility provides retail water service to customers within Wyandotte County. It also provides water service to five area wholesale customers. Under the terms of the current revenue bond covenants, BPU has obligated itself to maintain and, when necessary, revise water utility rates to (1) provide for the payment of operation and maintenance expenses; (2) provide for the payment of principal and interest on outstanding revenue bonds and the maintenance of debt service funds; (3) maintain required debt service reserves and funds for depreciation, contingencies and improvement of the water system; and (4) maintain net revenues at or above certain specified levels over annual bond debt service requirements. In addition, before revenue bonds may be issued, BPU must also comply with certain historical and projected earnings tests.

As a result of our evaluations and analyses, we offer the following summary of findings and recommendations for BPU's consideration.

2.1 Summary of Findings

2.1.1 Revenue Under Existing Rates

1. The Kansas City Board of Public Utilities (BPU) currently provides treated water and water distribution services to approximately 55,057 accounts within the Unified Government of Wyandotte County (UG) including five wholesale customers. The number of accounts is projected to remain fairly constant throughout the study period.

Description	Projected Number of Water Accounts					
	2022	2023	2024	2025	2026	2027
Inside City	52,627	52,889	53,152	53,417	53,683	53,950
Outside City	1,664	1,664	1,664	1,664	1,664	1,664
Wholesale	5	5	5	5	5	5
Private Fire	601	601	601	601	601	601
Interdepartmental	160	160	160	160	160	160
Total	55,057	55,319	55,582	55,847	56,113	56,380

Sales of treated water are projected to increase from 9,848,700 hundred cubic feet (Ccf) in 2022 to 9,920,300 hundred cubic feet (Ccf) in 2027.

Description	Projected Water Usage					
	2022	2023	2024	2025	2026	2027
	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf
Inside City	7,886,800	7,916,900	7,947,200	7,977,500	8,008,000	8,038,400
Outside City	212,800	212,800	212,800	212,800	212,800	212,800
Wholesale	769,900	740,900	764,900	714,900	689,900	689,900
Private Fire	18,500	18,500	18,500	18,500	18,500	18,500
Interdepartmental	960,700	960,700	960,700	960,700	960,700	960,700
Total	9,848,700	9,849,800	9,904,100	9,884,400	9,889,900	9,920,300

2. The BPU's current water rates became effective January 1, 2013. These rates include a monthly customer charge, which varies by meter size, and a volume charge. Retail rates include minimum usage requirements that vary by meter size. The existing water rate structure is described in more detail in Section 4.3.

3. Revenue is currently derived principally from charges for treated water service, with some revenue also obtained from connect and disconnect fees, service fees, interest income, and other miscellaneous revenue. Revenue from treated water sales, under existing rates, is projected to increase slightly from $46,270,300 in 2022 to $47,010,800 in 2027. Other water revenues are estimated to remain stable at about $2,811,500 per year.

Description	Projected Billed Water Revenue					
	2022	2023	2024	2025	2026	2027
	$	$	$	$	$	$
Inside City	41,282,700	41,457,400	41,632,900	41,809,000	41,986,200	42,163,000
Outside City	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000
Wholesale	1,356,200	1,305,600	1,347,600	1,260,100	1,216,400	1,216,400
Private Fire	571,600	571,600	571,600	571,600	571,600	571,600
Interdepartmental	1,895,800	1,895,800	1,895,800	1,895,800	1,895,800	1,895,800
Total	46,270,300	46,394,400	46,611,900	46,700,500	46,834,000	47,010,800

2.1.2 Revenue Requirements

1. Costs of service to be recovered from water service charges include system operation and maintenance expense, payment-in-lieu-of-taxes (PILOT), principal and interest payments on existing and proposed revenue bonds and state loans, and capital improvement requirements met from revenues. Operation and maintenance expense includes the costs associated with payroll and fringe benefits, purchased services, materials and supplies, contract services, utilities, and other items.

2. Projections of water operating expenses for 2022 and 2023 are based on the BPU's current operating budget. Operating expense projections for 2024 through 2027 are based on budgeted 2023 expense amounts adjusted to recognize allowances for the combined effect of inflation, projected system growth, and anticipated changes to the budget. Water operation and maintenance expense is projected to increase from $30,488,400 in 2022 to 34,560,200 by 2027.

Description	Budget	Budget	Projected			
	2022	2023	2024	2025	2026	2027
	$	$	$	$	$	$
Production	6,945,800	7,392,500	7,566,000	7,743,300	7,924,700	8,110,300
Transmission & Distribution	14,899,300	15,726,900	16,033,500	16,347,500	16,668,900	16,998,200
Customer Service	2,130,700	2,235,700	2,236,200	2,236,700	2,236,700	2,236,700
General & Administrative	6,512,600	7,169,100	7,180,200	7,191,600	7,203,200	7,215,000
Total Operation & Maintenance Expense	30,488,400	32,524,200	33,015,900	33,519,100	34,033,500	34,560,200

3. Major capital improvement expenditures for the six-year study period are estimated to total $149,795,900. Kansas Department of Health and Environment (KDHE) loan proceeds totaling $67,200,000, Environmental Protection Agency (EPA) grant proceeds of $10,000,000, Federal Emergency Management Agency (FEMA) grant proceeds of $3,750,000, current revenues, service

fees (system development charges), and estimated future interest earnings are proposed for financing the water utility improvement program.

It is anticipated that the program will be principally financed through KDHE loans and the use of rate revenue. Water KDHE loans of $39,500,000 in 2022, $9,444,000 in 2023 and $18,534,000 in 2026 are projected. Below is a summary of the projected annual water debt service through 2027.

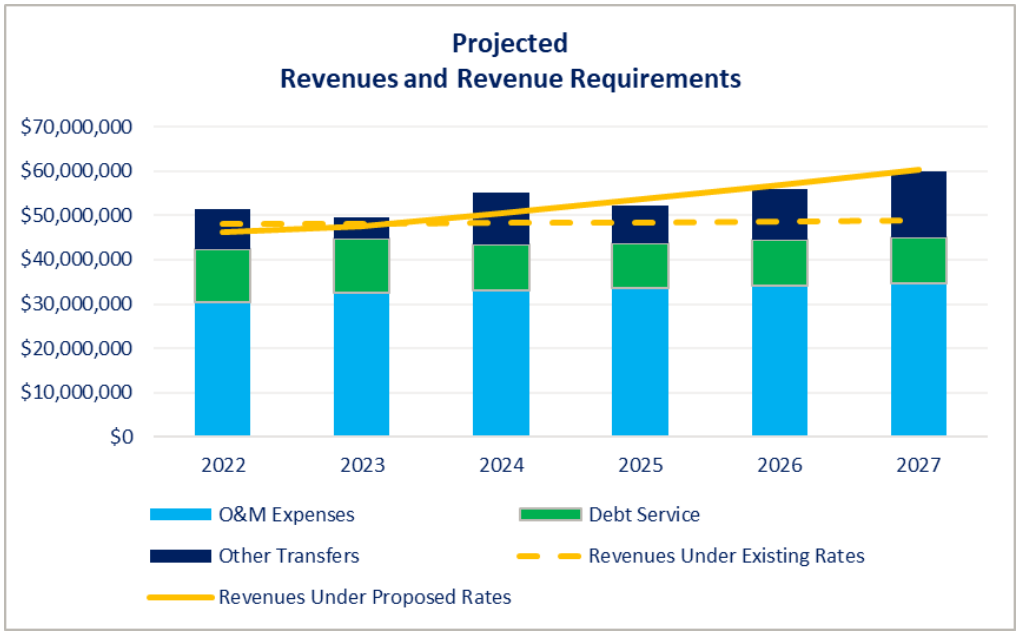
Description	Remaining Principal	Annual Debt Service Requirements					
		2022	2023	2024	2025	2026	2027
	$	$	$	$	$	$	$
Existing Revenue Bonds (a)	39,104,200	8,402,300	8,228,700	5,576,500	5,590,100	5,582,100	5,570,200
Existing Subordinate State Loans (a)	59,807,000	3,589,600	3,589,000	3,589,200	2,369,800	2,369,000	2,053,200
2022 Subordinate State Loan #2950	39,500,000	0	0	820,000	1,639,900	1,639,900	1,639,900
Proposed Subordinate State Loans	87,785,000		338,400	451,200	451,200	1,115,300	1,336,700
Total Debt Service	226,196,200	11,991,900	12,156,100	10,436,900	10,051,000	10,706,300	10,600,000

(a) Remaining principal as of 12/31/2021 on existing debt issues.

2.1.3 Summary of Cash Flow Results

1. As illustrated in the cash analyses presented in *Table 10* of this report, it is anticipated that the projected capital program requirements and estimates of future operating expenses during the 2022-2027 study period examined can be financed with revenue increases of 6.0 percent per year, with the first revenue increase effective July 1, 2023.

2. The figure below presents the projected combined revenue and revenue requirements through 2027. The comparison of the total revenue requirements and revenue under existing rates indicates a funding gap beginning in 2023.



3. Analyses of projected revenues and revenue requirements were conducted to determine the adequacy of the existing utility rates and the magnitude of retail revenue increases needed. The table below presents a summary of the estimated overall annual retail revenue increases for the water utility.

Proposed Water Rate Adjustments:	
July 1, 2023	*6.0%*
July 1, 2024	*6.0%*
July 1, 2025	*6.0%*
July 1, 2026	*6.0%*
July 1, 2027	*6.0%*

4. Indicated operating reserve balances are established for this report at a level equal to 60 days.

5. An additional consideration in measuring the adequacy of revenues is providing sufficient debt service coverage to meet the bond covenant requirements for the issuance of parity revenue bonds. It is projected that the BPU will be meeting all coverage requirements for the study period.

2.2 Proposed Recommendations

Based on the financial planning and cost of service analysis performed for the study period, the Black & Veatch team recommends the following series of recommendations:

1. Implement a series of 6% annual water revenue increases to go into effect July 1 of 2023, 2024, and 2025.

2. Implement cost of service based water rates by 2025.

3. Transition the existing Monthly Charge for retail customers to the proposed Monthly Charge, derived based on cost of service by July 1, 2025.

4. Continue with the existing 3-tier block structure for the volumetric rate structure for retail customers.

5. Adopt the proposed rate schedules for 2023, 2024 and 2025 as shown in *Table ES 1.* A regional comparison of typical monthly bills is provided in Appendix B.

These recommendations enable the water utility to meet all its financial obligations so that the BPU can continue to provide reliable service to serve the needs of existing and future customers.

Table ES 1 - Existing and Proposed 2023, 2024, and 2025 Water Rates

Rate Component	Existing	Effective July 1, 2023 Proposed	Effective July 1, 2024 Proposed	Effective July 1, 2025 Proposed
	$	$	$	$
Rate Code 10 - Inside City and 20 - Outside City				
Monthly Customer Charge				
Meter Size				
5/8"	19.35	19.35	19.35	19.35
3/4"	23.55	24.05	24.55	25.10
1"	29.35	30.65	32.00	33.35
1.5"	46.00	49.40	53.00	56.90
2"	62.60	68.00	73.90	80.50
3"	136.00	150.50	166.50	184.00
4"	219.00	243.50	271.00	302.00
6"	427.00	477.00	533.00	597.00
8"	635.00	711.00	796.00	891.00
10"	843.00	944.00	1,057.00	1,186.00
12"	967.00	1,083.00	1,213.00	1,363.00
Minimum Monthly Bill				
Meter Size				
5/8"	19.74	19.77	19.81	19.84
3/4"	41.83	43.88	46.03	48.27
1"	58.22	61.97	65.92	69.94
1.5"	101.77	109.91	118.49	127.60
2"	150.51	163.40	177.12	191.97
3"	289.51	317.10	346.72	378.67
4"	465.99	511.56	560.94	615.23
6"	916.71	1,008.50	1,107.84	1,218.07
8"	1,451.07	1,596.72	1,753.92	1,925.99
10"	2,067.43	2,272.94	2,494.24	2,738.91
12"	2,488.27	2,734.12	2,998.67	3,292.39
Usage per Month				
First 7 Ccf	3.89	4.22	4.57	4.93
Next 1,993 Ccf	3.28	3.56	3.85	4.16
Over 2,000 Ccf	3.03	3.29	3.56	3.84
Hydrant Daily Rental Fee	1.50	1.50	1.50	1.50
Rate Code 30 - Wholesale				
Monthly Customer Charge - $	160.00	160.00	160.00	160.00
Usage per Month				
All Usage	1.77	1.88	1.99	2.11
Rate Code 40 - Fire Protection				
Monthly Customer Charge				
Meter Size				
2"	7.97	7.97	7.97	7.97
4"	20.44	20.44	20.44	20.44
6"	49.86	49.86	49.86	49.86
8"	100.21	100.21	100.21	100.21
10"	175.95	175.95	175.95	175.95
12"	281.10	281.10	281.10	281.10
Rate Code 50 - Interdepartmental				
Usage per Month				
All Usage	0.51	0.51	0.51	0.51

3.0 Introduction

The Kansas City Board of Public Utilities (BPU) water utility provides retail water service to customers within Wyandotte County. It also provides water service to five area wholesale customers Under the terms of the current revenue bond covenants, the BPU has obligated itself to maintain and, when necessary, revise water utility rates to (1) provide for the payment of operation and maintenance expenses; (2) provide for the payment of principal and interest on outstanding revenue bonds and the maintenance of debt service funds; (3) maintain required debt service reserves and funds for depreciation, contingencies and improvement of the water system; and (4) maintain net revenues at or above certain specified levels above annual bond debt service requirements. In addition, before revenue bonds may be issued, the BPU must also comply with certain historical and projected earnings tests.

3.1 Purpose

This report examines the respective projected revenue and rate requirements of the water system. The purpose of this report is (1) to project the future revenues of the water utility under existing rates and charges, as well as the operating expenses and capital financing revenue requirements of the utility, and to examine the adequacy of projected revenues to meet these revenue requirements through the calendar year 2027; (2) to allocate these revenue requirements, or costs of service, for a representative Test Year to the various customer classes in accordance with the respective service requirements that each class places on the systems; and (3) to develop a suitable schedule of water rates that will produce revenues adequate to meet the financial needs of the utility on a basis that recognizes customer costs of service, existing wholesale service agreements and practical bill impact considerations.

3.2 Scope

This report presents the results of a comprehensive study of the projected revenue requirements, costs of service, and proposed rates for treated water service. Revenues and revenue requirements are projected for the six calendar years 2022 through 2027, recognizing anticipated growth in the number of customers, water use and wastewater flows throughout the service area.

The study of revenue requirements recognizes projected operation and maintenance expenses, capital improvement requirements to be met from revenues, and principal and interest on outstanding and proposed bond and state revolving loan issues. In addition, requirements of existing revenue bond indentures are also recognized.

Costs of treated water service are developed for each group of customers and type of service based on consideration of utility revenue needs and projected customer service requirements. Treated water rate adjustments are designed for retail and wholesale customers in accordance with allocated costs of service and local policy considerations.

3.3 Study Methodology

The development of user rates and charges requires the integration of three critical components: (i) financial plan, (ii) cost of service allocations, and (iii) rate design.

3.3.1 Financial Plan

Developing and updating a financial plan is necessary to continue to focus on financial discipline, build financial stability, and maintain sustainable financial planning practices. In addition, the financial planning process helps establish a financial roadmap to meet all of the water utility's obligations.

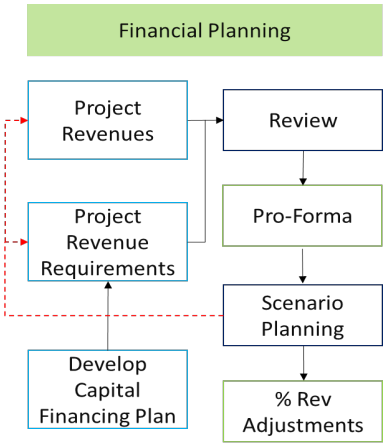


Figure 3-1: Financial Planning

As illustrated in *Determination of* Functional Costs

As a basis for developing an equitable rate structure, the Test Year cost of service should be allocated to the various customer classes according to respective service requirements.

