City of Fayetteville Staff Review Form

2022-0517

Legistar File ID

6/21/2022

City Council Meeting Date - Agenda Item Only
N/A for Non-Agenda Item

Paul Becker	6/2/2022	WATER SEWER (720)
Submitted By	**Submitted Date**	**Division / Department**

Action Recommendation:

Approval of the Water and Sewer Rate changes, rescinding and replacing sections 51.136 and 51.137 of the City Code of Ordinances and holding a Public Hearing based on a Rate Study conducted by Black and Veatch recommended by the Fayetteville Water and Sewer Committee.

Budget Impact:

N/A	Water/Sewer
Account Number	Fund
N/A	N/A
Project Number	Project Title

Budgeted Item?	No	Current Budget	$	-
		Funds Obligated	$	-
		Current Balance	$	-
Does item have a cost?	No	Item Cost	$	-
Budget Adjustment Attached?	No	Budget Adjustment	$	-
		Remaining Budget	$	-

V20210527

Purchase Order Number:

Previous Ordinance or Resolution #

Change Order Number:

Approval Date:

Original Contract Number:

Comments:

CITY OF FAYETTEVILLE ARKANSAS

CITY COUNCIL MEMO

MEETING OF JUNE 21, 2022

TO: Mayor and City Council

FROM: Paul Becker, Chief Financial Officer

DATE: June 3, 2022

SUBJECT: Approval of the Water and Sewer Rate changes, rescinding and replacing sections 51.136 and 51.137 of the City Code of Ordinances and the holding of a Public Hearing based on a Rate Study conducted by Black and Veatch recommended by the Fayetteville Water and Sewer Committee

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RECOMMENDATION:
Administration recommends approval of an ordinance changing the water and sewer rates based on a Cost of Service Study conducted by Black and Veatch as presented to the Water and Sewer Committee in open meetings. These recommended rates are reflected in the attached replacement for sections 51.136 and 51.137 of the Fayetteville code of Ordinances.

BACKGROUND:
The City of Fayetteville has been conducting a water and sewer rate study since August 2020. Black and Veatch was selected pursuant to RFQ 20-01 by the City Council on August 18, 2020 with the approval of Resolution 212-20.

The intent of the rate study is to establish water and sewer rates that fully recover the cost of providing service to customers, adequately provide for maintaining and expanding the City's infrastructure, and provide adequate reserves for future needs. The study is based on a comprehensive review of the City of Fayetteville's water and sewer funds and budgets, comprehensive Water Master Plan, Wastewater Master Plan, planned wastewater facilities upgrades, customer classes, current usage data, future planned growth of the City of Fayetteville, and any other information deemed necessary.

The current water and sewer rates were adopted by the City of Fayetteville in 2008 based on a Cost of Service Study reformed by HDR Engineering. As a part of that study an annual 3% inflationary increase for each rate classification was authorized. This was sufficient to fund operations and capital need until now without a full rate study. Rate studies were delayed during the period between 2008 and 2020 primarily because the City was working on the permitting process for our two plants.

The Noland Plant was conducting a Use Attainability Analysis (UAA) on the receiving stream (The White River) to determine acceptable Chloride, Sulfate and Total Dissolved Solids discharge limitations. Based on the outcome of the UAA there was the possibility of a major upgrade to the Noland Facility.

The West Side Plant discharges to Goose Creek and eventually the Illinois River, and the negotiations between Arkansas and Oklahoma concerning total phosphorus in the Illinois River Watershed could have had a significant impact on the plant's discharge limit for phosphorus. Based on the outcome, the West Side Plant could have significant capital upgrades.

It was not feasible for the City to conduct a rate study during this time period because the rates might have been inadequately adjusted prior to the outcome of these two issues, resulting in an additional rate adjustment soon after the initial change. Those issues have been resolved at this time and new permits have been, or are being issued. However, extensive new capital needs are required at this point in time and operating cost have increased above the revenue increases generated by an annual 3% proportional adjustment.

DISCUSSION:

State code dictates a schedule of events for any change in water and sewer rates. These require that the rate change ordinance be read, a public hearing be scheduled and announced, the ordinance be published, and the public hearing take place at least ten days after the initial reading and publication of the ordinance. The rate ordinance can then be approved any time after the public hearing. The public hearing attachment details the public notice process for the proposed rate study, and what the initial changes will be to the water and sewer rates. A copy of the notice that is required to be published in the newspaper is attached and shows the changes by customer class. Additionally, the Monthly Water and Sewer Rates attachment indicates the level of rate increases through 2025.

The rate study prepared by Black and Veatch reflects some of the following guidelines:

1. The City has adopted a cost of service rate schedule based on customer class.
2. The City is using a volumetric block system within customer class to encourage conservation
3. New rates reflecting the true cost of service by customer class as determined by the rate study will be implemented on January 1, 2023.
4. A 3% annual inflation increase shall be applied at the first of each new calendar year until a new study is adopted.

BUDGET/STAFF IMPACT:

Adoption of these new rates will provide necessary revenues to address current operating costs and capital needs.

Attachments:

Revised Sections 51.136 and 51.137 of the Fayetteville Code of Ordinances
Black and Veatch Water and Wastewater Comprehensive Rate Study
Exhibits A and B - 51.136 and 51.137 - Monthly Water and Sewer Rates
Public Hearing Notice - Water and Wastewater Rate changes 2023

51.136 Monthly Water Rates

Effective as of the first billing statements issued after December 31, 2022, the following monthly rates shall be fixed as rates to be charged for water furnished by the waterworks system of the city, which rates the City Council finds and declares to be reasonable and necessary minimum rates to be charged. All non-emergency water uses shall be billed to the user, to include but not limited to water used for: use within structures; business; manufacturing; irrigation; retail by another water utility; city uses; educational purposes; medical purposes; water system routine non-emergency uses; wastewater system routine non-emergency uses; non-profit uses; fire department non-emergency uses to include training and equipment calibration; construction of new water mains; street cleaning; and wet down of construction sites and materials. Emergency water use that does not pass through a water system meter shall not be billed, including firefighting, water leaks, water leak repair, and emergency water line flushing. The volumes used for these emergency purposes should be estimated and submitted monthly to the Business Office Manager and the Water/Sewer Operations Manager.

(A) *Monthly Water Rates.*

(1) The water usage of each customer shall be determined each month by meter measurement and the amount per 1,000 gallons to be paid for water usage by each customer shall be computed on the basis of the following schedule of rates.

Table A-1
Monthly Water Rates Prior to January 1, 2023
Cost per 1,000 gallons

Class	Usage Rate (In Gallons)	Inside City	Outside City
Residential	First 2,000	$3.51	$4.04
	Next 13,000	$4.65	$5.35
	Over 15,000	$6.59	$7.54
Non-Residential	First 300,000	$3.79	$4.38
	Over 300,000	$3.39	$3.90
Major Industrial	All Usage	$2.96	$3.40
Irrigation	First 300,000	$5.04	$5.80
	Over 300,000	$4.53	$5.22
Wholesale	Reduced Peak Demand	$2.87	$2.87
	Peak Demand	$3.20	$3.20

Table A-2
Monthly Water Rates After December 31, 2022
Cost per 1,000 gallons

Class	Usage Rate (In Gallons)	Inside City	Outside City
Residential	First 2,000	$3.30	$4.47
	Next 13,000	$4.37	$5.91
	Over 15,000	$6.20	$8.38
Non-Residential	First 300,000	$3.93	$5.05
	Over 300,000	$3.93	$5.05

Major Industrial	All Usage	$3.14	$3.49
Irrigation	First 300,000	$4.29	$5.43
	Over 300,000	$4.29	$5.43
Wholesale	Reduced Peak Demand	$3.16	$3.16
	Peak Demand	$3.16	$3.16

Table A-3 Monthly Water Rates After December 31, 2023 Cost per 1,000 gallons			
Class	Usage Rate (In Gallons)	Inside City	Outside City
Residential	First 2,000	$3.40	$4.60
	Next 13,000	$4.50	$6.09
	Over 15,000	$6.39	$8.63
Non-Residential	First 300,000	$4.05	$5.20
	Over 300,000	$4.05	$5.20
Major Industrial	All Usage	$3.23	$3.59
Irrigation	First 300,000	$4.42	$5.59
	Over 300,000	$4.42	$5.59
Wholesale	Reduced Peak Demand	$3.25	$3.25
	Peak Demand	$3.25	$3.25

Table A-4 Monthly Water Rates After December 31, 2024 Cost per 1,000 gallons			
Class	Usage Rate (In Gallons)	Inside City	Outside City
Residential	First 2,000	$3.50	$4.74
	Next 13,000	$4.64	$6.27
	Over 15,000	$6.58	$8.89
Non-Residential	First 300,000	$4.17	$5.36
	Over 300,000	$4.17	$5.36
Major Industrial	All Usage	$3.33	$3.70
Irrigation	First 300,000	$4.55	$5.76
	Over 300,000	$4.55	$5.76
Wholesale	Reduced Peak Demand	$3.35	$3.35
	Peak Demand	$3.35	$3.35

(2) Beginning January 1, 2026, all monthly water rates shall be increased by 3% per year.

(3) All bills under such schedules shall be computed by adding the applicable meter service charge prescribed by subsection (B) to the amount determined to be due for water usage under this schedule. Applicable sales tax and franchise fees shall be added to the bill so computed.

(4) When a common facility/building is served by multiple water meters and the water usage is for the same purpose, customers may petition the Water & Wastewater Director and/or the Finance & Internal Services Director to have the water consumption aggregated and have the tiered rates apply to the aggregated quantity.

(5) Water used for flushing and sampling of newly constructed water lines, Fire Department training and equipment calibration, and other similar uses requiring a large volume and/or high velocity of water movement shall employ a fire hydrant meter of the appropriate size for the use. If a fire hydrant meter cannot be used due to high flow or volume requirements, then the volume of water used shall be measured by using a pitot gauge to determine the gallons per minute and by timing the flow of water to be able to calculate total volume. In the cases of fire department training and equipment calibration, sewer line washing, street sweeping, and other uses where the equipment employed has a built-in water meter, these built in water meters may be used. All such meters other than those on fire trucks must be evaluated by the Meter Superintendent. These water uses shall be billed at the same rates as non-residential customers.

(6) Monthly wholesale treated water rates outside city limits are based on Cost of Service Methodology.

(B) *Monthly Water Service Charge.*

(1) In addition to the above, each customer shall pay a monthly water service charge in accordance with the following schedule:

Table B-1
Monthly Water Service Charge Prior to January 1, 2023

Meter Size	Inside City	Outside City	Wholesale
⅝ x ¾ inch	$6.59	$7.54	$7.54
1 inch	$9.14	$10.52	$10.52
1 ½ inch	$15.93	$18.31	$18.31
2 inch	$23.20	$26.66	$28.56
3 inch	$54.05	$62.18	$64.38
4 inch	$89.50	$102.93	$112.25
6 inch	$178.99	$205.82	$213.02
8 inch	$268.41	$308.67	$319.47

Table B-2
Monthly Water Service Charge After December 31, 2022

Meter Size	Inside City	Outside City	Wholesale
⅝ x ¾ inch	$6.59	$7.54	$7.54
1 inch	$9.14	$12.26	$12.26
1 ½ inch	$15.93	$24.22	$24.22

2 inch	$23.20	$33.52	$33.52
3 inch	$54.05	$69.84	$69.84
4 inch	$89.50	$102.93	$102.93
6 inch	$178.99	$205.82	$205.82
8 inch	$268.41	$308.67	$308.67

Table B-3
Monthly Water Service Charge After December 31, 2023

Meter Size	Inside City	Outside City	Wholesale
⅝ x ¾ inch	$6.79	$7.77	$7.77
1 inch	$9.41	$12.63	$12.63
1 ½ inch	$16.41	$24.95	$24.95
2 inch	$23.90	$34.53	$34.53
3 inch	$55.67	$71.94	$71.94
4 inch	$92.19	$106.02	$106.02
6 inch	$184.36	$211.99	$211.99
8 inch	$276.46	$317.93	$317.93

Table B-4
Monthly Water Service Charge After December 31, 2024

Meter Size	Inside City	Outside City	Wholesale
⅝ x ¾ inch	$6.99	$8.00	$8.00
1 inch	$9.70	$13.01	$13.01
1 ½ inch	$16.90	$25.69	$25.69
2 inch	$24.61	$35.56	$35.56
3 inch	$57.34	$74.09	$74.09
4 inch	$94.95	$109.20	$109.20
6 inch	$189.89	$218.35	$218.35
8 inch	$284.76	$327.47	$327.47

(2) Beginning January 1, 2026, all monthly water service charges shall be increased by 3% per year.

(3) The monthly treated water rates and the monthly meter service charge rates prescribed by subsections (A) and (B) of this section shall commence as of the first billing statements issued after December 31, 2022.

(4) The State of Arkansas mandated Safe Drinking Water Act fee shall be added to the monthly water utility bill.

(C) *Monthly Standby Fire Protection Service Charge.*

(1) Charges for unmetered service connections for standby fire protection and fire hydrants shall be based on the incoming line size or the backflow preventer size, whichever is smaller, as set forth in the following table:

Monthly Standby Fire Protection Service Charge		
Line Size or Backflow Preventer Size	**Inside City**	**Outside City**
1 inch	$9.75	$11.68
2 inch	10.17	12.10
2.5 inch	20.33	23.37
3 inch	30.48	35.06
4 inch	60.97	70.11
6 inch	169.34	194.74
8 inch	355.65	409.00
10 inch	609.68	701.11

(2) The Utilities Department shall review the monthly standby fire protection service charges every two (2) years and shall make recommendations to the City Council following such review. Fire protection lines shall not be connected to the water system downstream from a meter.

(Code 1965, §21-25; Ord. No. 1165, 4-18-58; Ord. No. 2144, 9-2-75; Ord. No. 2594, 2-5-80; Ord. No. 3197, 7-1-86; Ord. No. 3409, 2-21-89; Ord. No. 3431, 6-6-89; Ord. No. 3491, 7-17-90; Ord. No. 3513, 9-18-90; Ord. No. 3519, 11-20-90; Ord. No. 4059, §1, 10-7-97; Ord. No. 4223, 2-15-00; Code 1991, §51.136; Ord. No. 4530 12-02-02; Ord. No. 4540, 02-03-04; Ord. No. 5123, 4-1-08; Ord. No. 6169 , §1, 4-2-2019)

51.137 Monthly Sewer Rates

(A) *Monthly Sewer Rates.*

(1) All monthly sewer charges shall be calculated from the customer's monthly water usage. The following monthly rates are hereby fixed as rates to be charged for sewer services:

Table D-1 **Monthly Sewer Rates Per 1,000 Gallons** **Before January 1, 2023**		
Class	Usage Rate (In Gallons)	Cost per 1,000 gallons
Residential	First 2,000 gallons	$4.35
	Greater than 2,000 gallons	$5.80
Non-Residential	All Usage	$4.40
Major Industrial	All Usage	$4.71
Farmington	All Usage	$7.52
Outside city	All Usage	$8.18
Elkins	85% of metered water usage	$5.19
	Usage above 85% of metered water usage	$2.71

Table D-2 **Monthly Sewer Rates Per 1,000 Gallons After December 31, 2022**		
Class	Usage Rate (In Gallons)	Cost per 1,000 gallons
Residential	First 2,000 gallons	$3.39
	Greater than 2,000 gallons	$4.52
Non-Residential	All Usage	$5.10
Major Industrial	All Usage	$5.71
Farmington	All Usage	$8.27
Outside city	All Usage	$8.55
Elkins	85% of metered water usage	$7.20
	Usage above 85% of metered water usage	$7.20

Table D-3 **Monthly Sewer Rates Per 1,000 Gallons** **After December 31, 2023**		
Class	Usage Rate (In Gallons)	Cost per 1,000 gallons
Residential	First 2,000 gallons	$3.49
	Greater than 2,000 gallons	$4.66
Non-Residential	All Usage	$5.25
Major Industrial	All Usage	$5.88
Farmington	All Usage	$8.52
Outside city	All Usage	$8.81
Elkins	85% of metered water usage	$7.42
	Usage above 85% of metered water usage	$7.42

Table D-4 **Monthly Sewer Rates Per 1,000 Gallons** **After December 31, 2024**		
Class	Usage Rate (In Gallons)	Cost per 1,000 gallons
Residential	First 2,000 gallons	$3.60
	Greater than 2,000 gallons	$4.80
Non-Residential	All Usage	$5.41
Major Industrial	All Usage	$6.06
Farmington	All Usage	$8.77
Outside city	All Usage	$9.07
Elkins	85% of metered water usage	$7.64
	Usage above 85% of metered water usage	$7.64

(2) Beginning January 1, 2026, all monthly sewer quantity charge- usage rates per 1,000 gallons shall be increased by 3% per year.

(3) Sewer related fees levied by the Cities of Farmington or Greenland shall be added to the wastewater utility bill at the request of Farmington or Greenland. These fees may be calculated on a per-thousand volumetric usage or a per month basis.

(B) *Monthly Sewer Service Charge.*

(1) In addition to the above, each customer shall pay a monthly sewer service charge in accordance with the following schedule:

Table E-1 Monthly Sewer Service Charge Prior to January 1, 2023			
Meter Size	Inside City	Outside City†	Farmington†
⅝ x ¾ inch	$18.28	$18.28	$16.74
1 inch	$23.74	$33.92	$31.28
1½ inch	$38.77	$60.37	$55.50
2 inch	$55.43	$79.73	$73.45
3 inch	$128.73	$184.24	$169.29
4 inch	$212.13	$303.44	$278.93
6 inch	$420.39	$601.46	$553.70
8 inch	$628.73	$899.76	$826.81

Table E-2 Monthly Sewer Service Charge After December 31, 2022			
Meter Size	Inside City	Outside City†	Farmington†
⅝ x ¾ inch	$18.28	$18.28	$25.10
1 inch	$23.74	$33.92	$52.62
1½ inch	$38.77	$66.73	$109.78
2 inch	$55.43	$93.11	$154.24
3 inch	$128.73	$196.10	$327.83
4 inch	$212.13	$303.44	$482.37
6 inch	$420.39	$601.46	$897.30
8 inch	$628.73	$899.76	$998.92

Table E-3 Monthly Sewer Service Charge After December 31, 2023			
Meter Size	Inside City	Outside City†	Farmington†
⅝ x ¾ inch	$18.83	$18.83	$25.85
1 inch	$24.45	$34.94	$54.20
1½ inch	$39.93	$68.73	$113.07
2 inch	$57.09	$95.90	$158.87
3 inch	$132.59	$201.98	$337.66
4 inch	$218.49	$312.54	$496.84
6 inch	$433.00	$619.50	$924.22
8 inch	$647.59	$926.75	$1,028.89

Table E-4 Monthly Sewer Service Charge After December 31, 2024			
Meter Size	Inside City	Outside City†	Farmington†
⅝ x ¾ inch	$19.39	$19.39	$26.63
1 inch	$25.19	$35.99	$55.82
1½ inch	$41.13	$70.79	$116.47
2 inch	$58.81	$98.78	$163.63
3 inch	$136.57	$208.04	$347.79
4 inch	$225.05	$321.92	$511.75
6 inch	$445.99	$638.09	$951.95
8 inch	$667.02	$954.56	$1,059.75

†Cost of Service Methodology required by contract.

(2) Beginning January 1, 2026, all monthly sewer service charges shall be increased by 3% per year.

(C) *Determination of Sewer Quantity Charge for Residential Customers.*

(1) In the case of residential customers residing in a single family home, duplex, triplex, and/or fourplex, the average monthly water consumption for the preceding months of December, January, and February shall be computed separately for each customer, and a uniform monthly charge for each customer shall be determined by applying the schedule of rates set out in subsection (A) of this section to such average monthly water consumption. In the case of a residential user for whom a uniform monthly charge has been established and who moves to a new location the same uniform monthly charge shall apply at the new location. In the case of new residential customers, sewer averages shall be established based on the number of individuals residing within the dwelling unit, at a rate of 2,100 gallons per customer per month. This methodology of sewer averaging shall not apply to multi-family structures containing five (5) or more units in a contiguous building.

(2) In the case of sewer customers who do not have a water meter provided by a public water utility, the sewer usage volume billed shall be the average volume of all users in the sewer system in like dwellings from the most recent system-wide sewer average calculation.

(D) *Determination of Charge for Non-residential and Major Industrial Customers.* In the case of non-residential and/or major industrial customers, the monthly sewer charge shall be determined by applying the schedule of rates prescribed in subsection (A) of this section to the monthly water usage of such customers. In the event that a non-residential or major industrial customer discharging waste into the city's sanitary sewer system produces evidence to the Water and Wastewater Director demonstrating that a substantial portion of the total amount of water from all sources used for all purposes does not reach the sanitary sewer which is in excess of the factors used in establishing the rates in subsection (A) of this section, an estimated percentage of total water consumption to be used in computing charges may be established by the Water and Wastewater Director. The factors used in establishing said rates are on file in the office of the Water and Wastewater Director and are incorporated herein by reference thereto. Any rate so adjusted by the Water and Wastewater Director shall be effective for a twelve (12) month period beginning with the billing for the month when rates adjudged hereby go into effect.

(E) *Extra Strength Surcharge.*

(1) For all significant industrial users as defined in §51.074, whose wastewater discharge is greater than 300 mg/l of BOD_5 and/or TSS, the city shall levy an Extra Strength Surcharge for each parameter in accordance with the following unit charges:

Table F3 Extra Strength Surcharges	
	After 12/31/2022
Extra Strength BOD_5	$0.5426 per pound
Extra Strength TSS	$0.6921 per pound

(2) Starting after December 31, 2023, Extra Strength Surcharges shall be increased by 3% per year.

(3) Extra Strength Surcharges shall be billed monthly and shall be computed on the basis of water meter reading (wastewater discharge volume).

(4) All sampling and analyses of the wastewater characteristics shall be performed in accordance with U.S. Environmental Protection Agency 40 Code of Federal Regulations Part 136 approved methods.

(5) The volume of flow used in computing surcharge shall be based upon metered water consumption as shown in the records of meter readings maintained by the city's business office. In the event that a user discharging waste into the city sanitary sewer system produces evidence to the city demonstrating that a portion of the total amount of water used for all purposes is not discharged into the sanitary sewer, a separate meter or meters or other approved flow measuring device may be installed at the user's expense, upon its request, to measure only that portion of the total flow being discharged into the city sewer system. If a surcharge is assessed by the city, it shall be shown separately on the monthly billing.

(6) Any person discharging industrial waste into the sanitary sewers of the city who procures any part or all of the user's water supply from sources other than the city, all or part of which is discharged into the sanitary sewer, shall install and maintain at the user's expense water meters of the type approved by the city for the purpose of determining the proper volume of flow to be used in computing sewer service charges. Such meter will be read monthly and tested for accuracy when deemed necessary by the city. Where it can be shown that a portion of the water measured by the aforesaid meter or meters does not enter the sanitary sewer system of the city, a separate meter or meters or other approved flow measuring device may be installed at the user's expense, upon its request, to measure only that portion of the total flow being discharged into the city sewer system. If a surcharge is assessed by the city, it shall be shown separately on the monthly billing.

(7) Computation of extra strength surcharges shall be based on the following formula:

(a) Extra strength surcharge:

S	=	V × 8.34 × [BOD Unit Charge (BOD - 300) + SS Unit Charge (TSS - 300)]

(b) Where:

S	=	Surcharge in dollars
V	=	Sewer volume in million gallons
8.34	=	Pounds per gallon of water
BOD Unit Charge	=	Unit charge for BOD in dollars per pound
BOD	=	BOD strength in parts per million
300	=	Allowed BOD strength in parts per million
TSS Unit Charge	=	Unit charge for suspended solids in dollars per pound

TSS	=	Suspended solids strength in parts per million
300	=	Allowed TSS Strength in parts per million

(F) *Elkins Sewer Charges.*

(1) Elkins' payment for wastewater treatment shall be based on 85% of the metered water purchased. The volume of wastewater received by Fayetteville at the "Point of Connection" shall be measured by the installed wastewater meter. Volumes of wastewater below or above the agreed upon percentage (85%) of metered water, as measured by the wastewater meter, shall be recorded on a monthly basis, with a reconciliation of the net difference to occur semiannually in June and December. If the reconciliation volume is over the agreed upon percentage, this amount shall be billed to Elkins in June and December at the actual computed cost of wastewater collection to and treatment at the Noland Wastewater Treatment Plant, not including the calculated rate of return and not including depreciation charges, but including any capacity surcharge, based on the most recent rate as determined in paragraph B of this contract. If the reconciliation volume is below the agreed upon percentage, the actual amount billed for the difference shall be refunded to Elkins in June and December

(2) Elkins Impact Fee Charges. The City of Elkins shall pay an additional $0.25 per 1,000 gallons of wastewater, for all wastewater volume charges including both the 85% of metered water volume and for wastewater in excess of the 85% of the metered water purchased billed volume.

