Town of Jackson, Wyoming

Comprehensive Water and Sewer Rate and Capacity Fee Study

Final Report / June 2022

RAFTELIS

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1. Executive Summary

The Town of Jackson (Town) retained Raftelis Financial Consultants, Inc. (Raftelis) in 2019 to complete a comprehensive water financial plan, rate, and capacity fee study (Study). The purpose of the Study was to develop financial plans from Fiscal Year (FY[1]) 2020 through FY 2029 (Study Period) and water and wastewater rate and capacity fee structures consistent with Town objectives which maintain a stand-alone water and wastewater enterprise fund over the Study Period. The Town requested that Raftelis complete the following major objectives:

- Develop separate water and sewer fund financial plans for the 10-year Study Period.
- Evaluate separate water and sewer rate revenue adjustments for the Study Period necessary to fund annual revenue requirements, maintain adequate cash reserves, and provide appropriate debt service coverage.
- Complete a separate water and sewer class cost-of-service analysis using a single (FY 2022) test-year.
- Propose water and sewer rates by customer class for FY 2022 effective July 1, 2021.
- Complete a comprehensive evaluation of the Town's water and sewer capacity fees, including alternative assessment approaches.
- Propose water and sewer capacity fees effective July 1, 2021, with proposed annual adjustments for inflation as reflected within the Engineering News Record Construction Cost Index (ENR-CCI).

Our report to the Town contains nine sections as follows:

- Section 1 – Executive Summary
- Section 2 – Introduction
- Section 3 – Utility Background, Customer Data, & Growth
- Section 4 – Financial Plan
- Section 5 – Water Cost-of-Service and Rate Recommendations
- Section 6 – Sewer Cost-of-Service and Rate Recommendations
- Section 7 – Rate Survey Comparison
- Section 8 – Capacity Fees
- Section 9 – Capacity Fee Survey

The report contains nine appendices including the water and wastewater financial plan, FY 2022 test-year cost-of-service analysis, FY 2022 water and sewer rate design recommendations, water and sewer capacity fee calculations, rate, and capacity fee survey information.

- Appendix A contains water fund financial plan results and related data inputs and assumptions.
- Appendix B contains the water capacity fee calculations, inputs, and recommendations.
- Appendix C contains the water cost-of-service results for the FY 2022 test-year.
- Appendix D contains the water rate design recommendations.
- Appendix E contains wastewater fund financial plan results and related data inputs and assumptions.

[1] Refers to the year at the end of the fiscal year (e.g., FY 2022 is the period ending June 30, 2022).

- Appendix F contains the wastewater capacity fee calculations, inputs, and recommendations.
- Appendix G contains the wastewater cost-of-service results for a FY 2022 test-year.
- Appendix H contains the wastewater rate design recommendations.
- Appendix I contains the Citizen Rate Committee (CRC) Report.

The water and sewer utility financial plans are organized around a total fund with separate operations and capital improvement subfunds. The respective water and sewer rate revenue requirements represent the cost of providing service and include O&M expenses, debt service obligations, and other cash inflows and outflows.

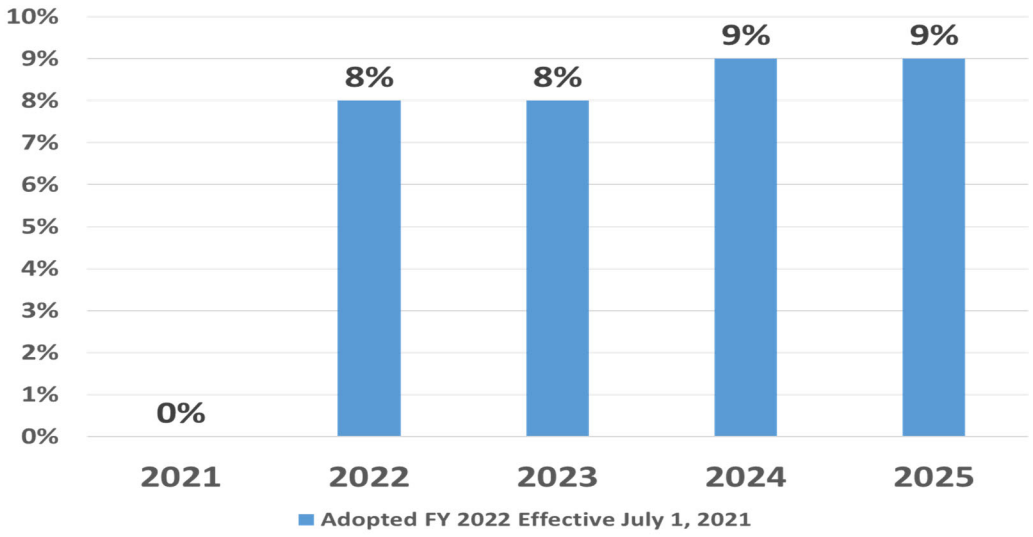
All capital costs are assigned to the water and sewer capital improvement subfunds, where funding is provided from capacity fee revenues, interest income, and transfers from the operations subfund, net bond proceeds, and grants (subject to award). The only expenses in the capital improvement subfund are capital improvement expenditures.

The financial plan evaluates the adequacy of system revenues (adjusted for customer and demand-related growth) to:

- Fund annual O&M expenses, debt service and capital expenditures, and
- Maintain the following financial performance thresholds or targets:
    - Exceed debt service coverage (DSC) ratio of at least 1.30 times annual debt service.
    - Exceed water fund cash reserve targets of
        - 50% (180 days) of annual O&M expenses PLUS
        - the average annual cash-funded capital project expenses separated set for FY 2020 through FY 2024 and FY 2025 through FY 2029.
    - Exceed sewer fund cash reserve targets of
        - 50% (180 days) of annual O&M expenses PLUS
        - the average annual cash-funded capital project expenses separated set for FY 2020 through FY 2024 and FY 2025 through FY 2029.

Figure 1-1 summarizes proposed sewer rate revenue increases during the Study Period that are necessary to fund annual expenditures and meet financial performance criteria.

Figure 1-1: Projected Annual Water Rate Revenue Increases



The financial plan and capital funding incorporate the inflated CIP amounts based on the anticipated timing of the projects and an assumed capital inflation rate of 7.0% applied starting in 2022. Figure 1-2 shows the Study Period water capital projects totaling $22.41 million comprised of $10.07 in projected new debt and $12.34 million cash-funded CIP by year.

Figure 1-2: Water Capital Projects and Projected Capital Funding

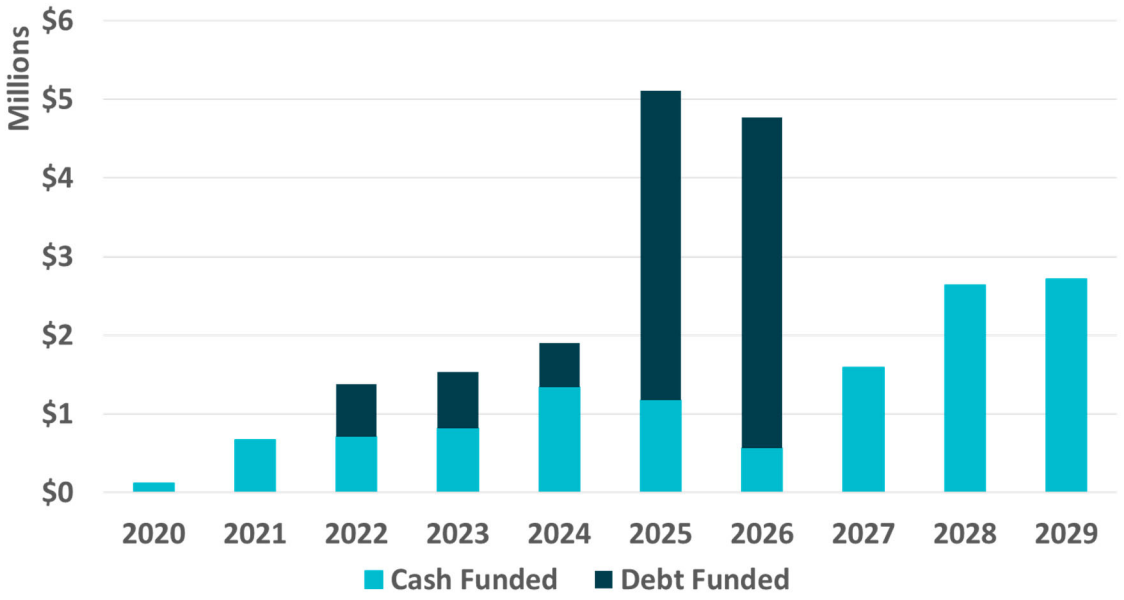
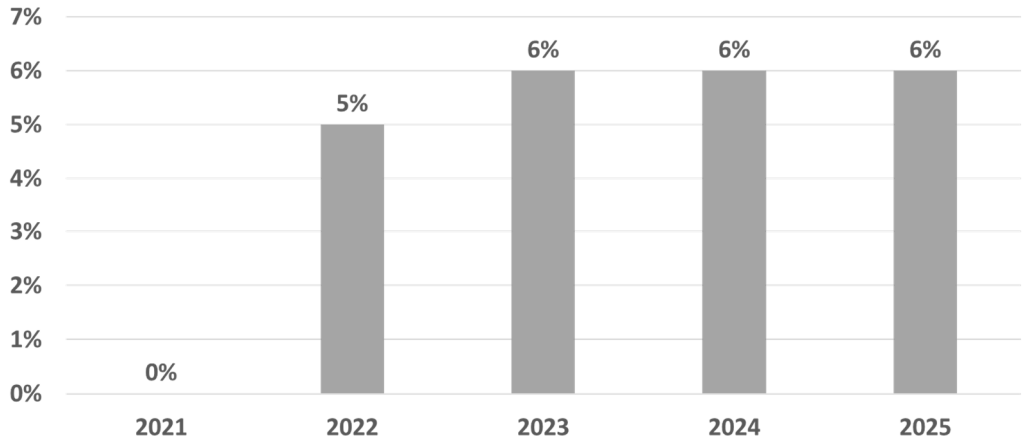