The basic underlying principle in developing cost of service rates is determining what elements in a water system are responsible for causing the level of revenue requirements needed. The operating and capital costs of service are first aggregated into "Functional Cost Centers" to allocate the costs to customer classes. The functional costs are then further allocated to cost components. Each component cost is then apportioned to customer classes

Functional Cost Centers

Functional cost centers represent the activities that contribute to the incurrence of O&M and capital costs. For a water utility, they often include source of *water supply*, *pumping, treatment, storage, transmission and distribution, public fire protection, meters, billing,* and *other administration* costs. Both the O&M and capital costs defined for the Test Year need to be allocated to functional cost centers.

Functional Costs

The **capital costs** associated with the functional cost centers are determined using detailed fixed assets data provided by BPU for each class of asset currently in service and projected capital improvement program for the Test Year. The total value of the fixed assets (referred to as "Net Plant Investment") in the system is presented as Replacement Cost Less Depreciation ("RCLD"). The total estimated RCLD of the water system is $244 million as shown in Line 8 in *Table 13* in Appendix A. This plant investment data is subsequently used as a basis for the allocation to cost components, discussed in the following Section 5.5.3.2.

The **O&M costs** for the Test Year are allocated to the various functional cost centers based on the specific nature of costs. The allocation of the projected O&M cost of service (net operating revenue requirement) of $30.5 million to the various functional cost centers is presented in *Table 15* in Appendix A.

The various cost elements of water service are assigned to functional cost components as the first step in the subsequent distribution of the costs of service to customer classes.

3.3.2 Allocation of Costs to the Functional Cost Components

The principal functional cost components consist of *Base Costs*, *Extra-Capacity Costs*, and *Customer Costs.*

Base costs are those which vary directly with the quantity of water used, as well as those costs associated with serving customers under average load conditions without the elements necessary to meet water use variations or peak demands. Base costs include purchased power, treatment, chemicals, and other operating and capital costs of the water system associated with serving customers to the extent required for a constant or average annual rate of use.

Extra-Capacity costs represent those operating costs incurred due to demands in excess of average and capital related costs for additional plant and system capacity beyond that required for the average rate of use. Total extra capacity costs are subdivided into costs associated with maximum day and maximum hour demand.

Customer Costs are defined as costs that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collection and accounting costs, and maintenance and capital charges associated with meters and services.

The delineation of costs of service into these principal categories provides the means of further allocating such costs to the various customer classes based on the customer class's respective base, extra capacity, and customer service requirements.

Wholesale customers generally do not use smaller water distribution mains as do retail users. Therefore, separate functional cost of service categories are designated for costs common to all customer classes and those common to retail service classes only.

3.3.2.1 Water Utility Allocation to Cost Components

The BPU water utility is comprised of a variety of service facilities, each designed and operated to fulfill a given function. The utility must be capable of providing the total amount of water used and supplying water at maximum rates of demand to provide adequate service to its customers at all times.

Since all customers do not exert their maximum demand for water simultaneously, capacities of water facilities are designed to meet the peak coincidental demands that all classes of customers, as a whole, place on the system. For every water service facility on the system, there is an underlying average demand or uniform rate of usage exerted by the customers for which the base cost component applies. For those facilities designed solely to meet average day demand, costs are allocated 100% to the base cost component. Extra capacity requirements associated with coincidental demands in excess of average use are further related to maximum daily and maximum hourly demands.

Analysis of historical system maximum day and maximum hour demands to average day demands results in appropriate ratios for the allocation of capital costs and operating expenses to base and extra capacity cost components. A maximum day to average day ratio of 1.5 is used based on experienced demands in the water system. This indicates that approximately 66.7% of the capacity of facilities designed and operated to meet maximum day demand is required for average or base use. Accordingly, the remaining 33.3% is required for the maximum day extra capacity requirements.

The costs associated with facilities required to meet maximum hour demand are allocable to base, maximum day extra capacity, and maximum hour extra capacity. A ratio of the maximum hour to the annual average day water use of 1.7 is used, based on demands experienced by the system. This ratio indicates that 58.8% of the capacity of facilities designed and operated for maximum hour demand is needed for average or base use, while 29.4% is utilized for maximum day extra capacity uses, and the

remaining 11.8% is required to meet maximum hour extra capacity demand in excess of maximum day needs.

3.3.2.2 Allocation of Net Water Plant Investment

The estimated Test Year net plant investment in water facilities consists of net plant in service as of December 31, 2021, plus 2022 Construction Work in Progress. The allocation of estimated plant value serving treated water customers for the Test Year is shown in *Table 13*. The total plant value is of $243.4 million. The projected capital costs to be recovered on the basis of the allocation of plant investment are $11.8 million for the Test Year and shown on Line 9 of *Table 13*.

The estimated Test Year value of water system facilities is allocated to appropriate cost functions as the basis for further distribution to the various customer classes. The resulting distribution is the basis for assigning the capital charges associated with debt service on existing bonds for the Test Year to respective classes.

3.3.2.3 Allocation of Capital Improvements

Table 14 presents the allocation of capital improvements to the functional cost components. The total of capital improvements proposed for the Test Year 2023 is $ 31.3 million. The allocation of each improvement to cost components is performed in a similar manner to the allocation of net plant investment previously described.

The capital costs projected for the Test Year to be recovered are $4.9 million which includes debt service on proposed loans, cash-financed capital, and a credit for other revenue sources. These projected capital costs are assigned to the functional cost components on the basis of the allocation of total plant investment and are shown on Line 9.

3.3.2.4 Allocation of Water Utility Operating Expenses

Table 15 in Appendix A presents the allocation of O&M expense to functional cost components. Total Test Year O&M expense to be recovered, as shown on Line 6 of this table, amounts to $30.5 million. Operating expenses are allocated to functional cost components in generally the same manner as plant investment.

3.3.3 Distribution of Water Utility Costs to Customer Classes

As a basis for determining the cost of water service to each customer class, the elements of cost of service previously allocated to functional cost components are distributed among the classes in proportion to their respective service requirements. Estimates of these requirements, or units of service, reflect the average number of accounts with recognition to relative meter sizes serving each account, annual water sales, and estimated peak water demands placed on the system by each customer class. To properly recognize the costs of service, each customer class is allocated its share of base costs, extra capacity costs, customer costs, which consist of meter related costs, billing, collection, and accounting costs, and fire protection costs.

3.3.3.1 Water Customer Classification

For purposes of cost of service analysis and rate design, the water system's customers are classified to reflect groups of customers with similar service requirements who can be served at a similar average cost and the classification used by the BPU for record keeping purposes. The customer classes are separated into general categories of retail, wholesale, and BPU interdepartmental.

- Retail – This class includes retail customers are Residential, Commercial, Industrial, Schools, City, Private Fire Connection, Residential and Commercial Fire Hydrants, Public Fire Hydrant, and Private Fire Connection customers who receive retail water service at the individual consumer's premise and pay regular retail full service rates.

- City of Kansas City – This class includes water service provided to City of Kansas City / Unified Government accounts.

- Wholesale – This class includes contract rate customers and bulk water supplied to cities and districts outside of BPU's service area. Customers in this class include Consolidated Rural Water District #1, Lan Del Water District, Suburban Water, and the cities of Bonner Springs and Tonganoxie.

- BPU Interdepartmental – This class includes water service provided to BPU's electric utility.

, the key components of a financial plan are (i) projection of revenues from user rates and other sources; (ii) development of a capital financing plan to decide the mix of debt and cash funding of capital program; (iii) projection of revenue requirements (O&M and capital costs, and target reserves); and (iv) determination of the level and timing of revenue adjustments needed to maintain financial viability.

The annual revenue requirements are typically developed on a *cash-needs basis* for public utility rate setting. The revenue requirements, under the cash-needs basis approach, include the following:

- O&M expenditures,
- Debt service expenses,
- Cash financing of the capital program,
- Contributions to operating reserves, and
- Other obligations such as payments and transfers for specific purposes.

To establish financial stability, a financial plan is typically prepared for a multi-year period. A six-year financial plan was developed for the water utility to achieve the financial objectives and target metrics defined to build and sustain financial integrity. 2022 through 2027 is the forecast period for both revenues and revenue requirement projections.

The revenue adjustments represent the level of annual revenue increases necessary to meet the annual net revenue requirements.

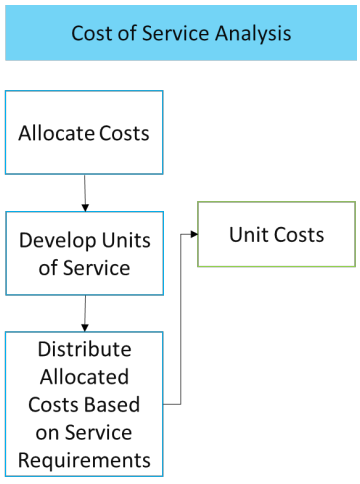


Figure 3-2: Cost of Service

3.3.4 Cost of Service

Cost of service can be described as the revenue that the water utility needs to generate, *net of funding from other miscellaneous sources of revenues.* Therefore, Cost of Service is essentially the "net revenue requirement" to be recovered through user rates and charges. As illustrated in *Figure 3-2*, the cost of service analysis enables an equitable apportioning of the net annual revenue requirements (also referred to as cost of service) to the various cost components and customer classes. The level and types of allocation performed depend on the existing and anticipated rate structure.

As municipal utilities are *public utilities that cannot make a profit,* the equitable allocation of costs is a critical step necessary to establish a reasonable nexus between costs incurred in providing service and the fees charged from customers and establish defensible user rates and charges.

3.3.5 Rate Design

The third and final component is an evaluation of the existing rate structure components and the development of proposed user rates and charges. User rates and charge schedules typically include fixed, volumetric, and other special charge rate components. As illustrated in *Figure 3-3,* the rates and charges are designed to recover the annual cost of service allocated to these different rate components and based on local policy and practical considerations.

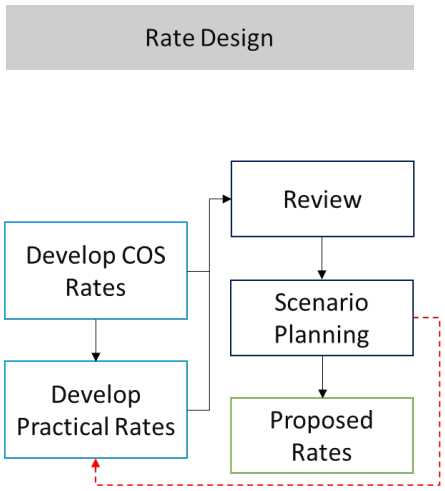


Figure 3-3: Rate Design

The study methodology described above and used in the financial planning, cost of service and rate design analysis reflect the application of industry accepted rate setting approaches that are provided in the following two guidance manuals:

- American Water Works Association (AWWA) *Manual M-1: Principles of Water Rates, Fees, and Charges* for water rate setting; and
- Water Environment Foundation (WEF) *Financing and Charges for Wastewater Systems* for wastewater.

4.0 Rate Structure Overview

The revenue requirements of a water utility, net of any miscellaneous sources of revenues, are recovered from user rates and charges. A water rate structure usually consists of two primary components: a fixed charge and a volumetric charge. Occasionally, a utility's water rate structures may include special surcharges or special assessments to recover costs associated with certain service situations such as purchased water, pumping to elevations, drought conditions, readiness-to-serve, and environmental conditions.

4.1 Fixed Charge

A utility's annual revenue requirements comprise mostly fixed costs such as salaries and benefits, pension obligations, debt service, cash financing for infrastructure renewal, and costs related to providing adequate capacity for service. These types of fixed costs occur regularly regardless of the amount of water used by the customer.

Therefore, rate structures need to afford the ability to recover at least some of the fixed costs based on billing parameters that are not related to water usage or wastewater flow. The fixed charge, which is assessed regardless of the volume of water used, provides a mechanism to reliably recover some of the fixed annual operating costs of the utility and provide for some level of revenue stability.

In the utility industry, fixed charges are designed to recover one or more of the following types of costs, namely, (i) metering; (ii) billing; (iii) readiness-to-serve cost; (iv) specific capital investment; and (v) other specific costs. The costs of providing these functions vary among types of customers and factors such as the size and capacity of the meters. Therefore, to provide equitable cost recovery, water fixed charges are usually assessed based on meter size and customer class.

4.2 Volumetric (Usage) Charge

In the utility industry, usage charges are designed to recover all other costs (except those recovered through the fixed charge) associated with the treatment and delivery of water service.

The three common types of volumetric charge are: (i) inclining block rate, where the usage in the next higher usage block is priced at a higher rate per unit; (ii) uniform block rate, where all units of usage are priced at the same unit rate; and (iii) declining block rate, where the usage in the next higher usage block is priced at a lower rate per unit. As usage patterns vary among customer classes and consequently different classes place different levels of service demands, different volumetric rates can be established for the various customer classes. In designing the volumetric rate structure, practical considerations including conservation, equity, affordability, and ease of administration are addressed.

4.3 Existing Rate Structure

4.3.1 Water Retail Rate Structure

Consistent with industry rate structures, the water rate structure comprises both Fixed Charge and Volumetric Charge components. The water retail rate structure includes the following two components:

- Minimum Charge (Fixed Charge); and
- Volume Charge (Volumetric Charge).

Some of these components apply to only specific customer classes. The revenues derived from the above charges are collectively referred to as **"Water Service Revenues."**

- **Customer Charge:** The existing Minimum Charge for all customer classes is based on meter size.
- **Minimum Bill Charge:** The existing Minimum Bill Charge is based on minimum water usage requirements that vary by meter size.
- **Volume Charge:** The existing Volume Charge is based on the quantity of water used by the customers and is applied to water usage in excess of the minimum water usage requirements.

The existing schedule of retail rates includes monthly customer charges which vary with meter size, plus declining block volume charges. This form of rate is common among water utilities and generally can be designed to recover revenue from system customers reasonably commensurate with the cost of service. In general, the first block is designed to recover costs associated with the water use and demand requirements of residential and small commercial customers and the subsequent blocks are designed to encompass the water use and associated demand costs for other classes of customers. Retail rates include minimum usage requirements that vary by meter size.

4.3.2 Wholesale Service

Existing rates to wholesale customers for water usage through master meters for resale to individual customers are currently established by individual service agreements between the BPU and the respective entities. These agreements allow for a facility credit for customer-owned storage facilities that reduces the BPU's costs of providing service.

4.3.3 Private Fire Protection Service

The existing schedule of charges for private fire protection service became effective January 1, and consists of a monthly charge that varies by meter size.

The existing water rate schedule for 2022 is presented in Table 3 in Appendix A. All customers are billed monthly.

5.0 Water Utility

The financial plan and rate design were developed to meet all the water utility's funding obligations and achieve the financial adequacy and equitable cost recovery discussed in Section 3.3.1.

The water utility financial plan has been developed for the six-year forecast period of 2022 through 2027 and includes the following key components:

- Revenue projections (user rate revenues and non-rate revenues),
- Capital improvement program financing,
- Annual revenue requirement projections, and
- Annual proposed revenue increases

5.1 Water Revenue Projections Under Existing Rates

The water utility revenues are derived from the following sources:

- Water Service Revenues (Minimum and Volume Charge)
- Other Revenues
- PILOT Charges

As a first step in developing the financial plan, Water Service Revenues under the 2022 existing rates are projected for the forecast period.