(G) *Hauled Wastewater Fees.*

(1) Application fee. An application to discharge hauled domestic waste must be accompanied by a fee of $100.00.

(2) Discharge fee. A fee of $50.00 must be paid for each hauled domestic waste load discharged.

(H) *Industrial Wastewater Discharge Permit Fee.*

(1) Application Fee. An application for an industrial wastewater discharge permit must be accompanied by a fee of $500.00.

(Code 1965, §21-26; Ord. No. 1165, 4-18-58; Ord. No. 3197, 7-1-86; Ord. No. 3285, 8-4-87; Ord. No. 3398, 1-3-89; Ord. No. 3491, 7-17-90; Ord. No. 3637, §§1, 2, 8-18-92; Ord. No. 4059, §2, 10-7-97; Code 1991, §51.137; Ord. No. 4530, 12-02-03; Ord. No. 4803, 12-20-05; Ord. No. 4998, 4-3-07; Ord. No. 5129, 4-15-08; Ord. No. 5438, 9-20-11; Ord. No. 5739, 2-17-15)

Draft

WATER AND WASTEWATER COMPREHENSIVE RATE STUDY

B&V PROJECT NO. 406577

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PREPARED FOR

City of Fayetteville, Arkansas

26 MAY 2022

BLACK & VEATCH

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1.0 Executive Summary

The City of Fayetteville (City) provides water and wastewater services to retail and wholesale customers. The Water and Wastewater fund is an Enterprise Fund, which is funded by the operating and capital revenues from the users of the system. Due to multiple factors including increasing operating costs, significant capital investments to meet regulatory requirements, and the need for infrastructure rehabilitation and replacement, revenues under existing rates are not adequate to meet the annual revenue requirements. Therefore, to maintain financial sufficiency and to assure equitable cost recovery, the City engaged Black & Veatch Management Consulting, LLC (Black & Veatch) to perform a Water and Wastewater Comprehensive Rate Study (Study).

The primary objectives of the Study are to develop a balanced financial plan, determine cost of service allocations for each customer class and design rates to recover costs from customer classes in reasonable accord with the allocated costs of service. The financial plan was developed for the six-year period of 2021 through 2026, also referred to as the study period or the forecast period. The city's fiscal year is a calendar year, starting on January 1 and ending on December 31.

As a result of our evaluations and analyses, the following summary of findings and recommendations are offered for the City's consideration.

1.1 Summary of Findings

1.1.1 Revenue Under Existing Rates

1. The City provides retail water services to approximately 40,800 customers inside the City and about 7,000 customers outside the City. The number of retail water service customers inside the City is projected to increase to about 44,800 by 2026 and the number of outside City water customers is projected to increase to about 8,000. The City also provides treated water to four wholesale customers. Retail wastewater collection and treatment service is provided to approximately 36,900 customers inside the City and about 2,600 customers outside the City. The number of inside City wastewater service customers is projected to increase to about 40,600 by 2026 and the number of outside City wastewater service customers is projected to increase to about 2,700.

2. Treated water sales to inside City retail customers are projected to increase from approximately 3,146,800 1,000 gallons (kgals) in 2021 to approximately 3,388,000 kgals by 2026. Treated water sales to outside City retail customers are projected to increase from approximately 507,600 kgals in 2021 to approximately 519,400 kgals by 2026. Treated water sales to wholesale customers is projected to be approximately 219,100 kgals in 2021 and decrease to 202,300 kgals in 2022 and remain at that level through 2026. Billed wastewater volume from inside City retail customers is projected to increase from approximately 2,806,700 kgals in 2021 to approximately 2,961,800 kgals by 2026. Billed wastewater volume from outside City retail customers is projected to increase from 109,800 kgals in 2021 to about 117,400 kgals by 2026. Billed wastewater volume from wholesale customers is projected to increase from 81,000 kgals in 2021 to 126,600 kgals in 2026 due to the addition of West Fork as a wholesale wastewater customer starting December 2020. The annual wholesale wastewater volume is projected to remain at the 2021 level through 2026.

3. The City's current water rates became effective January 1, 2022. For both retail and wholesale customers, the water rates include a monthly base charge, which varies by meter size and a volume charge that varies by customer class. The existing schedule of rates for wastewater service became effective on January 1, 2022. For retail customers, the wastewater rates include a monthly base charge, which varies by meter size. The volume charge varies by customer class. Surcharge rates are based on excess strength of Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). The existing wastewater rate structure is described in Section 3.3.2.

4. Revenue is currently derived principally from charges for treated water and wastewater service, with some revenue also obtained fire protection charges and other miscellaneous sources. Revenue from treated water sales, under existing rates, is projected to increase from $21,186,400 in 2021 to about $22,986,800 in 2026, reflecting a 5-year cumulative increase of 8%. Miscellaneous water revenues are estimated to increase from $1,484,700 in 2021 to approximately $1,608,600 in 2026, reflecting a 5-year cumulative increase of 8%. Revenue for wastewater collection and treatment services is projected to increase from $24,461,900 in 2021 to about $26,697,600 in 2026, under existing rates, reflecting a 5-year cumulative increase of 9%. Miscellaneous wastewater revenue is estimated at $1,297,100 in 2021 and $1,420,200 per year through 2022 to 2026, reflecting a 5-year cumulative increase of 9%.

1.1.2 Revenue Requirements

1. Costs of service to be recovered from water and wastewater service charges include (1) operation and maintenance (O&M) expenses; (2) bad debt; (3) Payment In Lieu of Taxes; (4) Safe Drinking Water Fee Reimbursement; (5) debt service (consisting of principal and interest payments); (6) transfer to shop fund; (7) transfer to operating reserve; (8) cash financed capital; and (9) transfer to capital reserve. The water and wastewater utilities do not have any outstanding debt service. There are no future debt issuances are planned over the study period and no transfers to the shop fund over the study period.

2. The annual O&M expense includes the cost of labor, materials, power, chemicals, purchased water, contract services and other expenses associated with each utility's operation. In this study, FY 2021 is defined as the base budget year, based on which the O&M costs are projected for the forecast period. O&M expense for the water utility is projected to increase from $15,949,600 in 2021 to $18,739,400 by 2026 due to the combined effects of inflation and system growth. O&M expense for the wastewater utility is projected to increase from $15,674,800 in 2021 to $18,395,700 by 2026 due to the combined effects of inflation and system growth.

3. Bad debt expenses refer to outstanding balances from customers that are deemed uncollectible. The water and wastewater bad debt in 2019 was 0.5% of revenue. Bad debt projections for the study period assume 0.5% of annual revenues. Annual bad debt expenses for water utility is projected to increase from $105,900 in 2021 to $129,000 by 2026. Annual bad debt expenses for wastewater utility is projected to increase from $122,300 in 2021 to $149,900 by 2026.

4. The Payment In Lieu of Taxes (PILOT) are paid by public utilities to municipal entity as a compensation for utilization of streets, easements, right of ways or other public places. The PILOT amount is determined per City Ordinance 4449 that requires the water and wastewater funds to pay 4.25% of annual total gross sales revenues to the City. Annual PILOT amount for the water utility is anticipated to increase from $900,400 in 2021 to $1,096,900 in 2026. Annual

PILOT amount for the wastewater utility is projected to increase from $1,039,600 in 2021 to $1,274,000 in 2026.

5. The Safe Drinking Water Fee (SDWF) revenue collected for each metered customer is reimbursed to the state of Arkansas Department of Public Health. The SDWF reimbursement is projected to increase from $230,000 in 2021 to $250,200 in 2026. The SDWF is a pass-through fee and is treated as a "revenue reduction" by the City.

6. The City maintains an operating reserve balance equivalent of ninety (90) days of following years' O&M budget. The transfer to operating reserve for the water utility is projected to increase from $133,000 in 2022 to $151,800 in 2026. The transfer to operating reserve for wastewater is projected to increase from $129,600 in 2022 to $147,900 in 2026.

7. The City currently utilizes the following two sources of funding for the water and wastewater utility capital projects (1): transfer from operating revenues and (2) transfer from the impact fee fund. A capital project meets the requirements of using impact fees if the existing water or wastewater capacity is expanded due to growth. The wastewater capital improvement program for the study period is $69 million, of which $67 million is projected to be funded from operating revenues and $2 million is from the impact fee fund.

1.1.3 Summary of Cash Flow Results

1. The cash flow analysis performed based on the projected annual revenues under existing rates and the projected annual revenue requirements indicates a funding gap for both utilities beginning in 2021.

2. Therefore, a series of 3% annual revenue adjustment is needed in both the water and wastewater utilities to achieve the goal of the operating fund revenues being self-sufficient and adequate to cover all of the O&M expenses, cash financing of the capital program, required transfers, and to maintain the minimum reserve requirements. Table W - 9, in Appendix 1 presents the cash flow analysis and the proposed series of revenue increases for the water utility, and Table S - 9, in Appendix 2 presents the same for the wastewater utility.

1.1.4 Cost of Service Analysis

1. The revenue requirements less any revenues from other sources provides the "net" annual operating fund revenue requirements (also referred to as "cost of service") that needs to be recovered through user rates and charges. A summary of the projected annual cost of service for 2022 is shown for water and wastewater in tables ES-1 and ES-2, respectively.

Table ES - 1 –Water 2022 Cost of Service

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		$	$	$
1	O&M Expenses	17,231,900		17,231,900
2	Depreciation		2,672,900	2,672,900
3	Return		1,895,900	1,895,900
4	**Net Cost of Service**	**17,231,900**	**4,568,800**	**21,800,700**

Table ES - 2 –Wastewater 2022 Cost of Service

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		$	$	$
1	O&M Expenses	16,801,000		16,801,000
2	Depreciation		8,060,600	8,060,600
3	Return		567,200	567,200
4	**Net Cost of Service**	**16,801,000**	**8,627,800**	**25,428,800**

2. As a basis for design of a schedule of water and wastewater rates, the costs of service are allocated to the classes of customers in accordance with respective service requirements of each customer class. The resulting costs of service allocated to customer classes are summarized in Table W - 17 for water and Table S - 17 for wastewater.

1.2 Proposed Recommendations

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

1. Implement a series of 3% annual revenue increase from 2022 to 2026 for both water and wastewater utilities.

2. Implement cost of service-based rates for water and wastewater utilities in 2022.

3. Transition the existing monthly Base charge to the proposed Base Charge, derived based on cost of service, if cost of service based proposed Base Charge is greater than the existing Base charge.

4. Eliminate the minimum volume charge billing of 1,000 gallons from the volumetric portion of the rate structure.

5. Continue with the existing tier block structure for customer classes that have an inclining block (residential) or a uniform block (industrial) for the volumetric rate structure.

6. Change to uniform block for customers that currently have a declining block (non-residential and irrigation) volumetric rate structure.

The aforementioned recommendations enable the water and wastewater utilities to meet all its financial obligations, so that the City can continue to provide reliable service to serve the needs of existing and future customers.

1.3 Disclaimer

This report was prepared for the City of Fayetteville (Client) by Black & Veatch Management Consulting, LLC (Black & Veatch) and is based on information provided by the Client not within the control of Black & Veatch. While it is believed that the information, data and opinions contained herein will be reliable

under the conditions and subject to the limitations set forth in this report, Black & Veatch does not guarantee the accuracy thereof. Black & Veatch has assumed that the information provided by others, both verbal and written, is complete and correct. The projections set forth in this report are intended as "forward-looking statements." In formulating these projections, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. While Black & Veatch believes the assumptions are reasonable actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. As such, Black & Veatch does not take responsibility for the accuracy of data or projections provided by or prepared on behalf of the Client, nor does Black & Veatch have any responsibility for updating this report for events occurring after the date of this report.

Use of this report or any information contained therein by any party other than the Client, shall constitute a waiver and release by such third party of Black & Veatch from and against all claims and liability, including but not limited to liability for special, incidental, indirect or consequential damages in connection with such use. Such use of this report by a third party shall constitute agreement by the third party user that its rights, if any, arising from this report shall be subject to the terms of this Report Limitations, and in no event shall the third party's rights, if any, exceed those of the Client under its contract with B&V. The benefit of such releases, waivers, or limitations of liability shall extend to the related companies and subcontractors of any tier of B&V, and the shareholders, directors, officers, partners, employees, and agents of all released or indemnified parties.

2.0 Introduction

The City of Fayetteville water utility provides treated water and water distribution services to approximately 40,800 customers within the corporate limits of Fayetteville, and to approximately 7,000 customers in areas contiguous to, but outside of the City's corporate limits. The wastewater utility provides retail wastewater collection and treatment service to approximately 37,000 customers within the corporate city limits and to approximately 2,600 customers outside of the City's corporate limits. The City also provides treated water to four wholesale customers and wastewater treatment to two wholesale customers.

In providing water and wastewater service, the City incurs considerable expense related to the ongoing operating and capital needs of the utilities. These operating and capital expenditures tend to increase annually due to the combined effects of inflation and the need to repair, replace, or extend existing service facilities to meet customer service requirements, as well as to meet more stringent state and federal water quality requirements and EPA requirements.

The City of Fayetteville, recognizing the importance of financial planning and cost of service analysis to equitably recover the increasing costs to replace, renew, expand, improve, and operate its water and wastewater service facilities, retained Black & Veatch to perform this comprehensive study of revenue requirements, cost of service, and rates for potable water service and wastewater service.

2.1 Purpose

This report examines the respective projected revenue and rate requirements of the water and wastewater systems of the City. The purpose of this report is (1) to project the future revenues of the water and wastewater utilities under existing rates and charges, as well as the operating expenses and capital financing revenue requirements of the two utilities, and to examine the adequacy of projected revenues to meet these revenue requirements through calendar year 2026; (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 and wastewater 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.

2.2 Scope

This report presents the results of a comprehensive study of the projected revenue and revenue requirements, costs of service allocations, and proposed rates for treated water and wastewater service. Revenue and revenue requirements are projected for the five calendar years from 2022 through 2026, recognizing anticipated growth in number of customers, water use, and wastewater flows throughout the service area. The study of revenue requirements recognizes projected operation and maintenance expense, capital improvement requirements met from revenues, principal and interest payments on outstanding and proposed bond issues, and reserve fund requirements. Requirements of existing revenue bond indentures are also recognized.

Costs of treated water and wastewater service are developed for each group of customers and type of service based on consideration of utility revenue needs and projected customer service requirements. Rate adjustments are designed for retail and wholesale customers in accordance with allocated costs of service, wholesale service agreement terms, and customer bill impact considerations.

2.3 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.

2.3.1 Financial Plan

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

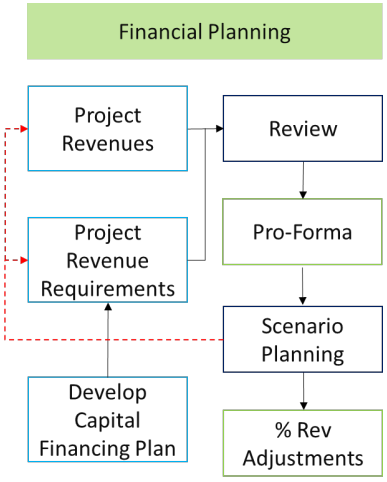


Figure 2 - 1: Financial Plan

As illustrated in Figure 2 - 1, 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 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 and wastewater utility to achieve the financial objectives and target metrics defined to build and sustain financial integrity. 2022 through 2026 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.

2.3.2 Cost of Service

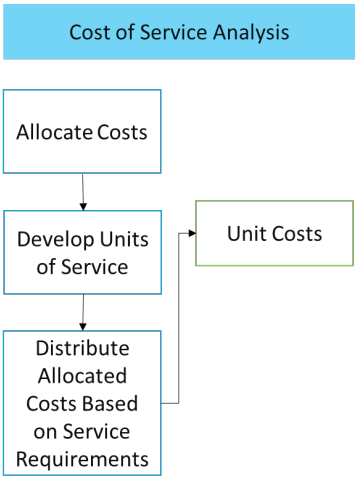


Figure 2 - 2: Cost of Service

Cost of service can be described as the revenue that the water and wastewater utility need to generate, *net of funding from other miscellaneous sources of revenues.* Therefore, Cost of Service is essentially the "net revenue requirement" that is to be recovered through user rates and charges. As illustrated in Figure 2 - 2, 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 that is necessary to establish a *reasonable nexus* between costs incurred in providing service and the fees charged from customers, and to establish defensible user rates and charges.

2.3.3 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. The user rates and charge schedules typically include fixed charge, volumetric charge, and other special charge rate components. As illustrated in Figure 2 - 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.

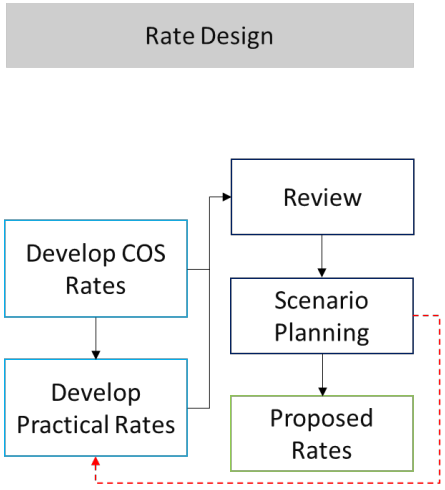


Figure 2 - 3: Rate Design

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.

3.0 Rate Structure Overview

The revenue requirements of a water and wastewater 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, namely, a fixed charge and a volumetric charge. Similarly, a wastewater rate structure more commonly consists of a fixed charge, a volumetric charge, and pollutant charge (for wastewater pollutants such as Bio-chemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). Occasionally, a utility's water and wastewater rate structures may include special surcharges and/or special assessments to recover costs associated with certain service situations such as purchased water, pumping to elevations, drought conditions, readiness-to-serve, environmental conditions, and extra-strength wastewater discharges.

3.1 Fixed Charge

A utility's annual revenue requirements comprise mostly of fixed costs such as salaries and benefits, pension obligations, debt service, cash financing for infrastructure renewal, and costs related to the provision of adequate capacity for service. These types of fixed costs occur on a recurring basis 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/or by factors such as size and capacity of the meters. Therefore, to provide for equitable cost recovery, water and wastewater fixed charges are usually assessed based on meter size and also by customer class.

3.2 Volumetric (Usage) Charge

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

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.

3.3 Existing Rate Structure

3.3.1 Water Rate Structure

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

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

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

- **Base Charge:** The existing Base Charge for all customer classes is based on meter size.
- **Volume Charge:** The existing Volume Charge is based on the quantity of water used by the customers.
- **Safe Drinking Water Fee:** This is a regulatory charge per bill that is collected by the City on behalf of the state of Arkansas Department of Public Health.

The customer classes to which the specific charge components apply is illustrated in Figure 3 - 1. The existing water rate schedule for 2021, for these rate components, is presented in Table W - 3 in Appendix 1. All customers are billed monthly.

Figure 3 - 1: Existing Water Rate Structure

Rate Component	Applicable Customer Classes
• Base Charge by Meter Size	• Retail Inside City (Residential, Non-Residential, Major Industrial, Irrigation, Fire Protection); • Retail Outside City (Residential, Non-Residential, Major Industrial, Irrigation, Fire Protection); • Wholesale
• Volume Rate (3-Tier Inclining Block) • Minimum Usage (1,000 Gallons)	• Retail Inside City Residential; and • Retail Outside City Residential
• Volume Rate (2-Tier Declining Block) • Minimum Usage (1,000 Gallons)	• Retail Inside City Non-Residential, Irrigation; and • Retail Outside City Non-Residential, Irrigation
• Volume Rate (Uniform) • Minimum Usage (1,000 Gallons)	• Retail Inside City Major Industrial • Retail Outside City Major Industrial
• Volume Rate (Uniform) • 2 rates (Reduced Peak Demand and Peak Demand)	• Wholesale
• Safe Drinking Water Fee (per month)	• All customer classes

3.3.2 Wastewater Rate Structure

The City's Operating Fund wastewater rate structure also comprises of both Fixed Charge and Volumetric Charge components. The wastewater rate structure includes the following three components:

- Base Charge (Fixed Charge);

- Volume Charge (Volumetric Charge); and
- BOD and TSS Charge (Surcharge).

The revenues derived from all these three sources are collectively referred to as **"Wastewater Service Revenues."** Some of these user rate components are applicable to only specific customer classes.

- **Base Charge:** The existing Base Charge for all retail customers is based on meter size.
- **Volume Charge:** The existing volume wastewater charge is based on the quantity of water used by the customer classes.

Surcharge: The existing wastewater surcharge is based on the excess strengths of BOD and TSS, of certain customers.

The customer classes to which the specific rate components are applicable is illustrated in Figure 3 - 2. The existing wastewater rate schedule for 2021 is presented in Table S - 3 in Appendix 2.

Figure 3 - 2: Existing Wastewater Rate Structure

Rate Component	Applicable Customer Classes
• Base Charge by Meter Size	• Retail Inside City (Residential, Non-Residential and Major Industrial); • Retail Outside City (Residential, Non-Residential and Major Industrial);
• Volume Rate (2-Tier Inclining Block) • Based on winter water usage of December, January and February	• Retail Inside City Residential
• Volume Rate (Uniform)	• Retail Inside City (Non-Residential and Major Industrial) • Retail Outside City (Residential, Non-Residential and Major Industrial)
• Volume Rate (Uniform) • 2 tiered rates (85% of metered water usage and Above 85% of metered water usage)	• Wholesale

4.0 Water Utility

The financial plan and rate design were developed to meet all the funding obligations of the water utility, and to achieve the financial adequacy and equitable cost recovery discussed in Section 2.3.

The water utility financial plan was developed for the six-year forecast period of 2021 through 2026, 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

4.1 Water Revenue Projections Under Existing Rates

The water utility revenues are derived from the following sources:

- Water Service Revenues (Base and Volume Charge)
- Other Revenues

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

4.1.1 Water Revenue Under Existing Rates

As described in Section 3.3.1, the Water Service Revenue consists of two charge components. For each of the two components, revenues are projected based on billing units and applicable existing rate schedules. The billing units necessary to compute the Base 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.

4.1.1.1 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 3.3.1.

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*. The number of accounts is projected to grow in all customer classes except for Fire protection and wholesale where the number of accounts is anticipated to remain at the 2020 level.

The total number of water accounts (not including private fire connections) is anticipated to increase from about 48,620 in 2021 to about 52,850 in 2026, at an overall annual system growth rate of 1.7%. The number of private fire connections is anticipated to remain at 727 throughout the study period. Table W - 1 in Appendix 1 presents the projected annual number of water accounts and private fire connections for the period of 2021 through 2026.

Figure 4-1 presents both the historical and projected number of accounts for the water utility.

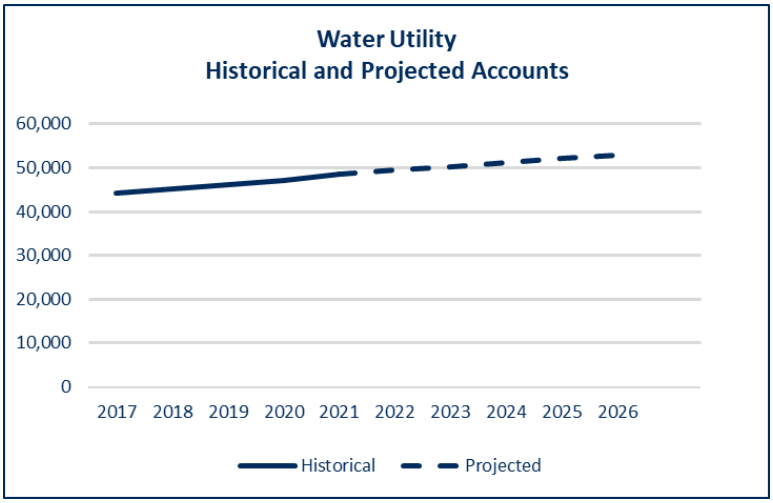


Figure 4-1 - Historical and Projected Water Accounts

4.1.1.2 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 historical usage per account for all customer classes varies each year between 2016 and 2020. In 2020, the COVID pandemic led to stay-at-home measures and shut down of non-essential businesses across the country. Consequently, the residential customers used more water in 2020, whereas the non-residential customers used less water as compared to previous years. The average use per account for 2021 was projected to remain at the 2020 levels assuming a lingering effect of the pandemic. The average usage per account for 2022 and beyond was projected to return to the 2019 level for all customer classes assuming a return to pre-pandemic levels.