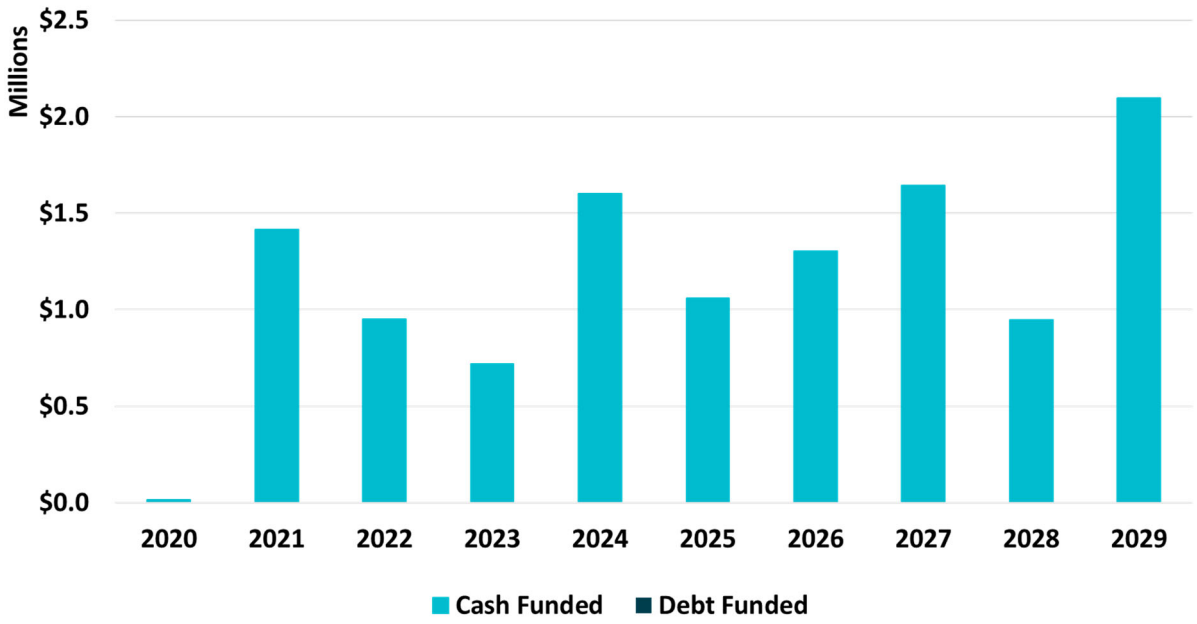
Figure 1-3 summarizes proposed sewer rate revenue increases during the Study Period that are necessary to fund annual expenditures and meet financial performance criteria.

Figure 1-3: Projected Annual Sewer Rate Revenue Increases



The financial plan and capital funding incorporate the inflated CIP amounts based on the anticipated timing of the projects and an assumed capital inflation rate of 7.0% applied starting in FY 2022. Figure 1-4 shows the Study Period sewer capital projects totaling $11.75 million anticipated to be fully cash funded.

Figure 1-4: Sewer Capital Projects and Projected Capital Funding



Raftelis worked with Town staff and the CRC to evaluate the rate structure alternatives and recommend monthly rate and one-time capacity fee structures. The adopted rates maintain the existing monthly base rates increasing by meter size and include different volumetric rate by customer classes for Residential, Commercial, and Irrigation-Only which transition closer to customer class cost of service while increasing overall user charges by 8%.

Appendix D contains additional detail related to the recommended Town rates. Tables 1-1 and 1-2 summarize current adopted base and residential volume rates effective July 1, 2021. Separate Commercial and Irrigation-Only customer volume rates reflect a minimum allowance of 2,000 gallons per account and varying uniform volume rates for use over 2,000 gallons. Commercial includes Multi-Family Residential and all Non-Residential customer classes (e.g., Commercial, School, and Government).

Table 1-1: Adopted FY 2022 Water Base Charges

Meter Size	Current	Adopted
¾-inch and less	$ 7.22	$ 11.00
1-inch	9.93	16.39
1 ½-inch	17.41	28.54
2-inch	18.98	43.61
3-inch	54.54	86.39
4-inch	86.26	132.65
6-inch	159.34	259.66
8-inch	N/A	414.33

Table 1-2: Adopted FY 2022 Residential Volume Water Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	2,001 – 6,000	2.12	1.24
Tier 3	6,001 – 25,000	2.12	2.48
Tier 4	Over 25,000	2.12	3.72

Figure 1-5 summarizes monthly bills for four residential customer profiles with a ¾-inch meter size and 2,000 to 30,000 gallons of water use under the current and adopted FY 2022 rates.

Figure 1-5: Typical Monthly Water Residential Bill Impact

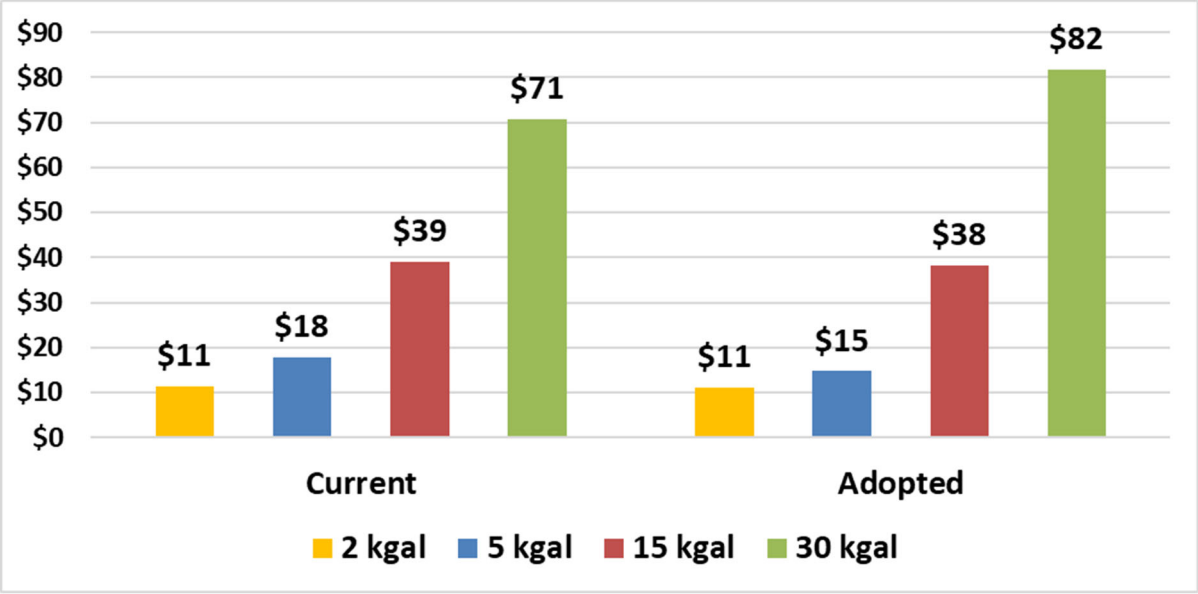


Table 1-3 summarizes current and adopted non-residential volume rates.

Table 1-3: Adopted FY 2022 Multi-Family and Non-Residential Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	Over 2,000	2.12	2.12

Figure 1-6 shows the monthly water bills for six Non-Residential customer profiles with a 1-inch meter using 10,000 to 100,000 gallons per month under the current and adopted rates.

Figure 1-6: Monthly Commercial 1-inch Water Meter Customer Bill Comparison

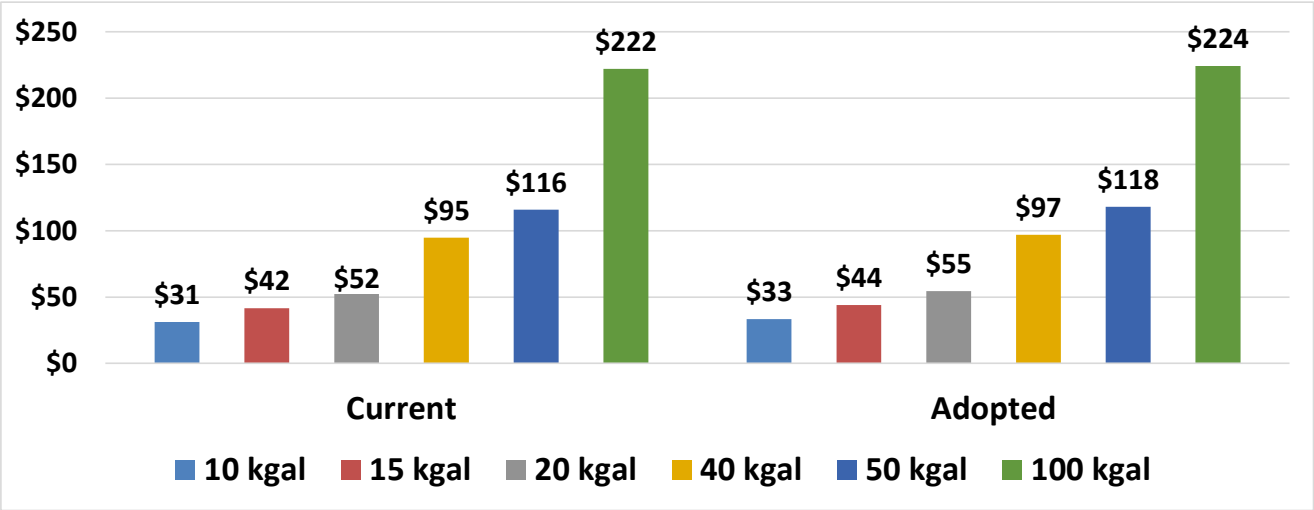


Table 1-4 summarizes current adopted Irrigation-Only customer volume rates.