5.1.1 Water Revenue Under Existing Rates

As described in Section 4.3.1, the Water Service Revenue consists of two charge components. For each component, revenues are projected based on billing units and applicable existing rate schedules. The billing units necessary to compute the Minimum Charge revenues are the *number of accounts* based on meter size and customer class. The billing units necessary to compute the Volume Charge are the *annual water usage* by customer class and by applicable blocks of usage. Other sources of income include charges for wholesale contract services.

5.1.1.1 Projection of Customer Accounts

Typically, historical billing units are reviewed and used to project billing units for the forecast period. The project team reviewed historical accounts and average usage trends for each customer class referenced in Section 4.3.1.

Based on the review of historical trends, two annual adjustment factors were applied to project billing units for the forecast period. The two adjustment factors applied at the customer class level are *accounts growth rate* and *usage factor*.

Customer classifications are based generally on the rate codes administered by the BPU and the type of service provided. Based on historical trends in account levels, account growth is projected to remain flat across all customer classes, reflecting a stable account base with relatively little expected change over the study period. Projected accounts are expected to slightly increase from about 55,057 to about

56,380 at the end of the study period. *Table 1* in Appendix A presents the projected annual number of water accounts from 2022 through 2027.

Figure 5-1 presents both the historical and projected number of accounts for the water utility.

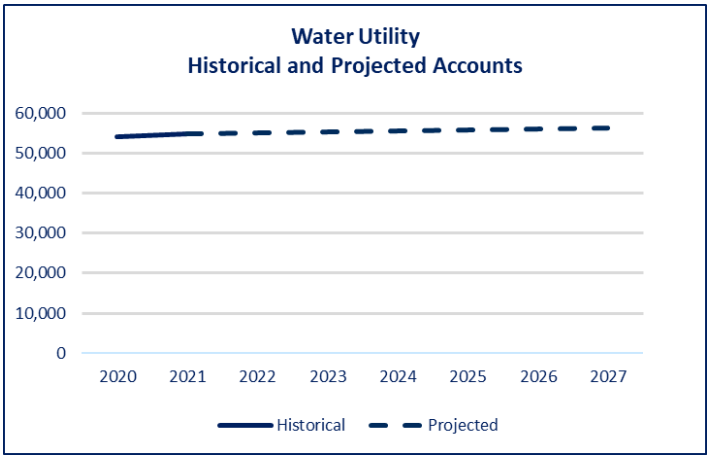


Figure 5-1 - Historical and Projected Water Accounts

5.1.1.2 Projection of Water Usage

Billed water volumes are projected based on estimates of the number of water accounts and the average billed usage per account. Average water use per account is determined based on historical usage. The average use per retail accounts for 2022 and beyond are projected based on 2021 year-to-date usage and the 5 Year Unit Usage average. Retail water sales volumes for this period are projected to increase at an average rate of about 0.4% for the study period, primarily due to projected growth in the number of customers served.

Approximately 8% of water volume is attributed to 5 wholesale customers. The City of Bonner Springs is currently building a water treatment plant and it is anticipated that they will significantly reduce the amount of water purchased from the BPU in 2025 and will no longer purchase water starting in 2026. Suburban Water is in the process on adding additional wells to provide water to the community and its volume of purchased water from the BPU decreased 56% from 2019 to 2021. It is projected to remain at that level through 2027. The City of Tonganoxie's purchased water amount is projected to increase over 30% from 2022 to 2024 due to a new industrial customer locating in the City. As a result of these changes, wholesale water usage is projected to decrease about 7% from 2023 to 2027.

Current Wholesale Customers:

- *Consolidated Rural District*
- *Lan Del Water District*
- *Suburban Water*
- *Bonner Springs*
- *Tonganoxie*

Total system water usage is projected to increase from 9,848,700 Ccf in 2022 to 9,920,300 Ccf in 2027. *Table 2* in Appendix A presents the projected annual volume for the period of 2022 through 2027.

Figure 5-2 presents both the historical and projected annual billed volume for the water utility.

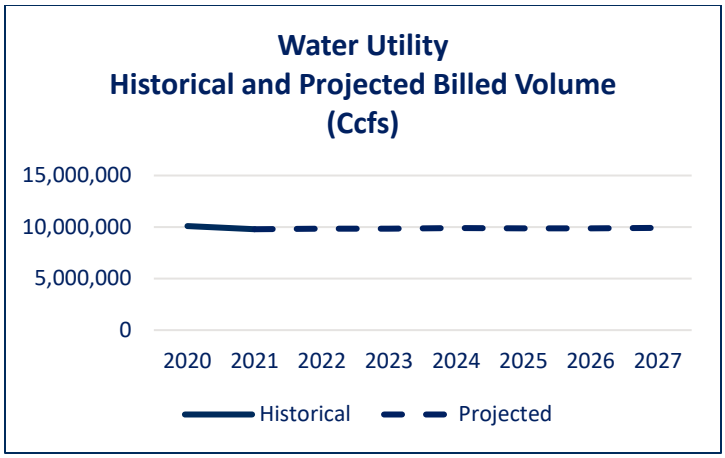


Figure 5-2 - Historical and Projected Water Billed Volume

5.1.2 Projection of Revenue Under Existing Rates

Projections of future water sales revenue are based on estimates of customer accounts and meter size distributions, water consumption and water use patterns, existing user charges, and wholesale customer contract provisions. Additionally, water sales revenue also includes fire protection charges, which have been estimated based on the number of fire accounts and the associated charges applicable to them. Water service revenues for the period 2022 through 2027 are projected for each charge component (base and volume) based on the projections of accounts by meter size, projected water usage for each customer class, and the application of the 2022 rate schedule shown in *Table 3*. Water service revenue under existing rates is projected to increase slightly from $46.0 million in 2022 to $47.0 million in 2027. This growth is due to increased water sales due to the change in the number of accounts over the study period.

Table 4 in Appendix A presents the projected annual service revenues for the period of 2022 through 2027.

Figure 5-3 presents both the historical and projected annual service revenues under existing rates for the water utility.

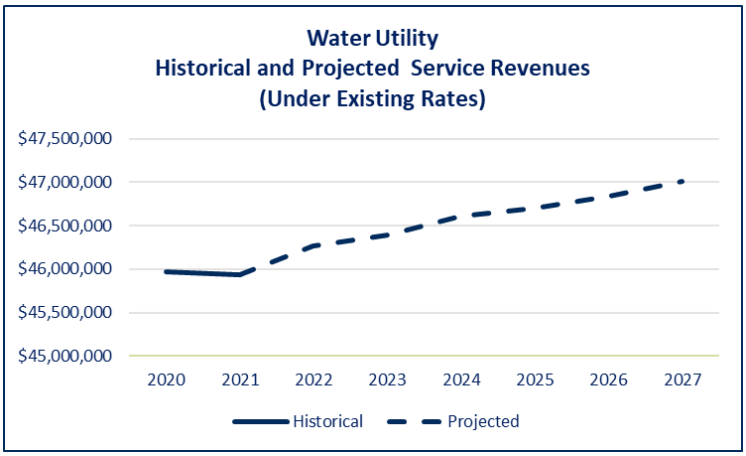


Figure 5-3 - Historical and Projected Water Service Revenue

5.1.3 Other Water Revenues

Historical and projected other income is presented in *Table 5*.

In addition to revenues generated by user charges for water service, income is also generated through a variety of other miscellaneous revenue sources. Sources of miscellaneous revenue include connect and disconnect fees, service fees, forfeited discounts and other revenue. Fees associated with Water Non Exchange are associated with new water development mains, while service fees include system development charges assessed to new connections. Revenue from miscellaneous sources is projected to remain stable at $2,811,500 throughout the study period.

Other revenues include:

- *Connect and Disconnect Fees*
- *Service Fees*
- *Forfeited Discounts*
- *Tower/Pole Attachment Rentals*
- *Water Non Exchange*
- *Other Income*

5.2 Water Capital Improvements Program

The BPU's Major Capital Improvement Program (CIP) for 2022 through 2027 is summarized in *Table 6*. The CIP was developed by BPU management and consists of capital improvement projects anticipated to be designed and constructed during the study period. As shown on Line 27, the BPU anticipates spending $149,795,900 from 2022 to 2027 on projects required to maintain the system and keep it running efficiently, meet regulatory requirements, and continue to meet anticipated demand.

The CIP is comprised of water projects and common projects. The water projects are those that solely benefit the water utility, while the common projects provide benefit to both the water and electric utility. Water projects are fully funded by the water utility, and the cost estimates shown on Lines 1 through 14 reflect the total cost of applicable project or phase of project proposed. The common projects are funded through contributions by both the water and electric utilities. The BPU has estimated the water utility's share of common projects to be 20 percent. As such, the cost estimates included on Lines 15 through 26 of *Table 6* reflect 20 percent of the total cost of the applicable project or phase of project.

The 2023 and 2024 projected expenditures for Water Services shown on Line 12 include $5M in each year to replace approximately 15 miles of ageing pipe. This project will be funded from a one-time grant provided by the United States Environmental Protection Agency (EPA). This $10M grant will help the BPU expedite the replacement of mains in older, historical areas of the community.

Water Production Projects on Line 13 includes a new electric generator for the BPU's Nearman Water Treatment Plant. This project will ensure the continuity of water service operations at the facility in the event of electrical service disruptions. This project will be funded with $3.75M from a one-time Resilience Grant provided by the Federal Emergency Management Agency (FEMA) and $2M from Kansas KDHE loan proceeds.

Table 7 shows the proposed plan to finance the capital improvements identified in *Table 6*.

Lines 1 through 8 within *Table 7* illustrate the proposed sources of funds. Financing for the proposed improvements is anticipated to be from a combination of system development charges (Service Fees), Water Non Exchange revenue, EPA and FEMA Grant Proceeds as previously mentioned, KDHE loan proceeds, cash transfers from the operating fund, and interest income.

The proposed use of Service Fees, shown on Line 1 of *Table 7*, reflect both the drawdown of funds from the System Development Reserve and the use of annual proceeds from the service fees. The drawdown from the reserve through 2025 will leave a balance of $6,500,000 as of December 31, 2025. It is assumed that all future revenue from service fees will be used to offset capital projects beginning in 2026.

Line 2 reflects the reimbursement that the BPU receives from developers for their share of the costs associated with water developmental mains. The BPU has been awarded an EPA grant for the replacement of small diameter galvanized water mains and a FEMA grant for a new electric generator for the Nearman Water Treatment Plant. These grant proceeds are shown on Lines 3 and 4 of *Table 7*.

In 2022, the BPU executed a loan agreement with KDHE to increase an existing loan amount from $25,000,000 to $39,500,000. The proceeds from this loan are shown on Line 5. It is anticipated that the BPU will apply for additional KDHE loans in the amount of $9,350,000 in 2023 and $18,350,000 in 2026. The projected application of these proceeds is shown on Line 6. It is anticipated that the $67,200,000 in KDHE loan proceeds will fund several projects in the proposed capital improvement program including $14,500,000 for the Argentine reservoir replacement, $30,450,000 in additional water storage and transmission projects, $2,250,000 in Water Production for the electric generator at the Nearman Water Treatment Plant, and $20,000,000 for water distribution projects.

The ability for the BPU to cash finance a portion of the capital projects is expected to vary between $4.6 million to $14.7 million throughout the study period, averaging $9,850,000 per year and totaling $59,200,000 as indicated on Line 7 of *Table 7*. Interest income (Line 8) is expected to be earned at a rate of approximately 0.5 percent on available balances. Line 9 shows the total of all funds available to finance the capital improvement program.

Figure 5-4 presents a summary of the funding sources for the 2022 - 2027 capital program.

Description	Total
Service Fees (SDFs)	$ 7,650,000
Water Non Exchange	$ 3,000,000
EPA Grant Proceeds	$ 10,000,000
FEMA Grant Proceeds	$ 3,750,000
KDHE Loan #2950 Proceeds	$ 39,500,000
Proposed KDHE Loans	$ 27,700,000
Transfer from Operating Fund	$ 59,200,000
Interest	$ 268,100
Total	$ 151,068,100

Figure 5-4 – Water Capital Funding Sources

5.3 Water Revenue Requirements

Projection of reliable revenue requirements includes:

1. System operation and maintenance expenses,
2. Recurring annual capital improvements,
3. Debt service requirements, consisting of principal, interest, and any reserve fund payments on revenue bonds,
4. Expenditures for major capital improvements not financed from bond proceeds or contributions; and
5. Projected payments to the City.

The projections of annual revenue requirements for the study period are discussed in this section.

5.3.1 Water Operation and Maintenance Expenses

The elements of operation and maintenance expense for the water utility are organized by primary function into the areas of Production, Transmission & Distribution, Customer Service, and General & Administrative. Costs include payroll and fringe benefits, purchased services, materials and supplies, contract services, utilities, and other items. *Table 8* does not include PILOT that is paid to the UG; however, it is included in the operating cash flow and will be discussed in more detail in a subsequent section of the report.

Operation and maintenance expenses include the annual salaries and wages of personnel, costs for materials and supplies, fuel and electrical power costs, and other costs such as employee benefits, insurance, and contract services. Annual operation and maintenance expense is met principally from annual operating revenue. A summary of historical and projected operation and maintenance expenses for 2022 through 2027 is presented in *Table 8*.

- *Personnel Costs: 2.5%*
- *Services: 2.0%*
- *Fuel and Purchase Power: 1.50%*
- *Material and Supplies: 2% - 3.0%, 2.0%*
- *Chemicals: 5%*
- *Other: 1%*

Figure 5-5 - Water O&M Escalation Factors

The 2022 and 2023 O&M budget provided by BPU was used as the baseline for the projection of O&M expenses for the study period. Based on historical O&M costs, industry experience, and discussions with the BPU, appropriate escalation factors were applied to various categories of costs to project future annual O&M expenses. Annual escalation factors used for major cost categories are shown in *Figure 5-5*.

The annual O&M expenses for the water utility are budgeted at $30,488,400 in 2022 and are projected to grow to $ 34,560,200 million by 2027.

Figure 5-6 presents the historical and projected O&M expenses for the water utility.

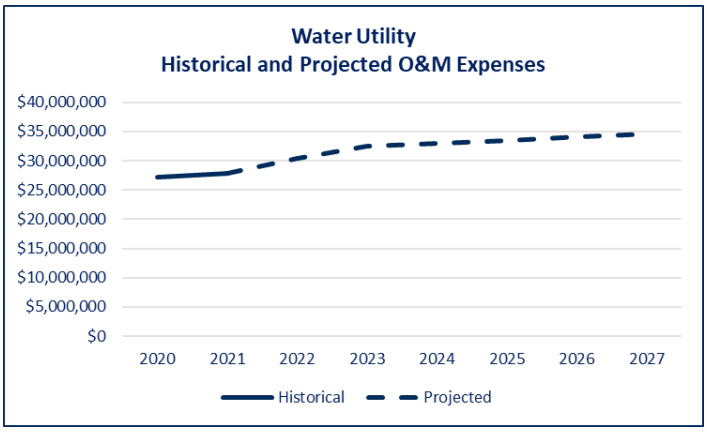


Figure 5-6 - Projected Annual Water O&M Expenses

5.3.2 Water Debt Service Requirements

Shown in *Table 9* is the water utility share of scheduled principal and interest requirements on existing revenue bonds and non-parity debt related to five loans from KDHE. Debt service on outstanding revenue bonds is projected to decrease from $8.4 million in 2022 to $5.6 million by 2027 due to paying off the 2012A Series and 2014 Series.