Total system water usage is projected to increase from 3,873,500 kgals in 2021 to 4,109,400 kgals in 2026. Table W - 2 in Appendix 1 presents the projected annual volume for the period of 2021 through 2026.

Figure 4-2 presents both the historical and projected annual billed volume for the water utility.

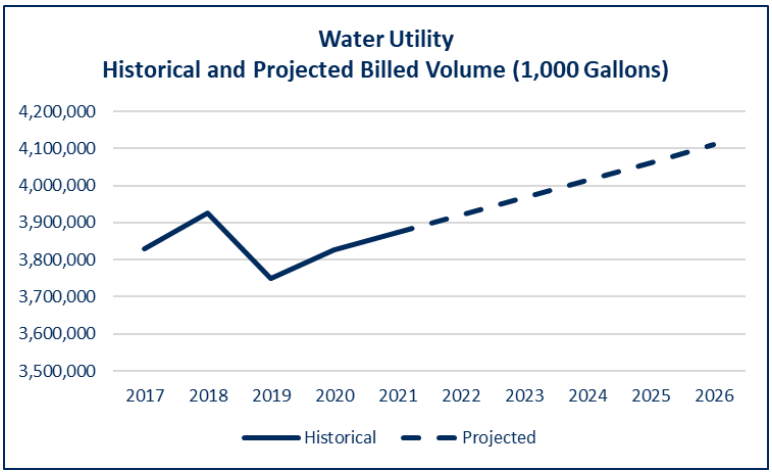


Figure 4-2 - Historical and Projected Water Billed Volume

4.1.2 Projection of Service Revenue Under Existing Rates

Water service revenues for the period 2021 through 2026 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 2021 rate schedule for 2021 revenues and 2022 rate schedule for 2022 through 2026 revenues. Water service revenue under existing rates is projected to increase slightly from $21.2 million in 2021 to $23.0 million in 2026. This growth is due to increase in water sales due to the growth in the number of accounts over the study period. Table W - 4 in Appendix 1 presents the projected annual service revenues for the period of 2021 through 2026.

Figure 4-3 presents both the historical and projected annual service revenues under existing rates for the water utility.

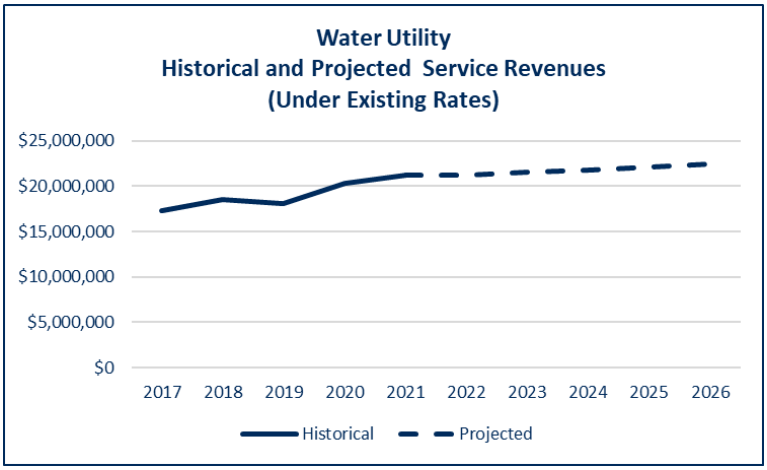


Figure 4-3 - Historical and Projected Water Service Revenue

4.1.3 Other Water Revenues

The other revenues include the following major components:

- Impact Fee Revenue;
- Water/Rural Water Connection Fees;
- Miscellaneous Fees (Water Sales Not on Computer, Trip Fees, Tampering-Billed Service)
- Penalties; and
- Safe Drinking Water Fee (pass-through)

The annual revenues from water impact fees, water connection fees and miscellaneous fees for 2021 to 2026 are projected based on historical three-year (2018 to 2020) average revenues for each of the fees. The penalties revenue in 2020 reflects only the first two and half months of revenues, as the City stopped assessing penalties for non-payment due to the pandemic. The revenue for penalties in 2021 is projected to be half of the historical three -year (2017 to 2019) average revenues due to continued waiver of the penalties as a result of the COVID pandemic during the first half for 2021. The revenue

from penalties in 2022 and beyond is projected as the historical three-year average (2017 to 2019) average revenues. Table W - 5 in Appendix 1 presents the historical and projected annual service revenues for the period of 2021 through 2026.

The Safe Drinking Water Fee (SDWF) is assessed for all water users in the state of Arkansas. The current rate is $0.40 per bill per month and is collected by all water utilities in the state. The SDWF revenue is projected by applying the current rate to the number of meters for the period 2021 to 2026. The revenue collected as part of this fee is reimbursed to the state.

4.2 Water Capital Improvements Program

The capital project costs provided by the City were based on 2020 dollars. Based on discussions with the City, the project costs are inflated at an annual rate of 3.0% to accurately reflect the costs of projects for 2021 and beyond. The water utility Capital Improvement Plan (CIP) provides for a total of $49.0 million of investments during the study period of 2021 through 2026. Table W - 6 in Appendix 1 presents the CIP list of projects and schedule for 2021 through 2026 The CIP is expected to be financed from a funding mix of cash financing from service revenue and impact fees.

4.3 Water Revenue Requirements

Projection of reliable revenue requirements includes: (1) operation and maintenance expenses; (2) bad debt; (3) Payment In Lieu of Taxes; (4) SDWF Reimbursement; (5) debt service (consisting of principal and interest payments); (6) transfer to shop fund; (7) transfer to operating reserve; (8) cash financed capital; and (9) transfer to capital reserve. The projections of annual revenue requirements for the study period is discussed in this section.

4.3.1 Water Operation and Maintenance Expenses

The O&M expenses for the water utility include the annual expenses associated with the water purchases from Beaver Water District; storage and distribution; meters and services; billing and collection, and general administrative services. These expenses include personnel costs (salaries and benefits), costs for materials and supplies, costs of utilities, and contracted services.

The 2021 O&M budget provided by the City was used as the baseline for projection of O&M expenses for the study period. In addition, costs associated with a water inspector (not included in the 2021 budget) recurring salary and benefits costs, recurring vehicle maintenance costs and one-time cost of the vehicle purchase was added per City's direction. Based on historical O&M costs, industry experience, and discussions with the City management, 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 include the following:

- Salaries: 4.00%
- Benefits: 5.00%
- Energy: 3.00%
- Chemicals: 3.00%
- Purchased Water: 3.00%

The annual O&M expenses for water utility are budgeted at $15.9 million in 2021 and are projected to grow to $18.8 million by 2026. Table W - 7 in Appendix 1 presents a summary of total projected operation and maintenance expense for the period 2021 through 2026.

Figure 4-4 presents the historical and projected O&M expenses for the water utility.

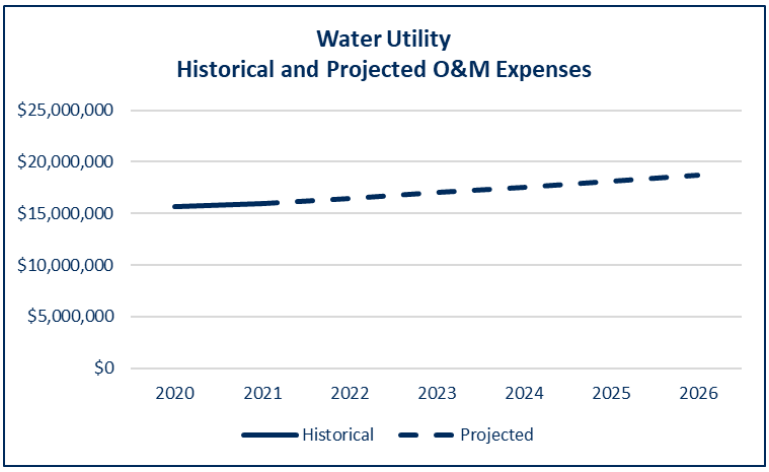


Figure 4-4 - Projected Annual Water O&M Expenses

4.3.2 Water Bad Debt

Bad debt expenses refer to outstanding balances owed that are deemed uncollectible. The water bad debt in 2019 was 0.5% of revenue. Hence, bad debt projections for the study period assume 0.5% of annual revenues. Annual bad debt expenses for water utility is projected to increase from $105,900 in 2021 to $129,500 by 2026 reflecting the increase in projected revenues. Line 12 in Table W - 9 in Appendix 1 presents the projected bad debt for the period 2021 through 2026.

4.3.3 Water Payment In Lieu of Taxes

The PILOT costs are paid by public utilities to municipal entity as a compensation for utilization of streets, easements, right of ways or other public places. The PILOT amount is determined per City Ordinance 4449 that requires that the water and wastewater funds to pay 4.25% of annual total gross sale revenues to the City. Annual PILOT amount for the water utility is calculated by multiplying actual water revenues from prior year (Water sales on Computer and Water sales not on Computer/ Bulk Water Sales, and Fire Hydrant and Protection). Annual PILOT amount for the water utility is anticipated to increase from $900,400 in 2021 to $1,100,700 in 2026. Line 13 in Table W - 9 in Appendix 1 presents the projected PILOT expenses for the period 2021 through 2026.

4.3.4 Safe Drinking Water Fee Reimbursement

The SDWF revenue collected for each metered customer is reimbursed to the state of Arkansas department of Public Health. The SDWF reimbursement is projected to increase from $230,000 in 2021 to $250,200 in 2026. Line 14 in Table W - 9 in Appendix 1 presents the projected SDWF reimbursement for the period 2021 through 2026.

4.3.5 Water Debt Service Requirements

The water utility does not have any outstanding debt service obligations. The City does not anticipate any debt issuances during the study period, therefore there is no projected debt service for future debt as shown in Line 15 in Table W - 9 in Appendix 1.

4.3.6 Transfer to Shop Fund

The transfer to the shop fund is made by the utility whenever a new vehicle (associated with new personnel) is purchased, thereby expanding the existing fleet. There are no projected transfers to the shop fund over the study period as shown in Line 17 in Table W - 9 in Appendix 1.

4.3.7 Transfer to Operating Reserve

The City maintains an operating reserve balance equivalent of ninety (90) days of following years' O&M budget. The transfer to operating reserve is projected to increase from $133,000 in 2022 to $151,800 in 2026 reflecting the growth in the O&M budget. Line 18 in Table W - 9 in Appendix 1 presents the projected transfers to the operating reserve for the period 2021 through 2026.

4.3.8 Water Cash Financed Capital

The City currently utilizes the following two sources of funding for the water utility capital projects (1): transfer from operating revenues and (2) transfer from the impact fee fund. As stated in Section 4.2, the water capital improvement program for the study period is $52 million, of which $50 million is projected to be funded from operating revenues and $2 million is from the impact fee fund. A capital project meets the requirements of using impact fees if the existing water capacity is expanded due to growth. The construction contract and the budget amendment to change the source of funding to impact fee must be approved by the City Council. Table W - 8 in Appendix 1 presents the sources of funding for the water capital improvement program. Line 19 in Table W - 9 in Appendix 1 presents the projected transfers for cash financed capital for the period 2021 through 2026.

4.3.9 Transfer to Capital Reserve

The water utility, after meeting all the obligations stated in sections above, transfers the excess funds to the capital reserve fund. The capital reserve fund is used as a source for funding the capital program in the years that the revenues are not sufficient to meet the capital funding requirements. Line 20 in Table W - 9 in Appendix 1 presents the projected transfers to and from the capital reserve for the period 2021 through 2026.

4.4 Water Proposed Revenue Adjustments

The annual revenue adjustments that are needed to achieve the defined financial performance objectives are determined by evaluating the funding gap between the projected annual revenue requirements and the projected revenues under existing rates. Table W - 9 in Appendix 1, 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 $21.8 million in 2022 to $23.0 million in 2026.

Projected Other Revenues: Line 8 indicates that the other revenues are anticipated to increase from $641,500 in 2022 to $665,900 in 2026. This increase is due to the growth in SDWF, which is a pass-through. It is anticipated that all other categories of other revenues will remain flat throughout the study period.

Projected Expenses: Line 15 indicates the total annual expenses for the water utility are anticipated to increase from $17.7 million in 2022 to $20.2 million in 2026.

Projected Transfers: Line 20 indicates the total annual transfers for the water utility are anticipated to increase from $4.8 million in 2022 to $6.3 million in 2026.

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, thereby causing an operating deficit.

Proposed Revenue Adjustments: To address the funding gap in the water utility, a series of revenue adjustments are proposed as follows:

- 2022: 3% effective (January 1, 2022)
- 2023: 3% effective (January 1, 2023)
- 2024: 3% effective (January 1, 2024)
- 2025: 3% effective (January 1, 2025)
- 2026: 3% effective (January 1, 2026)

Lines 2 through 7 present the amount of additional revenues generated each year with the proposed magnitude and timing of revenue adjustments. Figure 4-5 presents the projected revenue and revenue requirements through 2026 for the wastewater utility.

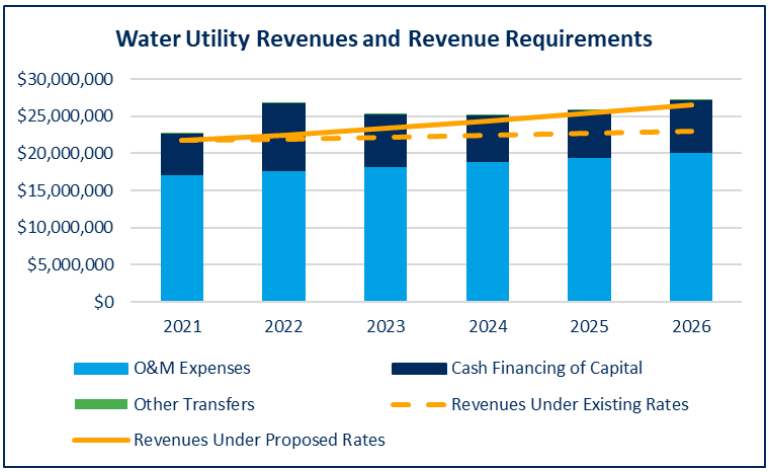


Figure 4-5 - Water Revenues and Revenue Requirements

Table W - 10 in Appendix 1 presents the water utility's operating reserve, capital reserve and impact fee fund balances. The City has identified the minimum balance requirements for each of the following funds:

- **O&M Reserve Balance**: A cash balance of at least 90 days of the follow's year operating expenses.

- **Operating Fund Balance:** A minimum target of $100,000.
- **Capital Fund Balance:** A minimum target of $500,000.
- **Capital Reserve Fund Balance:** An amount necessary to fully fund anticipated capital projects.

As shown in Table W - 10, the proposed annual revenue adjustments will allow the water utility to meeting the minimum fund balance requirements for all funds through 2026.

4.5 Water Cost of Service

A key step to developing an equitable rate structure involves the cost of service analysis. The financial plan discussed in sub sections 4.1 through 4.4 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 2022.

The key components of the cost of service analysis are:

- Determination of Cost of Service (net revenue requirements);
- Determination of Functional Costs;
- Allocation of Functional Costs to Cost Components; and
- Distribution of Water Utility Costs to Customer Classes

4.5.1 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 2.3, 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 W - 11 in Appendix 1 presents the derivation of the cost of service to be recovered through water charges. As Line 18 in Table W - 11 indicates, the water cost of service for 2022 is projected to be $21.8 million. This cost of service consists of $17.2 million of net O&M expense and $4.6 million of net capital costs.

Costs of service is apportioned among customer classes in this study on a "Utility Basis", that is, in terms of operating expense, depreciation expense, and return. For a municipal utility, the total of depreciation expense and return is equal to the capital cost related portion of the total cost of service.

Depreciation is the loss in value of the original plant investment, not restored by current maintenance, due to wear, decay, inadequacy, and obsolescence. Annual depreciation is determined as a percentage of original investment based on expected service lives of the various facilities. Unless funds are provided for normal annual replacement of original plant items, operating reliability of the system, as well as the value, will decrease. Depreciation funds are used to finance principal payments on bond issues and provide normal annual capital expenditures.

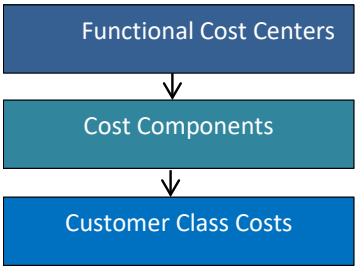
The depreciation expense associated with the water utility is estimated in this study recognizing depreciation rates presently in use by the water utility. This results in a projected test year depreciation

expense of $2.7 million exclusive of depreciation on contributed plant, which is not recognized for cost allocation or rate design purposes. The contributed plant adjustment is consistent with generally accepted regulatory practices.

Total return on the system investment provides funds for bond interest payments and any other costs that may be incurred. In developing the level of return on net plant serving the requirements of outside City customers, provisions for a reasonable margin should be made to meet interest on borrowed funds, and to recognize the business risk assumed by the City in providing reliable facilities to serve nonresident customers. Total return for the test year is projected to be $1,895,900 as shown on Line 17 of Table W - 11 in Appendix 1.

4.5.2 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 the determination of what elements in a water system are responsible for causing the level of revenue requirements that is needed. To allocate the costs to customer classes, first the operating and capital costs of service are aggregated into "Functional Cost Centers." 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 of a water utility 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, distribution, meters, billing,* and *other administration* costs. Both the O&M and capital costs defined for the Test Year, discussed in 4.5.1, 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 the City, for each class of asset that is currently in service, construction work in progress 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 usually presented as Original Cost Less Depreciation ("OCLD"). The total estimated OCLD of the water system is $96.2 million, as presented in Line 9 in Table W - 12 in Appendix 1. This plant investment data is subsequently used as a basis for the allocation to cost components, discussed in the following subsection 4.5.3.2.

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 $17.2 million, to the various functional cost centers, is presented in Table W - 14 in Appendix 1.

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.

4.5.3 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 and 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 which 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 respective base, extra capacity, and customer service requirements of each customer class.

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 which are common to all customer classes and those which are common to retail service classes only.

4.5.3.1 Water Utility Allocation to Cost Components

The water utility is comprised of a variety of service facilities, each designed and operated to fulfill a given function. In order to provide adequate service to its customers at all times, the utility must be capable of not only providing the total amount of water used, but also supplying water at maximum rates of demand.

Since all customers do not exert their maximum demand for water at the same time, 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 2.10 is used based on experienced demands in the water system. This indicates that approximately 47.6% of the capacity of facilities designed and operated to meet maximum day demand is required for average or base use. According, the remaining 52.4% is required for 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 maximum hour to annual average day water use of 2.73 is used, based on demands experienced by the system. This ratio indicates that 36.6% of the capacity of facilities designed and operated for maximum hour demand is needed for average or base use, while 40.3% is utilized for maximum day extra capacity uses, and the remaining 23.1% is required to meet maximum hour extra capacity demand in excess of maximum day needs.

4.5.3.2 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, 2019, the 2020 construction work in progress, and the estimated cost of proposed capital improvements expected to be in service by the end of calendar year 2022. As the wholesale customers have their own storage tanks, the plant investment associated with tanks was allocated to the retail customers only. The total estimated OCLD of the water system is $96.2 million, as presented in Line 9 in Table W - 12 in Appendix 1.

Plant investment is allocated to cost components on a design basis recognizing the principal function governing the design of the facility. The allocation of net plant investment provides the basis for allocation of depreciation expense.

4.5.3.3 Allocation of Water Facilities Depreciation Expense

Depreciation is a real part of the cost of operating a utility. In utility accounting, it is generally accepted practice to use depreciation funds to finance system replacements, improvements, and extensions. While such action does not restore the value lost in each property unit every year, the total value lost through depreciation is restored to the system as a whole. Depreciation funds can be reinvested in the system either by direct payment of routine capital additions and replacements or by principal payments on bonded debt.

The total estimated depreciation cost (excluding depreciation on contributed facilities) for the water system is $2.7 million, as presented on Line 9 in Table W - 13 in Appendix 1. As the wholesale customer have their own storage tanks, the depreciation costs associated with tanks was allocated to the retail customers only.

4.5.3.4 Allocation of Water Utility Operating Expenses

Table W - 14 in Appendix 1 presents the allocation of O&M expense to functional cost components. Total test year O&M expense, as shown on Line 7 of this table, amounts to $17.2 million. Operating expenses are allocated to functional cost components in generally the same manner as plant investment.

4.5.4 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. Analysis of resulting costs of service to each class and comparison of allocated costs with revenues under existing rates provide a basis for future water rate adjustments.

4.5.4.1 Water Customer Classification

Customer classes consist of residential, non-residential, industrial, irrigation, wholesale, and public and private fire protection. The residential class includes single family residential, duplex, fourplex, apartment, multi-unit residential, and rooming house customers. The non-residential class includes commercial, combination, construction, government, and non-profit classes. Industrial includes major and minor industrial. Outside City includes Farmington, Greenland, Washington/Growth Area, Johnson, and Goshen/ White River. Wholesale includes the communities of Elkins, West Fork, Mt. Olive, and RDA/WWA. These classes group together customers with similar service requirement characteristics and provide a means for allocating costs to customers.

4.5.4.2 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, 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 W - 15 in Appendix 1. Estimates of test year annual water volumes, shown in Column 1, are based on the projections of total water sales for the test year 2022. Average daily water use is presented in Column 2. Columns 3 through 8 present the estimated maximum day and maximum hour capacity factors for each customer class, the resulting demands, and extra capacity requirements, respectively.

Customer related meter and service costs are allocated on the basis of the number of equivalent 3/4 inch meters serving each customer class. The number of equivalent meters in each customer class (Column 10) is estimated by relating typical costs for meters and services larger than 5/8 inch in size to the typical cost of a 3/4 inch meter and its related service line. Customer billing and accounting costs are distributed to classes on the basis of the number of bills for each customer class in Column 11.

Extra capacity requirements for fire protection service recognize, in part, peak fire flow requirements, and system capabilities established by the Insurance Service Office. One fire is estimated with peak fire flow requirements of 9,000 gallons per minute for 10 hours (maximum day) and 24 hours (maximum hour). Direct fire protection costs have been allocated between inside City and outside City customers in proportion to the number of equivalent 6-inch fire hydrants, as shown in Columns 12 and 13.

4.5.4.3 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.

The water utility has been built with provision for service to customers outside the City, yet the inside City customers must bear the responsibility for providing system facilities by undertaking the necessary investment. Revenues derived from outside City service should provide a margin of return on capital adequate to induce the citizens of Fayetteville to bear the risks of providing outside City service. To recognize the proprietary interest and responsibility of inside City customers in the system, it is proper to charge outside City customers, in addition to their share of operating expense and depreciation, a

reasonable return on their allocated portion of value. A 7.0% (4.0% for future debt service plus 3.0% risk component) annual rate of return on the value of water facilities serving outside City customers is recognized for purposes of this study.

Table W - 16 in Appendix 1 shows the development of the unit costs of service applicable to each cost function. Lines 1 through 3 summarize the units of service developed in Table W - 15. Total allocated costs or investment shown on Lines 4, 6, and 8 were previously developed in Table W - 12, Table W - 13 and Table W - 14 respectively. Unit costs of service for each component are determined by dividing the allocated cost or investment by the total units of service.

Total allocated unit costs of service for inside and outside City customers (Lines 15 and 16) are determined by adding the unit costs for net operating expense (Line 5) and depreciation expense (Line 7) to the respective inside and outside City unit costs for return on investment (Lines 10 and 11). These unit costs applied to the respective units of service shown on Lines 1 and 2 determine the allocated total costs of service for inside and outside City customers shown on Lines 17 and 18. In order to determine the allocated costs for each customer class, the costs are allocated to the various customer classes by applying the appropriate unit cost of service to the respective service requirements of each customer class.

Table W - 17 in Appendix 1 shows the resulting allocated and adjusted cost of service by customer class, revenue under existing rates, and the additional revenue required from each class. Costs associated with public fire protection are not recovered through direct charges, therefore, the cost of service for this class is reallocated to all other retail customers in proportion to their allocated cost of service as shown in Column 3. 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 6.