Table 1-4: Adopted FY 2022 Irrigation-Only Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	Over 2,000	2.12	2.48

Figure 1-7 shows the monthly water bills for three Irrigation-Only customer profiles with a 1-inch meter using 20,000 to 50,000 gallons per month under the current and adopted rates.

Figure 1-7: Monthly Irrigation-Only 1-inch Water Meter Customer Bill Comparison

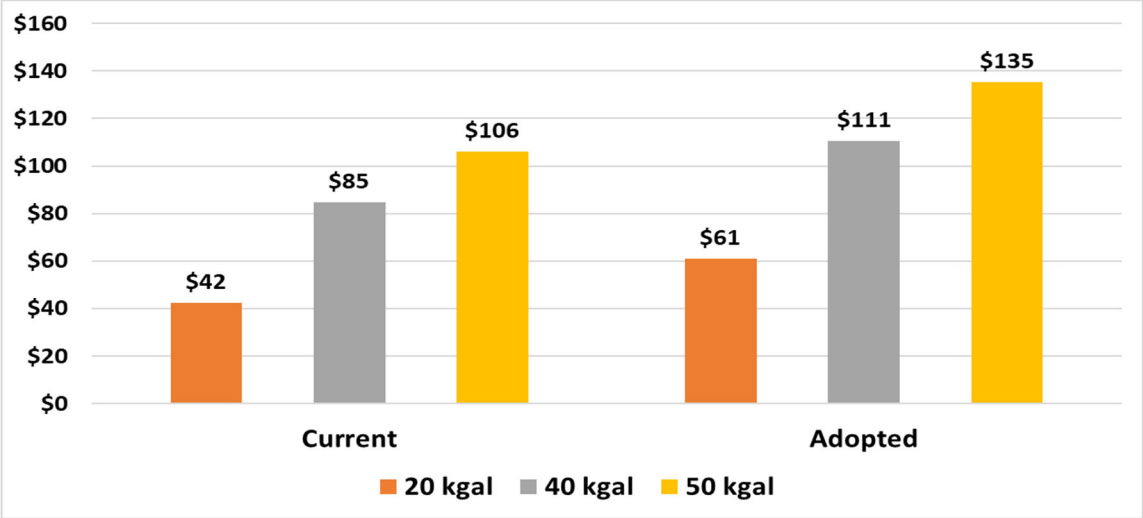


Table 1-5 summarizes existing and adopted base charges by meter size. Table 1-6 summarizes FY 2022 residential volume rates. Adopted base charges and volume rates went into effect July 1, 2021.

Table 1-5: Adopted FY 2022 Sewer Base Charges

Meter Size	Current	Adopted
¾-inch and less	$ 7.00	$ 11.55
1-inch	9.80	14.61
1 ½-inch	17.11	23.61
2-inch	25.20	31.64
3-inch	52.76	53.34
4-inch	81.24	81.02
6-inch	153.23	146.34
8-inch	N/A	224.97

Table 1-6: Adopted FY 2022 Residential Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.27	$ 0.00
Tier 2	Over 2,000	2.27	2.27

Table 1-7 summarizes non-residential volume rates that apply to all other Class 1 sewer customers and those with "domestic" strength discharges. Class 1 sewer customers have biological oxygen demand (BOD) and total suspended solids (TSS) strengths below 250 milligrams per liter or what is considered "domestic" strength discharges. The $2.27 per kgal is comprised of a portion for volume or flow irrespective of strength equal to $1.67 per kgal charges for BOD and TSS strength of $0.36 and $0.24 per kgal respectively.

Table 1-7: Adopted FY 2022 Class 1 Non-Residential Volume Rates

Description	Water Allocation	Current	Adopted
Tier 2	0 – 2,000	$2.27	$ 0.00
Tier 2	Over 2,000	2.27	2.27

Figure 1-8 summarizes the current and adopted monthly bills for four customer profiles with a ¾-inch meter size and billed wastewater volumes ranging from 2,000 to 30,000 gallons.

Figure 1-8: Monthly ¾-Inch Water Meter Customer Sewer Bill Impact

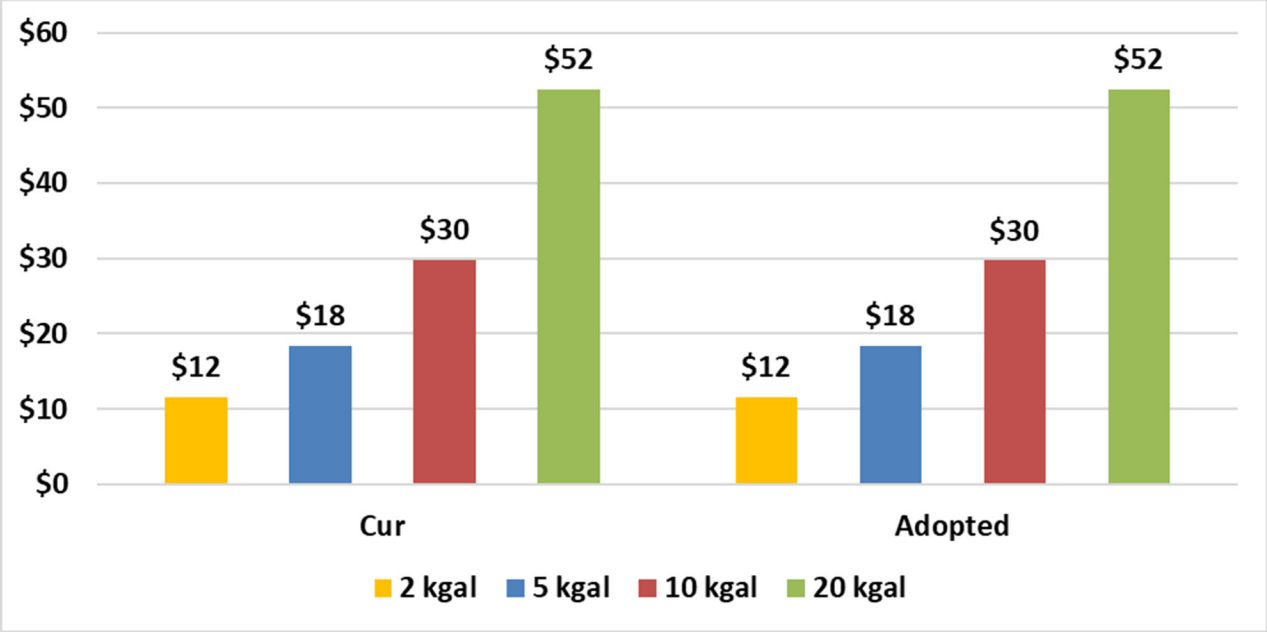
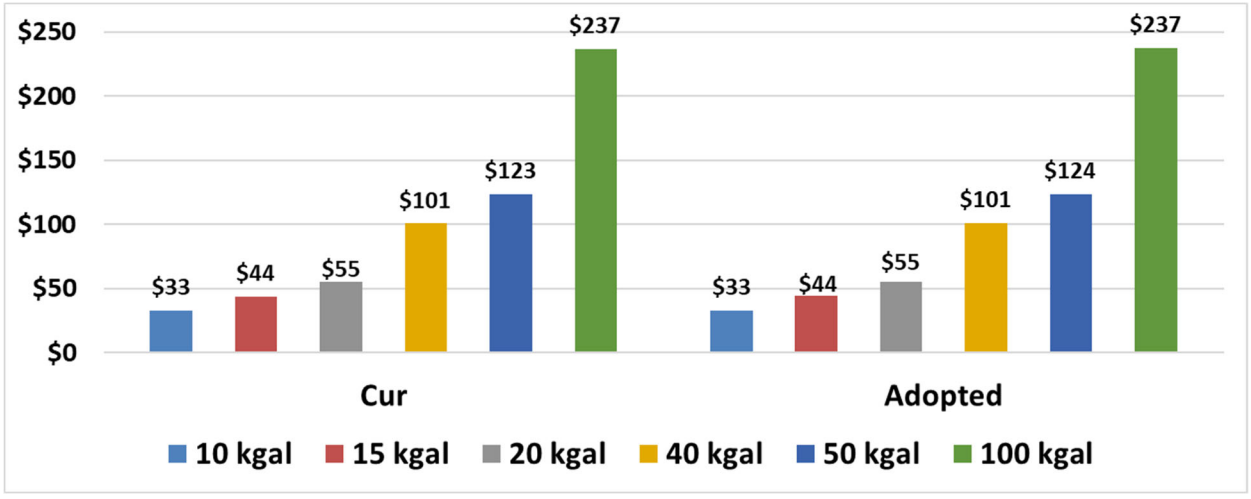


Figure 1-9 summarizes a monthly customer bill for a customer with 1-inch water meter and five profiles with billed volumes 10,000 gals. to 100,000 gals.

Figure 1-9: Monthly 1-Inch Water Meter Customer Sewer Bill Impact



Raftelis worked with Town staff to evaluate the rate structure alternatives and recommend adopting 3 Creek customer rates which mirror the adopted Town rates while recovering the cost-of-service of providing contract retail services to 3 Creek customers. The rates reflect the cost-of-service to provide 3 Creek water and sewer services. 3 Creek customers are sited on large lots and many exert more significant peak usage ratios than Town Residential customers on a per account basis.