Proposed Debt Considerations:

- *Capital program needs*
- *Current policies*
- *Other sources of major capital improvement financing*
- *Debt service coverage requirements*

It is proposed that the program of major capital improvements for the water system be principally financed through additional KDHE loans. Additional KDHE loans indicated to be issued are assumed to be 30-year term, 1.5 percent fixed interest rate for 2022, and 2.5% thereafter. The 2022 KDHE loan includes a 2-year construction period during which no principal or interest payments are made; therefore, the debt service associated with the proposed 2022 loan will begin in 2024. However, the debt service for the proposed 2023 and 2026 loans assume interest only payment in the first year. Line 21 represents total projected debt service which averages about $11.0 million per year.

5.4 Water Proposed Revenue Adjustments

The annual revenue adjustments needed to achieve the financial performance objectives defined in Section 2.1.3 are determined by evaluating the funding gap between the projected annual revenue requirements and the projected revenues under existing rates. *Table 10* in Appendix A provides a summary of the revenue and revenue requirements (financial plan) for the study period.

Projected Revenue Under Existing Rates: Line 1 indicates that under existing rates (2022 rates), water utility revenues will increase from $46.3 million in 2022 to $47.0 million in 2027.

Free Water: Line 2 represents the credit for free water provided to the City and for BPU interdepartmental accounts.

Projected Other Revenues: Lines 9 and 10 indicate that the other revenues are anticipated to increase from $7.2 million in 2022 to $8.9 million in 2027 mainly due to an increase in the PILOT revenue.

Projected Expenses: The total annual expenses, which include O&M expense on Line 16, GASB 68 Pension Exp-Non Cash on Line 17, and PILOT on Line 18 are anticipated to increase from $35.6 million in 2022 to $41.4 million in 2027.

Funding Gap: The cash flow analysis indicates that the sum of revenues under existing rates and the other revenues is not adequate to fund the projected annual revenue requirements, causing an operating deficit.

Proposed Revenue Adjustments: A series of revenue adjustments are proposed and presented in *Figure 5-7* to address the funding gap in the water utility.

2023: 6.0%

2024: 6.0%

2025: 6.0%

2026: 6.0%

2027: 6.0%

Figure 5-7 - Proposed Water Revenue Adjustments

Lines 3 through 7 present the additional revenues generated each year with the proposed magnitude and timing of revenue adjustments. *Figure 5-8* shows the projected revenue and revenue requirements through 2027 for the water utility.

Line 31 of *Table 10* indicates the estimated Net Annual Cash Balance from operations remaining at the end of each year. The $4,458,100 balance of operating funds available at the beginning of year 2022, shown on Line 32, is comprised of the 2021 end of year balances available from general operating fund investments and cash on hand. The Net Cumulative Fund Balance is shown on Line 33.

The BPU has established a financial guideline for the water utility that the Operating Reserve available at the end of the year should meet or exceed 60 days of operation and maintenance expense; however, in order to achieve greater financial stability, the BPU aims for 100 days. The actual operating reserve is shown on Line 41 and the reserve measured in number of days in shown on Line 42.

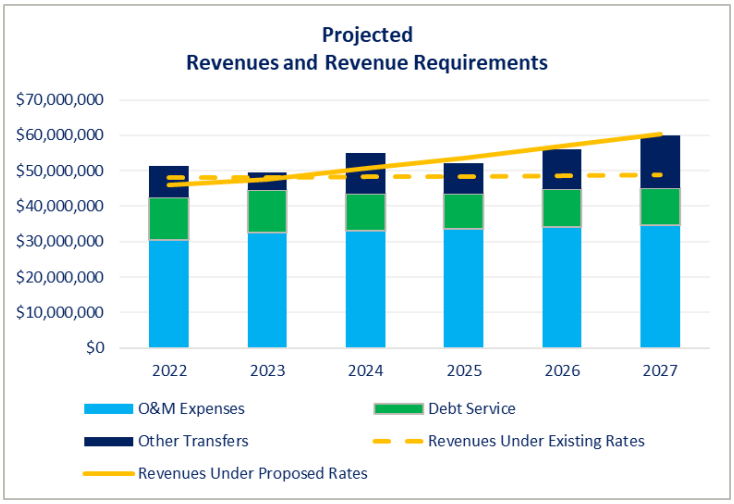


Figure 5-8 - Water Revenues and Revenue Requirements

As shown in Figure 5-8 and Line 42 of *Table 10*, the proposed annual revenue adjustments will allow the water utility to meet the adequate working capital balance through 2027.

5.4.1 Bond Coverage Requirements

An additional consideration in measuring the adequacy of revenues is providing sufficient debt service coverage to meet the bond covenant requirements for the issuance of parity revenue bonds. Since bonds for the water and electric utilities are issued as combined utility revenue bonds, debt service coverage is considered for the two utilities on a combined basis. However, it is appropriate and prudent to examine the ability of the water utility to meet bond coverage requirements on an individual basis.

The revenue bond ordinance provides that rates shall be maintained as follows:

The revenue bond Indenture provides that utility rates shall be maintained such that net revenue during each fiscal year will be equal to or greater than 120 percent of the maximum annual debt service in each year on a combined utility basis. In accordance with the bond Indenture, net revenue includes PILOT revenue but not PILOT expense. The ability of the water utility revenues to meet utility revenue bond coverage requirements is shown on Lines 2 through 6 of *Table 11*.

In addition, the BPU has established a financial guideline that net revenue including PILOT should be equal to 200 percent of the maximum annual debt service. As shown on Lines 9 through 13 of *Table 11*, this requirement is met during each year of study period if water rates are increased as proposed.

While PILOT revenue is allowed to be included in the determination of net revenue, the rating agencies also evaluate coverage without the benefit of PILOT revenues since the BPU remits these revenues directly back to the UG. Furthermore, the bond Indenture provides that rates shall be maintained such that net revenues are sufficient to not only satisfy the debt service coverage requirement, but also, among other things, make all required PILOT payments. Thus, as a practical matter, coverage should be evaluated without the benefit of PILOT revenues. As such, the BPU has established an additional target to achieve 1.6 times maximum annual debt service coverage, excluding PILOT revenue. Lines 15 through 19 of *Table 11* indicate that this target will be met during each year of the study period starting in 2024 if water rates are increased.

5.5 Water Cost of Service

A key step to developing an equitable rate structure involves the cost of service analysis. The financial plan provides an estimate of the total annual revenue requirements for a given fiscal year. The cost of service analysis provides a mechanism to defensibly allocate the total annual revenue requirements to the various customer classes.

The cost of service is typically performed for a single year, referred to as the "Test Year" for which the rates are to be designed. The Test Year for which the cost of service study was performed is 2023.

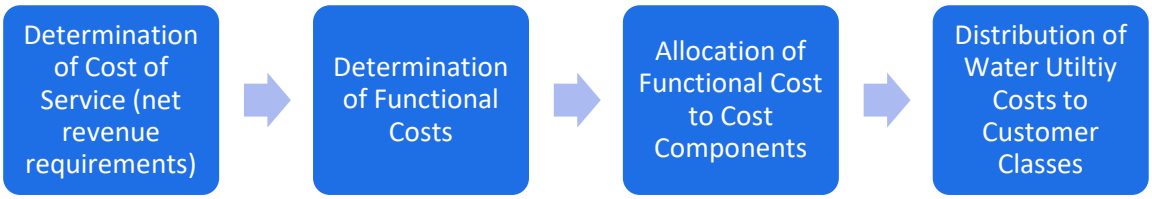


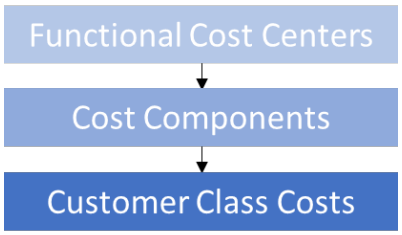
Figure 5-9 - Key Components of the Cost of Service Analysis

5.5.1 Determination of Cost of Service

The first step is to determine the cost of service that is to be recovered from user rates and charges. As briefly discussed in Section 3.3.4, the cost of service is defined as, and synonymous with, the "net revenue requirement" that is to be recovered for the Test Year through user rates and charges. *Table 12* in Appendix A presents the derivation of the cost of service to be recovered through water charges. As Line 17 indicates, the water cost of service for 2023 is projected to be $47.2 million. This cost of service consists of $30.5 million of net O&M expense, and $16.7 million of net capital costs.

5.5.2 Determination of Functional Costs

As a basis for developing an equitable rate structure, the Test Year cost of service should be allocated to the various customer classes according to respective service requirements.



The basic underlying principle in developing cost of service rates is determining what elements in a water system are responsible for causing the level of revenue requirements needed. The operating and capital costs of service are first aggregated into "Functional Cost Centers" to allocate the costs to customer classes. The functional costs are then further allocated to cost components. Each component cost is then apportioned to customer classes

Functional Cost Centers

Functional cost centers represent the activities that contribute to the incurrence of O&M and capital costs. For a water utility, they often include source of *water supply*, *pumping, treatment, storage, transmission and distribution, public fire protection, meters, billing,* and *other administration* costs. Both the O&M and capital costs defined for the Test Year need to be allocated to functional cost centers.

Functional Costs

The **capital costs** associated with the functional cost centers are determined using detailed fixed assets data provided by BPU for each class of asset currently in service and projected capital improvement program for the Test Year. The total value of the fixed assets (referred to as "Net Plant Investment") in the system is presented as Replacement Cost Less Depreciation ("RCLD"). The total estimated RCLD of the water system is $244 million as shown in Line 8 in *Table 13* in Appendix A. This plant investment data is subsequently used as a basis for the allocation to cost components, discussed in the following Section 5.5.3.2.

The **O&M costs** for the Test Year are allocated to the various functional cost centers based on the specific nature of costs. The allocation of the projected O&M cost of service (net operating revenue requirement) of $30.4 million to the various functional cost centers is presented in *Table 15* in Appendix A.

The various cost elements of water service are assigned to functional cost components as the first step in the subsequent distribution of the costs of service to customer classes.

5.5.3 Allocation of Costs to the Functional Cost Components

The principal functional cost components consist of *Base Costs*, *Extra-Capacity Costs*, and *Customer Costs.*

Base costs are those which vary directly with the quantity of water used, as well as those costs associated with serving customers under average load conditions without the elements necessary to meet water use variations or peak demands. Base costs include purchased power, treatment, chemicals, and other operating and capital costs of the water system associated with serving customers to the extent required for a constant or average annual rate of use.

Extra-Capacity costs represent those operating costs incurred due to demands in excess of average and capital related costs for additional plant and system capacity beyond that required for the average rate of use. Total extra capacity costs are subdivided into costs associated with maximum day and maximum hour demand.

Customer Costs are defined as costs that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collection and accounting costs, and maintenance and capital charges associated with meters and services.

The delineation of costs of service into these principal categories provides the means of further allocating such costs to the various customer classes based on the customer class's respective base, extra capacity, and customer service requirements.

Wholesale customers generally do not use smaller water distribution mains as do retail users. Therefore, separate functional cost of service categories are designated for costs common to all customer classes and those common to retail service classes only.

5.5.3.1 Water Utility Allocation to Cost Components

The BPU water utility is comprised of a variety of service facilities, each designed and operated to fulfill a given function. The utility must be capable of providing the total amount of water used and supplying water at maximum rates of demand to provide adequate service to its customers at all times.

Since all customers do not exert their maximum demand for water simultaneously, capacities of water facilities are designed to meet the peak coincidental demands that all classes of customers, as a whole, place on the system. For every water service facility on the system, there is an underlying average demand or uniform rate of usage exerted by the customers for which the base cost component applies. For those facilities designed solely to meet average day demand, costs are allocated 100% to the base cost component. Extra capacity requirements associated with coincidental demands in excess of average use are further related to maximum daily and maximum hourly demands.

Analysis of historical system maximum day and maximum hour demands to average day demands results in appropriate ratios for the allocation of capital costs and operating expenses to base and extra capacity cost components. A maximum day to average day ratio of 1.5 is used based on experienced demands in the water system. This indicates that approximately 66.7% of the capacity of facilities designed and operated to meet maximum day demand is required for average or base use. Accordingly, the remaining 33.3% is required for the maximum day extra capacity requirements.

The costs associated with facilities required to meet maximum hour demand are allocable to base, maximum day extra capacity, and maximum hour extra capacity. A ratio of the maximum hour to the annual average day water use of 1.7 is used, based on demands experienced by the system. This ratio indicates that 58.8% of the capacity of facilities designed and operated for maximum hour demand is needed for average or base use, while 29.4% is utilized for maximum day extra capacity uses, and the

remaining 11.8% is required to meet maximum hour extra capacity demand in excess of maximum day needs.

5.5.3.2 Allocation of Net Water Plant Investment

The estimated Test Year net plant investment in water facilities consists of net plant in service as of December 31, 2021, plus 2022 Construction Work in Progress. The allocation of estimated plant value serving treated water customers for the Test Year is shown in *Table 13*. The total plant value is of $243.4 million. The projected capital costs to be recovered on the basis of the allocation of plant investment are $11.8 million for the Test Year and shown on Line 9 of *Table 13*.

The estimated Test Year value of water system facilities is allocated to appropriate cost functions as the basis for further distribution to the various customer classes. The resulting distribution is the basis for assigning the capital charges associated with debt service on existing bonds for the Test Year to respective classes.

5.5.3.3 Allocation of Capital Improvements

Table 14 presents the allocation of capital improvements to the functional cost components. The total of capital improvements proposed for the Test Year 2023 is $ 31.3 million. The allocation of each improvement to cost components is performed in a similar manner to the allocation of net plant investment previously described.

The capital costs projected for the Test Year to be recovered are $4.9 million which includes debt service on proposed loans, cash-financed capital, and a credit for other revenue sources. These projected capital costs are assigned to the functional cost components on the basis of the allocation of total plant investment and are shown on Line 9.

5.5.3.4 Allocation of Water Utility Operating Expenses

Table 15 in Appendix A presents the allocation of O&M expense to functional cost components. Total Test Year O&M expense to be recovered, as shown on Line 6 of this table, amounts to $30.4 million. Operating expenses are allocated to functional cost components in generally the same manner as plant investment.

5.5.4 Distribution of Water Utility Costs to Customer Classes

As a basis for determining the cost of water service to each customer class, the elements of cost of service previously allocated to functional cost components are distributed among the classes in proportion to their respective service requirements. Estimates of these requirements, or units of service, reflect the average number of accounts with recognition to relative meter sizes serving each account, annual water sales, and estimated peak water demands placed on the system by each customer class. To properly recognize the costs of service, each customer class is allocated its share of base costs, extra capacity costs, customer costs, which consist of meter related costs, billing, collection, and accounting costs, and fire protection costs.

5.5.4.1 Water Customer Classification

For purposes of cost of service analysis and rate design, the water system's customers are classified to reflect groups of customers with similar service requirements who can be served at a similar average cost and the classification used by the BPU for record keeping purposes. The customer classes are separated into general categories of retail, wholesale, and BPU interdepartmental.

- Retail – This class includes retail customers are Residential, Commercial, Industrial, Schools, City, Private Fire Connection, Residential and Commercial Fire Hydrants, Public Fire Hydrant, and Private Fire Connection customers who receive retail water service at the individual consumer's premise and pay regular retail full service rates.

- City of Kansas City – This class includes water service provided to City of Kansas City / Unified Government accounts.

- Wholesale – This class includes contract rate customers and bulk water supplied to cities and districts outside of BPU's service area. Customers in this class include Consolidated Rural Water District #1, Lan Del Water District, Suburban Water, and the cities of Bonner Springs and Tonganoxie.

- BPU Interdepartmental – This class includes water service provided to BPU's electric utility.

5.5.4.2 Water Units of Service

The cost of service responsibility for base costs varies with the annual volume of water usage and is distributed to customer classes on that basis. Extra capacity costs are those costs associated with meeting peak rates of water use and are distributed to customer classes on the basis of their respective system capacity requirements in excess of average requirement rates. Customer costs, which consist of meter related costs and billing, collection and accounting costs, are allocated on the basis of the number of equivalent meters and monthly bills.