5.0 Water Rate Design

The principal consideration in establishing water rate schedules is to establish rates to 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 having similar service requirements. Rates should provide for equitable cost recovery, ease of 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 which recover costs of service from customer classes in proportion to service required and provide the total level of revenue required.

5.1 Existing Water Rates

The existing schedule of rates for water service became effective on January 1, 2022. For both retail and wholesale customers, these rates include a monthly base charge bill, which varies by meter size. The volume charge varies by customer class. The existing water rate structure is described in Section 3.3.1. The existing schedule of base and volumetric water rates is shown in Table W - 3.

5.2 Proposed Water Rates

The cost of service analysis described in the preceding sections of this report provides a basis for the design of a schedule of water rates to meet those costs. Proposed water base charge and volume rates have been designed to meet the test year allocated costs of service and are presented in Table W - 18. The proposed rate structure eliminates the minimum volume charge associated with 1,000 gallons. Additionally, volumetric rate structure for non-residential and irrigation customers classes both inside and outside city were changed from declining block rates to uniform block rates Figure 5 - 1 below presents the proposed water rate structure.

Figure 5 - 1 Proposed Water Rate Structure

Rate Component	Applicable Customer Classes
• Base Charge by Meter Size	• Retail Inside City (Residential, Non-Residential, Major Industrial, Irrigation, Fire Protection); • Retail Outside City (Residential, Non-Residential, Major Industrial, Irrigation, Fire Protection); • Wholesale
• Volume Rate (3-Tier Inclining Block)	• Retail Inside City Residential; and • Retail Outside City Residential
• Volume Rate (Uniform)	• Retail Inside City Non-Residential, Major Industrial, Irrigation; and

Rate Component	Applicable Customer Classes
	• Retail Outside City Non-Residential, Irrigation
• Volume Rate (Uniform)	• Wholesale
• Safe Drinking Water Fee (per month)	• All customer classes

In developing proposed schedules of water rates, it must be recognized that the cost of service studies are the 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 for potential rate adjustments. Practical considerations such as previous rate levels, bill impact on customers, and magnitude of cost of service shifts among customer classes, and past local practices are commonly recognized in making rate adjustments.

A comparison of estimated test year revenue under the proposed rates with allocated costs of service for each of the customer classes is presented in Table W - 19 in Appendix 1. This comparison indicates the proposed rates will recover revenues from inside and outside City customer groups reasonably commensurate with the cost of service and practical considerations previously noted.

To better reflect the total effect the proposed rates have on customer bills, a comparison of typical inside city and outside city customer water charges under existing rates and the rates proposed to become effective August 1, 2022, is presented in Table W - 20.

6.0 Wastewater Utility

The financial plan and rate design were developed to meet all the funding obligations of the wastewater utility, and to achieve the financial adequacy and equitable cost recovery discussed in Section 2.3.

The wastewater utility financial plan was developed for the forecast period of 2021 through 2026, and includes the following key components:

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

6.1 Wastewater Revenue Projections Under Existing Rates

The wastewater utility revenues are derived from the following sources:

- Wastewater Service Revenues (Base and Volume Charge)
- Other Revenues

As a first step in the development of the financial plan, Wastewater Service Revenues under the 2021 existing rates are projected for the forecast period.

6.1.1 Wastewater Revenue Under Existing Rates

As described in Section 3.3.2, the Wastewater Service Revenue consists of two charge components. For each of the two components, revenues are projected based on billing units and applicable existing rate schedules. The billing units necessary to compute the Base 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 wastewater billed volumes* by customer class and by applicable blocks of billable wastewater volume.

6.1.1.1 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 billed volume trends for each customer class referenced in Section 3.3.1.

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 *volume factor*. The number of accounts is projected to grow for residential customer classes Fayetteville (Inside City) and Farmington (Outside City), whereas all other customer classes are anticipated to remain at the 2020 level.

The total number of wastewater accounts is anticipated to increase from about 40,100 in 2021 to about 43,300 in 2026, at an overall annual system growth rate of 1.6%. Table S - 1 in Appendix 2 presents the projected annual number of accounts for the period of 2021 through 2026.

Figure 6-1 presents both the historical and projected number of accounts for the wastewater utility.

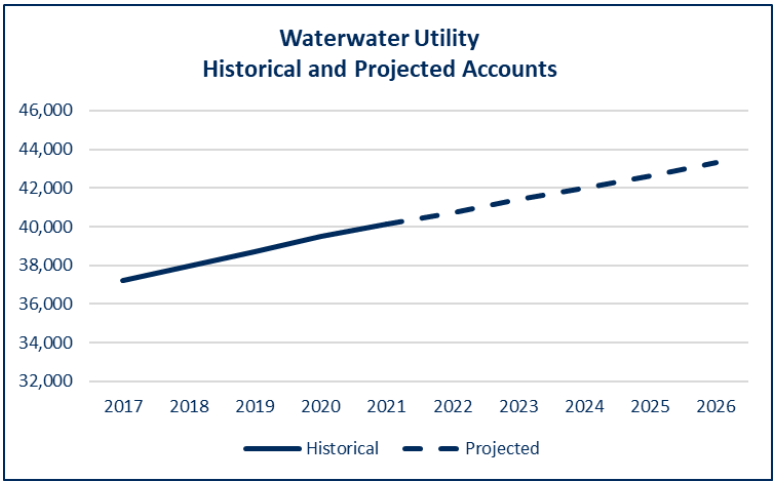


Figure 6-1 - Historical and Projected Wastewater Accounts

6.1.1.2 Projection of Wastewater Volume

Billed wastewater volumes are projected based on estimates of the number of wastewater accounts and the average billed volume per account. Average billed volume per account is determined based on historical billed volume. The historical billed volume per account for all customer classes varies each year between 2016 and 2020. In 2020, the COVID pandemic led to stay-at-home measures and shut down of non-essential businesses across the country. Consequently, the residential customers used more water in 2020, whereas the non-residential customers used less water as compared to previous years. The average billed volume per account for 2021 was projected to remain at the 2020 levels assuming a lingering effect of the pandemic. The average billed volume per account for 2022 and beyond was projected to return to the 2019 level for all customer classes assuming a return to pre-pandemic levels.

Total system wastewater billed volume is projected to increase from 3,043,100 kgals in 2021 to 3,205,800 kgals in 2026. Table S - 2 in Appendix 2 presents the historical and projected annual volume for the period of 2020 through 2026.

Figure 6-2 presents both the historical and projected annual billed volume for the wastewater utility.

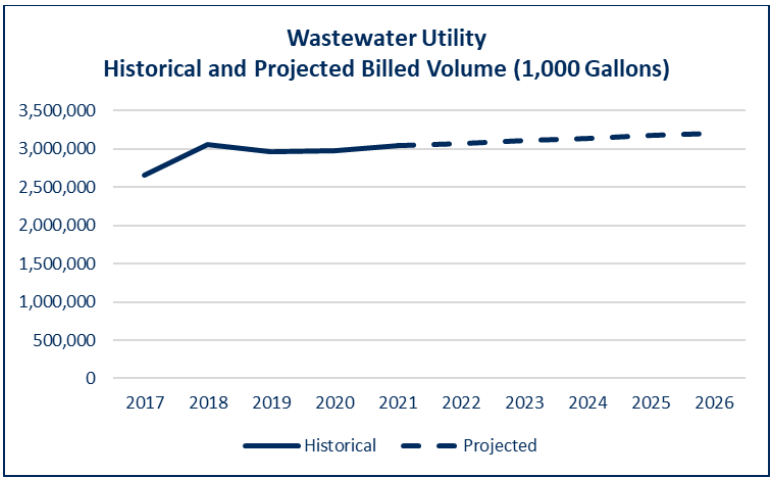


Figure 6-2 - Historical and Projected Wastewater Billed Volume

6.1.2 Projection of Service Revenue Under Existing Rates

Wastewater service revenues for the period 2021 through 2026 are projected for each charge component (base and volume) based on the projections of accounts by meter size, projected billed volume for each customer class, and the application of the 2021 rate schedule for 2021 revenues and 2022 rate schedule for 2022 through 2026. Wastewater service revenue under existing rates is projected to increase slightly from $24.5 million in 2021 to $26.7 million in 2026. This growth is due to increase in wastewater sales due to the growth in the number of accounts over the study period. Table S - 4 in Appendix 2 presents the historical and projected annual service revenues for the period of 2021 through 2026.

Figure 6-3 presents both the historical and projected annual service requirements under existing rates for the wastewater utility.

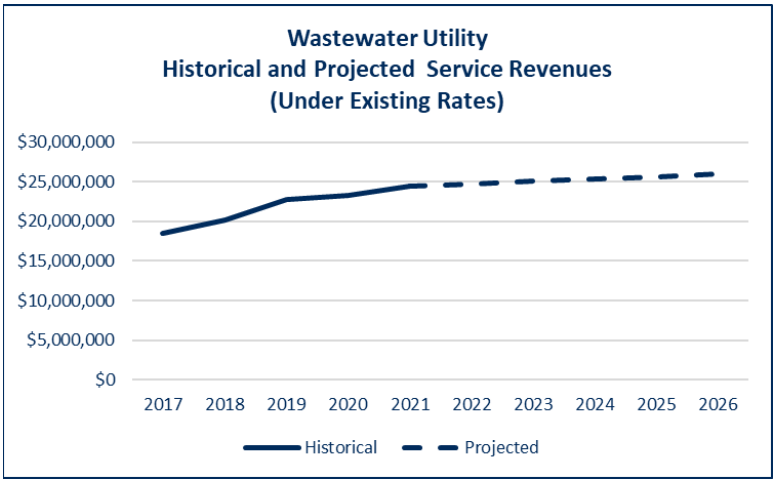


Figure 6-3 - Historical and Projected Wastewater Service Revenue

6.1.3 Other Wastewater Revenue

The other revenues include the following major components:

- Impact Fee Revenue;
- Wastewater Connection Fees;
- Wastewater Sales Not on Computer
- Penalties; and
- WWTP Fees (Hay Sales, Biosolids/ Fertilizer Sales & Water Treatment Residual)

The annual revenues from wastewater impact fees, wastewater connection fees. wastewater sales not on computer, and WWTP Fees for 2021 to 2026 are projected based on historical three-year (2018 to 2020) average revenues for each of the fees. The penalties revenue in 2020 reflects only the first two and half months of revenues, as the City stopped assessing penalties for non-payment due to the pandemic. The revenue for penalties in 2021 is projected to be half of the historical three -year (2017 to 2019) average revenues due to continued waiver of the penalties as a result of the COVID pandemic during the first half for 2021. The revenue from penalties in 2022 and beyond is projected as the historical three-year average (2017 to 2019) average revenues. Table S - 5 in Appendix 2 presents the historical and projected annual other revenues for the period of 2020 through 2026.

6.2 Wastewater Capital Improvements Program

The capital project costs provided by the City were based on 2020 dollars. Based on discussions with the City, the project costs are inflated at an annual rate of 3.0% to accurately reflect the costs of projects for 2021 and beyond. The City's wastewater utility Capital Improvement Plan (CIP) provides for a total of $69.3 million of investments during the study period of 2021 through 2026. Major wastewater projects include sanitary wastewater rehabilitation totaling $15.7 million and Biosolids Dryer Replacement totaling $31.1 million. Table S - 6 in Appendix 2 presents the CIP list of projects for 2021 through 2026. The CIP is expected to be financed from a funding mix of cash financing from service revenue and impact fees.

6.3 Wastewater Utility Revenue Requirements

Projection of reliable revenue requirements includes: (1) O&M expenses; (2) bad debt; (3) Payment In Lieu of Taxes; (4) debt service (consisting of principal and interest payments); (5) transfer to shop fund; (6) transfer to operating reserve; (7) cash financed capital; and (8) transfer to capital reserve. The projections of annual revenue requirements for the study period is discussed in this section.

6.3.1 Wastewater Operation and Maintenance Expenses

The O&M expenses for the wastewater utility include the annual expenses associated with the wastewater conveyance, pumping, treatment and disposal; meters and services; billing and collection, and general administrative services. These expenses include personnel costs (salaries and benefits), costs for materials and supplies, costs of utilities, and contracted services.

The 2021 O&M budget provided by the City was used as the baseline for projection of O&M expenses for the study period. In addition, costs associated with a wastewater inspector (not included in the 2021 budget) recurring salary and benefits costs, recurring vehicle maintenance costs and one-time cost of the vehicle purchase was added per City's direction. Based on historical O&M costs, industry experience, and discussions with the City management, 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 include the following:

- Salaries: 4.00%
- Benefits: 5.00%
- Energy: 3.00%
- Chemicals: 3.00%
- Wastewater Treatment Plant Contract: 3.00%

The annual O&M expenses for wastewater utility are budgeted at $15.7 million in 2021 and are projected to grow to $18.4 million by 2026. Table S - 7 in Appendix 2 presents a summary of projected operation and maintenance expense for the period 2021 through 2026.

Figure 6-4 presents the historical and projected O&M expenses for the wastewater utility.

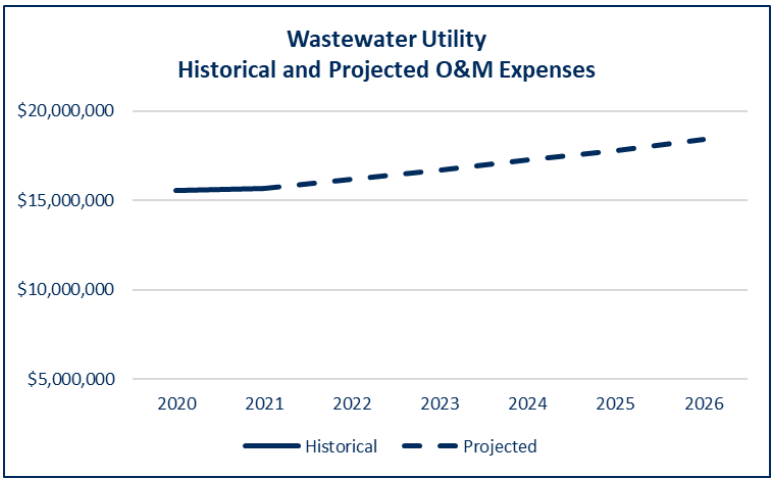


Figure 6-4 - Projected Annual Wastewater O&M Expense

6.3.2 Wastewater Bad Debt

Bad debt expenses refer to outstanding balances owed that are deemed uncollectible. The wastewater bad debt in 2019 was 0.5% of revenue. Hence, the bad debt projections for the study period assume 0.5% of annual revenues. Annual bad debt expenses for wastewater utility is projected to increase from $122,300 in 2021 to $149,900 by 2026 reflecting the increase in projected revenues. Line 16 in Table S - 9 in Appendix 2 presents bad debt expense for the period 2021 through 2026.

6.3.3 Wastewater Payment In Lieu of Taxes

The PILOT costs are paid by public utilities to municipal entity as a compensation for utilization of streets, easements, right of ways or other public places. The PILOT amount is determined per City Ordinance 4449 that requires that the water and wastewater funds to pay 4.25% of annual total gross sale revenues to the City. Annual PILOT amount for the wastewater utility is calculated by multiplying actual wastewater revenues from prior year (Wastewater sales on Computer and Wastewater sales not

on Computer/ Dump Fees) and is projected to increase from $1,039,600 in 2021 to $1,274,000 in 2026. Line 17 in in Appendix 2 presents PILOT expense for the period 2021 through 2026.

6.3.4 Wastewater Debt Service Requirements

The wastewater utility does not have any outstanding debt service obligations. The City does not anticipate any debt issuances during the study period, therefore no projected debt service for future debt as shown in Line 18 in Table S - 9 in Appendix 2.

6.3.5 Transfer to Shop Fund

The transfer to the shop fund is made by the utility whenever a new vehicle (associated with new personnel) is purchased, thereby expanding the existing fleet. There are no projected transfers to the shop fund over the study period as shown in Line 20 in Table S - 9 in Appendix 2

6.3.6 Transfer to Operating Reserve

The City maintains an operating reserve balance equivalent of ninety (90) days of following years' O&M budget. The transfer to operating reserve is projected to increase from $129,600 in 2022 to $147,900 in 2026 reflecting the growth in the O&M budget. Line 21 in Table S - 9 in Appendix 2 presents transfer to the operating reserve for the period 2021 through 2026.

6.3.7 Wastewater Cash Financed Capital

The City currently utilizes the following two sources of funding for the wastewater utility capital projects (1): transfer from operating revenues and (2) transfer from the impact fee fund. As stated in Section 6.2, the wastewater capital improvement program for the study period is $69 million, of which $67 million is projected to be funded from operating revenues and $2 million is from the impact fee fund. A capital project meets the requirements of using impact fees if the existing wastewater capacity is expanded due to growth. The construction contract and the budget amendment to change the source of funding to impact fee must be approved by the City Council. Table S - 8 in Appendix 2 presents the sources of funding for the wastewater capital improvement program. Line 22 in Table S - 9 in Appendix 2 presents transfer for cash financing of capital program for the period 2021 through 2026.

6.3.8 Transfer to Capital Reserve

The wastewater utility, after meeting all the obligations stated in sections above, transfers the excess funds to the capital reserve fund. The capital reserve fund is used as a source for funding the capital program in the years that the revenues are not sufficient to meet the capital funding requirements. Line 23 in Table S - 9 in Appendix 2 presents transfer to and from the capital reserve for the period 2021 through 2026.

6.4 Wastewater Proposed Revenue Adjustments

The annual revenue adjustments that are needed to achieve the defined financial performance objectives are determined by evaluating the funding gap between the projected annual revenue requirements and the projected revenues under existing rates. Table S - 9 in Appendix 2 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) wastewater utility revenues will increase from $25.4 million in 2022 to $26.7 million in 2026.

Projected Other Revenues: Line 8 indicates that the other revenues and interest income are anticipated to increase from $720,500 in 2022 to $731,200 in 2026. It is anticipated that all categories of other revenues will remain flat throughout the study period. The slight growth is due to the increase in interest income on the operating reserve.

Projected Expenses: Line 14 indicates the total annual expenses for the wastewater utility are anticipated to increase from $17.4 million in 2022 to $19.8 million in 2026.

Projected Transfers: Line 19 indicates the total annual transfers for the wastewater utility are anticipated to increase from $8.8 million in 2022 to $10.9 million in 2026.

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, thereby causing an operating deficit.

Proposed Revenue Adjustments: To address the funding gap in the wastewater utility, a series of revenue adjustments are proposed as follows:

- 2022: 3% effective (January 1, 2022)
- 2023: 3% effective (January 1, 2023)
- 2024: 3% effective (January 1, 2024)
- 2025: 3% effective (January 1, 2025)
- 2026: 3% effective (January 1, 2026)

Lines 2 through 7 in Table S - 9 present the amount of additional revenues generated each year with the proposed magnitude and timing of revenue adjustments. Figure 6-5 presents the projected revenue and revenue requirements through 2026 for the wastewater utility.

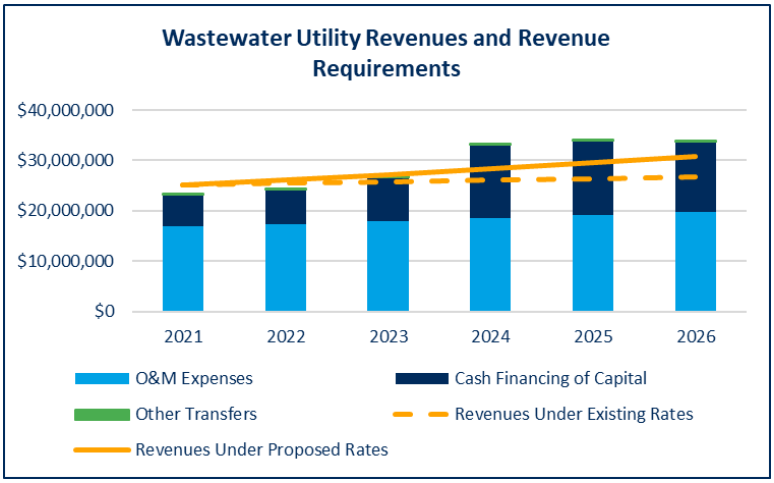


Figure 6-5 - Wastewater Revenues and Revenue Requirements

Table S - 10 in Appendix 2 presents the wastewater utility's operating reserve, capital reserve and impact fee fund balances. The City has identified the minimum balance requirements for each of the following funds:

- **O&M Reserve Balance**: A cash balance of at least 90 days of the follow's year operating expenses.
- **Operating Fund Balance:** A minimum target of $100,000.
- **Capital Fund Balance:** A minimum target of $500,000.
- **Capital Reserve Fund Balance:** An amount necessary to fully fund anticipate capital projects.

As shown in Table S - 9, the proposed annual revenue adjustments will allow the water utility to meet the minimum fund balance requirements for all funds through 2026.

6.5 Wastewater Cost of Service

A key step to developing an equitable rate structure involves the cost of service analysis. The financial plan discussed in sub sections 6.1 through 6.4 provides an estimate of the total annual revenue requirements for a given fiscal year. The test year for which the cost of service study was performed is 2022.

The key components of the cost of service analysis are:

- Determination of Cost of Service (net revenue requirements);
- Determination of Functional Costs;
- Allocation of Functional Costs to Cost Components; and
- Distribution of Wastewater Utility Costs to Customer Classes

6.5.1 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 2.3, 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 S - 11 in Appendix 2 presents the derivation of the cost of service to be recovered through the wastewater charges. As Line 18 in Table S - 11 indicated, wastewater cost of service for 2022 is projected to be $25.4 million. This cost of service consists of $16.8 million of net operation and maintenance expense and $8.6 million of net capital costs.

As performed for the water utility, costs of services are apportioned among customer classes in this study on a Utility Basis.

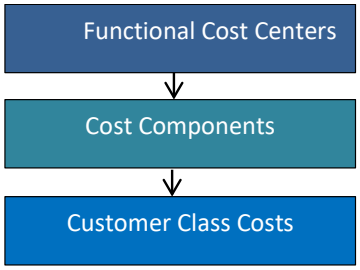
The depreciation expense and return on system investments that were already explained in Section 4.5.1 are applicable to the wastewater utility cost of service analysis as well. The depreciation expense associated with the wastewater utility is estimated in this study recognizing depreciation rates presently in use by the wastewater utility. This results in a projected test year depreciation expense of $8.1 million

exclusive of depreciation on contributed plant, which is not recognized for cost allocation or rate design purposes. The contributed plant adjustment is consistent with generally accepted regulatory practices.

Total return for the test year is projected to be $567,200 as shown on Line 17 of Table S - 11.

6.5.2 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 the determination of what elements in a wastewater system are responsible for causing the level of revenue requirements that is needed. To allocate the costs to customer classes, first the operating and capital costs of service are aggregated into "Functional Cost Centers." 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 of a wastewater utility represent the activities that contribute to the incurrence of O&M and capital costs. For a wastewater utility, they often include source of *collection*, *pumping, conveyance, treatment, disposal, meters, billing,* and *other administration* costs. Both the O&M and capital costs defined for the Test Year, discussed in 6.5.1, 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 the City, for each class of asset that is currently in service, construction work in progress 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 usually presented as Original Cost Less Depreciation ("OCLD"). The total estimated OCLD value of the wastewater system is $190.7 million, as presented in Line 26 in Table S - 12 in Appendix 2. This plant investment is subsequently used as a basis for the allocation to cost components, discussed in the following subsection 6.5.3.2.

The **O&M costs** for the Test Year are allocated to the various functional cost centers based on specific nature of costs. The allocation of the projected O&M cost of service (net operating revenue requirement) of $16.8 million, to the various functional cost centers is presented in Table S - 14 in Appendix 2.

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

6.5.3 Allocation of Costs to the Functional Cost Components

The principal functional cost components consist of volume related costs, strength related costs, and customer related costs.

Volume costs are those which vary directly with the quantity of wastewater contributed. They consist of capital costs related to investment in system facilities which are sized on the basis of, or required

because of, wastewater volume. This also includes operation and maintenance expense related to those facilities, and the expense of volume related treatment chemicals and purchased power.

Wastewater strength costs consist of the operation and maintenance expense and capital costs related to system facilities which are designed principally to treat the wastewater pollutant loadings of pollutants such as BOD, TSS, and other pollutants. BOD costs reflect costs associated with the treatment of influent BOD and include costs related to activated sludge aeration and disposal of BOD related sludge. Suspended solids strength costs are those costs of wastewater treatment which tend to vary according to the quantity of suspended solids in the raw wastewater.