Also, as part of the update, Raftelis reviewed the 3 Creek Water and Sewer Capital Replacement Charge. Raftelis and Town Staff, and 3 Creek representatives met to review preliminary 3 Creek base and volume rates. Following the meeting, the Town and 3 Creek agreed to remove some of the pipelines from the Capital Replacement Charge calculation for purposes of calculating the Capital Replacement Charge. This amount is the "adjustment" reference in Table 1-7. The Town has updated the Capital Replacement Charge annually since 2007. The charge is calculated as the annual replacement value per 3 Creek lot and is assessed in addition to the 3 Creek base rate.

Table 1-8 summarizes existing and adopted 3 Creek base rates and Capital Replacement Charge by meter size. Tables 1-9, 1-10, and 1-11 summarize FY 2022 3 Creek volume rates effective July 1, 2021 for Residential, Commercial, and Irrigation-Only customers respectively.

Table 1-8: Adopted FY 2022 3 Creek Water Base and Capital Replacement Charges

Meter Size	Current Base	Current Cap. Rep.	Current Total	Adopted Base	Adopted Cap. Rep.	Adopted Total
¾-inch and less	$ 118.97	$24.56	$ 143.53	$ 13.56	$17.77	$31.33
1-inch	118.97	24.56	143.53	20.16	17.77	37.93
1 ½-inch	118.97	24.56	143.53	35.18	17.77	52.95
2-inch	118.97	24.56	143.53	53.76	17.77	71.53
3-inch	118.97	24.56	143.53	106.50	17.77	124.27
4-inch	118.97	24.56	143.53	163.52	17.77	181.29
6-inch	118.97	24.56	143.53	320.09	17.77	337.86
8-inch	N/A	N/A	N/A	510.76	17.77	528.53

Table 1-9: Adopted FY 2022 Residential 3 Creek Water Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.11	$ 0.00
Tier 2	2,001 – 6,000	1.11	2.02
Tier 3	6,001 – 25,000	1.11	4.04
Tier 4	Over 25,000	1.11	6.06

Table 1-10: Adopted FY 2022 Commercial 3 Creek Water Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.11	$ 0.00
Tier 2	Over 2,000	1.11	2.02

Table 1-11: Adopted FY 2022 Irrigation-Only 3 Creek Water Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	2,001 – 25,000	2.12	4.04
Tier 3	Over 25,000	2.12	6.06

Table 1-12 summarizes existing and adopted 3 Creek sewer base and Capital Replacement Charges by meter size. Table 1-13 summarizes the FY 2022 3 Creek sewer volume rates effective July 1, 2021, which are the same as other volume rates.

Table 1-12: Adopted FY 2022 3 Creek Sewer Base and Capital Replacement Charges

Meter Size	Current Base	Current Cap. Rep.	Current Total	Adopted Base	Adopted Cap. Rep.	Adopted Total
¾-inch and less	$ 70.71	$24.01	$ 94.72	$ 17.75	$16.50	$34.25
1-inch	70.71	24.01	94.72	22.45	16.50	38.95
1 ½-inch	70.71	24.01	94.72	36.28	16.50	52.78
2-inch	70.71	24.01	94.72	48.62	16.50	65.12
3-inch	70.71	24.01	94.72	81.97	16.50	98.47
4-inch	70.71	24.01	94.72	124.51	16.50	141.01
6-inch	70.71	24.01	94.72	224.89	16.50	241.39
8-inch	N/A	N/A	N/A	345.73	16.50	362.23

Table 1-13: Adopted FY 2022 Commercial 3 Creek Sewer Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.88	$ 0.00
Tier 2	Over 2,000	1.88	2.27

As with adopted Town volume rates, 3 Creek volume rates summarized in Table 1-12 reflect Class 1 sewer customers with domestic (BOD) and (TSS) strengths. Also consistent with Town volume rates, Class 2 through Class 6 sewer customers with higher than domestic strengths are assessed higher volume rates for each respective strength class.

Raftelis completed a survey of comparable resort utilities to compare to the Town's current and adopted monthly bills using 5,000 gallons per month for water and billed wastewater. Figure 1-10 shows a typical monthly under the current and adopted July 1, 2021, rates compared to the survey group.

Figure 1-10: Residential Monthly Water Bill Survey

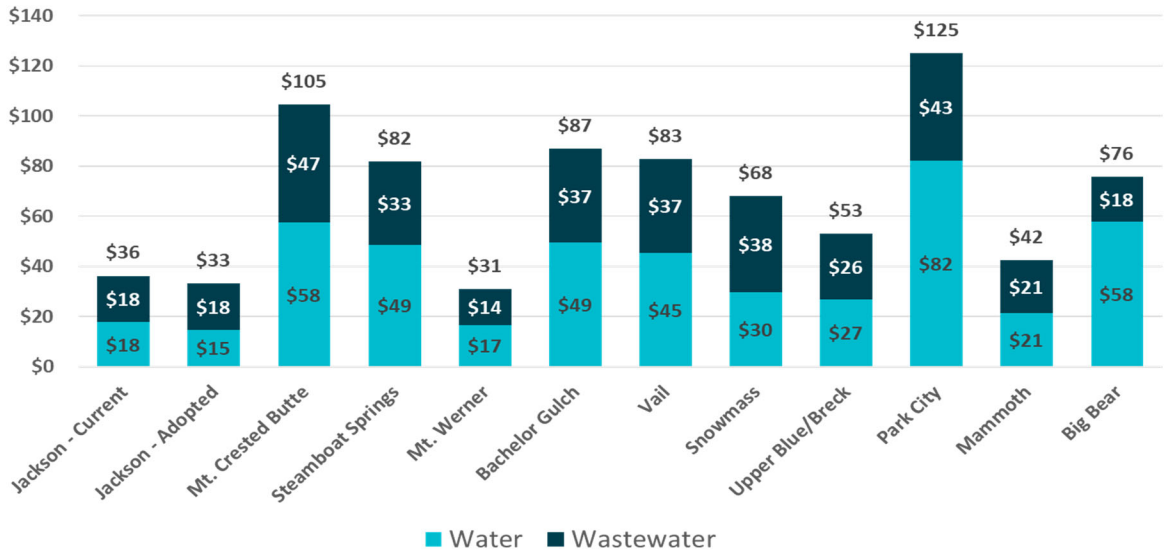
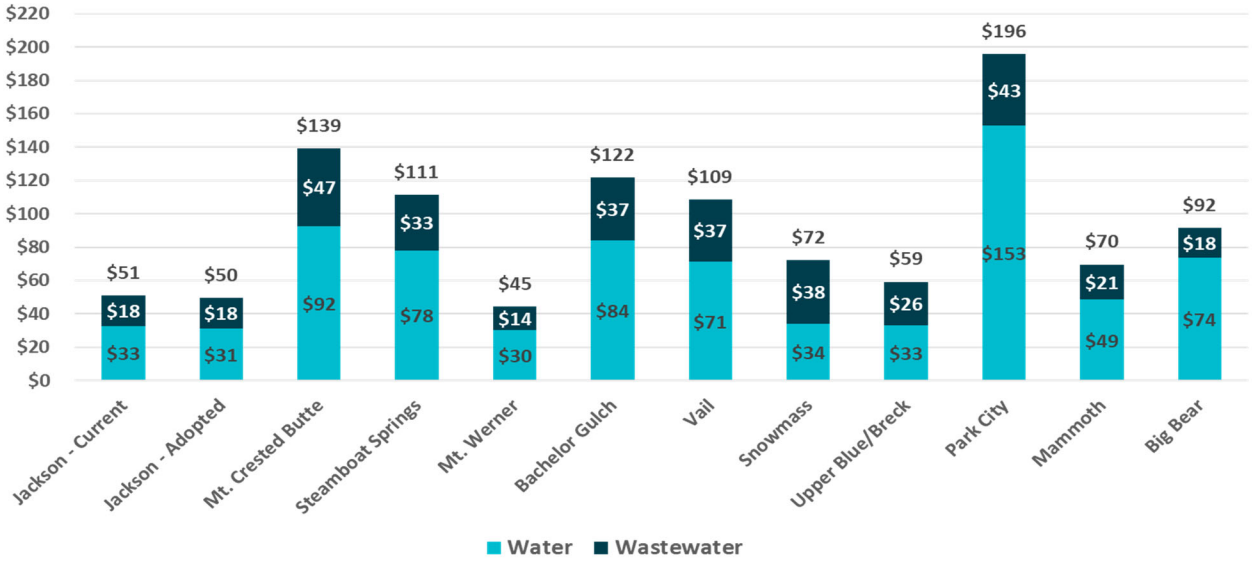


Figure 1-11 shows the monthly bill for a commercial customer with a 1-inch water meter using 12,000 gallons per month water and 5,000 gallons per month billed wastewater under the current rates and adopted July 1, 2021, rates compared to the survey group.

Figure 1-11: Commercial 1-inch Meter Monthly Water Bill Survey



In growing communities such as the Town, capacity fee receipts can provide a significant portion of required CIP funding and/or debt repayment of external debt financing providing upfront funding.

Table 1-14 summarizes the existing water capacity fee compared to the alternative 1 capacity fee assessment schedule – both by meter size. Raftelis recommends meter size-based capacity fees for non-residential and irrigation-only developments.

Table 1-14: Current and Adopted FY 2022 Non-Residential and Irrigation-Only Customer Water Capacity Fee by Meter Size

Meter Size	Current	Adopted
¾-inch	$690	$2,793
1-inch	1,227	4,664
1 ½-inch	2,761	9,301
2-inch	4,909	14,887
3-inch	11,044	29,801
4-inch	19,633	46,559
6-inch	44,176	93,091
8-inch	N/A	148,951

For residential and multi-family customers, the adopted assessment is intended to correct an apparent disparity within the current meter sized based fee assessment. The adopted assessment approach will:

- Enable the Town to fully recover costs development places on the water system
- Provide more scalable fees and resulting impacts to the range of bedroom (and related housing sizes) resulting from new development and redevelopment.