The estimated units of service for the various customer classifications are presented in *Table 16* in Appendix A. This table shows projected Test Year water use by customer classes, including annual and average day usage, the estimated maximum day capacity factors and the resulting maximum day total capacity and extra capacity requirements in excess of average day, and the estimated maximum hour capacity factors and the resulting maximum hour total capacity and extra capacity requirements in excess of maximum day. Estimates of total annual water use, shown in Column 1 of the table, are consistent with projected volumes previously discussed in *Table 2*. As a basis for distribution of extra capacity costs to the various customer classes, respective non-coincidental peak requirements of each class are estimated. The sum of the non-coincidental peak requirements of the individual classes exceeds the experienced or coincidental peak of the system due to diversity in requirements among the classes.

Generally, Residential and Commercial customers place more severe peak demands on the water system than Industrial customers. Therefore, Residential and Commercial customers are assigned higher capacity factors than the Industrial class, since water used by customers in the Industrial class is generally spread more uniformly throughout the day, and maximum rates of use tend to depart from the average less than the peak requirements of the Residential and Commercial customer classes. The peak demand requirements shown in *Table 16* for all customer classes except Fire Protection reflect an analysis of monthly usage by customer class and the total system peak demands for all customers.

Extra capacity requirements for fire protection service recognize, in part, peak fire flow requirements, and system capabilities established by the Insurance Services Office.

Customer costs are distributed to classes on the basis of the number of bills rendered for each customer class as indicated in Column 10 of *Table 16*. Meter related costs are allocated on the basis of the number of equivalent 5/8 inch meters serving each customer class which are shown in Column 9. The number of

equivalent meters and services estimated for each customer classification is based upon the total number of various size meters connected to the water system by the respective classes and the ratio of the cost of various sized meters and services to the cost of a 5/8-inch meter installation.

5.5.4.3 Water Utility Customer Class Costs of Service

Unit costs of service are developed by dividing the total cost allocated to each functional cost component by the total applicable units of service. The customer class responsibility for service is obtained by applying unit costs of service to the number of units for which the customer class is responsible.

Unit costs of service for each component are determined by dividing the allocated cost or investment from *Table 13*, Table 14, and *Table 15* by the total units of service from *Table 16*.

Table 19 shows allocated and adjusted cost of service by customer class, revenue under existing rates, and the indicated revenue adjustment for each class. Costs associated with City and BPU interdepartmental service and public fire protection are not recovered through direct charges; therefore, the cost of service for these classes is reallocated to all other retail customers in proportion to their allocated cost of service. Additionally, wholesale customers receive a facility credit for customer-owned storage facilities that reduce the BPU's cost of providing service. The amount of this credit, as shown in Column 3 on Line 9, is reallocated to all other retail customers in proportion to their allocated cost of service. The Test Year adjusted cost of service, reflecting the reallocation of these costs, is shown in Column 4. The indicated increase or decrease in revenue required to meet adjusted cost of service is shown in Column 5 of Table 19.

5.6 Water Rate Design

The principal consideration in establishing water rate schedules is to establish rates for customers to recover costs that reasonably commensurate with the cost of providing water service. Theoretically, the only method of assessing entirely equitable rates for water service would be the determination of each customer's bill based upon each customer's particular service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups of customers with similar service requirements. In addition, rates should provide equitable cost recovery, ease customer understanding and be simple to administer.

The revenue requirements and cost of service allocations described in the preceding sections provide the basis for adjusting water rates. The revenue requirements reflect the need for adjustment and the level of revenue required. The cost of service analysis provides the unit costs of service used in the rate design process and gives a basis for determining whether resultant rates will develop revenues that recover costs of service from customer classes in proportion to service required and provide the total level of necessary revenue.

5.6.1 Existing Water Rates

The BPU provides water service to the majority of its customers on a retail basis and existing rates are based generally upon the size of meter serving the customer's premise and the quantity of water purchased. Wholesale service is provided to various entities outside the City at rates stipulated by individual contracts for service. Provision for fire protection charges is also included in the existing rate schedules. *Table 3* indicates the BPU's existing water rates, which were implemented on January 1, 2013. The existing water rate structure is described in Section 4.3.

5.6.2 Proposed Water Rates

The cost of service studies described in the preceding section of this report provide a basis for designing schedules of water rates to recover those costs. Proposed minimum charges and volume rates have been designed to meet the Test Year allocated costs of service and are presented in *Table 20*. The proposed rate structure is similar to the existing structure.

In developing proposed schedules of water rates, it must be recognized that the cost of service study is a result of engineering estimates, based to some extent upon judgment and experience, and detailed results should not be used as literal and exact answers but as guides to the necessity for and nature of rate adjustments. Judgment must enter into the final choice of rates and factors such as previous rate levels, economic impact on the customer, public reaction to the extent of changes, and local practice in the part are commonly recognized in making rate adjustments. It is emphasized that all factors beyond cost of service considerations are strictly a matter of local policy.

Considerations recognized in the derivation of the proposed schedules of water rates subsequently presented herein, developed based on discussed with BPU representatives, include:

1. Develop rate modifications for 2023, 2024 and 2025 so that the total revenues recovered from water charges will be at least adequate to recover respective revenue requirements.

2. Recover Test Year revenues from each class of water customer approximately equal to the allocated costs of providing service, and

3. To the extent possible, permit no decreases in existing rates of charge to any class of customers at a time when rates to other classes are to be increased.

To better reflect the total effect the proposed rates have on customer bills, a comparison of typical customer water charges under existing rates and the rate proposed to become effective July 1, 2023, is presented in *Table 21*.

A comparison of the estimated 2023 Test Year revenue with Test Year allocated costs of service and revenues under existing rates is shown for each customer class in *Table 22*. This comparison indicates that the Test Year rates presented are expected to recover revenues from each customer class in a manner reasonably commensurate with the cost of service and practical considerations and criteria previously noted.

In addition to the *Table 20* schedule of rates proposed for application effective January 1, 2023, schedules of rates proposed for implementation effective January 1, 2024, and January 1, 2025, are also presented in *Table 23* in Appendix A. These rates are designed to recover the total revenue requirements previously projected herein for the years 2024 and 2025, respectively.

A regional comparison of typical monthly bills under the BPU's existing rate schedule and proposed rate schedule to be effect July 1, 2023, and 9 other communities is provided in Appendix B.

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6.0 Appendix A: Detailed Tables

Table 1 - Historical and Projected Number of Water Accounts

Line No.	Description	Historical			Projected					
		2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rate Class 010: Inside City Water									
1	Rate Class 010: Inside City Water Rate	51,237	51,731	52,324	52,585	52,847	53,110	53,375	53,641	53,908
2	Rate Class 010H: Inside City Water Hydrant Rate	35	41	42	42	42	42	42	42	42
3	Subtotal	51,272	51,772	52,366	52,627	52,889	53,152	53,417	53,683	53,950
						0.50%				
	Rate Class 020: Outside City Water									
4	Rate Class 020: Outside City Water Rate	1,666	1,661	1,664	1,664	1,664	1,664	1,664	1,664	1,664
5	Subtotal	1,666	1,661	1,664	1,664	1,664	1,664	1,664	1,664	1,664
	Rate Class 030: Wholesale Water									
6	Rate Class 031: Consolidated Rural District	1	1	1	1	1	1	1	1	1
7	Rate Class 032: Lan Del Water District	1	1	1	1	1	1	1	1	1
8	Rate Class 033: Suburban Water	1	1	1	1	1	1	1	1	1
9	Rate Class 034: Bonner Springs	1	1	1	1	1	1	1	1	1
10	Rate Class 035: Tonganoxie	1	1	1	1	1	1	1	1	1
11	Subtotal	5	5	5	5	5	5	5	5	5
	Rate Class 040: Private Fire Protection									
12	Rate Class 040: Fire Line Metered	554	564	563	563	563	563	563	563	563
13	Rate Class 041: Fire Line Metered	24	24	25	25	25	25	25	25	25
14	Rate Class 042: Non Metered Fire Protection	11	10	13	13	13	13	13	13	13
15	Subtotal	589	598	601	601	601	601	601	601	601
						0.00%				
	Rate Class 050: Interdepartmental									
16	Rate Class 010: City of Kansas City Kansas	138	139	139	139	139	139	139	139	139
17	Rate Class 050: BPU Interdepartmental	17	18	21	21	21	21	21	21	21
18	Subtotal	155	157	160	160	160	160	160	160	160
19	Total	53,687	54,193	54,796	55,057	55,319	55,582	55,847	56,113	56,380
	% Change	**0.66%**	**0.94%**	**1.11%**	**0.48%**	**0.48%**	**0.48%**	**0.48%**	**0.48%**	**0.48%**

Table 2 - Historical and Projected Water Usage

Line No.	Description	Historical			Projected					
		2019	2020	2021	2022	2023	2024	2025	2026	2027
		Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf
	Rate Class 010: Inside City Water									
1	Rate Class 010: Inside City Water Rate	8,091,194	7,917,400	7,844,325	7,875,700	7,905,800	7,936,100	7,966,400	7,996,900	8,027,300
2	Rate Class 010H: Inside City Water Hydrant Rate	13,932	15,227	10,977	11,100	11,100	11,100	11,100	11,100	11,100
3	Subtotal	8,105,126	7,932,627	7,855,302	7,886,800	7,916,900	7,947,200	7,977,500	8,008,000	8,038,400
	Rate Class 020: Outside City Water									
4	Rate Class 020: Outside City Water Rate	210,714	214,051	213,873	212,800	212,800	212,800	212,800	212,800	212,800
5	Subtotal	210,714	214,051	213,873	212,800	212,800	212,800	212,800	212,800	212,800
	Rate Class 030: Wholesale Water									
6	Rate Class 031: Consolidated Rural District	226,135	252,691	256,166	271,100	271,000	271,000	271,000	271,000	271,000
7	Rate Class 032: Lan Del Water District	127,851	102,792	112,031	105,900	111,700	111,700	111,700	111,700	111,700
8	Rate Class 033: Suburban Water	245,806	285,339	107,208	114,600	107,200	107,200	107,200	107,200	107,200
9	Rate Class 034: Bonner Springs	93,101	45,679	110,037	126,100	75,000	75,000	25,000	0	0
10	Rate Class 035: Tonganoxie	122,902	132,924	150,716	152,200	176,000	200,000	200,000	200,000	200,000
11	Subtotal	815,795	819,425	736,158	769,900	740,900	764,900	714,900	689,900	689,900
	Rate Class 040: Private Fire Protection									
12	Rate Class 040: Fire Line Metered	15,572	18,172	23,818	18,200	18,200	18,200	18,200	18,200	18,200
13	Rate Class 041: Fire Line Metered	582	206	288	300	300	300	300	300	300
14	Rate Class 042: Non Metered Fire Protection	0	0	0	0	0	0	0	0	0
15	Subtotal	16,154	18,378	24,106	18,500	18,500	18,500	18,500	18,500	18,500
	Rate Class 050: Interdepartmental									
16	Rate Class 010: City of Kansas City Kansas	509,290	446,404	503,733	503,700	503,700	503,700	503,700	503,700	503,700
17	Rate Class 050: BPU Interdepartmental	877,489	665,179	457,030	457,000	457,000	457,000	457,000	457,000	457,000
18	Subtotal	1,386,779	1,111,583	960,763	960,700	960,700	960,700	960,700	960,700	960,700
19	Total	10,534,568	10,096,064	9,790,202	9,848,700	9,849,800	9,904,100	9,884,400	9,889,900	9,920,300
	% Change	**2.05%**	**-4.16%**	**-3.03%**	**0.60%**	**0.01%**	**0.55%**	**-0.20%**	**0.06%**	**0.31%**

Table 3 - Existing Water Rates

Rate Component	Existing Rates		
	Monthly Charge	Mininum Charge	Monthly Usage Requirement
	$	$	Ccf
Rate Code 10 - Inside City and 20 - Outside City			
Meter Size			
5/8"	19.35	19.74	0.10
3/4"	23.55	41.83	4.70
1"	29.35	58.22	7.50
1.5"	46.00	101.77	15.70
2"	62.60	150.51	25.50
3"	136.00	289.51	45.50
4"	219.00	465.99	74.00
6"	427.00	916.71	148.00
8"	635.00	1,451.07	247.50
10"	843.00	2,067.43	372.00
12"	967.00	2,488.27	462.50

Ccf Units per Month	Volume Charge - $/Ccf
First 7 Ccf	3.89
Next 1,993 Ccf	3.28
Over 2,000 Ccf	3.03
Hydrant Daily Rental Fee	1.50

Rate Code 30 - Wholesale

Ccf Units per Month	Volume Charge - $/Ccf	Monthly Customer Charge - $
All Usage	1.77	160.00

Rate Code 40 - Fire Protection

Meter Size	Monthly Customer Charge - $
2"	7.97
4"	20.44
6"	49.86
8"	100.21
10"	175.95
12"	281.10

Rate Code 50 - Interdepartmental

Ccf Units per Month	Volume Charge - $/Ccf
All Usage	0.51

Ccf - Hundred Cubic Feet

Table 4 - Historical and Projected Billings Under Existing Rates

Line No.	Description	Historical			Projected					
		2019	2020	2021	2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$	$	$	$
	Rate Class 010: Inside City Water									
1	Rate Class 010: Inside City Water Rate	41,277,166	40,984,342	40,878,595	41,122,100	41,296,800	41,472,300	41,648,400	41,825,600	42,002,400
2	Rate Class 010H: Inside City Water Hydrant Rate	135,548	149,380	143,969	160,600	160,600	160,600	160,600	160,600	160,600
3	Subtotal	41,412,714	41,133,722	41,022,564	41,282,700	41,457,400	41,632,900	41,809,000	41,986,200	42,163,000
	Rate Class 020: Outside City Water									
4	Rate Class 020: Outside City Water Rate	1,158,124	1,167,813	1,164,666	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000
5	Subtotal	1,158,124	1,167,813	1,164,666	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000	1,164,000
	Rate Class 030: Wholesale Water									
6	Rate Class 031: Consolidated Rural District	402,180	449,182	455,334	476,100	476,000	476,000	476,000	476,000	476,000
7	Rate Class 032: Lan Del Water District	228,216	183,862	200,215	187,100	197,300	197,300	197,300	197,300	197,300
8	Rate Class 033: Suburban Water	437,040	506,970	191,678	202,400	189,400	189,400	189,400	189,400	189,400
9	Rate Class 034: Bonner Springs	166,708	82,772	196,684	222,500	133,100	133,100	45,600	1,900	1,900
10	Rate Class 035: Tonganoxie	219,456	237,196	268,687	268,100	309,800	351,800	351,800	351,800	351,800
11	Subtotal	1,453,600	1,459,982	1,312,598	1,356,200	1,305,600	1,347,600	1,260,100	1,216,400	1,216,400
	Rate Class 040: Private Fire Protection									
12	Rate Class 040: Fire Line Metered	529,682	538,483	556,307	532,400	532,400	532,400	532,400	532,400	532,400
13	Rate Class 041: Fire Line Metered	28,498	27,338	29,358	29,500	29,500	29,500	29,500	29,500	29,500
14	Rate Class 042: Non Metered Fire Protection	8,217	8,234	10,104	9,700	9,700	9,700	9,700	9,700	9,700
15	Subtotal	566,397	574,055	595,769	571,600	571,600	571,600	571,600	571,600	571,600
	Rate Class 050: Interdepartmental									
16	Rate Class 010: City of Kansas City Kansas	1,747,406	1,556,858	1,764,562	1,665,500	1,665,500	1,665,500	1,665,500	1,665,500	1,665,500
17	Rate Class 050: BPU Interdepartmental	84,783	76,322	70,935	230,300	230,300	230,300	230,300	230,300	230,300
18	Subtotal	1,832,189	1,633,180	1,835,497	1,895,800	1,895,800	1,895,800	1,895,800	1,895,800	1,895,800
19	Total	46,423,024	45,968,752	45,931,094	46,270,300	46,394,400	46,611,900	46,700,500	46,834,000	47,010,800
	% Change	**-1.31%**	**-0.98%**	**-0.08%**	**0.74%**	**0.27%**	**0.47%**	**0.19%**	**0.29%**	**0.38%**