Customer costs are those which tend to vary in proportion to the number of customer bills or customers served. These include the wastewater utility share of customer related meter reading, billing, collection, and account expense.

The delineation of costs of service into functional components provides a means of distributing such costs to the various customer classes based on the respective total wastewater volume, strength, and customer cost requirements of each.

Wholesale customers generally do not use lateral wastewater lines as do retail users. Therefore, separate functional cost of service categories are designated for costs which are common to all customer classes and those which are common to retail service classes only.

6.5.3.1 Wastewater Utility Cost Allocation to Cost Components

In establishing the costs associated with each functional cost component, the return portion of the test year cost of service is distributed to cost functions based on an allocation of the estimated test year value of wastewater system facilities. The test year depreciation expense associated with each major element of plant facilities is allocated to cost functions in the same manner as the plant value. Operating expense is similarly allocated to cost functions based on the projected test year expense estimated for each wastewater system component.

6.5.3.2 Allocation of Net Wastewater Plant Investment

The estimated test year value of wastewater facilities consists of net plan in service as of December 31, 2019, the 2020 construction work in progress, and the estimated cost of proposed capital improvements expected to be in service by the end of calendar year 2022. Table S - 12 in Appendix 2 presents the allocation of the wastewater utility's total estimated plant value less contributions on an original cost less depreciation value basis. Total plant investment is estimated to be $190.7 million as indicated by Line 26 of the Table S - 12.

Plant investment is allocated to cost components on a design basis recognizing the principal purpose governing the design of the facility. The allocation of net plant investment provides the basis for allocation of depreciation expense.

The Owl Creek Lift Station and Force Main serve only the City of Fayetteville, hence the plant investment associated with Owl Creek is allocated directly to the City of Fayetteville customers. Additionally, the outside City customers maintain their own wastewater connections, hence, the plant investment associated with wastewater connections is allocated 100% to the City of Fayetteville customers.

The City has a contract with the City of Farmington stipulating that Farmington will be allocated 8.2% of the costs associated with the West Treatment Plant. Hence, 8.2% of the West Treatment Plant's investment is allocated directly to the City of Farmington customers.

Wastewater collection net plant is allocated 41% to both retail and wholesale (common to all) and 59% to retail only based on the ratio of interceptors (large diameter mains) which is 41% of the collection system.

6.5.3.3 Allocation of Wastewater Facilities Depreciation Expense

As explained in Section 4.5.3.3, depreciation expense is a real part of the cost of operating a utility.

The total estimated depreciation cost (excluding depreciation on contributed facilities) for the wastewater system is $8,060,600 as presented on Line 26 in Table S - 13 in Appendix 2. The items of expense are allocated to cost components on the same design or cost causative basis used to allocate plant investment. Hence, the depreciation expense associated with Owl Creek Lift Station and Force main and Wastewater connections is directly allocated to the City of Fayetteville customers and 8.2% of the West Treatment Plant's depreciation is allocated directly to the City of Farmington customers.

6.5.3.4 Allocation of Wastewater Utility Operating Expenses

Table S - 14 in Appendix 2 presents the allocation of operation and maintenance expense to functional cost components. Total test year operation and maintenance expense, as shown on Line 14 of this table, amounts to $16.8 million. Operating expenses are allocated to functional cost components in generally the same manner as plant investment.

6.5.4 Distribution of Wastewater Utility Costs to Customer Classes

The total cost responsibility of each customer class is determined by developing unit costs of service for each cost component and applying the unit costs to the respective service requirements of each class. In accomplishing this, each customer class is allocated the share of volume, strength, and customer costs for which it is responsible.

6.5.4.1 Wastewater Customer Classification

Customer classes consist of residential, non-residential, industrial and wholesale. The residential class includes single family residential, duplex, fourplex, apartment, multi-unit residential and rooming house customers. The non-residential class includes commercial, combination, construction, government, and non-profit customers. Outside City includes Farmington, Greenland, Washington County/Growth Area and Johnson. Wholesale includes the community of Elkins and West Fork.

6.5.4.2 Wastewater Units of Service

Derivation of the responsibility of customer classes for costs of service require that each class be allocated a portion of the volume, strength, and customer costs of service according to their respective service requirements.

The cost of service responsibility for volume costs, which vary with the volume of wastewater contributed to the wastewater system, is distributed to customer classes on that basis. Strength costs are principally related to the function of reducing wastewater suspended solids, and BOD strength loading. Customer costs, which consist of meter related costs, billing, collection and accounting costs, are allocated on the basis of equivalent meters and monthly bills.

The estimated test year service requirements or units of service for the various customer classes are shown in Table S - 15 in Appendix 2. Wastewater collected and treated consists of two elements: (1) sanitary wastewater flow and (2) infiltration/inflow (I/I) of ground water into the sewers. Contributed wastewater flow is that portion of the annual water use and/or other flows from each customer class that are discharged to the wastewater system. Estimates of the contributed volume of each class is generally based upon wastewater billing records. For residential customers, the billed wastewater volume is based on average water consumption for the preceding months of December, January and February. This methodology of using a winter quarter average for quantity of wastewater flows is used to exclude outdoor uses such as irrigation, which do not return water to the collection system. For all other customer classes, the billed wastewater volume is the same as the water volume.

The difference between the measured plant influent and the customer contributed wastewater flow is attributed to Infiltration and Inflow (I/I) volume. Based on discussions with the City staff, 40% of the total treated volume is assumed to be I/I flows. Each customer class should bear its proportionate share of the costs associated with I/I, as it is integral aspect of wastewater system costs. The number of customer connections to a wastewater collection system and the volume of customer flows conveyed both influence the extent of I/I in a system. Recognizing that the major cost responsibility for I/I is allocable on an individual connection basis, two-thirds of the total I/I volume projected is allocated to customer classes based on the number of customers with the remaining one-third allocated on the basis of contributed volume.

Estimated total strength units shown for each customer class are based on an average BOD concentration of 365 milligrams per liter (mg/l) and an average suspended solids concentration of 285 mg/l. I/I strength allowances for BOD and suspended solids are assumed at 25 mg/l and 50 mg/l, respectively. Estimated BOD and suspended solids responsibilities of each customer class presented in Table S - 15 in Appendix 2 are based on the respective indicated average strength concentrations and contributed wastewater and I/I volumes for each class.

Customer billing and accounting costs are distributed to classes on the basis of the number of bills for each customer class (Column 7) in Table S - 15. Customer related meter and service costs are allocated on the basis of the number of equivalent 3/4 inch meters serving each customer class. The number of equivalent meters in each customer class (Column 8) is estimated by relating typical costs for meters and services larger than 3/4 inch in size to the typical cost of a 3/4 inch meter.

6.5.5 Wastewater 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.

The wastewater utility has been built with the provision for service to customers outside the City, yet the inside City customers must bear the responsibility of providing system facilities by undertaking the necessary investment. Revenues derived from outside City service should provide a margin of return on capital adequate to induce the citizens of Fayetteville to bear the risks of providing outside City service. To recognize the proprietary interest and responsibility of inside City customers in the system, it is proper to charge outside City customers, in addition to their share of operating expense and depreciation, a reasonable return on their allocated portion of value. A 7.0% (4.0 % for future debt

service plus 3.0% risk component) annual rate of return on the value of wastewater facilities serving outside City customers is recognized for purposes of this study.

Table S - 16 in Appendix 2 shows the development of the unit costs of service applicable to each cost function. Lines 1 through 3 summarize the units of service developed in Table S - 15. Total allocated costs or investment shown on Lines 5, 7, and 9 were previously developed in Table S - 14, Table S - 13 and Table S - 12, respectively.

Total allocated unit costs of service for inside City and outside City customers (Line 18, Line 19, Line 20 and Line 21) are determined by adding the unit costs for net operating expense (Line 6) and depreciation expense (Line 8) to the respective inside and outside City unit costs for return on investment (Lines 11 and 12). These unit costs applied to the respective units of service shown on Lines 1,2 and 3 determine the allocated total costs of service for inside and outside City customers shown on Lines 18 through 21. In order to determine the allocated costs for each customer class, the costs are allocated to the various customer classes by applying the appropriate unit cost of service to the respective service requirements of each customer class.

Table S - 17 in Appendix 2 shows the resulting allocated cost of service by customer class, revenue under existing rates, and the indicated increase or decrease in revenue required to meet the allocated cost of service.

7.0 Wastewater Rate Design

The principal consideration in establishing wastewater rate schedules is to establish charges to recover costs that are reasonably commensurate with the cost of providing wastewater service.

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

7.1 Existing Wastewater Rates

The existing schedule of rates for wastewater service became effective on January 1, 2022. For retail customers, these rates include a monthly base charge bill, which varies by meter size. The volume charge varies by customer class. Surcharge rates are based on excess strength of BOD and TSS. The existing wastewater rate structure is described in Section 3.3.2. The existing schedule of base and volume rates for wastewater service is shown in Table S - 3 in Appendix 2.

7.2 Proposed Wastewater Rates

The cost of service study described in preceding sections of this report provides a basis for the design of a schedule of wastewater rates to meet those costs. Proposed wastewater rates have been designed to meet the test year allocated costs of service and are presented in Table S - 18. The proposed rate structure presented in Figure 7 - 1 is similar to the existing structure.

Figure 7 - 1 Proposed Wastewater Rate Structure

Rate Component	Applicable Customer Classes
• Base Charge by Meter Size	• Retail Inside City (Residential, Non-Residential and Major Industrial); • Retail Outside City (Residential, Non-Residential and Major Industrial);
• Volume Rate (2-Tier Inclining Block) • Based on winter water usage of December, January and February	• Retail Inside City Residential
• Volume Rate (Uniform)	• Retail Inside City (Non-Residential and Major Industrial) • Retail Outside City (Residential, Non-Residential and Major Industrial)
• Volume Rate (Uniform)	• Wholesale

As already explained in Section 5.2, practical rate design should consider multiple factors including previous rate levels, customer bill impact, and magnitude of cost shifts among customer classes.

A comparison of estimated test year revenue under the proposed rates with allocated costs of service for each of the customer classes is shown in Table S - 19 in Appendix 2. This comparison indicates the proposed rates will recover revenues from inside and outside City customer groups reasonably commensurate with the cost of service and practical considerations previously noted.

To better reflect the total effect the proposed rates have on customer bills, a comparison of typical bills under existing rates and the rates proposed to become effective 1, 2022, is shown in Table S - 20.

8.0 Combined Water and Wastewater Utilities

Table C - 1 in Appendix 3 presents the combined operating reserve, capital reserve and impact fee fund balances.

Table C - 2 in Appendix 3 provides a summary of the combined revenue and revenue requirements (financial plan) for the study period.

The revenue under existing rates are not sufficient to meet the obligations of the two utilities. As discussed in Section 4 and Section 6, a series of annual 3% proposed revenue adjustments enable the utilities to meet their operating, capital and reserve obligations. Figure 8-1 presents the projected revenue and revenue requirements through 2026 for the wastewater utility.

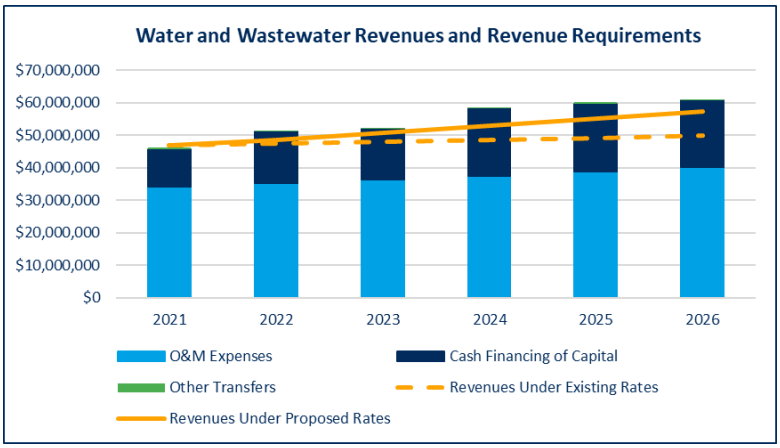


Figure 8-1 - Water and Wastewater Revenues and Revenue Requirements

Table C - 2 in Appendix 3 presents the combined water and wastewater operating reserve, capital reserve and impact fee fund balances. The City has identified the minimum balance requirements for each of the following funds:

O&M Reserve Balance: A cash balance of at least 90 days of the follow's year operating expenses.

Operating Fund Balance: A minimum target of $200,000.

Capital Fund Balance: A minimum target of $1,000,000.

Capital Reserve Fund Balance: An amount necessary to fully fund anticipated capital projects.

As shown in Table C - 2, the proposed annual revenue adjustments will allow the utilities on a combined basis to meet the minimum fund balance requirements for all funds through 2026.

A comparison of combined water and wastewater typical bills under existing rates and the rates proposed to become effective 1, 2022, is shown in Table C - 3.

9.0 Disclaimer

This report was prepared for the City of Fayetteville (Client) by Black & Veatch Management Consulting, LLC (Black & Veatch) and is based on information provided by the Client not within the control of Black & Veatch. While it is believed that the information, data and opinions contained herein will be reliable under the conditions and subject to the limitations set forth in this report, Black & Veatch does not guarantee the accuracy thereof. Black & Veatch has assumed that the information provided by others, both verbal and written, is complete and correct. The projections set forth in this report are intended as "forward-looking statements." In formulating these projections, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. While Black & Veatch believes the assumptions are reasonable actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. As such, Black & Veatch does not take responsibility for the accuracy of data or projections provided by or prepared on behalf of the Client, nor does Black & Veatch have any responsibility for updating this report for events occurring after the date of this report.

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10.0 Appendix 1: Water Tables

Table W - 1 - Water Projected Number of Accounts

Line No.	Customer Class	Projected 2021	2022	2023	2024	2025	2026	Change 5-Year
	Inside City							
1	Residential	35,200	35,800	36,400	37,100	37,700	38,400	3,200
2	Non-Residential	3,500	3,500	3,500	3,500	3,500	3,500	0
3	Industrial	21	21	21	21	21	21	0
4	Irrigation	2,000	2,100	2,100	2,100	2,200	2,200	200
5	Private Fire	713	713	713	713	713	713	0
6	Subtotal	41,434	42,134	42,734	43,434	44,134	44,834	3,400
	Outside City							
7	Residential	6,500	6,600	6,800	6,900	7,100	7,200	700
8	Non-Residential	400	400	400	500	500	500	100
9	Industrial	0	0	0	0	0	0	0
10	Irrigation	271	277	285	292	299	307	37
11	Private Fire	14	14	14	14	14	14	0
12	Subtotal	7,185	7,291	7,499	7,706	7,913	8,021	837
	Wholesale							
13	Elkins	1	1	1	1	1	1	0
14	Mount Olive	2	2	2	2	2	2	0
15	West Fork	1	1	1	1	1	1	0
16	RDA/WWA	4	4	4	4	4	4	0
17	Subtotal	8	8	8	8	8	8	0
18	**Total**	**48,627**	**49,433**	**50,241**	**51,148**	**52,055**	**52,863**	**4,237**
19	% Change	3.26%	1.66%	1.63%	1.81%	1.77%	1.55%	8.71%

Table W - 2 - Water Projected Billed Volume (1,000 Gallons)

Line No.	Customer Class	Projected						Change
		2021	2022	2023	2024	2025	2026	5-Year
		1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	
	Inside City							
1	Residential	1,896,300	1,769,800	1,800,800	1,832,300	1,864,400	1,897,000	700
2	Non-Residential	678,600	827,100	827,100	827,100	827,100	827,100	148,500
3	Industrial	322,300	401,800	401,800	401,800	401,800	401,800	79,500
4	Irrigation	249,600	244,300	248,600	252,900	257,300	261,800	12,200
5	Subtotal	3,146,800	3,243,000	3,278,300	3,314,100	3,350,600	3,387,700	240,900
	Outside City							
6	Residential	427,900	385,700	394,600	403,800	413,300	423,100	-4,800
7	Non-Residential	51,300	65,600	66,400	67,300	68,300	69,200	17,900
8	Irrigation	28,400	24,400	25,000	25,700	26,400	27,100	-1,300
9	Subtotal	507,600	475,700	486,000	496,800	508,000	519,400	11,800
	Wholesale							
10	Elkins	81,000	75,000	75,000	75,000	75,000	75,000	-6,000
11	Mount Olive	68,900	62,100	62,100	62,100	62,100	62,100	-6,800
12	West Fork	69,200	65,200	65,200	65,200	65,200	65,200	-4,000
13	RDA/WWA	0	0	0	0	0	0	0
14	Subtotal	219,100	202,300	202,300	202,300	202,300	202,300	-16,800
15	**Total**	**3,873,500**	**3,921,000**	**3,966,600**	**4,013,200**	**4,060,900**	**4,109,400**	**235,900**
16	% Change	1.26%	1.23%	1.16%	1.17%	1.19%	1.19%	6.09%

Table W - 3 - Water Existing Rates

Existing Water Rates Effective January 1, 2022

Monthly Base Charge					
Meter Size	Inside City	Outside City	Wholesale	Inside City Private Fire	Outside City Private Fire
Inches	$/month	$/month	$/month	$/month	$/month
5/8	6.59	7.54	8.31		
3/4	6.59	7.54	8.31		
1	9.14	10.52	11.49	9.75	11.68
1 1/2	15.93	18.31	20.00	10.17	12.10
2	23.20	26.66	29.07	20.33	23.37
3	54.05	62.18	64.38	30.48	35.06
4	89.50	102.93	112.25	60.97	70.11
6	178.99	205.82	212.76	169.34	197.74
8	268.41	308.67	332.91	355.65	409.00
10				609.68	701.11

Volume Charge			
Monthly Water Usage	Inside City	Outside City	Wholesale
1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.
Residential			
0 - 2,000 Gallons	3.51	4.04	
2,000 - 15,000 Gallons	4.65	5.35	
Over 15,000 Gallons	6.59	7.54	
Non-Residential			
First 300,000 Gallons	3.79	4.38	
Over 300,000 Gallons	3.39	3.90	
Major Industrial			
All Usage	2.96	3.40	
Irrigation			
First 300,000 Gallons	5.04	5.80	
Over 300,000 Gallons	4.53	5.22	
Wholesale			
Reduced Peak Demand			2.87
Peak Demand			3.20

Table W - 4 - Water Projected Revenues Under Existing Rates

Line No.	Customer Class	Projected						Change
		2021	2022 (a)	2023	2024	2025	2026	5-Year
		$	$	$	$	$	$	
	Inside City							
1	Residential	11,196,100	11,001,700	11,194,200	11,390,100	11,589,500	11,792,300	596,200
2	Non-Residential	2,844,700	3,476,000	3,476,000	3,476,000	3,476,000	3,476,000	631,300
3	Industrial	933,000	1,196,700	1,196,700	1,196,700	1,196,700	1,196,700	263,700
4	Irrigation	1,410,700	1,431,200	1,456,300	1,481,800	1,507,700	1,534,100	123,400
5	Private Fire	967,600	967,600	967,600	967,600	967,600	967,600	0
6	Subtotal	17,352,100	18,073,200	18,290,800	18,512,200	18,737,500	18,966,700	1,614,600
	Outside City							
7	Residential	2,743,800	2,614,600	2,674,900	2,737,200	2,801,400	2,867,700	123,900
8	Non-Residential	258,700	328,200	333,000	338,000	343,300	348,800	90,100
9	Industrial	0	0	0	0	0	0	0
10	Irrigation	190,000	173,400	177,900	182,500	187,400	192,400	2,400
11	Private Fire	27,100	27,100	27,100	27,100	27,100	27,100	0
12	Subtotal	3,219,600	3,143,300	3,212,900	3,284,800	3,359,200	3,436,000	216,400
	Wholesale							
13	Elkins	226,800	216,200	216,200	216,200	216,200	216,200	-10,600
14	Mount Olive	193,900	179,800	179,800	179,800	179,800	179,800	-14,100
15	West Fork	194,000	188,100	188,100	188,100	188,100	188,100	-5,900
16	RDA/WWA	0	0	0	0	0	0	0
17	Subtotal	614,700	584,100	584,100	584,100	584,100	584,100	-30,600
18	**Total**	**21,186,400**	**21,800,600**	**22,087,800**	**22,381,100**	**22,680,800**	**22,986,800**	**1,800,400**
19	% Change	4.28%	2.90%	1.32%	1.33%	1.34%	1.35%	8.50%

(a) Reflects 3.0% revenue increase effective January 1, 2022.

Table W - 5 - Water Projected Other Revenues

Line No.	Description	Projected						Change
		2021	2022	2023	2024	2025	2026	5-Year
		$	$	$	$	$	$	
1	Water Impact Fee Revenue	976,300	976,300	976,300	976,300	976,300	976,300	0
2	Water Sales Not on Computer	300	300	300	300	300	300	0
3	Water Connection Fees	162,000	162,000	162,000	162,000	162,000	162,000	0
4	Rural Water Connection Fees	2,700	2,700	2,700	2,700	2,700	2,700	0
5	Service Charge/Trip Fee - Billed Service	9,500	9,500	9,500	9,500	9,500	9,500	0
6	Tampering Fee - Billed Service	200	200	200	200	200	200	0
7	Penalties	103,700	207,400	207,400	207,400	207,400	207,400	103,700
8	Safe Drinking Water Fee	230,000	233,800	237,800	241,800	245,900	250,200	20,200
9	**Total**	**1,484,700**	**1,592,200**	**1,596,200**	**1,600,200**	**1,604,300**	**1,608,600**	**123,900**
10	% Change	-0.99%	7.24%	0.25%	0.25%	0.26%	0.27%	8.35%

Table W - 6 - Water Capital Improvement Program

Line No.	Description	Projected (a) 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
1	Water System Rehabilitation/Replacement	2,060,000	0	2,185,500	2,251,000	2,318,500	0
2	Water Tank Improvements	1,030,000	1,060,900	1,092,700	1,125,500	1,159,300	2,149,300
3	Water Storage & Pump Station Maintenance	103,000	106,100	109,300	112,600	115,900	0
4	Water Meters	849,800	875,200	901,500	928,500	956,400	0
5	Backflow Prevention Assemblies	51,500	53,000	54,600	56,300	58,000	0
6	W/S Improvements defined by Study (West Water Transmission Line)	618,000	636,500	655,600	675,300	695,600	4,776,200
7	Water Impact Fee Improvements	412,000	424,400	437,100	450,200	463,700	0
8	Utilities Financial Services Improvements	0	11,100	3,300	1,700	8,700	0
9	Water/Sewer Relocations - Bond Projects	174,600	265,200	273,200	281,400	289,800	0
10	Water/Sewer Impact Fee Cost Sharing	0	79,600	82,000	84,400	86,900	0
11	Utilities Technology Improvements	0	228,100	234,900	130,000	10,400	0
12	Water/Sewer Building-Office Improvements	0	26,500	27,300	28,100	29,000	0
13	Water/Sewer Equipment Expansions	0	26,500	27,300	28,100	29,000	0
14	Water & Sewer Rate/Operational Studies	0	10,600	10,900	11,300	11,600	0
15	Phosphorus Standards Management	0	26,500	27,300	28,100	29,000	0
16	Water & Sewer Technology Equipment Replacements	0	0	0	0	0	0
17	Water & Sewer Improvements Defined By Study	0	0	0	0	0	0
18	Huntsville Water Line Replacement (6 -inch upto 8-inch)	776,300	0	0	0	0	0
19	Benson Water Tank	1,030,000	338,200	0	0	0	0
20	East Water Service Improvements - Township	3,290,600	0	0	0	0	0
21	South Garland Ave Waterline Replacement	253,800	0	0	0	0	0
22	East Water Service Improvements CS 3 (Gulley, PS, Goshen Lines)	0	5,304,500	0	0	0	0
23	Ila/Oaks Manor/Persimmon Waterline Replacements	927,000	0	0	0	0	0
24	Western Park Waterline Replacement	309,000	0	0	0	0	0
25	N. College Waterline Replacement - upgrade from 8" to 12"	0	0	2,185,400	0	0	0
26	**Total Capital Improvement Program**	**11,885,600**	**9,472,900**	**8,307,900**	**6,192,500**	**6,261,800**	**6,925,500**

(a) Capital costs reflect 3% annual inflation starting in 2021.