Separating indoor and outdoor water use requirements will also enable the Town to assess capacity fees separately for the two main drivers of residential water use (people and landscaping), but as separately assessed rather than combined within the requirements sizing the meter.

In developing the modified capacity fee structure, Raftelis, Nelson Engineering and Town staff evaluated indoor water use for different bedrooms as the basis for the residential indoor fees by type and per bedroom.

- Irrigation-only water use reflects efficient irrigation systems and resulting water use per day in the peak period per irrigated square foot[2].
- The indoor portion of the assessment schedules reflect peak water demands per bedroom.
- The outdoor portion of reflects peak irrigation season water use per square foot of landscaped area for all residential and irrigation-only customers.
    - Landscaped areas reflect the greater of the:
        - Minimum Land Development Regulation (LDR) Landscape Ratio (LSR) requirements, or
        - Actual landscaped areas.

[2] Annual irrigation requirements developed using *Guidelines for Estimating Unmetered Landscaping Water Use*, Federal Energy Management Program, USDOE, July 2010. Peak period monthly irrigation use is assumed to be 20% of annual requirement.

Table 1-15 summarizes the adopted residential water capacity fee assessment schedule. A 3 bedroom is assessed the same fee as ¾-inch meter and is considered one Equivalent Residential User (ERU).

Table 1-15: Adopted FY 2022 Residential and Landscaped Area Water Capacity Fee Assessment

Type	GPD (1)	$ / GPD	Adopted Fee
1 Bedroom	140	$4.52	$633
2 Bedroom	210	4.52	949
3 Bedroom	280	4.52	1,265
Each Add' l Bedroom (1)	70 / BR	4.52	316
Per 1,000 Sq. Ft. of Landscaped Area (2)			365

(1) Per Nelson Engineering staff including kitchen, bathroom, and laundry.
(2) Assumes 10 gallons per year per sq. ft. of irrigable area with 25% in peak-month or 0.08 gallons per day applied to the $4.52 per gallon per day.

Raftelis developed two alternative wastewater capacity fee assessment alternatives as follows:

- Alternative 1
  - Maintains existing assessment categories and updates the anticipated gallon per day use in the peak day; applies the updated unit cost of $16.24 per gallon per day of wastewater facility capacity.
  - 2 bedroom and greater per dwelling unit updated
  - Apartment and 1-bedroom unit fees with and without laundry per dwelling unit updated.
- Alternative 2
  - Establishes a separate assessment schedule for residential (including multi-family).
  - Residential assessment includes fee based on the number of bedrooms through 3 bedrooms and an incremental fee for each additional bedroom
  - Non-residential assessment of fees same as Alternative 1

In developing the adopted capacity fees, Raftelis, Nelson Engineering and Town staff evaluated indoor water use for different residential and non-residential land uses. Note that there are additional categories proposed where an existing category did not exist, but where the Town is anticipating future development.

Table 1-16 summarizes the existing wastewater capacity fees and assessment criteria by development type. The assumed gallon per day by type reflects a review of assessment categories updating previously assumed water use and for many categories, the expected use per day has been modified. The previous assumptions have been in place for several years. The adopted wastewater capacity fee assesses residential customers solely based on the number of bedrooms regardless of the type of residential unit.

Table 1-16: Adopted FY 2022 and Current Wastewater Capacity Fee Assessment Schedule

Description	GPD	Assessment	Current	Adopted
Apartment, Studio or 1 BR	**140**	**Per Unit**	**$1,088**	**$2,274**
Residential Unit (2BR)	**210**	**Per Unit**	**2,172**	**3,410**
Residential Unit (3BR)	**280**	**Per Unit**	**2,172**	**4,547**
Residential Unit Each Additional BR	**70**	**Per Add' l BR**	**N/A**	**1,137**
Unfinished Habitable Space	70	Per 400 sq. ft.	**N/A**	**1,137**
Bars, Tavern and Lounge (no food)	20	Per 15 sq. ft.	297	325
Restaurants (full service)	64	Per Seat (1)	399	1,039
Restaurants (paper service only – no dishes)	50	Per 100 sq. ft.	N/A	812
Restaurants (single service)	30	Per Seat (1)	N/A	487
Caterers	80	Per 100 sq. ft.	N/A	1,299
Motels and Hotels	140	Per Room	985	2,274
Bed and Breakfast	140	Per Room	1,116	2,274
Assembly (no food)	3	Per 5 sq. ft. Net	24	49
Assembly (w/ food)	5	Per 15 sq. ft. Net	36	81
RV Parks (w ind. Sewer hookups)	100	Per Site	493	1,624
Camps, Parks, Campgrounds (w/ comfort station)	75	Per Site	369	1,218
Mobile Home Park	210	Per Site	2,174	3,410
Laundry (self service)	450	Per Machine	1,486	7,308
Laundry (commercial 100#pp capacity)	1,000	Min./Machine	5,435	16,240
Breweries (per annual production 1 barrel is 31 gals.	20	Per Gal. Ann. Capacity	ICB	325
Fitness (Gyms, Dance Studies, Yoga, Karate)	50	Per 100 sq. ft.	N/A	812
Medical Offices and Dentists	250	Per Practitioner	614	4,060
Veterinary Offices (not including boarding)	250	Per Practitioner	N/A	4,060
Animal Boarding	20	Per Cage	N/A	325
Offices	15	Per Employee	147	244
Retail Stores	5	Per 1,000 sq. ft.	24	81
Unfinished Commercial Space	5	Per 1,000 sq. ft.	N/A	81
Public Access Restrooms	325	Per Fixture		5,278
Service Stations	220	Per Pump	1,088	3,573
Car Washes	1,000	Per Bay	4,927	16,240
Public Spas, Pools or Hot Tubs (Per kgal capacity)	10	Per 50 sq. ft. Gross	N/A	162
Schools (w/ Cafeteria, Gym, and Showers)	20	Per Student	98	325
Schools (w/ Cafeteria, No Gym)	15	Per Student	N/A	244
Schools (without Cafeteria and Gym)	10	Per Student	N/A	162
Day Care and Pre School	20	Per Student	98	325
Others Not Listed Wastewater Service		Avg. Max GPD x $16.24		

(1) 15 square feet per seat net anticipated for full service or single service restaurants.

Raftelis completed a variety of capacity fee impacts comparing the adopted to the current fees. Tables 1-17 and 1-18 summarize residential water and wastewater capacity fees under current and adopted fees by customer profile. Residential development profiles include:

- Home A: 3 bedroom, 7,500 sq. ft. lot, 60% LSR, and ¾-inch water meter.
- Home B: 4 bedroom, 12,500 sq. ft. lot, 60% LSR, and 1-inch water meter.
- Home C: 5 bedroom, 15,000 sq. ft. lot, 60% LSR, and 1-inch water meter.
- Home D: 2 bedroom, 5,000 sq. ft. lot, 60% LSR, and ¾-inch water meter.

Table 1-17: Example Current and Adopted Residential Water Capacity Fees by Customer Profile

Type	Current	Indoor	Outdoor	Adopted
Home A	$ 690	$1,266	$1,640	$2,906
Home B	1,227	1,582	2,734	4,316
Home C	1,227	1,898	3,281	5,179
Home D	690	949	1,094	2,043

Table 1-18: Example Current and Adopted Residential Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
Home A	$ 2,172	$4,547
Home B	2,172	4,547
Home C	2,172	4,547
Home D	2,172	4,547

2. Introduction

2.1. Study Overview

The Town retained Raftelis to complete a financial plan, cost-of-service, and rate study for the Town's water and sewer utilities. Raftelis and Town staff evaluated a 10-year financial planning period spanning from Fiscal Year (FY[3]) 2020 through FY 2029 (Study Period). The scope of service included the following major deliverables:

- Develop separate water and sewer fund financial plans for the 10-year Study Period.
- Evaluate separate water and sewer rate revenue adjustments for the Study Period necessary to fund annual revenue requirements, maintain adequate cash reserves, and provide appropriate debt service coverage.
- Complete a separate water and sewer class cost-of-service analysis using a single (FY 2022) test-year.
- Propose water and sewer rates by customer class for FY 2022 effective July 1, 2021.
- Complete a comprehensive evaluation of the Town's water and sewer capacity fees, including alternative assessment approaches.
- Propose water and sewer capacity fees effective July 1, 2021, with proposed annual adjustments for inflation as reflected within the Engineering News Record Construction Cost Index (ENR-CCI) for Denver thereafter.

In addition to updating the implementation date to July 1, 2021, estimated actual financial results from FY 2020 was incorporated into the financial planning and cost-of-service models adjusted for inflation starting in FY 2021.

The multi-year water financial plan, supporting worksheets and calculations, revenue projections, and assumptions are detailed in Appendix A. The multi-year sewer financial plan, supporting worksheets and calculations, revenue projections, and assumptions are detailed in Appendix E.

2.2. Citizen Rate Committee

The Town established a Citizen Rate Committee (CRC) to assist Town Council in the review of study findings and recommendations. The CRC assisted Raftelis, Nelson Engineering and Town Staff to review, develop, and refine preliminary and final study findings and recommendations as part of the study. For example, Raftelis initially proposed a uniform seasonal water volume rate structure as a more gradual step into tiered rate structures, but the CRC and Town staff preferred inclining block tiered rate approaches for residential customers.

There were a total of seven meetings with the CRC and a report discussing the process and outcomes is included in Appendix I.

[3] Refers to the year at the end of the fiscal year (e.g., FY 2022 is the period ending June 30, 2022).