Table 5 - Historical and Projected Miscellaneous Revenue

Line No.	Description	Historical			Budget	Projected				
		2019	2020	2021	2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$	$	$	$
1	Forfeited Discounts	525,389	541,138	292,631	580,000	580,000	580,000	580,000	580,000	580,000
2	Connect and Disconnect Fees	333,648	285,000	264,686	350,000	350,000	350,000	350,000	350,000	350,000
3	Diversion Fines	6,803	10,724	5,057	8,500	8,500	8,500	8,500	8,500	8,500
4	Tower/Pole Attachment Rentals	196,240	242,998	246,079	320,000	320,000	320,000	320,000	320,000	320,000
5	Other Miscellaneous Revenues	0	0	0	0	0	0	0	0	0
6	Service Fees	787,144	1,019,638	1,099,533	958,000	958,000	958,000	958,000	958,000	958,000
7	Water Non Exchange	326,924	1,075,471	952,442	500,000	500,000	500,000	500,000	500,000	500,000
8	Public Authorities	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
9	Disposal of Assets-Gain/Loss	0	0	0	0	0	0	0	0	0
10	Miscellaneous Operating Revenue	6,207	3,584	14,272	8,000	8,000	8,000	8,000	8,000	8,000
11	Other Income	2,688	(28,732)	50,589	59,000	59,000	59,000	59,000	59,000	59,000
12	Total Miscellaneous Revenue	2,213,043	3,177,821	2,953,289	2,811,500	2,811,500	2,811,500	2,811,500	2,811,500	2,811,500
	% Change	**14.4%**	**43.6%**	**-7.1%**	**-4.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Table 6 - Proposed Capital Improvement Program

Line No.	Description	Projected Capital Improvement Program						
		2022	2023	2024	2025	2026	2027	Total
		$	$	$	$	$	$	$
	Water							
1	Water Equipment	410,000	508,000	896,500	943,000	991,000	1,020,700	4,769,200
2	Water Environmental Work	0	0	0	0	0	0	0
3	Water Facility Improvements	505,500	490,000	1,075,000	550,000	525,000	465,000	3,610,500
4	Water Furnishings & Equipment	161,000	24,000	72,000	143,000	69,000	55,000	524,000
5	Water Grounds	89,700	88,000	290,000	195,000	288,000	193,000	1,143,700
6	Water Technology	45,000	30,000	67,500	70,000	75,000	76,800	364,300
7	Water Accident Claims	0	0	0	0	0	0	0
8	Water Developmental Mains	367,400	367,500	377,100	377,700	377,700	382,800	2,250,200
9	Water Distribution	3,217,500	7,671,000	8,383,000	11,830,000	11,203,000	7,900,700	50,205,200
10	Water Meters	334,100	295,000	858,000	786,000	786,000	814,100	3,873,200
11	Water Storage and Transmission	6,714,800	13,983,900	7,833,000	5,974,100	7,180,400	9,287,500	50,973,700
12	Water Services	806,000	5,675,600	5,763,500	786,400	809,500	833,400	14,674,400
13	Water Production Projects	605,000	1,077,000	6,146,000	356,000	1,126,000	2,531,000	11,841,000
14	Subtotal	13,256,000	30,210,000	31,761,600	22,011,200	23,430,600	23,560,000	144,229,400
15	**Common (a)**							
16	Common Equipment	0	0	0	0	0	0	0
17	Common Furnish and Equipment	6,000	6,000	6,000	6,000	6,000	6,500	36,500
18	Common Facility Improvements	22,000	34,000	32,000	32,000	32,000	32,000	184,000
19	Common Grounds	55,000	35,000	15,000	15,000	15,000	15,000	150,000
20	Common Purchasing & Supplies	0	0	0	0	0	0	0
21	Common Enterprise Technology	915,000	829,200	831,000	681,000	554,000	609,000	4,419,200
22	Administrative Service Technology	101,200	101,200	101,200	101,200	101,200	101,800	607,800
23	HR Security Improvements	65,000	35,000	25,000	15,000	15,000	14,000	169,000
24	Common Tele Communications	0	0	0	0	0	0	0
25	Economic Development	0	0	0	0	0	0	0
26	Subtotal	1,164,200	1,040,400	1,010,200	850,200	723,200	778,300	5,566,500
27	**Total Water CIP Summary Inflated**	14,420,200	31,250,400	32,771,800	22,861,400	24,153,800	24,338,300	149,795,900

Table 7 - Capital Improvement Program Financing

Line No.	Description	Fiscal Year Ending December 31, 2022	2023	2024	2025	2026	2027	Total
		$	$	$	$	$	$	$
	Sources of Funds							
1	Service Fees (SDFs)	0	3,050,000	1,550,000	2,050,000	500,000	500,000	7,650,000
2	Water Non Exchange	500,000	500,000	500,000	500,000	500,000	500,000	3,000,000
3	EPA Grant Proceeds	0	5,000,000	5,000,000	0	0	0	10,000,000
4	FEMA Grant Proceeds	0	500,000	3,250,000	0	0	0	3,750,000
5	KDHE Loan #2950 Proceeds	6,000,000	16,950,000	9,250,000	5,000,000	2,300,000	0	39,500,000
6	Proposed KDHE Loans (a)	0	750,000	1,850,000	6,750,000	9,750,000	8,600,000	27,700,000
7	Transfer from Operating Fund	8,700,000	4,600,000	11,400,000	8,500,000	11,300,000	14,700,000	59,200,000
8	Interest (b)	57,100	58,200	45,800	40,500	33,200	33,300	268,100
9	Subtotal	15,257,100	31,408,200	32,845,800	22,840,500	24,383,200	24,333,300	151,068,100
	Application of Funds							
10	Major Capital Improvements	14,420,200	31,250,400	32,771,800	22,861,400	24,153,800	24,338,300	149,795,900
11	Issuance Expense	98,800	94,400	0	0	185,300	0	378,500
12	Reserve Fund Requirement	0	0	0	0	0	0	0
13	Subtotal	14,519,000	31,344,800	32,771,800	22,861,400	24,339,100	24,338,300	150,174,400
14	End of Year Balance	738,100	801,500	875,500	854,600	898,700	893,700	
15	Percentage of Next Year's Construction Reserve (c)	49.7%	52.0%	54.2%	51.2%	52.3%	52.0%	
16	System Development Reserve Balance	11,351,700	8,851,700	7,851,700	6,351,700	6,401,700	6,451,700	
17	Construction Reserve (d)	1,364,970	1,486,600	1,540,500	1,616,400	1,668,500	1,718,440	

(a) Amounts shown reflect projected drawdown of KDHE Loan funds.
(b) Includes interest earnings on the System Development Reserve.
(c) Mininum required balance is 50%.
(d) Construction Reserve consists of Water Services, Meter Replacements and Hydrants program.

Table 8 - Historical and Projected Operation and Maintenance Expense

Line No.	Description	Historical 2019	2020	2021	Budget 2022	Budget 2023	Projected 2024	2025	2026	2027
		$	$	$	$	$	$	$	$	$
1	Production	5,505,400	5,657,700	5,694,300	6,945,800	7,392,500	7,566,000	7,743,300	7,924,700	8,110,300
2	Transmission & Distribution	16,240,800	13,498,800	14,634,700	14,899,300	15,726,900	16,033,500	16,347,500	16,668,900	16,998,200
3	Customer Service	2,161,000	2,153,100	2,106,800	2,130,700	2,235,700	2,236,200	2,236,700	2,236,700	2,236,700
4	General & Administrative	6,241,200	5,866,300	5,467,700	6,512,600	7,169,100	7,180,200	7,191,600	7,203,200	7,215,000
5	Total Operation & Maintenance Expense	30,148,400	27,175,900	27,903,500	30,488,400	32,524,200	33,015,900	33,519,100	34,033,500	34,560,200
	% Change	**13.0%**	**-9.9%**	**2.7%**	**9.3%**	**6.7%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**

Table 9 - Existing and Proposed Debt Service

Line No.	Description	Remaining Principal	Annual Debt Service Requirements					
			2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$	$
	Existing Revenue Bonds							
1	2012A	274,900	288,600	0	0	0	0	0
2	2014A	5,615,000	3,169,500	3,165,800	0	0	0	0
3	2016B	274,300	179,500	179,700	205,600	205,800	205,600	205,600
4	2020A	4,280,000	603,900	599,200	609,200	618,400	621,900	604,800
5	2020B	28,660,000	4,160,800	4,284,000	4,761,700	4,765,900	4,754,600	4,759,800
6	Total Existing Debt (a)	39,104,200	8,402,300	8,228,700	5,576,500	5,590,100	5,582,100	5,570,200
	Existing Subordinate State Loans							
7	UG Radio Debt	1,126,500	170,400	169,800	170,000	170,500	169,700	170,400
8	KDHE Loan #2263	3,156,300	860,100	860,100	860,100	0	0	0
9	KDHE Loan #2365	1,320,900	359,800	359,800	359,800	0	0	0
10	KDHE Loan #2379	2,139,100	633,000	633,000	633,000	633,000	633,000	316,500
11	KDHE Loan #2570	4,277,100	760,600	760,600	760,600	760,600	760,600	760,600
12	KDHE Loan #2823	8,287,100	805,700	805,700	805,700	805,700	805,700	805,700
13	KDHE Loan # 2950	39,500,000	0	0	820,000	1,639,900	1,639,900	1,639,900
14	Total Subordinate Existing Debt (a)	59,807,000	3,589,600	3,589,000	4,409,200	4,009,700	4,008,900	3,693,100
	Proposed Subordinate State Loans							
15	2023 (c)	9,444,000		338,400	451,200	451,200	451,200	451,200
16	2024	0			0	0	0	0
17	2025	0				0	0	0
18	2026 (c)	18,534,000					664,100	885,500
19	2027	0						0
20	Total Proposed Subordinate Debt	127,285,000	0	338,400	451,200	451,200	1,115,300	1,336,700
21	Total Debt Service		11,991,900	12,156,100	10,436,900	10,051,000	10,706,300	10,600,000

(a) Remaining principal as of 12/31/2021 on existing debt issues.
(b) Debt payment schedule provided by Financial Advisor.
(c) Assumes interest only payment 1st year.

Table 10 - Comparison of Projected Revenue Under Existing Rates with Projected Revenue Requirements

Line No.	Description	Fiscal Year Ending December 31, 2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$
1	Revenue Under Existing Rates	46,270,300	46,394,400	46,611,900	46,700,500	46,834,000	47,010,800
2	Free Water	(1,895,800)	(1,895,800)	(1,895,800)	(1,895,800)	(1,895,800)	(1,895,800)
	Increased Revenue						
3	6.00% Effective July 1, 2023		1,335,000	2,683,000	2,688,300	2,696,300	2,706,900
4	6.00% Effective July 1, 2024			1,422,000	2,849,600	2,858,100	2,869,300
5	6.00% Effective July 1, 2025				1,510,300	3,029,600	3,041,500
6	6.00% Effective July 1, 2026					1,605,700	3,224,000
7	6.00% Effective July 1, 2027						1,708,700
8	**Total Revenue from Rates**	44,374,500	45,833,600	48,821,100	51,852,900	55,127,900	58,665,400
9	Other Revenue (a)	1,761,500	1,761,500	1,761,500	1,761,500	1,761,500	1,761,500
10	PILOT	5,490,200	5,663,800	6,019,300	6,380,100	6,769,800	7,190,800
11	**Subtotal Operating Revenue**	51,626,200	53,258,900	56,601,900	59,994,500	63,659,200	67,617,700
	Non-Operating Revenue						
12	Interest-Operating Fund	10,300	0	0	0	0	0
13	Interest- Reserve Fund (b)	41,000	41,700	42,500	43,200	44,000	44,700
14	**Subtotal Non-Operating Revenue**	51,300	41,700	42,500	43,200	44,000	44,700
15	**Total Revenue**	51,677,500	53,300,600	56,644,400	60,037,700	63,703,200	67,662,400
	Revenue Requirements:						
16	Operation & Maintenance Expense	30,488,400	32,524,200	33,016,000	33,519,100	34,033,600	34,560,200
17	GASB 68 Pension Exp-Non Cash	(400,000)	(400,000)	(400,000)	(400,000)	(400,000)	(400,000)
18	PILOT	5,490,200	5,663,800	6,019,300	6,380,100	6,769,800	7,190,800
19	**Subtotal O&M Expenses**	35,578,600	37,788,000	38,635,300	39,499,200	40,403,400	41,351,000
20	**Net Revenue**	16,098,900	15,512,600	18,009,100	20,538,500	23,299,800	26,311,400
	Debt Service Requirements						
21	Existing Revenue Bonds	8,402,300	8,228,700	5,576,500	5,590,100	5,582,100	5,570,200
22	Proposed Revenue Bonds	0	0	0	0	0	0
23	Total Revenue Bond Debt Service	8,402,300	8,228,700	5,576,500	5,590,100	5,582,100	5,570,200
24	Existing Subordinate Debt	3,589,600	3,589,000	4,409,200	4,009,700	4,008,900	3,693,100
25	Proposed Subordinate Debt	0	338,400	451,200	451,200	1,115,300	1,336,700
26	Total Subordinate Debt	3,589,600	3,927,400	4,860,400	4,460,900	5,124,200	5,029,800
27	**Total Debt Service**	11,991,900	12,156,100	10,436,900	10,051,000	10,706,300	10,600,000
	Operating Transfers:						
28	Transfer to Capital Fund	8,700,000	4,600,000	11,400,000	8,500,000	11,300,000	14,700,000
29	Economic Development Fund Authorization	150,000	150,000	150,000	150,000	150,000	150,000
30	**Total Revenue Requirements**	56,420,500	54,694,100	60,622,200	58,200,200	62,559,700	66,801,000
	Operating Fund Balance						
31	Net Balance	(4,794,300)	(1,435,200)	(4,020,300)	1,794,300	1,099,500	816,700
32	Beginning Fund Balance (c)	4,458,100	(336,200)	(1,771,400)	(5,791,700)	(3,997,400)	(2,897,900)
33	End of Year Balance	(336,200)	(1,771,400)	(5,791,700)	(3,997,400)	(2,897,900)	(2,081,200)
	Operating Reserve						
34	Cash End of Year Balance	(336,200)	(1,771,400)	(5,791,700)	(3,997,400)	(2,897,900)	(2,081,200)
35	Transfer (from)/to Operating Reserve	0	0	0	0	0	0
36	Economic Development Fund	250,000	400,000	550,000	700,000	850,000	1,000,000
37	Reserve - Liability Insurance	420,000	420,000	420,000	420,000	420,000	420,000
38	Rate Stabilization	0	0	0	0	0	0
39	Capital Debt Reduction	6,290,000	6,290,000	6,290,000	6,290,000	6,290,000	6,290,000
40	System Development Reserve	11,351,700	8,851,700	7,851,700	6,351,700	6,401,700	6,451,700
41	**End of Year Balance**	17,975,500	14,190,300	9,320,000	9,764,300	11,063,800	12,080,500
42	Number of Days - Actual (e)	215	159	103	106	119	128
43	Number of Days - Guideline	60	60	60	60	60	60

(a) Excludes revenue from System Development Fees.
(b) Includes interest earnings on Customer Deposits Reserve, Economic Development Fund, Reserve- Liabiltiy Insurance, and Capital Debt Reduction.
(c) Includes Unrestricted Balance in Cash and Marketable Securities and Debt Service Fund.
(d) Based on Operating Fund Balance on Line 33.
(e) Based on Operating Reserve Balance on Line 41.