Table W - 7 - Water Projected O&M Expenses

Line No.	Description	Projected 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
1	Personal Costs	3,433,300	3,579,400	3,731,900	3,890,900	4,056,700	4,229,700
2	Materials and Supplies	968,000	997,000	1,026,900	1,057,700	1,089,500	1,122,100
3	Services and Charges	9,994,400	10,294,200	10,603,100	10,921,100	11,248,800	11,586,200
4	Motorpool	837,000	862,100	888,000	914,600	942,100	970,300
5	Cost Allocation	631,100	650,000	669,500	689,600	710,300	731,600
6	Maintenance	85,800	88,400	91,100	93,800	96,600	99,500
7	**Total**	**15,949,600**	**16,471,100**	**17,010,500**	**17,567,700**	**18,144,000**	**18,739,400**
8	% Change	1.91%	3.27%	3.27%	3.28%	3.28%	3.28%

Table W - 8 - Capital Program Financing

Line No.	Description	Year Ending December 31,					
		2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Sources of Funds						
1	Funds Available at Beginning of Year	500,200	506,800	501,700	501,700	503,600	508,700
2	Cash Financing of Capital Projects	5,460,000	9,050,000	6,860,000	6,110,000	6,180,000	6,920,000
3	Transfer from Impact Fee Fund	6,432,200	417,800	1,447,900	84,400	86,900	0
4	Subtotal	12,392,400	9,974,600	8,809,600	6,696,100	6,770,500	7,428,700
	Application of Funds						
5	Major Capital Improvements	11,885,600	9,472,900	8,307,900	6,192,500	6,261,800	6,925,500
6	Subtotal	11,885,600	9,472,900	8,307,900	6,192,500	6,261,800	6,925,500
7	End of Year Balance	506,800	501,700	501,700	503,600	508,700	503,200
8	Capital Reserve EOY Balance - Cumulative	12,915,000	8,453,000	6,559,000	5,789,000	5,359,000	4,634,000

Table W - 9 - Water Operating Cash Flow

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Revenues						
1	Revenue Under Existing Rates	21,186,600	21,800,700	22,087,800	22,381,200	22,680,800	22,986,900
	Indicated Revenue Increases						
2	0 % Increase Effective January 1, 2022		0	0	0	0	0
3	3 % Increase Effective January 1, 2023		0	607,400	671,400	680,400	689,600
4	3 % Increase Effective January 1, 2024		0	0	633,900	700,800	710,300
5	3 % Increase Effective January 1, 2025		0	0	0	661,700	731,600
6	3 % Increase Effective January 1, 2026		0	0	0	0	690,800
7	Total Revenue from Rates	21,186,600	21,800,700	22,695,200	23,686,500	24,723,700	25,809,200
8	Other Revenues (a)	533,100	641,500	647,100	653,100	659,300	665,900
9	Total Revenue	21,719,700	22,442,200	23,342,300	24,339,600	25,383,000	26,475,100
	Expenses						
10	Operating Expenses	15,949,600	16,471,100	17,010,500	17,567,700	18,144,000	18,739,400
11	Bad Debt	105,900	109,000	113,500	118,400	123,600	129,000
12	PILOT	900,400	926,500	964,500	1,006,700	1,050,800	1,096,900
13	Safe Drinking Water Fee	230,000	233,800	237,800	241,800	245,900	250,200
14	Debt Service	0	0	0	0	0	0
15	Total Expenses	17,185,900	17,740,400	18,326,300	18,934,600	19,564,300	20,215,500
	Transfers						
16	Transfer to Shop Fund	33,000	0	0	0	0	0
17	Transfer to Operating Reserve	128,600	133,000	137,400	142,100	146,800	151,800
18	Cash Financing of Capital	5,460,000	9,050,000	6,860,000	6,110,000	6,180,000	6,920,000
19	Transfer to/from Capital Reserve	-1,093,000	-4,476,000	-1,980,500	-850,000	-510,000	-810,000
20	Total Transfers	4,528,600	4,707,000	5,016,900	5,402,100	5,816,800	6,261,800
	Fund Balance						
21	Beginning Balance	100,900	106,100	100,900	100,000	102,900	104,800
22	Annual Operating Balance	5,200	-5,200	-900	2,900	1,900	-2,200
23	Ending Fund Balance	106,100	100,900	100,000	102,900	104,800	102,600
	Performance Metrics						
24	Debt Service Coverage	NA	NA	NA	NA	NA	NA
25	O&M Reserve Balance (Days) (b)	90	90	90	90	90	90

(a) Includes interest income on operating fund balance.

(b) Mininum requirement is 90 days of following year's Operating Expenses.

Table W - 10 - Water Fund Balances

Line No.	Description	Year Ending December 31,					
		2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Operating Funds						
1	O&M Reserve Balance (a)	4,061,400	4,194,400	4,331,800	4,473,900	4,620,700	4,772,500
2	Operating Fund Balance (b)	106,100	100,900	100,000	102,900	104,800	102,600
3	**Total (e)**	**4,167,500**	**4,295,300**	**4,431,800**	**4,576,800**	**4,725,500**	**4,875,100**
	Capital Funds						
4	Capital Fund Balance (c)	506,800	501,700	501,700	503,600	508,700	503,200
5	Capital Reserve Fund Balance (d)	12,915,000	8,439,000	6,458,500	5,608,500	5,098,500	4,288,500
6	**Total (e)**	**13,421,800**	**8,940,700**	**6,960,200**	**6,112,100**	**5,607,200**	**4,791,700**
7	**Impact Fee Fund Balance (e)**	**22,800**	**581,300**	**109,700**	**1,001,600**	**1,891,000**	**2,867,300**

(a) Calculated as 90 days of following year's Operating Expenses.

(b) Target mininum balance is $100,000 to account for any adjustments that may be needed to the O&M balance at the end of the year.

(c) Target mininum balance is $500,000.

(d) Does not include expenses associated with facilities master plan to be completed in FY 2022

(e) All balances are cumulative.

Table W - 11 - Water 2022 Cost of Service

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		$	$	$
	Statement of Net Revenue Requirements (Cash Basis)			
	Revenue Requirements			
1	O&M Expenses	16,471,100		16,471,100
2	Bad Debt Expense	109,000		109,000
3	PILOT	926,500		926,500
4	Debt Service	0		0
	Other Expenditures & Transfers:			
	Transfer to Shop Fund (Capital Outlay)			
5	Transfer to Operating Reserve	133,000		133,000
6	Cash Funding of Capital Projects		9,050,000	9,050,000
7	Transfer to Capital Reserve		-4,476,000	-4,476,000
8	Subtotal	17,639,600	4,574,000	22,213,600
	Less Revenue Requirements Met from Other Sources			
9	Other Revenues	382,100		382,100
10	Interest Earned	25,600		25,600
11	Net Balance Available		5,200	5,200
12	Full Year Rate Adjustment			
13	Subtotal	407,700	5,200	412,900
14	**Net Revenue Requirements to be Recovered by Rates**	**17,231,900**	**4,568,800**	**21,800,700**
	Restatement of Net Cost of Service (Utility Basis)			
15	O&M Expenses	17,231,900		17,231,900
16	Depreciation		2,672,900	2,672,900
17	Return		1,895,900	1,895,900
18	**Net Cost of Service**	**17,231,900**	**4,568,800**	**21,800,700**

Table W - 12 - Water 2022 Allocation of Net Plant Investment to Functional Cost Components

Line No.	Description	Total	Common to All			Retail Only			Customers		
			Base	Extra Capacity		Base	Extra Capacity		Meters and Services	Billing &	Fire
				Max. Day	Max. Hour		Max. Day	Max. Hour			
		$	$	$	$	$	$	$	$	$	$
	Net Plant Investment:										
1	Water Land and Land Rights	2,191,756	1,043,693	1,148,063							
2	Water Supply	6,819,846	3,247,546	3,572,300							
3	Water Storage and Pumping	4,921,351				2,343,501	2,577,851				
4	Water Transmission	23,254,954	11,073,788	12,181,167							
5	Water Distribution	44,985,690				16,478,275	9,063,051	5,190,657	14,253,708		
6	Water Meters	2,811,340							2,811,340		
7	Fire Hydrants	7,535,573									7,535,573
8	Water General System	3,714,721	616,910	678,600		755,699	467,385	208,406	685,166		302,555
9	**Total Net Plant Investment**	**96,235,232**	**15,981,936**	**17,580,130**	**0**	**19,577,474**	**12,108,287**	**5,399,063**	**17,750,214**	**0**	**7,838,128**

Table W - 13 - Water 2022 Allocation of Net Annual Depreciation to Functional Cost Components

Line No.	Description	Total	Common to All			Retail Only			Customers		
			Base	Extra Capacity		Base	Extra Capacity		Meters and Services	Billing &	Fire
				Max. Day	Max. Hour		Max. Day	Max. Hour			
		$	$	$	$	$	$	$	$	$	$
	Net Depreciation Expense:										
1	Water Land and Land Rights										
2	Water Supply	277,295	132,045	145,250							
3	Water Storage and Pumping	186,149				88,642	97,507				
4	Water Transmission	653,961	311,410	342,551							
5	Water Distribution	1,087,773				398,452	219,148	125,512	344,661		
6	Water Meters	154,018							154,018		
7	Fire Hydrants	215,879									215,879
8	Water General System	97,807	16,843	18,528		18,501	12,027	4,767	18,941		8,200
9	**Total Net Depreciation Expense**	**2,672,882**	**460,299**	**506,328**	**0**	**505,595**	**328,682**	**130,280**	**517,620**	**0**	**224,078**

Table W - 14 - Water 2022 Allocation of O&M Expenses to Functional Cost Components

Line No.	Description	Allocation Basis	Total	Common to All			Retail Only			Customers		Fire Protection	
				Base	Extra Capacity		Base	Extra Capacity		Meters and Services	Billing & Collection	Public	Private
					Max. Day	Max. Hour		Max. Day	Max. Hour				
			$	$	$	$	$	$	$	$	$	$	$
1	Water Purchased	Max Day	9,331,800	4,443,714	4,888,086								
2	Water Storage and Pumping	Max Hour	259,914				95,207	104,727	59,980				
3	Water Distribution (a)	Max Hour	3,000,220				971,472	1,208,880	692,358			97,507	30,002
4	Meter Services (b)	Direct	968,983							968,983			
5	Customer Billing (c)	Direct	1,012,574								1,012,574		
6	All Other Cost	Proportion of All	3,066,109	934,911	1,028,402		224,418	276,369	158,284	203,864	213,035	20,514	6,312
7	Subtotal		17,639,600	5,378,625	5,916,488	0	1,291,097	1,589,976	910,623	1,172,847	1,225,609	118,022	36,314
	Less:												
8	Water Connection Fees (d)		164,700							164,700			
9	Other Income Sources		243,000	90,252	81,504		17,786	21,903	12,545		16,884	1,626	500
10	Subtotal		407,700	90,252	81,504		17,786	21,903	12,545	164,700	16,884	1,626	500
11	**Net O&M Expenses**		**17,231,900**	**5,288,373**	**5,834,983**		**1,273,311**	**1,568,073**	**898,078**	**1,008,147**	**1,208,725**	**116,396**	**35,814**

(a) 3.25% of 2020 water repair costs was associated with hydrants.
(b) Includes costs for Meter Reading and Meter Maintenance and Backflow prevention
(c) Includes costs under Utilities Financial Services
(d) Includes revenues from Water Connection Fees and Rural Water Connection Fees

Table W - 15 - Water 2022 Estimated Units of Service

Line No.	Description	(1) Consumption Annual	(2) Consumption Avg. Day	(3) Maximum Day Capacity Factor	(4) Maximum Day Total	(5) Maximum Day Extra	(6) Maximum Hour Capacity Factor	(7) Maximum Hour Total	(8) Maximum Hour Extra	(9) Customer Eq. Meters	(10) Customer Billing/ Collection	(11) Direct Fire protection Public	(12) Direct Fire protection Private
		1,000 gal.	1,000 gal. (1)/365		1,000 gal. (2) x (3)	1,000 gal. (4) - (2)		1,000 gal. (2) x (6)	1,000 gal. (7) - (4)	Equiv. Meters	Bills	Equiv. Hydrants	Equiv. Hydrants
	Inside City												
1	Residential	1,769,829	4,849	250%	12,122	7,273	370%	17,941	5,819	34,939	429,673		
2	Non-Residential	827,079	2,266	240%	5,438	3,172	355%	8,044	2,606	6,761	41,712		
3	Industrial	401,767	1,101	200%	2,201	1,101	295%	3,247	1,046	261	252		
4	Irrigation	244,282	669	240%	1,606	937	355%	2,376	770	3,141	24,897		
5	Subtotal	3,242,957	8,885		21,368	12,483		31,608	10,240	45,102	496,534		
	Fire Protection												
6	Public				4,201	4,201		10,083	5,882			4,035	
7	Private				491	491		1,179	688				472
8	Subtotal	3,242,957	8,885		26,060	17,175		42,870	16,810	45,102	496,534	4,035	472
	Outside City												
	Farmington												
9	Residential	83,821	230	250%	574	344	370%	850	276	1,762	23,207		
10	Non-Residential	17,003	47	240%	112	65	355%	165	54	245	2,315		
11	Industrial			200%			295%						
12	Irrigation	1,336	4	240%	9	5	355%	13	4	46	472		
13	Subtotal	102,160	280		695	415		1,028	333	2,053	25,995		
	Greenland												
14	Residential	19,818	54	250%	136	81	370%	201	65	458	5,676		
15	Non-Residential	4,298	12	240%	28	16	355%	42	14	59	588		
16	Industrial			200%			295%						
17	Irrigation	1,230	3	240%	8	5	355%	12	4	20	96		
18	Subtotal	25,345	69		172	103		255	83	537	6,360		
	Washington County/Growth												
19	Residential	194,707	533	250%	1,334	800	370%	1,974	640	2,618	33,792		
20	Non-Residential	24,123	66	240%	159	93	355%	235	76	109	1,368		
21	Industrial			200%			295%						
22	Irrigation	14,323	39	240%	94	55	355%	139	45	188	1,851		
23	Subtotal	233,153	639		1,586	948		2,348	761	2,915	37,012		
	Johnson												
24	Residential	6,718	18	250%	46	28	370%	68	22	158	2,064		
28	Non-Residential	8,320	23	240%	55	32	355%	81	26	35	240		
29	Industrial			200%			295%						
30	Irrigation	77	0	240%	1	0	355%	1	0	3	24		
31	Subtotal	15,115	41		101	60		150	49	196	2,328		
	Goshen/White River												
32	Residential	80,631	221	250%	552	331	370%	817	265	1,054	14,712		
33	Non-Residential	11,837	32	240%	78	45	355%	115	37	52	768		
34	Industrial			200%			295%						
35	Irrigation	7,411	20	240%	49	28	355%	72	23	86	886		
36	Subtotal	99,879	274		679	405		1,005	326	1,192	16,366		
	Fire Protection												
37	Public				696	696		1,669	973			668	
38	Private				12	12		29	17				12
39	Subtotal	475,651	1,303		3,941	2,638		6,483	2,541	6,892	88,060	668	12
40	**Total Retail**	**3,718,609**	**10,188**		**30,001**	**19,813**		**49,353**	**19,351**	**51,994**	**584,594**		
	Wholesale												
41	Elkins	75,031	206	240%	493	288	355%	730	236	23	12		
42	Mount Olive	62,062	170	240%	408	238	355%	604	196	38	24		
43	West Fork	65,226	179	240%	429	250	355%	634	206	23	12		
44	RDA/WWA			240%			355%				48		
45	Subtotal	202,319	554		1,330	776		1,968	637	83	96		
46	Subtotal (Inside City)	3,242,957	8,885		26,060	17,175		42,870	16,810	45,102	496,534	4,035	472
47	Subtotal (Outside City)	475,651	1,303		3,941	2,638		6,483	2,541	6,892	88,060	668	12
48	Subtotal (Wholesale)	202,319	554		1,330	776		1,968	637	83	96		
49	**Total System**	**3,920,928**	**10,742**		**31,332**	**20,589**		**51,320**	**19,989**	**52,077**	**584,690**	**4,703**	**483**

Table W - 16 - Water 2022 Unit Cost of Service

Line No.	Description	Total	Common to All Customers			Common to Retail Customers			Customer		Direct Fire protection	
			Base	Extra Capacity		Base	Extra Capacity		Eq. Meters	lling/Collectio	Public	Private
				Max. Day	Max. Hour		Max. Day	Max. Hour				
		$	1,000 gal.	1,000 gpd.	1,000 gpd.	1,000 gal.	1,000 gpd.	1,000 gpd.	Equiv. Meters	Bills	Hydrants	Hydrants
	Units of Service											
1	Inside City		3,242,957	17,175	16,810	3,242,957	17,175	16,810	45,102	496,534	4,035	472
2	Outside City		677,970	3,414	3,179	475,651	2,638	2,541	6,975	88,156	668	12
3	Total System		3,920,928	20,589	19,989	3,718,609	19,813	19,351	52,077	584,690	4,703	483
	Costs of Service											
	Net Operating Costs											
4	Total - $	17,231,900	5,288,373	5,834,983	0	1,273,311	1,568,073	898,078	1,008,147	1,208,725	116,396	35,814
5	Unit Cost - $/unit		1.35	283.40	0.00	0.34	79.14	46.41	19.36	2.07	24.75	74.09
	Depreciation Expense											
6	Total - $	2,672,882	460,299	506,328	0	505,595	328,682	130,280	517,620		224,078	
7	Unit Cost - $/unit		0.12	24.59	0.00	0.14	16.59	6.73	9.94		47.65	
	Net Plant Investment											
8	Total - $	96,235,232	15,981,936	17,580,130	0	19,577,474	12,108,287	5,399,063	17,750,214		7,838,128	
9	Unit Cost - $/unit		4.08	853.84	0.00	5.26	611.12	279.00	340.84		1,666.62	
	Return on Investment											
10	Inside City, Unit Return - $/unit		0.05	9.51	0.00	0.06	6.81	3.11	3.80		18.57	
11	Outside City, Unit Return - $/Unit		0.29	59.77	0.00	0.37	42.78	19.53	23.86		116.66	
	Total Return											
12	Inside City - $	916,284	147,274	163,391	0	190,223	116,943	52,254	171,276		74,925	
13	Outside City - $	979,634	193,441	204,057	0	175,292	112,852	49,635	166,424		77,931	
14	Total Return - $	1,895,918	340,715	367,448	0	365,515	229,795	101,889	337,700		152,856	
	Total Unit Cost of Service											
15	Inside City Unit Cost - $/unit		1.51	317.50	0.00	0.54	102.54	56.25	33.10	2.07	90.96	74.09
16	Outside City Unit Cost - $/unit		1.75	367.76	0.00	0.85	138.51	72.67	53.16	2.07	189.06	74.09
17	Inside City - Cost of Service - $	17,724,585	4,901,939	5,453,197	0	1,741,586	1,761,152	945,554	1,492,679	1,026,480	367,039	34,959
18	Outside City- Cost of Service - $	4,076,115	1,187,448	1,255,563	0	402,834	365,399	184,692	370,787	182,245	126,291	855
19	**Total Cost of Service - $**	**21,800,700**	**6,089,387**	**6,708,760**	**0**	**2,144,421**	**2,126,550**	**1,130,246**	**1,863,466**	**1,208,725**	**493,330**	**35,814**

Table W - 17 - Water 2022 Cost of Service by Customer Class

Line No.	Description	(1) Allocated Cost of Service	(2) Allocation Public Fire	(3) Adjusted Cost of Service	(4) Existing Revenues	(5) Indicated Revenue Increase
		$	$	$	$	
	Inside City					
1	Residential	9,052,600	1,487,900	10,540,500	11,001,700	-4.2%
2	Non-Residential	3,483,400	572,500	4,056,000	3,476,000	16.7%
3	Industrial	1,353,400	222,400	1,575,800	1,196,700	31.7%
4	Irrigation	1,092,700	179,600	1,272,300	1,431,200	-11.1%
	Fire Protection					
5	Public	2,462,500	-2,462,500			
6	Private	279,900		279,900	967,600	-71.1%
7	Subtotal	17,724,500	-100	17,724,500	18,073,200	-1.9%
	Outside City					
8	Residential	2,382,600	455,400	2,838,000	2,614,600	8.5%
9	Non-Residential	350,300	66,900	417,200	328,200	27.1%
10	Industrial					0.0%
11	Irrigation	141,400	27,000	168,400	173,400	-2.9%
	Fire Protection					
12	Public	549,400	-549,400			
13	Private	8,200		8,200	27,100	-69.7%
14	Subtotal	3,431,900	-100	3,431,800	3,143,300	9.2%
	Wholesale					
15	Elkins	238,500		238,500	216,200	10.3%
16	Mount Olive	198,300		198,300	179,800	10.3%
17	West Fork	207,500		207,500	188,100	10.3%
18	RDA/WWA	0		0	0	0.0%
19	Subtotal Wholesale	644,300	0	644,300	584,100	10.3%
20	Total Retail	21,156,400	-200	21,156,300	21,216,500	-0.3%
21	Total Wholesale	644,300	0	644,300	584,100	10.3%
22	**Total**	**21,800,700**	**-200**	**21,800,600**	**21,800,600**	**0.0%**

Table W - 18 - Water Proposed 2022 Rates

Existing Water Rates Effective January 1, 2022

Monthly Base Charge					
Meter Size	Inside City	Outside City	Wholesale	Inside City Private Fire	Outside City Private Fire
Inches	$/month	$/month	$/month	$/month	$/month
5/8	6.59	7.54	8.31		
3/4	6.59	7.54	8.31		
1	9.14	10.52	11.49	9.75	11.68
1 1/2	15.93	18.31	20.00	10.17	12.10
2	23.20	26.66	29.07	20.33	23.37
3	54.05	62.18	64.38	30.48	35.06
4	89.50	102.93	112.25	60.97	70.11
6	178.99	205.82	212.76	169.34	197.74
8	268.41	308.67	332.91	355.65	409.00
10				609.68	701.11

Volume Charge			
Monthly Water Usage	Inside City	Outside City	Wholesale
1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.
Residential			
0 - 2,000 Gallons	3.51	4.04	
2,000 - 15,000 Gallons	4.65	5.35	
Over 15,000 Gallons	6.59	7.54	
Non-Residential			
First 300,000 Gallons	3.79	4.38	
Over 300,000 Gallons	3.39	3.90	
Major Industrial			
All Usage	2.96	3.40	
Irrigation			
First 300,000 Gallons	5.04	5.80	
Over 300,000 Gallons	4.53	5.22	
Wholesale			
Reduced Peak Demand			2.87
Peak Demand			3.20

Proposed Water Rates Effective August 1, 2022

Monthly Base Charge					
Meter Size	Inside City	Outside City	Wholesale	Inside City Private Fire	Outside City Private Fire
Inches	$/month	$/month	$/month	$/month	$/month
5/8	6.59	7.54	8.31		
3/4	6.59	7.54	8.31		
1	9.14	12.26	12.26	9.75	11.68
1 1/2	15.93	24.22	24.22	10.17	12.10
2	23.20	33.52	33.52	20.33	23.37
3	54.05	69.84	69.84	30.48	35.06
4	89.50	102.93	112.25	60.97	70.11
6	178.99	205.82	212.76	169.34	197.74
8	268.41	308.67	332.91	355.65	409.00
10				609.68	701.11

Volume Charge			
Monthly Water Usage	Inside City	Outside City	Wholesale
1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.
Residential			
0 - 2,000 Gallons	3.30	4.47	
2,000 - 15,000 Gallons	4.37	5.91	
Over 15,000 Gallons	6.20	8.38	
Non-Residential			
First 300,000 Gallons	3.93	5.05	
Over 300,000 Gallons	3.93	5.05	
Major Industrial			
All Usage	3.14	3.49	
Irrigation			
First 300,000 Gallons	4.29	5.43	
Over 300,000 Gallons	4.29	5.43	
Wholesale			
Reduced Peak Demand			3.16
Peak Demand			3.16