2.3. Acknowledgements

On behalf of the project team, we would like to acknowledge the commitment and contributions provided by several members of the Town in completing this project. In particular, we would like to recognize the Town staff of Brian Lenz, Johnny Ziem, and Kelly Thompson and Nelson Engineering team members Bob Norton and Matt Bowers and Nelson Engineering sub-consultant Alex Norton for their support, data development, insights, interim reviews, and overall assistance as part of the Study.

2.4. Reliance on Town Provided Data

During this project, the Town, Nelson Engineering, and the Nelson Engineering sub-consultant provided Raftelis with a variety of technical information from capital improvement program, assets, operational to audited and unaudited financial reports, meter, billing data, and revenue data. Raftelis assessed the information for errors and reasonableness but did not independently assess or test for the accuracy of such data, historic or projected. We have relied on this data in the formulation of our findings and subsequent recommendations, as well as in the preparation of this report.

As is often the case, there will be differences between actual and projected data. Some of the assumptions used in this report will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in this report and actual results achieved; these differences may be material. As such, we take no responsibility for the accuracy of data or projections provided by or prepared on behalf of the Town, nor do we have any responsibility for updating this report for events occurring after the date of this report.

3. Utility Background, Water Use & Growth

3.1. Water System Overview

The Town maintains a water system which consists of:

- 7 active wells
- Network of water transmission and distribution pipelines with diameter sizes ranging from 4-inches to 18-inches
- 3 pump stations
- 3 treated water storage tanks

Nelson Engineering completed a capacity study evaluation of the Towns water system documented within the Town of Jackson Water / Sewer Systems Evaluation report dated June 2021.

For the cost-of-service evaluation the inventory of linear feet by diameter size was converted to inch-feet and used in development of the unit cost by service category and customer class. Raftelis separated the Town's water transmission and distribution system into common-to-all and local categories.

- Transmission (Common-to-all): 10-inch and larger
- Distribution (Local): 8-inch and smaller

3.2. Water Accounts & Billed Usage

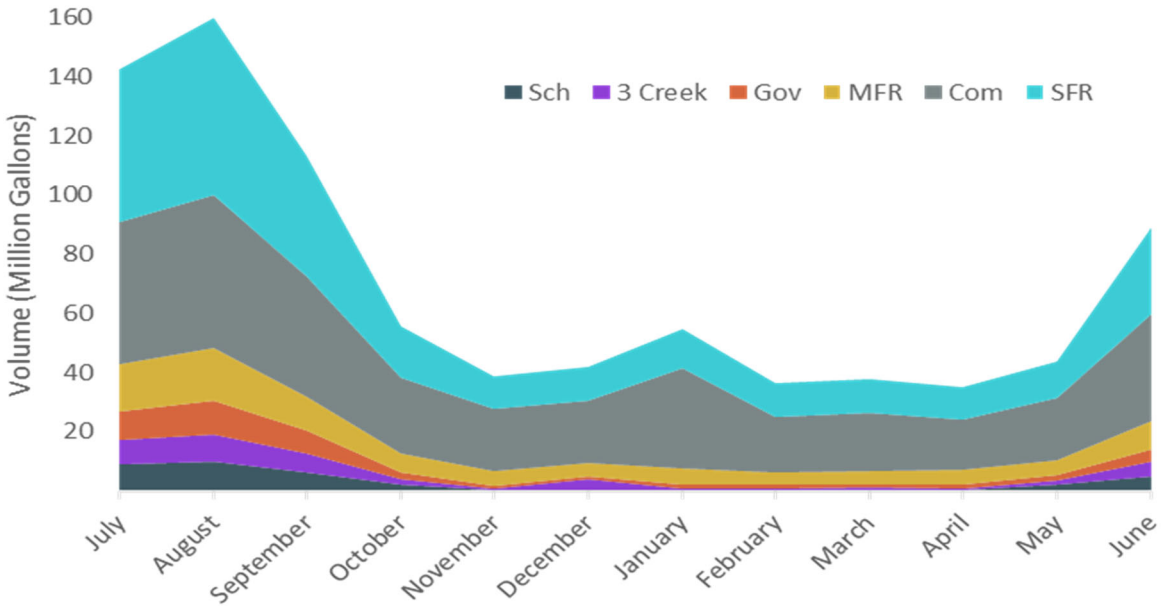
The Town currently served an estimated 3,927 water customers amongst Residential, Multi-Family, Commercial, Irrigation-Only, Government, Schools and those located within 3 Creek in FY 2020. Table 3-1 summarizes FY 2020 customer accounts and water use by customer class.

Table 3-1: FY 2020 Water Customer Data

Customer Class	Accounts	Billed Use (KGAL)
Residential	2,738	276,412
Multi Family	187	91,390
Commercial	790	354,454
Irrigation Only	10	74,589
Government	74	21,698
Schools	25	6,404
3 Creek	113	42,620
Total	**3,927**	**872,277**

Customer classes that have the highest ratio of peak season water use to winter period water use are more expensive to serve as they require infrastructure to be installed for only a portion of the year which is idle capacity the remainder of the year. Figure 3-1 summarizes FY 2019 monthly water use consumption by customer class.

Figure 3-1: FY 2019 Monthly Water Use by Customer Class



3.3. Sewer System Overview

The Town maintains a sewer system which consists of:

- Wastewater treatment plant
- Network of sewer interceptor and collection system pipelines with diameter sizes ranging from 6-inches to 18-inches
- 7 lift stations
- Over 1,400 manholes

For the cost-of-service evaluation the inventory of linear feet by diameter size was converted to inch-feet and used in development of the unit cost by service category and customer class. Raftelis separated the Town's water transmission and distribution system into common-to-all and local categories.

- Interceptor (Common-to-all): 10-inch and larger
- Collection (Local): 8-inch and smaller

The Town currently serves approximately 4,610 sewer customers amongst Residential, Multi-Family, Commercial, Government, School and customers located within Melody Ranch, Rafter J, Adams Canyon Sewer District, Valley View, 3 Creek, or developments served wholesale services by the Town.

Table 3-1 summarizes projected FY 2020 accounts and billed wastewater volume for each customer class. Outside Town customers are grouped based on location and service type.

Table 3-2: FY 2020 Sewer Customer Data

Customer Class	Number of Accounts	Billed Wastewater (kgal)
Residential	2,740	120,769
Multi Family	161	53,483
Commercial	767	304,472
Government	58	19,547
School	21	6,807
Melody (1)	356	18,688
Rafter J (1)	446	47,001
3 Creek (1)	108	10,973
Contract (2)	17	63,858
Sewer Only (1)	13	5,601
Total	**4,691**	**651,578**

(1) Outside Town customers provided full service.
(2) Outside Town provided wholesale service.

Sewer volumes per user have declined compared to levels experienced as recent as a decade ago for many utilities because of multiple factors including an increasing prevalence of higher-efficiency water-using fixtures and overall conservation efforts by the utility and the utility's water and sewer customers. The use of overly optimistic demand forecast based on outdated assumptions regarding customer water consumption characteristics and/or future customer account growth can result in unrealistic revenue projections and severe utility financial distress. We projected a continued downward annual adjustment of 1.0% to Residential, Multi-Family Residential, and other full-service customer billed wastewater volume use per account annually throughout the Study Period.

Table 3-3 summarizes the Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) Class designation by customer type. Class 1 is "domestic" and Class II through VII include higher concentrations assessed an additional surcharge per 1,000 gallons of billed wastewater. The assumed strength for Class I through Class VII and by customer class in milligrams per liter (mg / l) are detailed in Appendix H.

Table 3-3: Town BOD and TSS Class Designations by Customer Type

Customer Type	BOD Class	TSS Class
Residential	1	1
Non-Residential / Default	1	1
Dry Cleaning	Sampling	Sampling
Meat Processing	4	3
Restaurant and Bakeries	3	3
Commercial Laundry	3	2
Fast Food and Canning	2	2
Hotel / Motel w/ Food Service	2	3
Market w/ Deli	2	2
Kennels and Mortuary	2	2
Commercial Printing	2	1
Auto Service Repair	2	1
School Café	2	1
Hotel / Motel w/o Food Service	2	1
Photo Processing	2	1
Car Washes	1	2
Hospital w/o Food Service	1	2
Hospital w Food Service	2	3
Breweries	6	3

3.4. Growth Assumptions

Annual water and sewer customer growth for Town residential, multi-family, and commercial customers are projected to grow 2.2% annually in FY 2020 and FY 2021, declining to 1.1% annually in FY 2022 through FY 2030.

3 Creek water customer account growth was estimated at 6.6% in FY 2020 and projected to be 3.5% in FY 2021 declining to 1.7% per year FY 2022 through FY 2030. No growth is expected for other customers located outside the Town. 3 Creek customer account growth is 1.0% in FY 2020, 4.0% in FY 2021 declining to 1.1% per year FY 2022 through FY 2030. Many 3 Creek water customers install irrigation-only metering devices to separate meter water used outdoor as well as install irrigation-only services in advance of home construction which accounts for the difference in customer account growth.

Town staff completed an audit of 3 Creek customers as growth continued during the COVID-19 pandemic and usage per account can be significant. The rate design and cost of service analysis reflect the more recent 3 Creek water customer information by meter size. Table 3-4 summarizes the accounts by meter size and customer class.

Table 3-4: 3 Creek Water Customers by Meter Size September 2020

Customer Type	Residential	Non-Residential	Irrigation-Only	Total
¾-inch and less	12	2	3	17
1-inch	39	1	69	109
1 ½-inch	56	1	13	70
2-inch	1	1	1	3
Total	108	5	86	199

4. Financial Plan

The multi-year water financial plan, supporting worksheets and calculations, revenue projections, and assumptions are detailed in Appendix A. The multi-year sewer financial plan, supporting worksheets , revenue projections and assumptions are detailed in Appendix E.