Table 11 - Coverage Requirements

Line No.	Description	Fiscal Year Ending December 31, 2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$
1	**Rate Covenant**						
2	Net Revenue including PILOT Revenue (a)	21,589,100	21,176,400	24,028,400	26,918,600	30,069,600	33,502,200
3	Average Annual Debt Service Requirements - Total Debt	11,992,000	12,074,300	11,528,500	11,464,000	11,312,600	11,246,500
4	Coverage Ratio including PILOT Revenue	180%	175%	208%	235%	266%	298%
5	Maximum Annual Debt Service Requirements - Total Debt	12,156,100	12,156,100	10,706,400	10,706,400	10,706,400	10,600,100
6	Coverage Ratio including PILOT Revenue	178%	174%	224%	251%	281%	316%
7	Target	120%	120%	120%	120%	120%	120%
8	**Financial Guideline**						
9	Net Revenue including PILOT Revenue (a)	21,589,100	21,176,400	24,028,400	26,918,600	30,069,600	33,502,200
10	Average Annual Debt Service Requirements - Total Debt	11,992,000	12,074,300	11,528,500	11,464,000	11,312,600	11,246,500
11	Coverage Ratio including PILOT Revenue	180%	175%	208%	235%	266%	298%
12	Maximum Annual Debt Service Requirements - Total Debt	12,156,100	12,156,100	10,706,400	10,706,400	10,706,400	10,600,100
13	Coverage Ratio including PILOT Revenue	178%	174%	224%	251%	281%	316%
14	Target	200%	200%	200%	200%	200%	200%
15	Net Revenue excluding PILOT Revenue (a)	16,098,900	15,512,600	18,009,100	20,538,500	23,299,800	26,311,400
16	Average Annual Debt Service Requirements - Total Debt	11,992,000	12,074,300	11,528,500	11,464,000	11,312,600	11,246,500
17	Coverage Ratio excluding PILOT Revenue	134%	128%	156%	179%	206%	234%
18	Maximum Annual Debt Service Requirements - Total Debt	12,156,100	12,156,100	10,706,400	10,706,400	10,706,400	10,600,100
19	Coverage Ratio excluding PILOT Revenue	132%	128%	168%	192%	218%	248%
20	Target	160%	160%	160%	160%	160%	160%
21	**Additional Bonds**						
22	Preceeding Test Year						
23	Net Revenue including PILOT Revenue (a)		21,589,100	21,176,400	24,028,400	26,918,600	30,069,600
24	Average Annual Debt Service Requirements - Total Debt		11,992,000	12,074,300	11,528,500	11,464,000	11,312,600
25	Coverage Ratio		180%	175%	208%	235%	266%
26	Maximum Annual Debt Service Requirements - Total Debt		12,156,100	12,156,100	10,706,400	10,706,400	10,706,400
27	Coverage Ratio		178%	174%	224%	251%	281%
28	Target		130%	130%	130%	130%	130%
29	**Future Year Test**						
30	Net Revenue including PILOT Revenue (a)	21,589,100	21,176,400	24,028,400	26,918,600	30,069,600	33,502,200
31	Average Annual Debt Service Requirements - Total Debt	11,992,000	12,074,300	11,528,500	11,464,000	11,312,600	11,246,500
32	Coverage Ratio	180%	175%	208%	235%	266%	298%
33	Maximum Annual Debt Service Requirements - Total Debt	12,156,100	12,156,100	10,706,400	10,706,400	10,706,400	10,600,100
34	Coverage Ratio	178%	174%	224%	251%	281%	316%
35	Target	130%	130%	130%	130%	130%	130%

(a) Net Revenue includes the proposed revenue increases reflected in Table 10.

Table 12 - Test Year 2023 Total Cost of Service to be Recovered from Rates

Line No.	Description	O&M Expense	Capital Costs	Total
		$	$	$
	Revenue Requirements			
1	Operation & Maintenance Expense	32,124,200		32,124,200
2	PILOT	5,663,800		5,663,800
3	Existing Debt Service		11,817,700	11,817,700
4	Proposed Debt Service		338,400	338,400
5	Revenue Capital Financing		4,600,000	4,600,000
6	Economic Development Fund Authorization	150,000		150,000
7	Total	37,938,000	16,756,100	54,694,100
	Revenue Requirements Met from Other Sources			
8	Other Revenue	1,761,500		1,761,500
9	Interest Income	0		0
10	PILOT	5,663,800		5,663,800
11	Full Year Rate Adjustment (a)	(925,900)	(409,000)	(1,334,900)
12	Use of Available Funds (b)	995,500	439,700	1,435,200
13	Total	7,494,900	30,700	7,525,600
14	Net Costs to be met from Water Sales Charges	30,443,100	16,725,400	47,168,500

Table 13 - Test Year 2023 Allocation of Net Plant Investment to Functional Cost Components

Line No.	Description	Net Plant Investment	Common to All Treated Water Customers				Common to Retail				
			Base	Max Day	Max Hour	Meter Reading & Billing	Base	Max Day	Max Hour	Meters & Services	Fire Protection
		$	$	$	$	$	$	$	$	$	$
1	Source of Supply	2,521,500	1,681,900	839,600	0	0	0	0	0	0	0
2	Pumping Plant	12,906,000	8,608,300	4,297,700	0	0	0	0	0	0	0
3	Water Treatment	48,569,800	32,396,100	16,173,700	0	0	0	0	0	0	0
4	Transmission and Distribution	164,760,300	53,378,250	25,783,900	14,522,200	0	19,482,250	9,644,800	5,484,700	24,169,800	12,294,400
5	General Plant	10,324,200	4,232,934	2,075,600	628,700	309,420	843,500	417,600	237,600	1,046,500	532,300
6	Total Water Plant	239,081,800	100,297,484	49,170,500	15,150,900	309,420	20,325,750	10,062,400	5,722,300	25,216,300	12,826,700
7	Common Plant	4,908,500	2,059,300	1,009,400	311,000	6,400	417,200	206,700	117,400	517,700	263,400
8	Grand Total Water and Common Plant	243,990,300	102,356,784	50,179,900	15,461,900	315,820	20,742,950	10,269,100	5,839,700	25,734,000	13,090,100
9	Capital Charges to be Recovered (a)	11,817,700	4,957,700	2,430,500	748,900	15,300	1,004,700	497,400	282,800	1,246,400	634,000

(a) Includes debt service on existing bonds.

Table 14 - Test Year 2023 Allocation of Capital Improvements to Functional Cost Components

Line No.	Description	Net Capital Program	Common to All Treated Water Customers				Common to Retail				
			Base	Max Day	Max Hour	Meter Reading & Billing	Base	Max Day	Max Hour	Meters & Services	Fire Protection
		$	$	$	$	$	$	$	$	$	$
1	Source of Supply	0	0	0	0	0	0	0	0	0	0
2	Pumping Plant	1,975,000	1,317,300	657,700	0	0	0	0	0	0	0
3	Water Treatment	1,382,000	921,800	460,200	0	0	0	0	0	0	0
4	Transmission and Distribution	26,018,000	5,820,400	2,522,700	6,905,200	0	1,972,500	943,700	1,146,000	6,161,500	546,000
5	General Plant	1,875,400	514,400	232,400	440,800	0	126,000	60,200	73,200	393,500	34,900
6	Total Proposed Capital Program	31,250,400	8,573,900	3,873,000	7,346,000	0	2,098,500	1,003,900	1,219,200	6,555,000	580,900
7	Existing Plant in Service	243,990,300	102,356,784	50,179,900	15,461,900	315,820	20,742,950	10,269,100	5,839,700	25,734,000	13,090,100
8	Grand Total Plant Investment	275,240,700	110,930,684	54,052,900	22,807,900	315,820	22,841,450	11,273,000	7,058,900	32,289,000	13,671,000
9	Capital Charges to be Recovered (a)	4,907,700	1,977,900	963,800	406,700	5,600	407,300	201,000	125,900	575,700	243,800

(a) Includes debt service on proposed bonds less revenue from other sources.

Table 15 - Test Year 2023 Allocation of Operation & Maintenance to Functional Cost Components

Line No.	Description	Total	Common to All Treated Water Customers				Common to Retail				
			Base	Extra Capacity		Meter Reading & Billing	Base	Extra Capacity		Meters & Services	Fire Protection
				Day	Hour			Day	Hour		
		$	$	$	$	$	$	$	$	$	$
1	Production	7,392,506	5,800,206	1,592,300	0	0	0	0	0	0	0
2	Transmission & Distribution	15,726,912	4,863,712	2,399,100	0	904,300	1,733,500	884,600	354,900	4,561,300	25,500
3	Customer Service	2,235,743	4,343	1,300	0	2,227,200	700	300	100	1,800	0
4	General & Administrative	7,169,061	3,107,461	989,000	0	905,200	491,100	250,800	100,500	1,317,900	7,100
5	Total O&M Expenditures	32,524,222	13,775,722	4,981,700	0	4,036,700	2,225,300	1,135,700	455,500	5,881,000	32,600
6	Net Operating Expenses to be Recovered	30,443,100	12,894,300	4,662,900	0	3,778,400	2,082,900	1,063,000	426,400	5,504,700	30,500

Table 16 - Test Year 2023 Estimated Units of Service

Line No.	Description	Usage		Maximum Day			Maximum Hour			Customer		Direct Fire Protection
		Total Annual	Average Day	Capacity Factor	Total Capacity	Extra Capacity (a)	Capacity Factor	Total Capacity	Extra Capacity (b)	Equivalent Meters	Bills	
		Ccf	Ccf/day	%	Ccf/day	Ccf/day	%	Ccf/day	Ccf/day			Hydrants
1	Residential Sales	3,591,900	9,841	210%	20,666	10,825	230%	22,634	1,968	603,264	50,433	
2	Commercial Sales	2,628,300	7,201	160%	11,522	4,321	170%	12,242	720	48,216	13,700	
3	Industrial Sales	1,776,800	4,868	140%	6,815	1,947	150%	7,302	487	1,248	2,114	
4	Sales to Schools	121,600	333	200%	666	333	220%	733	67	1,404	1,310	
5	City of Kansas City Kansas	503,700	1,380	180%	2,484	1,104	200%	2,760	276	1,668	886	
6	Kansas City Kansas Fire Line	0	0	0%	0	0	0%	0	0	0	0	
7	Res/Com Fire Hydrants	11,100	30	160%	48	18	170%	51	3	504	571	
8	Public Fire Hydrant	0	0	0%	2,728	2,728	0%	12,731	10,003	0	0	6,783
9	Private Fire Lines	0	0	0%	400	400	0%	1,700	1,300	0	0	
10	Total Retail	8,633,400	23,653		45,329	21,676		60,153	14,824	656,304	69,014	6,783
11	Sale for Resale	740,900	2,030	160%	3,248	1,218	220%	4,466	1,218	60	325	
12	BPU Interdepartmental	457,000	1,252	150%	1,878	626	160%	2,003	125	252	201	
13	Total System	9,831,300	26,935		50,455	23,520		66,622	16,167	656,616	69,540	6,783

(a) Extra capacity in excess of average day usage.
(b) Extra capacity in excess of maximum day demand.

Table 17 - Test Year 2023 Unit Cost of Service

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			Common to All Treated Water Customers				Common to Retail				
Line No.	Description	Total	Base	Extra Capacity		Meter Reading & Billing	Base	Extra Capacity		Meters & Services	Fire Protection
				Day	Hour			Day	Hour		
		$	Ccf	Ccf/day	Ccf/day					Equiv Mtrs	Hydrants
	Number of Units										
1	Retail		8,633,400	21,676	14,824	656,304	8,633,400	21,676	14,824	69,014	6,783
2	Wholesale		740,900	1,218	1,218	60	0	0	0	0	0
3	Interdepartmental		457,000	626	125	252	457,000	626	125	201	0
4	Total		9,831,300	23,520	16,167	656,616	9,090,400	22,302	14,949	69,215	6,783
	Costs of Service										
	Net Operating Expense										
5	Total - $	30,443,100	12,894,300	4,662,900	0	3,778,400	2,082,900	1,063,000	426,400	5,504,700	30,500
6	Unit Cost - $/unit		1.3116	198.2526	0.0000	5.7544	0.2291	47.6639	28.5236	79.5308	4.4965
	Existing Capital Costs										
7	Total - $	11,817,700	4,957,700	2,430,500	748,900	15,300	1,004,700	497,400	282,800	1,246,400	634,000
8	Unit Cost - $/unit		0.504	103.338	46.323	0.023	0.111	22.303	18.918	18.008	93.469
	Proposed Capital Costs										
9	Total - $	4,907,700	1,977,900	963,800	406,700	5,600	407,300	201,000	125,900	575,700	243,800
10	Unit Cost - $/unit		0.2012	40.9779	25.1562	0.0085	0.0448	9.0126	8.4220	8.3176	35.9428
11	Total Unit Cost of Service - $/unit		2.0170	342.5680	71.4789	5.7862	0.3845	78.9795	55.8633	105.8562	133.9083
	Total Cost of Service										
12	Retail	43,769,500	17,413,800	7,425,500	1,059,600	3,797,500	3,319,200	1,712,000	828,100	7,305,500	908,300
13	Wholesale	1,999,000	1,494,400	417,200	87,100	300	0	0	0	0	0
14	Interdepartmental	1,400,000	921,800	214,400	8,900	1,500	175,700	49,400	7,000	21,300	0
15	Total	47,168,500	19,830,000	8,057,100	1,155,600	3,799,300	3,494,900	1,761,400	835,100	7,326,800	908,300

Table 18 - Test Year 2023 Allocation of Cost of Service to Customer Classes

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			Common to All Treated Water Customers				Common to Retail				
Line No.	Description	Total	Base	Extra Capacity		Meter Reading & Billing	Base	Extra Capacity		Meters & Services	Fire Protection
				Day	Hour			Day	Hour		
		$									
1	Unit Cost of Service - $/unit		2.0170	342.5680	71.4789	5.7862	0.3845	78.9795	55.8633	105.8562	133.9083
	Retail										
	Residential Sales										
2	Units		3,591,900	10,825	1,968	603,264	3,591,900	10,825	1,968	50,433	0
3	Costs - $	22,268,900	7,244,900	3,708,300	140,700	3,490,600	1,380,900	855,000	109,900	5,338,600	0
	Commercial Sales										
4	Units		2,628,300	4,321	720	48,216	2,628,300	4,321	720	13,700	0
5	Costs - $	9,954,200	5,301,300	1,480,200	51,500	279,000	1,010,500	341,300	40,200	1,450,200	0
	Industrial Sales										
6	Units		1,776,800	1,947	487	1,248	1,776,800	1,947	487	2,114	0
7	Costs - $	5,380,700	3,583,800	667,000	34,800	7,200	683,100	153,800	27,200	223,800	0
	Sales to Schools										
8	Units		121,600	333	67	1,404	121,600	333	67	1,310	0
9	Costs - $	587,800	245,300	114,100	4,800	8,100	46,800	26,300	3,700	138,700	0
	City of Kansas City Kansas										
10	Units		503,700	1,104	276	1,668	503,700	1,104	276	886	0
11	Costs - $	1,813,700	1,016,000	378,200	19,700	9,700	193,700	87,200	15,400	93,800	0
	Kansas City Kansas Fire Line										
	Units		0	0	0	0	0	0	0	0	0
	Costs - $	0	0	0	0	0	0	0	0	0	0
	Res/Com Fire Hydrants										
12	Units		11,100	18	3	504	11,100	18	3	571	0
13	Costs - $	98,000	22,400	6,200	200	2,900	4,300	1,400	200	60,400	0
	Public Fire Hydrant										
14	Units		0	2,728	10,003	0	0	2,728	10,003	0	6,783
15	Costs - $	3,332,100	0	934,500	715,000	0	0	215,500	558,800	0	908,300
	Private Fire Lines										
16	Units		0	400	1,300	0	0	400	1,300	0	0
17	Costs - $	334,100	0	137,000	92,900	0	0	31,600	72,600	0	0
10	Total Retail	43,769,500	17,413,700	7,425,500	1,059,600	3,797,500	3,319,300	1,712,100	828,000	7,305,500	908,300
	Wholesale										
18	Units		740,900	1,218	1,218	60	0	0	0	0	0
19	Costs - $	1,999,000	1,494,400	417,200	87,100	300	0	0	0	0	0
	BPU Interdepartmental										
20	Units			626	125	252	457,000	626	125	201	0
21	Costs - $	1,400,000		214,400	8,900	1,500	175,700	49,400	7,000	21,300	0
22	Total Cost of Service - $	47,168,500	19,829,900	8,057,100	1,155,600	3,799,300	3,495,000	1,761,500	835,000	7,326,800	908,300