Table W - 19 - Water 2022 Cost of Service Under Proposed Rates

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Line No.	Description	Adjusted Cost of Service	Revenue Under Existing Rates	Indicated Revenue Increase	Revenues Under Proposed Rates	Proposed Revenue as % Cost of Service	Indicated Revenue Increase	Indicated Revenue Increase
		$	$		$			$
	Inside City							
1	Residential	10,540,500	11,001,700	-4.2%	10,541,600	100.0%	-4.2%	-460,100
2	Non-Residential	4,056,000	3,476,000	16.7%	3,687,200	90.9%	6.1%	211,200
3	Industrial	1,575,800	1,196,700	31.7%	1,272,200	80.7%	6.3%	75,500
4	Irrigation	1,272,300	1,431,200	-11.1%	1,272,500	100.0%	-11.1%	-158,700
5	Subtotal	17,444,600	17,105,600	2.0%	16,773,500	96.2%	-1.9%	-332,100
	Outside City							
6	Residential	2,838,000	2,614,600	8.5%	2,838,400	100.0%	8.6%	223,800
7	Non-Residential	417,200	328,200	27.1%	381,900	91.5%	16.4%	53,700
8	Irrigation	168,400	173,400	-2.9%	168,500	100.1%	-2.8%	-4,900
9	Subtotal	3,423,600	3,116,200	9.9%	3,388,800	99.0%	8.7%	272,600
	Private Fire							
10	Inside City	279,900	967,600	-71.1%	967,600	345.7%	0.0%	0
11	Outside City	8,200	27,100	-69.7%	27,100	330.5%	0.0%	0
12	Subtotal	288,100	994,700	-71.0%	994,700	345.3%	0.0%	0
	Wholesale							
13	Elkins	238,500	216,200	10.3%	238,400	100.0%	10.3%	22,200
14	Mount Olive	198,300	179,800	10.3%	198,300	100.0%	10.3%	18,500
15	West Fork	207,500	188,100	10.3%	207,500	100.0%	10.3%	19,400
16	RDA/WWA	0	0		0	0.0%	0.0%	
17	Subtotal	644,300	584,100	10.3%	644,200	100.0%	10.3%	60,100
18	**Total**	**21,800,600**	**21,800,600**	**0.0%**	**21,801,200**	**100.0%**	**0.0%**	**600**

Table W - 20 - Water 2022 Bill Impact

Line No.	Meter Size	Monthly Usage	Inside City				Outside City			
			Existing Rates	Proposed Rates	Increase / Decrease	Increase / Decrease	Existing Rates	Proposed Rates	Increase / Decrease	Increase / Decrease
	Inches	1,000 gal.	$	$	$		$	$	$	
Residential										
1	3/4	0.5	9.91	8.24	-1.67	-16.9%	11.36	9.78	-1.59	-14.0%
2	3/4	2	13.42	13.19	-0.23	-1.7%	15.40	16.48	1.08	7.0%
3	3/4	4	22.72	21.93	-0.79	-3.5%	26.10	28.30	2.20	8.4%
4	3/4	8	41.32	39.41	-1.91	-4.6%	47.50	51.94	4.44	9.3%
5	3/4	10	50.62	48.15	-2.47	-4.9%	58.20	63.76	5.56	9.6%
6	3/4	15	73.87	70.00	-3.87	-5.2%	84.95	93.31	8.36	9.8%
Non-Residential										
7	3/4	10	44.30	45.89	1.59	3.6%	51.12	58.04	6.92	13.5%
8	3/4	20	82.20	85.19	2.99	3.6%	94.92	108.54	13.62	14.3%
9	1	50	198.37	205.64	7.27	3.7%	229.21	264.76	35.55	15.5%
10	1	100	387.87	402.14	14.27	3.7%	448.21	517.26	69.05	15.4%
11	1 1/2	50	204.97	212.43	7.46	3.6%	236.78	276.72	39.94	16.9%
12	1 1/2	100	394.47	408.93	14.46	3.7%	455.78	529.22	73.44	16.1%
13	2	100	401.52	416.20	14.68	3.7%	463.88	538.52	74.64	16.1%
14	2	500	1,837.52	1,988.20	150.68	8.2%	2,119.88	2,558.52	438.64	20.7%
Industrial										
15	2	100	318.52	337.20	18.68	5.9%	362.52	382.52	20.00	5.5%
16	2	1,000	2,982.52	3,163.20	180.68	6.1%	3,422.52	3,523.52	101.00	3.0%
17	4	500	1,566.89	1,659.50	92.61	5.9%	1,786.89	1,847.93	61.04	3.4%
18	4	1,500	4,526.89	4,799.50	272.61	6.0%	5,186.89	5,337.93	151.04	2.9%
19	6	2,500	7,573.78	8,028.99	455.21	6.0%	8,673.78	8,930.82	257.04	3.0%
20	6	5,000	14,973.78	15,878.99	905.21	6.0%	17,173.78	17,655.82	482.04	2.8%
21	6	10,000	29,773.78	31,578.99	1,805.21	6.1%	34,173.78	35,105.82	932.04	2.7%

11.0 Appendix 2: Wastewater Tables

Table S - 1 - Wastewater Projected Accounts

Line No.	Customer Class	Projected 2021	2022	2023	2024	2025	2026	Change 5-Year
	Inside City							
1	Residential	34,600	35,200	35,800	36,400	37,000	37,700	3,100
2	Non-Residential	2,900	2,900	2,900	2,900	2,900	2,900	0
3	Industrial	21	21	21	21	21	21	0
4	Subtotal	37,521	38,121	38,721	39,321	39,921	40,621	3,100
	Outside City							
5	Residential	2,400	2,400	2,500	2,500	2,500	2,500	100
6	Non-Residential	184	184	184	184	184	184	0
7	Industrial	0	0	0	0	0	0	0
8	Subtotal	2,584	2,584	2,684	2,684	2,684	2,684	100
	Wholesale							
9	Elkins	2	2	2	2	2	2	0
10	West Fork	1	1	1	1	1	1	0
11	Subtotal	2	2	2	2	2	2	0
11	**Total**	**40,107**	**40,707**	**41,407**	**42,007**	**42,607**	**43,307**	**3,200**
12	% Change	1.52%	1.50%	1.72%	1.45%	1.43%	1.64%	7.98%

Table S - 2 - Wastewater Projected Billed Volume (1,000 Gallons)

Line No.	Customer Class	Projected 2021	2022	2023	2024	2025	2026	Change 5-Year
		1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	
	Inside City							
1	Residential	1,861,300	1,741,200	1,771,800	1,802,800	1,834,400	1,866,500	5,200
2	Non-Residential	626,900	698,700	698,600	698,600	698,600	698,600	71,700
3	Industrial	318,500	396,700	396,700	396,700	396,700	396,700	78,200
4	Subtotal	2,806,700	2,836,600	2,867,100	2,898,100	2,929,700	2,961,800	155,100
	Outside City							
5	Residential	94,500	97,400	98,700	100,100	101,400	102,800	8,300
6	Non-Residential	15,300	15,000	15,000	15,000	15,000	15,000	-300
7	Industrial	0	0	0	0	0	0	0
8	Subtotal	109,800	112,400	113,700	115,100	116,400	117,800	8,000
	Wholesale							
8	Elkins	81,000	81,000	81,000	81,000	81,000	81,000	0
9	West Fork	45,600	45,600	45,600	45,600	45,600	45,600	0
10	Subtotal	126,600	126,600	126,600	126,600	126,600	126,600	0
10	**Total**	**3,043,100**	**3,075,600**	**3,107,400**	**3,139,800**	**3,172,700**	**3,206,200**	**163,100**
11	% Change	2.30%	1.07%	1.03%	1.04%	1.05%	1.06%	5.36%

Table S - 3 - Wastewater Existing Charges

Existing Wastewater Rates Effective January 1, 2022

Monthly Base Charge			
Meter Size	Inside City	Outside City	Farmington
Inches	$/month	$/month	$/month
5/8	18.28	18.28	16.74
3/4	18.28	18.28	16.74
1	23.74	33.92	31.28
1 1/2	38.77	60.37	55.50
2	55.43	79.73	73.45
3	128.73	184.24	169.29
4	212.13	303.44	278.93
6	420.39	601.46	553.70
8	628.73	899.76	826.81

Volume Charge			
Monthly Water Usage	Inside City	Outside City	Farmington
1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.
Residential			
First 2,000 Gallons	4.35		
> 2,000 Gallons	5.80		
All Usage		8.18	7.52
Non-Residential			
All Usage	4.40	8.18	7.52
Major Industrial			
All Usage	4.71	8.18	7.52
Wholesale			
85% of metered water usage		5.19	
Above 85% of metered water		2.71	
Surcharge			
BOD - $/lb for strength in excess of 300 ppm		0.4352	
TSS - $/lb for strength in excess of 300 ppm		0.3056	

Table S - 4 - Wastewater Projected Revenues at Existing Rates

Line No.	Customer Class	Projected						Change
		2021	2022 (a)	2023	2024	2025	2026	5-Year
		$	$	$	$	$	$	
	Inside City							
1	Residential	16,696,700	16,719,800	17,013,000	17,310,700	17,613,700	17,921,900	1,225,200
2	Non-Residential	3,505,200	3,926,200	3,926,100	3,926,100	3,926,100	3,926,100	420,900
3	Industrial	1,477,500	1,890,100	1,890,100	1,890,100	1,890,100	1,890,100	412,600
4	Subtotal	21,679,400	22,536,100	22,829,200	23,126,900	23,429,900	23,738,100	2,058,700
	Outside City							
5	Residential	1,177,400	1,242,000	1,258,300	1,274,800	1,291,700	1,308,800	131,400
6	Non-Residential	158,100	160,400	160,400	160,400	160,400	160,400	2,300
7	Industrial	0	0	0	0	0	0	0
8	Subtotal	1,335,500	1,402,400	1,418,700	1,435,200	1,452,100	1,469,200	133,700
	Wholesale							
9	Elkins	407,300	419,500	419,500	419,500	419,500	419,500	12,200
10	West Fork	229,400	236,200	236,200	236,200	236,200	236,200	6,800
11	Subtotal	636,700	655,700	655,700	655,700	655,700	655,700	19,000
12	Surcharge	810,300	834,600	834,600	834,600	834,600	834,600	24,300
13	**Total**	**24,461,900**	**25,428,800**	**25,738,200**	**26,052,400**	**26,372,300**	**26,697,600**	**2,235,700**
14	% Change	4.90%	3.95%	1.22%	1.22%	1.23%	1.23%	9.14%

(a) Reflects 3.0% revenue increase effective January 1, 2022.

Table S - 5 - Wastewater Projected Other Revenues

Line No.	Description	Projected						Change
		2021	2022	2023	2024	2025	2026	5-Year
		$	$	$	$	$	$	
1	Sewer Impact Fee Rev	743,900	743,900	743,900	743,900	743,900	743,900	0
2	Sewer Sales Not on Cc	11,800	11,800	11,800	11,800	11,800	11,800	0
3	Sewer Connection Fee	47,900	47,900	47,900	47,900	47,900	47,900	0
4	WWTP Hay Sales	134,800	134,800	134,800	134,800	134,800	134,800	0
5	WWTP Biosolids/Fertil	54,900	54,900	54,900	54,900	54,900	54,900	0
6	WWTP Water Treatme	180,800	180,800	180,800	180,800	180,800	180,800	0
7	Penalties	123,000	246,100	246,100	246,100	246,100	246,100	123,100
8	**Total**	**1,297,100**	**1,420,200**	**1,420,200**	**1,420,200**	**1,420,200**	**1,420,200**	**123,100**
9	% Change	-1.52%	9.49%	0.00%	0.00%	0.00%	0.00%	9.49%

Table S - 6 - Wastewater Capital Improvement Program

Line No.	Description	Projected (a)					
		2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
1	Sanitary Sewer Rehabilitation	2,956,100	3,044,800	3,136,100	3,230,200	3,327,100	0
2	Plant Pumps and Equipment - W.W.T.P.	515,000	530,500	546,400	562,800	579,600	0
3	W.W.T.P. Building Improvements	1,699,500	1,750,500	163,900	168,800	173,900	0
4	Upgrade/Replace Lift Stations - W.W.T.P.	309,000	318,300	327,800	337,700	347,800	0
5	Lake Sequoyah Sediment Removal/Dredging	515,000	530,500	546,400	562,800	579,600	0
6	Wastewater Treatment/Water Quality Improvements	103,000	106,100	109,300	112,600	115,900	0
7	Wastewater Impact Fee Improvements	309,000	318,300	327,800	337,700	347,800	0
8	Utilities Financial Services Improvements	0	11,100	3,300	1,700	8,700	0
9	Water/Sewer Relocations - Bond Projects	174,600	265,200	273,200	281,400	289,800	0
10	Water/Sewer Impact Fee Cost Sharing	0	79,600	82,000	84,400	86,900	0
11	Utilities Technology Improvements	0	228,100	234,900	130,000	10,400	0
12	Water/Sewer Building-Office Improvements	0	26,500	27,300	28,100	29,000	0
13	Water/Sewer Equipment Expansions	0	26,500	27,300	28,100	29,000	0
14	Water & Sewer Rate/Operational Studies	0	10,600	10,900	11,300	11,600	0
15	Phosphorus Standards Management	0	26,500	27,300	28,100	29,000	0
16	Water & Sewer Technology Equipment Replacements	0	0	0	0	0	0
17	Water & Sewer Improvements Defined By Study	0	0	0	0	0	0
18	Biosolids Dryer Replacement	0	0	3,278,200	9,004,100	9,274,200	9,552,400
19	Filter Cell Upgrade/Replacement at Noland WWTP	0	0	0	0	0	1,432,900
20	Upgrade Automation at both WWTPs	0	0	0	0	0	1,671,700
21	CIPP of 36" Sewer Line from Armstrong Ave to Nolan	0	0	0	0	0	1,194,100
22	Bypass Sewer Fulbright & North Gregg	1,442,000	0	0	0	0	0
23	Hamestring Lift Station Bottle Neck Resolution	0	848,700	0	0	0	0
24	**Total Capital Improvement Program**	**8,023,200**	**8,121,800**	**9,122,100**	**14,909,800**	**15,240,300**	**13,851,100**

(a) Capital costs reflect 3% annual inflation starting in 2021.

Table S - 7 - Wastewater Projected O&M Expenses

Line No.	Description	Projected					
		2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
1	Personal Costs	3,075,500	3,206,500	3,343,100	3,485,600	3,634,300	3,789,400
2	Materials and Supplies	724,700	746,500	768,900	791,900	815,700	840,200
3	Services and Charges	6,081,000	6,263,500	6,451,400	6,644,900	6,844,300	7,049,600
4	WWTP Contract	3,995,600	4,115,500	4,238,900	4,366,100	4,497,100	4,632,000
5	Motorpool	1,032,500	1,063,500	1,095,400	1,128,300	1,162,100	1,197,000
6	Cost Allocation	680,700	701,200	722,200	743,900	766,200	789,200
7	Maintenance	84,800	87,400	90,000	92,700	95,500	98,300
8	**Total**	**15,674,800**	**16,184,100**	**16,709,900**	**17,253,400**	**17,815,200**	**18,395,700**
9	% Change	0.81%	3.25%	3.25%	3.25%	3.26%	3.26%

Table S - 8 - Wastewater Cash Financed Capital

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Sources of Funds						
1	Funds Available at Beginning of Year	504,100	501,900	506,700	504,400	506,700	501,100
2	Cash Financing of Capital Projects	6,270,000	6,880,000	8,710,000	14,490,000	14,800,000	13,850,000
3	Transfer from Impact Fee Fund	1,751,000	1,246,600	409,800	422,100	434,700	0
4	Subtotal	8,525,100	8,628,500	9,626,500	15,416,500	15,741,400	14,351,100
	Application of Funds						
5	Major Capital Improvements	8,023,200	8,121,800	9,122,100	14,909,800	15,240,300	13,851,100
6	Subtotal	8,023,200	8,121,800	9,122,100	14,909,800	15,240,300	13,851,100
7	End of Year Balance	501,900	506,700	504,400	506,700	501,100	500,000
8	Capital Reserve EOY Balance - Cumulative	19,995,000	21,737,000	22,105,000	17,205,000	12,555,000	9,445,000

Table S - 9 - Wastewater Operating Cash Flow

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Revenues						
1	Revenues Under Existing Rates	24,461,900	25,428,800	25,738,200	26,052,500	26,372,200	26,697,600
	Revenue Increases						
2	0 % Increase Effective January 1, 2022		0	0	0	0	0
3	3 % Increase Effective January 1, 2023		0	707,800	781,600	791,200	800,900
4	3 % Increase Effective January 1, 2024		0	0	737,900	814,900	825,000
5	3 % Increase Effective January 1, 2025		0	0	0	769,400	849,700
6	3 % Increase Effective January 1, 2026		0	0	0	0	802,300
7	Total Revenue from Rates	24,461,900	25,428,800	26,446,000	27,572,000	28,747,700	29,975,500
8	Other Revenues (a)	594,700	720,500	722,700	725,400	728,200	731,200
9	Total Revenues	25,056,600	26,149,300	27,168,700	28,297,400	29,475,900	30,706,700
	Expenses						
10	Operating Expenses	15,674,800	16,184,100	16,709,900	17,253,400	17,815,200	18,395,700
11	Bad Debt	122,300	127,100	132,200	137,900	143,700	149,900
12	PILOT	1,039,600	1,080,700	1,124,000	1,171,800	1,221,800	1,274,000
13	Debt Service	0	0	0	0	0	0
14	Total Expenses	16,836,700	17,391,900	17,966,100	18,563,100	19,180,700	19,819,600
	Transfers						
15	Transfer to Shop Fund	33,000	0	0	0	0	0
16	Transfer to Operating Reserve	125,600	129,600	134,100	138,500	143,100	147,900
17	Cash Financing of Capital	6,270,000	6,880,000	8,710,000	14,490,000	14,800,000	13,850,000
18	Transfer to/from Capital Reserve	1,793,000	1,742,000	368,000	-4,900,000	-4,650,000	-3,110,000
19	Total Transfers	8,221,600	8,751,600	9,212,100	9,728,500	10,293,100	10,887,900
	Fund Balance						
20	Beginning Balance	105,500	103,800	109,600	100,100	105,900	108,000
21	Annual Operating Balance	-1,700	5,800	-9,500	5,800	2,100	-800
22	Ending Fund Balance	103,800	109,600	100,100	105,900	108,000	107,200
	Performance Metrics						
23	Debt Service Coverage	NA	NA	NA	NA	NA	NA
24	O&M Reserve Balance (Days)	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00

(a) Includes interest income on operating fund balance.
(b) Mininum requirement is 90 days of following year's Operating Expenses.

Table S - 10 - Wastewater Projected Fund Balances

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026
		$	$	$	$	$	$
	Operating Funds						
1	O&M Reserve Balance (a)	3,990,600	4,120,200	4,254,300	4,392,800	4,535,900	4,683,800
2	Operating Fund Balance (b)	103,800	109,600	100,100	105,900	108,000	107,200
3	**Total (e)**	**4,094,400**	**4,229,800**	**4,354,400**	**4,498,700**	**4,643,900**	**4,791,000**
	Capital Funds						
4	Capital Fund Balance (c)	501,900	506,700	504,400	506,700	501,100	500,000
5	Capital Reserve Fund Balance (d)	19,995,000	21,737,000	22,105,000	17,205,000	12,555,000	9,445,000
6	**Total (e)**	**20,496,900**	**22,243,700**	**22,609,400**	**17,711,700**	**13,056,100**	**9,945,000**
7	**Impact Fee Fund Balance (e)**	**4,437,800**	**3,935,100**	**4,269,200**	**4,591,000**	**4,900,200**	**5,644,100**

(a) Calculated as 90 days of following year's Operating Expenses.
(b) Target mininum balance is $100,000 to account for any adjustments that may be needed to the O&M balance at the end of the year.
(c) Target mininum balance is $500,000.
(d) Does not include expenses associated with facilities master plan to be completed in FY 2022
(e) All balances are cumulative.

Table S - 11 - Wastewater 2022 Cost of Service

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		$	$	$
	Statement of Net Revenue Requirements (Cash Basis)			
	Revenue Requirements			
1	O&M Expenses	16,184,100		16,184,100
2	Bad Debt	127,100		127,100
3	PILOT	1,080,700		1,080,700
4	Debt Sevice		0	0
	Other Expenditures & Transfers:			
	Transfer to Shop Fund (Capital Outlay)		0	0
5	Transfer to Operating Reserve	129,600		129,600
6	Cash Funding of Capital Projects		6,880,000	6,880,000
7	Transfer to Capital Reserve		1,742,000	1,742,000
8	Subtotal	17,521,500	8,622,000	26,143,500
	Less Revenue Requirements Met from Other Sources			
9	Other Revenues and Adjustments	676,300		676,300
10	Interest Earned	44,200		44,200
11	Net Balance Available		(5,800)	(5,800)
12	Full Year Rate Adjustment			
13	Subtotal	720,500	(5,800)	714,700
14	**Net Revenue Requirements to be Recovered by Rates**	**16,801,000**	**8,627,800**	**25,428,800**
	Restatement of Net Cost of Service (Utility Basis)			
15	O&M Expenses	16,801,000		16,801,000
16	Depreciation		8,060,600	8,060,600
17	Return		567,200	567,200
18	**Net Cost of Service**	**16,801,000**	**8,627,800**	**25,428,800**

Table S - 12 - Wastewater 2022 Allocation of Net Plant Investment

Line No.	Description	Total	Volume					Wastewater Strength				Customer Billing	Customer Connections	Fayetteville Direct
			Common to All		Retail Only		Farmington Direct	BOD		TSS				
			All	w/o Farmington	Volume	w/o Farmington		All	w/o Farmington	All	w/o Farmington			
		$	$	$	$	$	$	$	$	$	$	$	$	$
	Net Plant Investment:													
1	Sewer Collection	103,289,355	42,124,931		61,164,424									
2	Sewer Connections	319,887												319,887
3	Water Meters	2,345,265											2,345,265	
4	Owl Creek Lift Station and Force Main	14,103												14,103
5	Lift Stations	4,392,243	4,392,243											
	Sewer Treatment Plant- Noland													
6	Sewage Pumping	229,919		229,919										
7	Mechanical Bar Screens	172,282							51,685		120,597			
8	Grit Removal													
9	Primary Sedimentation													
10	Disinfection	1,672,556		1,672,556										
11	Aeration Equipment	1,120,704							560,352		560,352			
12	Sludge Handling	400,690							220,380		180,311			
13	Other Plant and Misc Equipment	837,703		443,170					193,907		200,626			
14	General Treatment	12,725,018		6,731,924					2,945,516		3,047,578			
	Sewer Treatment Plant- West													
15	Sewage Pumping	921,333		845,784			75,549							
16	Mechanical Bar Screens	169,727					13,918		46,743		109,066			
17	Grit Removal	1,380,570					113,207				1,267,363			
18	Primary Sedimentation	6,927,776					568,078		1,907,909		4,451,789			
19	Disinfection	653,801		600,189			53,612							
20	Aeration Equipment	1,490,202					122,197		684,003		684,003			
21	Sludge Handling	34,604,278					2,837,551		17,471,700		14,295,027			
22	Other Plant and Misc Equipment	3,298,489		103,353			270,476		1,437,424		1,487,236			
23	General Treatment	5,571,549		174,576			456,867		2,427,984		2,512,122			
24	Sewer Land and Land Rights	6,358,594	1,878,712	135,236	2,470,280		152,831		845,827		875,138			570
25	General Plant	1,768,202	450,601	104,632	592,487		43,702		270,723		280,104		22,718	3,235
26	**Total Net Plant Investment**	**190,664,246**	**48,846,487**	**11,041,339**	**64,227,191**	**0**	**4,707,988**	**0**	**29,064,153**	**0**	**30,071,312**	**0**	**2,367,983**	**337,795**