The water and sewer utility financial plans are organized around a total fund with separate operations and capital improvement subfunds. The respective water and sewer rate revenue requirements represent the cost of providing service and include O&M expenses, debt service obligations, and other cash inflows and outflows.

All capital costs are assigned to the water and sewer capital improvement subfunds, where funding is provided from capacity fee revenues, interest income, and transfers from the operations subfund, net bond proceeds, and grants (subject to award). The only expenses in the capital improvement subfund are capital improvement expenditures.

The financial plan evaluates the adequacy of system revenues adjusted for customer and demand-related growth to:

- Fund annual O&M expenses, debt service, and capital expenditures, and
- Maintain the following financial performance thresholds:
    - Exceed DSC ratio of at least 1.30 times annual debt service,
    - Exceed water fund cash reserve targets of
        - 50% (180 days) of annual O&M expenses PLUS
        - the average annual cash-funded capital project expenses separated set for FY 2020 through FY 2024 and FY 2025 through FY 2029.
    - Exceed sewer fund cash reserve targets of
        - 50% (180 days) of annual O&M expenses PLUS
        - the average annual cash-funded capital project expenses separated set for FY 2020 through FY 2024 and FY 2025 through FY 2029.

Raftelis recommends that the Town establish rates to exceed a DSC ratio of at least 1.30 times annual debt service. The DSC ratio target is applied to outstanding debt and debt projected to be issued over the Study Period to fund capital projects. At present, the Town is required to maintain a minimum debt service coverage of 1.00 times annual debt service on the outstanding water debt obligations. This requirement is based on the gross revenues of the system which include all income, charges, and revenues derived directly or indirectly by the Town from the operation and use of the water and sewer systems, including rates, charges, and other fees such as capacity fees less annual O&M expenses. For planning purposes, as revenues include both one-time SDFs and weather and growth dependent sales that may fluctuate year-over-year, Raftelis recommends the more conservative DSC ratio target minimum for rate setting purposes. Furthermore, the Town's water and sewer demands are affected by seasonal visitors and subject to additional fluctuations.

Raftelis recommends that the Town maintain cash reserve target equal to 50% of O&M expenses plus capital reserves calculated based on the average annual cash-funded capital. The Town should review cash reserve policies periodically and adjust reserve policies when warranted to mitigate the risk of unplanned operational contingencies, capital expenses, and potential fluctuations in volume sales revenue.

If system revenues are not adequate to fund annual expenditures and exceed financial performance requirements, the following four variables are used to balance the financial plan:

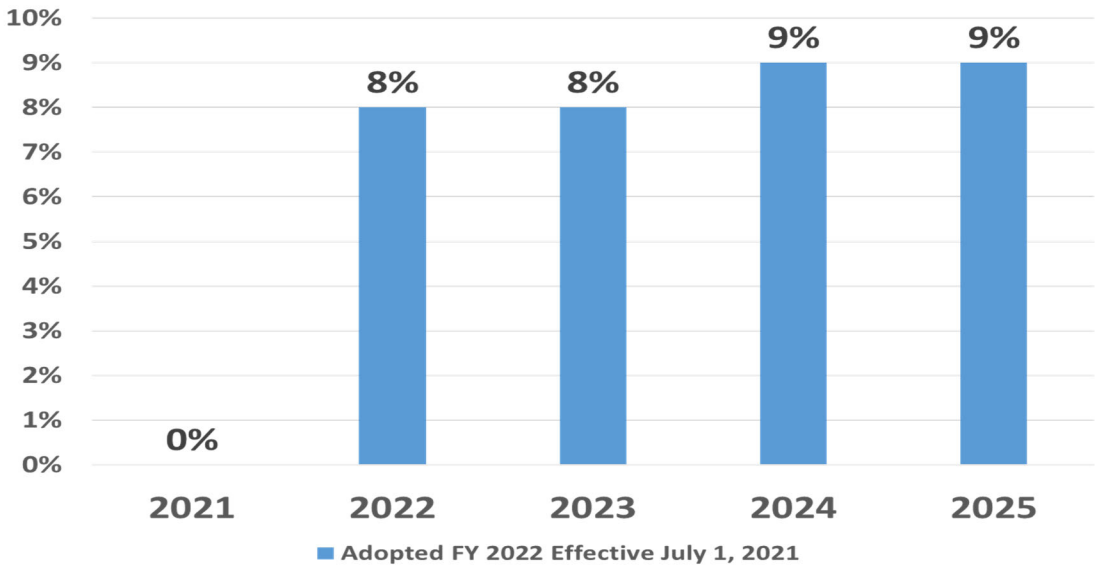
- Draw down accumulated reserves to fund annual expenditures until funds are depleted.
- Issue debt to fund a portion of annual capital improvements.
- Increase user charges.
- Delay and defer annual capital improvements.

While rate revenue increases are currently projected annually over the Study Period, adjustments may be necessary depending on future CIP expenditures, system growth, water use patterns, inflation, and regulatory requirements. At a minimum, annual reviews as part of the budget process should be used to periodically assess the condition of the water and sewer funds to determine the necessity of future rate revenue adjustments. A comprehensive update is recommended every three to five years unless a major event dictates more frequent updates.

4.1. Water Fund Financial Plan Results

Water user charge revenue is projected to be $2.37 million in FY 2020 and is projected to increase to $5.15 million by FY 2029. Figure 4-1 summarizes proposed water rate revenue increases during the Study Period that are necessary to fund annual expenditures and meet financial performance criteria. The proposed FY 2022 water rates, which are based on an 8.0% overall rate revenue adjustment, are detailed in Section 5.2 of this report. It should be noted that these increases do not necessarily equate to the overall rate revenue increases for a specific customer class or individual customer.

Figure 4-1: Projected Annual Water Rate Revenue Increases



Water rate increases are anticipated to be effective July 1st of each year. Figure 4-2 shows the end-of-fiscal year cash balance and reserves for the water fund. The cash reserve targets are exceeded throughout the Study Period. The cash reserve targets are exceeded throughout the Study Period with projected end-of-year cash balances just above the target in FY 2029.

Figure 4-2: Projected Total Water Fund End-of-Year Cash Balances and Reserve Targets

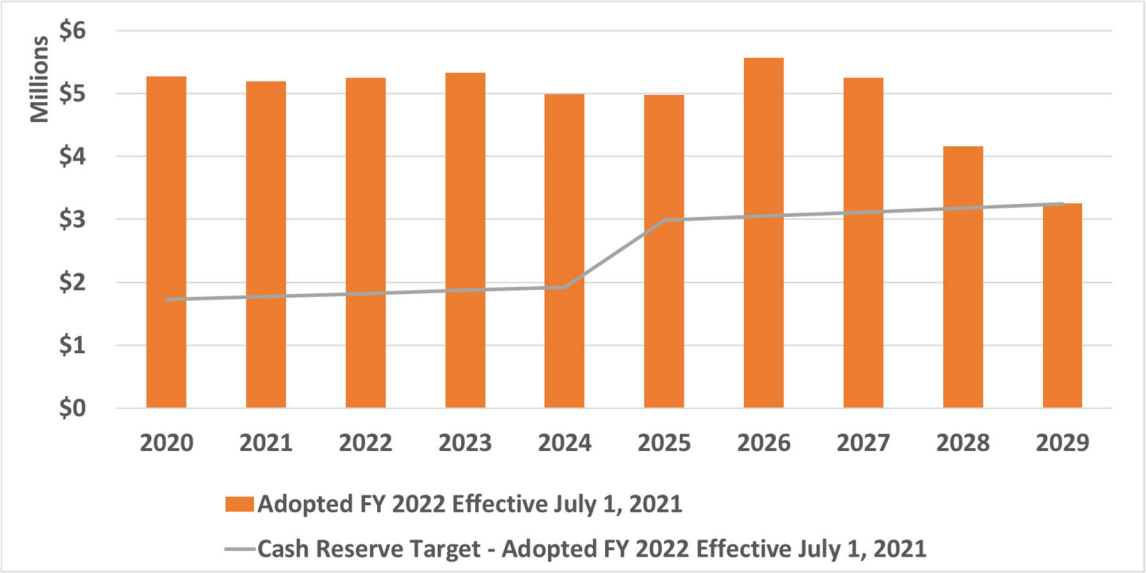
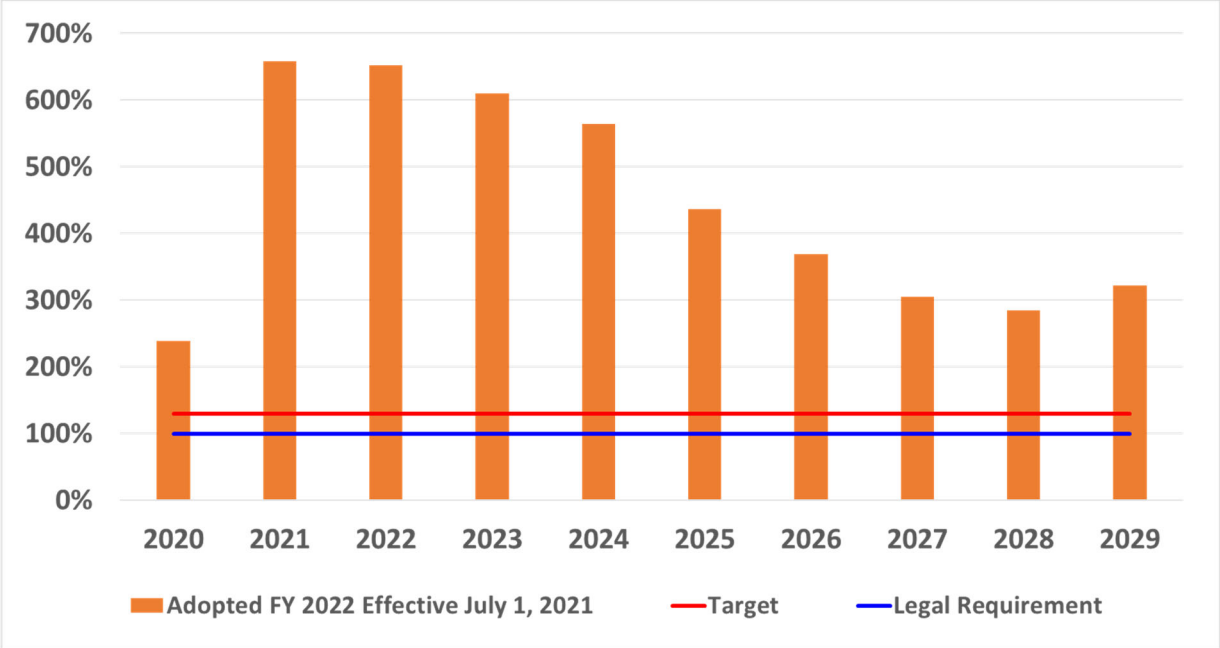


Figure 4-3 shows the projected water fund legal and target DSC ratios compared to the target which are exceeded each year of the Study Period.