Table 19 - Test Year 2023 Comparison of Adjusted Cost of Service with Revenue under Existing Rates

Line No.	Customer Class	(1) Allocated Cost of Service (a)	(2) Adjustments	(3) Adjusted Cost of Service	(4) Revenue Under Existing Rates	(5) Indicated Revenue Increase
		$	$	$	$	%
1	Residential Sales	22,268,900	4,228,700	26,497,600	24,939,100	6.25%
2	Commercial Sales (b)	10,052,200	1,737,300	11,789,500	11,313,400	4.21%
3	Industrial Sales	5,380,700	929,900	6,310,600	5,741,700	9.91%
4	Sales to Schools	587,800	101,500	689,300	627,200	9.90%
5	City of Kansas City Kansas (c) (d)	1,813,700	(1,813,700)	0	0	0.00%
6	Public Fire Hydrant (d)	3,332,100	(3,332,100)	0	0	0.00%
7	Private Fire Lines	334,100	0	334,100	571,600	-41.55%
8	Total Retail	43,769,500	1,851,600	45,621,100	43,193,000	5.62%
9	Wholesale	1,999,000	(451,600)	1,547,400	1,305,600	18.52%
10	BPU Interdepartmental	1,400,000	(1,400,000)	0	0	0.00%
11	Total System	47,168,500	0	47,168,500	44,498,600	6.00%

(a) Actual individual billing results may vary. Retail billing is based on meter size and not customer class.
(b) Includes Residential and Commercial Fire Hydrants.
(c) Includes City Private Fire Protection.
(d) Costs are recovered from all other retail customers.

Table 20 - Proposed Rates Effective July 1, 2023

Rate Component	Existing Rates			Effective July 1, 2023		
	Monthly Charge	Mininum Charge	Monthly Usage Requirement	Monthly Charge	Mininum Charge	Monthly Usage Requirement
	$	$	Ccf	$	$	Ccf
Rate Code 10 - Inside City and 20 - Outside City						
Meter Size						
5/8"	19.35	19.74	0.10	19.35	19.77	0.10
3/4"	23.55	41.83	4.70	24.05	43.88	4.70
1"	29.35	58.22	7.50	30.65	61.97	7.50
1.5"	46.00	101.77	15.70	49.40	109.91	15.70
2"	62.60	150.51	25.50	68.00	163.40	25.50
3"	136.00	289.51	45.50	150.50	317.10	45.50
4"	219.00	465.99	74.00	243.50	511.56	74.00
6"	427.00	916.71	148.00	477.00	1,008.50	148.00
8"	635.00	1,451.07	247.50	711.00	1,596.72	247.50
10"	843.00	2,067.43	372.00	944.00	2,272.94	372.00
12"	967.00	2,488.27	462.50	1,083.00	2,734.12	462.50
Usage per Month						
First 7 Ccf	3.89			4.22		
Next 1,993 Ccf	3.28			3.56		
Over 2,000 Ccf	3.03			3.29		
Hydrant Daily Rental Fee	1.50					
Rate Code 30 - Wholesale						
Ccf Units per Month	Volume Charge - $/Ccf	Monthly Customer Charge - $		Volume Charge - $/Ccf	Monthly Customer Charge - $	
All Usage	1.77	160.00		1.88	160.00	
Rate Code 40 - Fire Protection						
Meter Size	Monthly Customer Charge - $			Monthly Customer Charge - $		
2"	7.97			7.97		
4"	20.44			20.44		
6"	49.86			49.86		
8"	100.21			100.21		
10"	175.95			175.95		
12"	281.10			281.10		
Rate Code 50 - Interdepartmental						
Ccf Units per Month	Volume Charge - $/Ccf			Volume Charge - $/Ccf		
All Usage	0.51			0.51		

Table 21 - Comparison of Typical Monthly Water Bills under Existing and Proposed Rates

Description	Water Usage	Existing Rates	2023 Proposed Rates			2024 Proposed Rates			2025 Proposed Rates		
			Amount	Increase Over Prior Year		Amount	Increase Over Prior Year		Amount	Increase Over Prior Year	
	Ccf	$	$	$		$	$		$	$	
Inside City											
Residential:											
5/8"	2	27.13	27.79	0.66	2.4%	28.49	0.70	2.5%	29.21	0.72	2.5%
5/8"	6	42.69	44.67	1.98	4.6%	46.77	2.10	4.7%	48.93	2.16	4.6%
5/8"	8	49.86	52.45	2.59	5.2%	55.19	2.74	5.2%	58.02	2.83	5.1%
5/8"	10	56.42	59.57	3.15	5.6%	62.89	3.32	5.6%	66.34	3.45	5.5%
5/8"	15	72.82	77.37	4.55	6.2%	82.14	4.77	6.2%	87.14	5.00	6.1%
5/8"	20	89.22	95.17	5.95	6.7%	101.39	6.22	6.5%	107.94	6.55	6.5%
Commercial:											
5/8"	50	187.62	201.97	14.35	7.6%	216.89	14.92	7.4%	232.74	15.85	7.3%
5/8"	100	351.62	379.97	28.35	8.1%	409.39	29.42	7.7%	440.74	31.35	7.7%
1"	50	197.62	213.27	15.65	7.9%	229.54	16.27	7.6%	246.74	17.20	7.5%
1"	100	361.62	391.27	29.65	8.2%	422.04	30.77	7.9%	454.74	32.70	7.7%
1.5"	50	214.27	232.02	17.75	8.3%	250.54	18.52	8.0%	270.29	19.75	7.9%
1.5"	100	378.27	410.02	31.75	8.4%	443.04	33.02	8.1%	478.29	35.25	8.0%
2"	100	394.87	428.62	33.75	8.5%	463.94	35.32	8.2%	501.89	37.95	8.2%
2"	150	558.87	606.62	47.75	8.5%	656.44	49.82	8.2%	709.89	53.45	8.1%
3"	200	796.27	867.12	70.85	8.9%	941.54	74.42	8.6%	1,021.39	79.85	8.5%
Industrial:											
2"	100	394.87	428.62	33.75	8.5%	463.94	35.32	8.2%	501.89	37.95	8.2%
2"	150	558.87	606.62	47.75	8.5%	656.44	49.82	8.2%	709.89	53.45	8.1%
4"	500	1,863.27	2,028.12	164.85	8.8%	2,201.04	172.92	8.5%	2,387.39	186.35	8.5%
4"	1,000	3,503.27	3,808.12	304.85	8.7%	4,126.04	317.92	8.3%	4,467.39	341.35	8.3%
6"	2,500	8,506.27	9,246.62	740.35	8.7%	10,018.04	771.42	8.3%	10,842.39	824.35	8.2%
6"	5,000	16,081.27	17,471.62	1,390.35	8.6%	18,918.04	1,446.42	8.3%	20,442.39	1,524.35	8.1%
6"	10,000	31,231.27	33,921.62	2,690.35	8.6%	36,718.04	2,796.42	8.2%	39,642.39	2,924.35	8.0%

Table 22 - Test Year 2023 Comparison of Revenues Under Proposed Rates with Adjusted Cost of Service and Revenue Under Existing Rates

Line No.	Customer Class	Revenue Under Proposed Rates	Adjusted Cost of Service (a)	Proposed Revenue as a % of COS	Revenue Under Existing Rates	Indicated Revenue Adjustment
		$	$	%	$	%
1	Residential Sales	26,089,700	26,497,600	98.5%	24,939,100	4.6%
2	Commercial Sales (b)	12,236,100	11,789,500	103.8%	11,313,400	8.2%
3	Industrial Sales	6,246,800	6,310,600	99.0%	5,741,700	8.8%
4	Sales to Schools	682,700	689,300	99.0%	627,200	8.8%
5	City of Kansas City Kansas (c) (d)	0	0	0.0%	0	0.0%
6	Public Fire Hydrant (d)	0	0	0.0%	0	0.0%
7	Private Fire Lines	571,900	334,100	171.2%	571,600	0.1%
8	Total Retail	45,827,200	45,621,100	100.5%	43,193,000	
9	Wholesale	1,386,095	1,547,400	89.6%	1,305,600	6.2%
10	BPU Interdepartmental	0	0	0.0%	0	0.0%
11	Total System	47,213,295	47,168,500	100.1%	44,498,600	6.1%

(a) Actual individual billing results may vary. Retail billing is based on meter size and not customer class.
(b) Includes Residential and Commercial Fire Hydrants.
(c) Includes City Private Fire Protection.
(d) Costs are recovered from all other retail customers.

Table 23 - Proposed Rates Effective July 1, 2024 and July 1, 2025

Rate Component	Existing	Effective July 1, 2024 Proposed	Effective July 1, 2025 Proposed
	$	$	$
Rate Code 10 - Inside City and 20 - Outside City			
Monthly Customer Charge			
Meter Size			
5/8"	19.35	19.35	19.35
3/4"	23.55	24.55	25.10
1"	29.35	32.00	33.35
1.5"	46.00	53.00	56.90
2"	62.60	73.90	80.50
3"	136.00	166.50	184.00
4"	219.00	271.00	302.00
6"	427.00	533.00	597.00
8"	635.00	796.00	891.00
10"	843.00	1,057.00	1,186.00
12"	967.00	1,213.00	1,363.00
Minimum Monthly Bill			
Meter Size			
5/8"	19.74	19.81	19.84
3/4"	41.83	46.03	48.27
1"	58.22	65.92	69.94
1.5"	101.77	118.49	127.60
2"	150.51	177.12	191.97
3"	289.51	346.72	378.67
4"	465.99	560.94	615.23
6"	916.71	1,107.84	1,218.07
8"	1,451.07	1,753.92	1,925.99
10"	2,067.43	2,494.24	2,738.91
12"	2,488.27	2,998.67	3,292.39
Usage per Month			
First 7 Ccf	3.89	4.57	4.93
Next 1,993 Ccf	3.28	3.85	4.16
Over 2,000 Ccf	3.03	3.56	3.84
Hydrant Daily Rental Fee	1.50	1.50	1.50
Rate Code 30 - Wholesale			
Monthly Customer Charge - $	160.00	160.00	160.00
Usage per Month			
All Usage	1.77	1.99	2.11
Rate Code 40 - Fire Protection			
Monthly Customer Charge			
Meter Size			
2"	7.97	7.97	7.97
4"	20.44	20.44	20.44
6"	49.86	49.86	49.86
8"	100.21	100.21	100.21
10"	175.95	175.95	175.95
12"	281.10	281.10	281.10
Rate Code 50 - Interdepartmental			
Usage per Month			
All Usage	0.51	0.51	0.51

7.0 Appendix B: Regional Comparison of Water Rates

Figure 1
Residential Customers
No Billable Water Usage
Ranked from Lowest to Highest

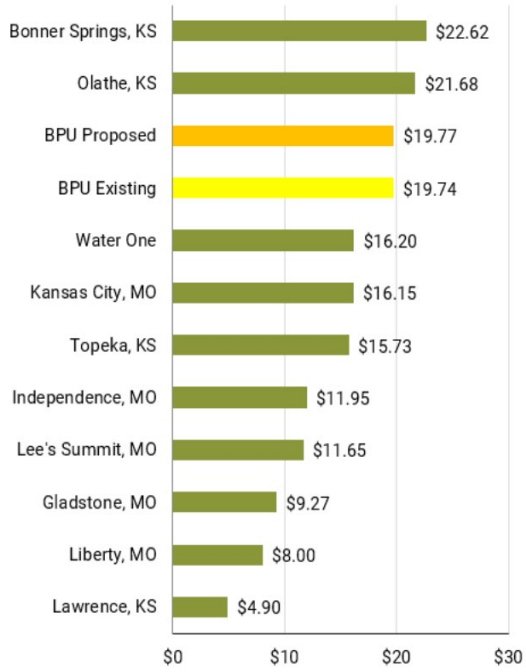


Figure 2
Residential Customers
3,000 Gallons Billable Water Usage
Ranked from Lowest to Highest

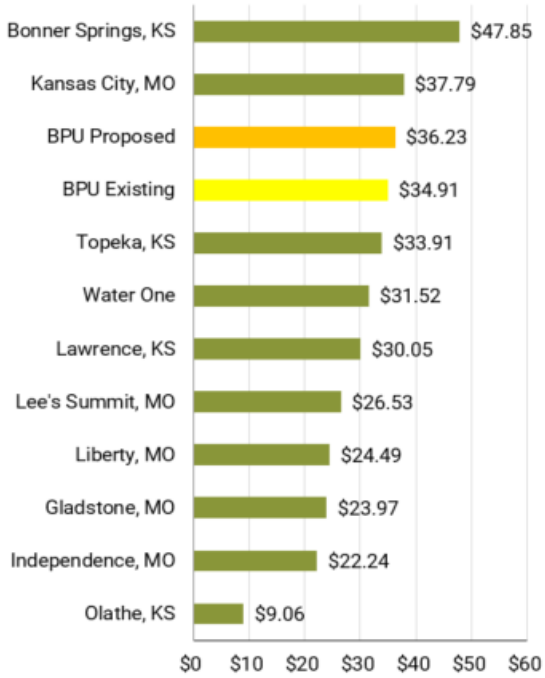
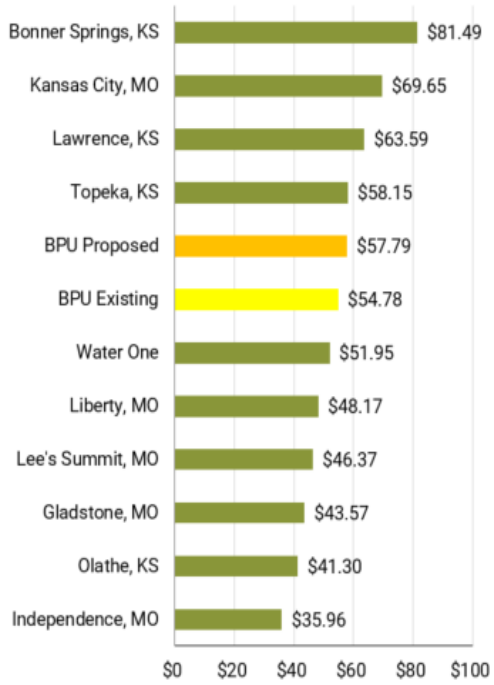


Figure 3
Residential Customers
7,000 Gallons Billable Water Usage
Ranked from Lowest to Highest



BPU and Kansas City, MO Existing and Proposed rates exclude Payment In Lieu of Taxes (PILOT)