Table S - 13 - Wastewater 2022 Allocation of Depreciation

Line No.	Description	Total	Volume					Wastewater Strength				Customer Billing	Customer Connections	Fayetteville Direct
			Common to All		Retail Only		Farmington Direct	BOD		TSS				
			All	w/o Farmington	Volume	w/o Farmington		All	w/o Farmington	All	w/o Farmington			
		$	$	$	$	$	$	$	$	$	$	$	$	$
	Net Depreciation Expense:													
1	Sewer Collection	2,823,622	1,151,570		1,672,052									
2	Sewer Connections	22,463												22,463
3	Water Meters	128,485											128,485	
4	Owl Creek Lift Station and Force Main	6,509												6,509
5	Lift Stations	105,383	105,383											
	Sewer Treatment Plant- Noland													
6	Sewage Pumping	42,418		42,418										
7	Mechanical Bar Screens	33,421							10,026		23,395			
8	Grit Removal													
9	Primary Sedimentation													
10	Disinfection	281,379		281,379										
11	Aeration Equipment	124,523	(1)						62,262		62,262			
12	Sludge Handling	83,361	(1)						45,849		37,513			
13	Other Plant and Misc Equipment	61,102	(1)	32,325					14,144		14,634			
14	General Treatment	847,144		448,165					196,092		202,887			
	Sewer Treatment Plant- West													
15	Sewage Pumping	117,218		107,606			9,612							
16	Mechanical Bar Screens	55,071					4,516		15,167		35,388			
17	Grit Removal	135,374					11,101				124,273			
18	Primary Sedimentation	397,767					32,617		109,545		255,605			
19	Disinfection	41,046		37,680			3,366							
20	Aeration Equipment	140,345	1				11,508		64,418		64,418			
21	Sludge Handling	2,080,224					170,578		1,050,305		859,341			
22	Other Plant and Misc Equipment	316,959		9,931			25,991		138,125		142,912			
23	General Treatment	45,160		1,415			3,703		19,680		20,362			
24	Sewer Land and Land Rights	4,692	1,386	100	1,823		113		624		646			
25	General Plant	166,945	42,544	9,879	55,940		4,126		25,560		26,446		2,145	305
26	**Total Net Depreciation Expense**	**8,060,611**	**1,300,881**	**970,898**	**1,729,815**	**0**	**277,231**	**0**	**1,751,797**	**0**	**1,870,082**	**0**	**130,630**	**29,277**

Table S - 14 - Wastewater 2022 Allocation of O&M Expenses

Line No.	Description	Total	Volume					Wastewater Strength				Customer Billing	Customer Connections	Fayetteville Direct
			Common to All		Retail Only			BOD		TSS				
			All	w/o Farmington	Volume	w/o Farmington	Farmington Direct	All	w/o Farmington	All	w/o Farmington			
		$	$	$	$	$	$	$	$	$	$	$	$	$
1	Sewer Mains Maintenance	2,438,014	994,305		1,443,708									
2	Wastewater Treatment Plant	1,874,226		356,704			40,930		725,722		750,870			
3	Wastewater Treatment Plant-Noland	5,416,220		1,149,101					2,097,222		2,169,897			
4	Wastewater Treatment Plant-West	1,966,065		255,901			161,217		761,283		787,664			
5	Lift Stations	961,584	961,584											
6	Meter Operations (a)	1,653,047										1,653,047		
7	Water & Sewer Connections	198,731												198,731
8	Operations and Administration	1,396,102	188,216	169,530	138,929		19,453		344,912		356,864	159,074		19,124
9	All Other O&M Cost	1,617,511	218,065	196,416	160,962		22,538		399,612		413,460	184,301		22,157
10	Subtotal	17,521,500	2,362,170	2,127,652	1,743,599	0	244,138	0	4,328,751	0	4,478,755	1,996,422	0	240,012
	Less: Other Income Sources													
11	Sewer Connection Fees	47,900												47,900
12	Other Income Sources	672,600	49,235	87,491	71,698		10,039		178,002		184,170	82,095		9,870
13	Subtotal	720,500	49,235	87,491	71,698	0	10,039	0	178,002	0	184,170	82,095	0	57,770
14	**Net O&M Expenses**	**16,801,000**	**2,312,936**	**2,040,161**	**1,671,901**	**0**	**234,099**	**0**	**4,150,749**	**0**	**4,294,584**	**1,914,327**	**0**	**182,243**

Table S - 15 - Wastewater 2022 Units of Service

Line	Customer Classes	(1) Contributed Volume	(2) Infilitration & Inflow	(3) Total Treated Volume	(4) Strength BOD	(5) Strength TSS	(6) Customer Bills	(7) Customer Meter
		1,000 gal.	1,000 gal.	1,000 gal. (2) + (3)	Pounds	Pounds	Bills	Equiv. Meters
	Inside City							
1	Residential	1,741,203	1,569,234	3,310,437	5,627,580	4,793,035	421,883	34,346
2	Non-Residential	698,651	251,356	950,007	2,179,172	1,765,439	34,296	5,157
3	Industrial	396,716	88,856	485,572	1,226,170	980,007	252	249
4	Subtotal	2,836,570	1,909,446	4,746,016	9,032,922	7,538,481	456,431	39,752
	Outside City							
	Farmington							
5	Residential	75,950	76,937	152,887	247,241	212,609	21,431	1,603
6	Non-Residential	12,743	7,473	20,216	40,350	33,405	1,656	157
7	Industrial							
8	Subtotal	88,694	84,409	173,103	287,591	246,014	23,087	
	Greenland							
9	Residential	10,349	17,400	27,749	35,133	31,856	5,388	435
10	Non-Residential	2,153	1,824	3,976	6,933	5,877	480	22
11	Industrial							
12	Subtotal	12,502	19,223	31,725	42,066	37,733	5,868	
	Washington County/ Growth Area							
13	Residential	4,304	1,898	6,202	13,498	11,021	336	74
14	Non-Residential		67	67	14	28	24	
15	Industrial							
16	Subtotal	4,304	1,965	6,269	13,512	11,049	360	
	Johnson							
17	Residential	6,479	6,720	13,199	21,124	18,202	1,884	151
18	Non-Residential	28	141	169	114	126	48	18
19	Industrial							
20	Subtotal	6,507	6,860	13,367	21,238	18,328	1,932	
21	**Total Retail**	**2,942,069**	**2,015,044**	**4,957,113**	**9,376,091**	**7,833,277**	**485,746**	**39,752**
	Wholesale							
22	Elkins	81,017	18,069	99,086	250,391	200,104	24	23
23	West Fork	45,625	10,171	55,796	141,008	112,688	12	23
24	Subtotal	126,642	28,241	154,883	391,399	312,792	36	45
25	Subtotal (Inside City)	2,836,570	1,909,446	4,746,016	9,032,922	7,538,481	456,431	39,752
26	Subtotal (Outside City)	112,007	112,458	224,465	364,407	313,124	31,247	-
27	Subtotal (Wholesale)	126,642	28,241	154,883	391,399	312,792	36	45
28	Surcharge Customers				1,282,742	910,900		
29	**Total System**	**3,075,218**	**2,050,145**	**5,125,363**	**11,071,470**	**9,075,297**	**487,714**	**42,258**

Table S - 16 - Wastewater 2022 Unit Cost of Service

Line No.	Description	Total	Volume					Wastewater Strength				Customer Billing	Customer Connections	Fayetteville Direct
			Common to All		Retail Only			BOD		TSS				
			All	w/o Farmington	Volume	w/o Farmington	Farmington Direct	All	w/o Farmington	All	w/o Farmington			
		$	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	1,000 gal.	Pounds	Pounds	Pounds	Pounds	Bills	Equiv. Meters	Bills
	Units of Service													
1	Inside City		4,746,159	4,746,159	4,746,159	4,746,159		9,032,952	9,032,952	7,538,541	7,538,541	456,431	39,752	456,431
2	Outside City-w/o Farmington		206,667	206,667	51,784	51,784		469,275	469,275	380,751	380,751	8,196	746	
3	Surcharge		173,110		173,110		173,110	287,593		246,016		23,087	1,761	
4	Total System		5,125,935	4,952,825	4,971,052	4,797,943	173,110	9,789,820	9,502,227	8,165,308	7,919,292	487,714	42,258	456,431
	Costs of Service													
	Net Operating Expense													
5	Total - $	16,801,000	2,312,936	2,040,161	1,671,901		234,099		4,150,749		4,294,584	1,914,327		182,243
6	Unit Cost - $/unit		0.45	0.41	0.34		1.35		0.38		0.49	3.93		0.40
	Depreciation Expense:													
7	Total - $	8,060,608	1,300,881	970,898	1,729,815		277,231		1,751,797		1,870,082		$ 130,630	29,277
8	Unit Cost - $/unit		0.25	0.20	0.35		1.60		0.16		0.21		$ 3.0913	0.06
	Net Plant Investment:													
9	Total - $	190,664,246	48,846,487	11,041,339	64,227,191		4,707,988		29,064,153		30,071,312		2,367,983	337,795
10	Unit Cost - $/unit		9.53	2.23	12.92		27.20		2.69		3.41		56.04	0.74
	Return on Investment													
11	Inside City, Unit Return - $/unit		(0.02)	(0.00)	(0.02)				(0.00)		(0.01)		(0.10)	(0.00)
12	Outside City - Except Farmington - Unit Return - $/Unit		0.67	0.16	0.90				0.19		0.24		3.92	
13	Outside City - Farmington - Unit Return - $/Unit		0.52		0.71		$1.4958						3.08	
	Total Return													
14	Inside City - $	(310,073)	(79,559)	(18,612)	(107,870)				(48,902)		(50,617)		(3,918)	(594)
15	Outside City - Except Farmington - $	399,157	137,857	32,251	46,834				88,525		90,766		2,925	
16	Outside City - Farmington - $	478,108	90,729		123,014		258,939						5,426	
17	Total Return - $	567,192	149,026	13,638	61,978		258,939		39,623		40,148		4,432	(594)
	Total Unit Cost of Service													
18	Inside City - $/unit		0.69	0.60	0.66				0.54		0.69	3.93	2.99	0.46
19	Outside City (Exc Farmington)- $/unit		1.37	0.76	1.59				0.74		0.94	3.93	7.01	
20	Outside City - Farmington - $/unit		1.23		1.39		$ 4.4496					3.93	6.17	
	Total Cost of Service													
21	Inside City - Retail - $	21,513,312	3,266,513	2,866,804	3,139,950				4,900,857		5,217,759	1,791,539	118,964	210,926
22	Inside City-Surcharge - $	1,326,430							695,956		630,474			
23	Outside City - Except Farmington - $	1,263,056	283,555	157,893	82,270				345,356		356,581	32,170	5,230	
24	Outside City - Farmington - $	1,326,002	212,772		241,474		770,270					90,618	10,868	
25	**Total Cost of Service - $**	**25,428,800**	**3,762,841**	**3,024,697**	**3,463,694**	**0**	**770,270**	**0**	**5,942,169**	**0**	**6,204,815**	**1,914,327**	**135,062**	**210,926**

Table S - 17 - Wastewater 2022 Cost of Service by Customer Class

	(1)	(2)	(3)	(4)
Line	**Description**	**Allocated Cost of Service**	**Existing Revenues**	**Indicated Revenue Increase**
		$	$	
	Inside City			
1	Residential	14,792,813	16,719,785	-11.5%
2	Non-Residential	4,426,345	3,926,165	12.7%
3	Industrial	2,294,154	1,890,075	21.4%
4	Subtotal	21,513,312	22,536,025	-4.5%
	Outside City			
5	Residential	1,496,787	1,242,033	20.5%
6	Non-Residential	179,997	160,411	12.2%
7	Industrial			100.0%
8	Subtotal	1,676,784	1,402,445	19.6%
9	Total Retail	23,190,096	23,938,469	-3.1%
10	Wholesale	912,277	655,689	39.1%
11	Surcharge	1,326,430	834,607	58.9%
12	**Total**	**25,428,803**	**25,428,765**	**0.0%**

Table S - 18 - Wastewater Proposed 2022 Charges

Existing Wastewater Rates Effective January 1, 2022

Monthly Base Charge			
Meter Size	Inside City	Outside City	Farmington
Inches	$/month	$/month	$/month
5/8	18.28	18.28	16.74
3/4	18.28	18.28	16.74
1	23.74	33.92	31.28
1 1/2	38.77	60.37	55.50
2	55.43	79.73	73.45
3	128.73	184.24	169.29
4	212.13	303.44	278.93
6	420.39	601.46	553.70
8	628.73	899.76	826.81

Volume Charge				
Monthly Water Usage	Inside City		Outside City	Farmington
1,000 gal.	1,000 gal.		1,000 gal.	1,000 gal.
Residential				
First 2,000 Gallons	4.35			
> 2,000 Gallons	5.80			
All Usage			8.18	7.52
Non-Residential				
All Usage	4.40		8.18	7.52
Major Industrial				
All Usage	4.71		8.18	7.52
Wholesale				
85% of metered water usage			5.19	
Above 85% of metered water			2.71	
Surcharge				
BOD - $/lb for strength in excess of 300 p			0.4352	
TSS - $/lb for strength in excess of 300 pp			0.3056	

Proposed Wastewater Rates Effective August 1, 2022

Monthly Base Charge			
Meter Size	Inside City	Outside City	Farmington
Inches	$/month	$/month	$/month
5/8	18.28	18.28	25.10
3/4	18.28	18.28	25.10
1	23.74	33.92	52.62
1 1/2	38.77	66.73	109.78
2	55.43	93.11	154.24
3	128.73	196.10	327.83
4	212.13	303.44	482.37
6	420.39	601.46	897.30
8	628.73	899.76	998.92

Volume Charge				
Monthly Water Usage	Inside City		Outside City	Farmington
1,000 gal.	1,000 gal.		1,000 gal.	1,000 gal.
Residential				
First 2,000 Gallons	3.39			
> 2,000 Gallons	4.52			
All Usage			8.55	8.27
Non-Residential				
All Usage	5.10		8.55	8.27
Major Industrial				
All Usage	5.71		8.55	8.27
Wholesale				
85% of metered water usage			7.20	
Above 85% of metered water			7.20	
Surcharge				
BOD - $/lb for strength in excess of 30			0.5426	
TSS - $/lb for strength in excess of 300			0.6921	

Table S - 19 - Wastewater 2022 Cost of Service Under Proposed Rates

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Line No.	Description	Adjusted Cost of Service	Revenue Under Existing Rates	Indicated Revenue Increase	Revenues Under Proposed Rates	Proposed Revenue as % Cost of Service	Indicated Revenue Increase	Indicated Revenue Increase
		$	$		$			$
	Inside City							
1	Residential	14,792,800	16,719,800	-11.5%	14,790,200	100.0%	-11.5%	-1,929,600
2	Non-Residential	4,426,300	3,926,200	12.7%	4,424,900	100.0%	12.7%	498,700
3	Industrial	2,294,200	1,890,100	21.4%	2,291,500	99.9%	21.2%	401,400
4	Subtotal	21,513,300	22,536,100	-4.5%	21,506,600	100.0%	-4.6%	-1,029,500
	Outside City							
5	Residential	1,496,800	1,242,000	20.5%	1,489,900	99.5%	20.0%	247,900
6	Non-Residential	180,000	160,400	12.2%	193,500	107.5%	20.6%	33,100
7	Industrial					0.0%	0.0%	
8	Subtotal	1,676,800	1,402,400	19.6%	1,683,400	100.4%	20.0%	281,000
	Wholesale							
9	Elkins	583,600	419,500	39.1%	583,300	99.9%	39.0%	163,800
10	West Fork	328,700	236,200	39.2%	328,500	99.9%	39.1%	92,300
11	Subtotal	912,300	655,700	39.1%	911,800	99.9%	39.1%	256,100
12	Surcharge	1,326,400	834,600	58.9%	1,326,400	100.0%	58.9%	491,800
13	**Total**	**25,428,800**	**25,428,800**	**0.0%**	**25,428,200**	**100.0%**	**0.0%**	**-600**

Table S - 20 - Wastewater 2022 Bill Impact

			Inside City			Outside City			
Line No.	Meter Size	Monthly Usage	Existing Rates	Proposed Rates	Increase / Decrease	Existing Rates	Proposed Rates	Increase / Decrease	Increase / Decrease
	Inches	1,000 gal.	$	$	$	$	$	$	
Residential									
1	3/4	0.5	22.10	19.98	-2.13	26.46	22.56	-3.91	-14.8%
2	3/4	2	26.45	25.06	-1.39	34.64	35.38	0.74	2.1%
3	3/4	4	38.05	31.84	-6.21	51.00	52.48	1.48	2.9%
4	3/4	8	61.25	45.40	-15.85	83.72	86.68	2.96	3.5%
5	3/4	10	72.85	52.18	-20.67	100.08	103.78	3.70	3.7%
6	3/4	15	101.85	69.13	-32.72	140.98	146.53	5.55	3.9%
Non-Residential									
7	3/4	10	61.75	69.28	7.53	100.08	103.78	3.70	3.7%
8	3/4	20	105.75	120.28	14.53	181.88	189.28	7.40	4.1%
9	1	50	243.05	278.74	35.69	442.92	461.42	18.50	4.2%
10	1	100	463.05	533.74	70.69	851.92	888.92	37.00	4.3%
11	1 1/2	50	257.64	293.77	36.13	469.37	494.23	24.86	5.3%
12	1 1/2	100	477.64	548.77	71.13	878.37	921.73	43.36	4.9%
13	2	100	493.82	565.43	71.61	897.73	948.11	50.38	5.6%
14	2	500	2,253.82	2,605.43	351.61	4,169.73	4,368.11	198.38	4.8%
Industrial									
15	2	100	493.52	626.43	132.91	897.73	948.11	50.38	5.6%
16	2	1,000	4,732.52	5,765.43	1,032.91	8,259.73	8,643.11	383.38	4.6%
17	4	500	2,441.89	3,067.13	625.24	4,393.44	4,578.44	185.00	4.2%
18	4	1,500	7,151.89	8,777.13	1,625.24	12,573.44	13,128.44	555.00	4.4%
19	6	2,500	11,948.78	14,695.39	2,746.61	21,051.46	21,976.46	925.00	4.4%
20	6	5,000	23,723.78	28,970.39	5,246.61	41,501.46	43,351.46	1,850.00	4.5%
21	6	10,000	47,273.78	57,520.39	10,246.61	82,401.46	86,101.46	3,700.00	4.5%

12.0 Appendix 3: Combined Tables

Table C - 1 - Combined Projected Fund Balances

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$	$
	Operating Funds							
1	O&M Reserve Balance (a)	8,052,000	8,314,600	8,586,100	8,866,700	9,156,600	9,456,300	9,766,200
2	Operating Fund Balance (b)	209,900	210,500	200,100	208,800	212,800	209,800	209,700
3	**Subtotal Operating Funds Balance (e)**	**8,261,900**	**8,525,100**	**8,786,200**	**9,075,500**	**9,369,400**	**9,666,100**	**9,975,900**
	Capital Funds							
4	Capital Fund Balance (c)	1,008,700	1,008,400	1,006,100	1,010,300	1,009,800	1,003,200	1,003,600
5	Capital Reserve Fund Balance (d)	32,910,000	30,176,000	28,563,500	22,813,500	17,653,500	13,733,500	9,033,500
6	**Subtotal Capital Funds Balance (e)**	**33,918,700**	**31,184,400**	**29,569,600**	**23,823,800**	**18,663,300**	**14,736,700**	**10,037,100**
7	**Impact Fee Fund Balance (e)**	**4,460,597**	**4,516,397**	**4,378,897**	**5,592,597**	**6,791,197**	**8,511,397**	**10,231,597**

(a) Calculated as 90 days of following year's Operating Expenses.
(b) Target minimum combined balance is $200,000 to account for any adjustments that may be needed to the O&M balance at the end of the year.
(c) Target minimum combined balance is $1,000,000.
(d) Does not include expenses associated with facilities master plan to be completed in FY 2022
(e) All balances are cumulative.

Table C - 2 - Combined Operating Cash Flow

Line No.	Description	Year Ending December 31, 2021	2022	2023	2024	2025	2026	2027
		$	$	$	$	$	$	$
	Revenues							
1	Revenues Under Existing Rates	45,648,500	47,229,500	47,826,000	48,433,700	49,053,000	49,684,500	50,328,300
	Revenue Increases							
2	0.0 % Increase Effective January 1, 2022		0	0	0	0	0	0
3	3.0 % Increase Effective January 1, 2023		0	1,315,200	1,453,000	1,471,600	1,490,500	1,509,900
4	3.0 % Increase Effective January 1, 2024		0	0	1,371,800	1,515,700	1,535,300	1,555,200
5	3.0 % Increase Effective January 1, 2025		0	0	0	1,431,100	1,581,300	1,601,800
6	3.0 % Increase Effective January 1, 2026		0	0	0	0	1,493,100	1,649,800
7	Total Revenue from Rates	45,648,500	47,229,500	49,141,200	51,258,500	53,471,400	55,784,700	58,202,800
8	Other Revenues (a)	1,127,800	1,362,000	1,369,800	1,378,500	1,387,500	1,397,100	1,406,700
9	Subtotal Revenues	46,776,300	48,591,500	50,511,000	52,637,000	54,858,900	57,181,800	59,609,500
	Expenses							
10	Operating Expenses	31,624,400	32,655,200	33,720,400	34,821,100	35,959,200	37,135,100	38,350,700
11	Bad Debt	228,200	236,100	245,700	256,300	267,300	278,900	291,000
12	PILOT	1,940,000	2,007,200	2,088,500	2,178,500	2,272,600	2,370,900	2,473,600
13	SDWF-Reimbursement to ADPH	230,000	233,800	237,800	241,800	245,900	250,200	254,400
14	Debt Service	0	0	0	0	0	0	0
15	Total Expenses	34,022,600	35,132,300	36,292,400	37,497,700	38,745,000	40,035,100	41,369,700
	Transfers							
16	Transfer to Shop Fund	66,000	0	0	0	0	0	0
17	Transfer to Operating Reserve	254,200	262,600	271,500	280,600	289,900	299,700	309,900
18	Cash Financing of Capital	11,730,000	15,930,000	15,570,000	20,600,000	20,980,000	20,770,000	22,630,000
19	Transfer to/from Capital Reserve	700,000	-2,734,000	-1,612,500	-5,750,000	-5,160,000	-3,920,000	-4,700,000
20	Total Transfers	12,750,200	13,458,600	14,229,000	15,130,600	16,109,900	17,149,700	18,239,900
	Fund Balance							
21	Beginning Balance	206,400	209,900	210,500	200,100	208,800	212,800	209,800
22	Annual Operating Balance	3,500	600	-10,400	8,700	4,000	-3,000	-100
23	Ending Fund Balance	209,900	210,500	200,100	208,800	212,800	209,800	209,700
	Performance Metrics							
24	Debt Service Coverage	NA	NA	NA	NA	NA	NA	NA
25	O&M Reserve Balance (Days)(b)	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00	✓ 90.00	90.00

(a) Includes interest income on operating fund balance.
(b) Mininum requirement is 90 days of following year's Operating Expenses.

Table C - 3 - Combined 2022 Bill Impact

Line No.	Meter Size	Monthly Usage	Inside City				Outside City			
			Existing Rates	Proposed Rates	Increase / Decrease	Increase / Decrease	Existing Rates	Proposed Rates	Increase / Decrease	Increase / Decrease
	Inches	1,000 gal.	$	$	$		$	$	$	
Residential										
1	3/4	0.5	32.01	28.22	-3.80	-11.9%	37.82	32.33	-5.49	-14.5%
2	3/4	2	39.87	38.25	-1.62	-4.1%	50.04	51.86	1.82	3.6%
3	3/4	4	60.77	53.77	-7.00	-11.5%	77.10	80.78	3.68	4.8%
4	3/4	8	102.57	84.81	-17.76	-17.3%	131.22	138.62	7.40	5.6%
5	3/4	10	123.47	100.33	-23.14	-18.7%	158.28	167.54	9.26	5.9%
6	3/4	15	175.72	139.13	-36.59	-20.8%	225.93	239.84	13.91	6.2%
Non-Residential										
7	3/4	10	106.05	115.17	9.12	8.6%	151.20	161.82	10.62	7.0%
8	3/4	20	187.95	205.47	17.52	9.3%	276.80	297.82	21.02	7.6%
9	1	50	441.42	484.38	42.96	9.7%	672.13	726.18	54.05	8.0%
10	1.5	100	872.11	957.70	85.59	9.8%	1,334.15	1,450.95	116.80	8.8%
11	2	500	4,091.34	4,593.63	502.29	12.3%	6,289.61	6,926.63	637.02	10.1%
Industrial										
12	2	100	812.04	963.63	151.59	18.7%	1,260.25	1,330.63	70.38	5.6%
13	2	1,000	7,715.04	8,928.63	1,213.59	15.7%	11,682.25	12,166.63	484.38	4.1%
14	4	1,500	11,678.78	13,576.63	1,897.85	16.3%	17,760.33	18,466.37	706.04	4.0%
15	6	5,000	38,697.56	44,849.38	6,151.82	15.9%	58,675.24	61,007.28	2,332.04	4.0%
16	6	10,000	77,047.56	89,099.38	12,051.82	15.6%	116,575.24	121,207.28	4,632.04	4.0%