Figure 4-3: Projected Annual Water Fund DSC



4.1.1.1. Total Water Fund

All water fund revenues and expenditures are summarized on page A-1. For financial planning purposes, Raftelis developed two different subfunds within the water fund: an operations subfund and a capital improvement subfund as previously discussed.

A total water fund balance of approximately $4.78 million was available as of July 1, 2020, including an operating cash reserve minimum of $1.00 million, leaving $3.78 million as unrestricted. Raftelis proposes creating a new capital reserve effective in FY 2022 equal to the average annual cash-funded capital project outlay. To mitigate the effect of this recommendation, the reserve is calculated in two 5-year increments of FY 2020 through FY 2024 and FY 2025 through FY 2029.

- Operations subfund is summarized on page A-2,
- Capital improvement subfund is summarized on page A-4.

4.1.1.2. Revenues

Water user charge revenues in FY 2021 were projected by Raftelis using historic billing data from FY 2018 and FY 2019, adjusted for growth. Projections for the remainder of the study period are adjusted based on customer growth and developed in a variety of worksheets included in pages A-5 through A-25.

Water user charge revenue is projected to range from $2.37 million in FY 2020 to $5.15 million in FY 2029. Proposed water rates are discussed in Section 5.2.

Capacity fees are one-time capital recovery fees assessed to new or increased development. The water capacity fees are expected to make a significant contribution to the funding of growth-related capital improvement program expenditures. The forecasted capacity fee receipts reflect the customer account

growth assumptions previously discussed. Proposed water capacity fees are discussed in greater detail in Section 8 of this report. Capacity fee revenue is projected to range from $0.12 million in FY 2020 to $0.21 million in FY 2029 incorporating proposed changes to capacity fees effective July 1, 2021 and adjusted annually for inflation. Capacity fees were evaluated and Study recommendations are detailed in Section 8.

The water fund has other miscellaneous fee and charge revenues such as new account charges, non-payment turnoff fees, water meter charges, carriage fees, hydrant, and construction sale of water, and interest earnings. Interest earnings are projected based on the average annual cash balance and an interest earnings rate of 2.5%. Combined miscellaneous revenues average $60.920 per year adjusted for 2.0% inflation throughout the Study Period. The water fund miscellaneous revenues are listed in detail on page A-25.

4.1.1.3. Operations and Maintenance

Page A–8 summarizes projected utility O&M expenditures over the Study Period. Projected O&M expenditures are based on the Town's line-item 2020 and 2021 budgets and adjusted for anticipated cost increases and inflation, ranging from $1.99 million in FY 2020 to $3.02 million by FY 2029.

The following annual cost inflations are assumed for O&M expense categories over the Study Period.

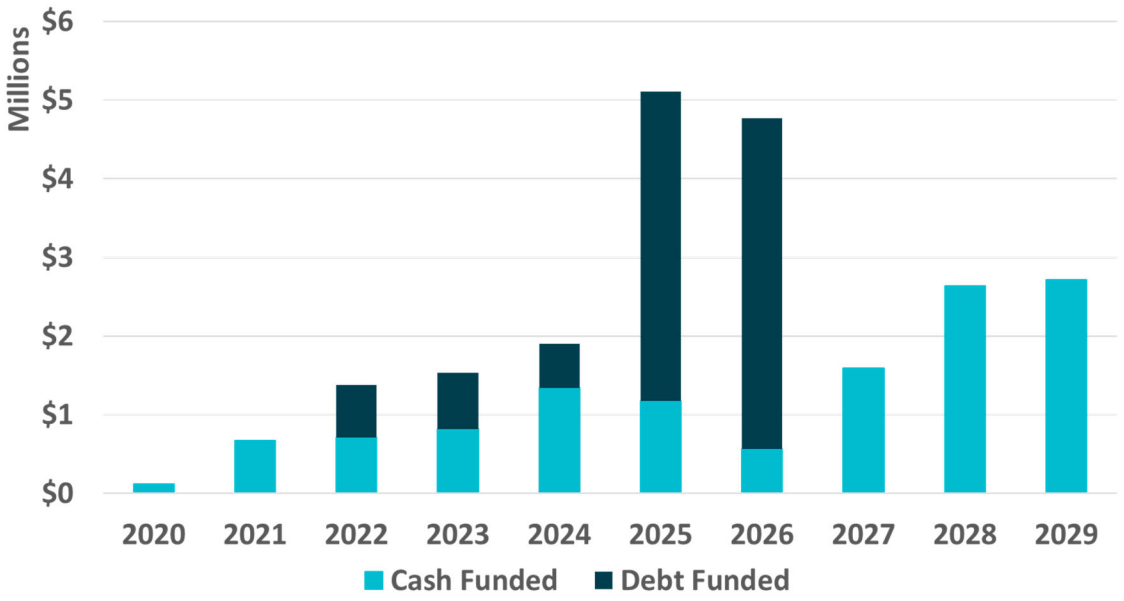
- Materials: 5.0%
- Personnel: 5.0%
- Benefits: 5.0%
- Supplies: 5.0%
- Operating: 5.0%
- Utility: 5.0%
- Services: 3.0%
- Other: 3.0%
- Indirect Costs: 5.0%
- Capital: 7.0%

4.1.1.4. Capital Improvement Projects

The projects listed in the CIP were provided by Town staff in 2021 dollars for the years FY 2020 through FY 2029. The CIP totals $22.41 million, adjusted for inflation. The detailed project listing on pages A-9 through A-10 includes the dollar amount in current year and inflated dollars based on the anticipated year expended over the Study Period.

The financial plan and capital funding incorporate the inflated CIP amounts based on the anticipated timing of the projects and an assumed capital inflation rate of 7.0% applied starting in FY 2022. Figure 4-4 shows the Study Period water capital projects totaling $22.41 million comprised of $10.07 in project new debt and $12.34 million cash-funded CIP by year.

Figure 4-4: Water Capital Projects and Projected Capital Funding



Major CIP projects include:

- Well #9 - $1.38 million design and construction (FY 2022 to FY 2023)
- Gregory Lane - $1.17 million design and construction (FY 2022 to FY 2024)
- Zone 3 Tank - $8.70 million design and construction (FY 2024 to FY 2026)
- Powderhorn - $1.25 million design and construction (FY 2027 to FY 2029)
- Snow King - $1.51 million design and construction (FY 2027 to FY 2029)

4.1.1.5. Debt and Debt Service

The water fund has two existing debt obligations associated with a 1997 loan to be repaid in FY 2023 and a 2010 note to be repaid in FY 2010. Three additional debt issues are projected in FY 2022, FY 2024 and FY 2026 as summarized below.

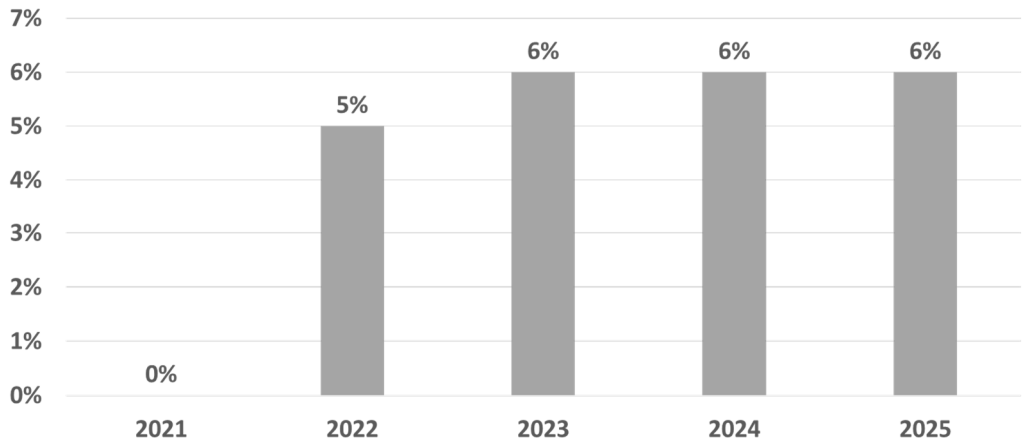
- FY 2022 – FY 2023 bundled into one $1.38 million debt issue in 2022.
- FY 2024 – FY 2025 bundled into one $4.50 million debt issue in 2024.
- FY 2026 – FY 2027 bundled into one $4.20 million debt issue in 2026.

Projected debt is assumed at a 30-year term and includes issuance costs of 2.0% funded from the proceeds of the debt issue, and 4.0% interest rates.

4.2. Sewer Fund Financial Plan Results

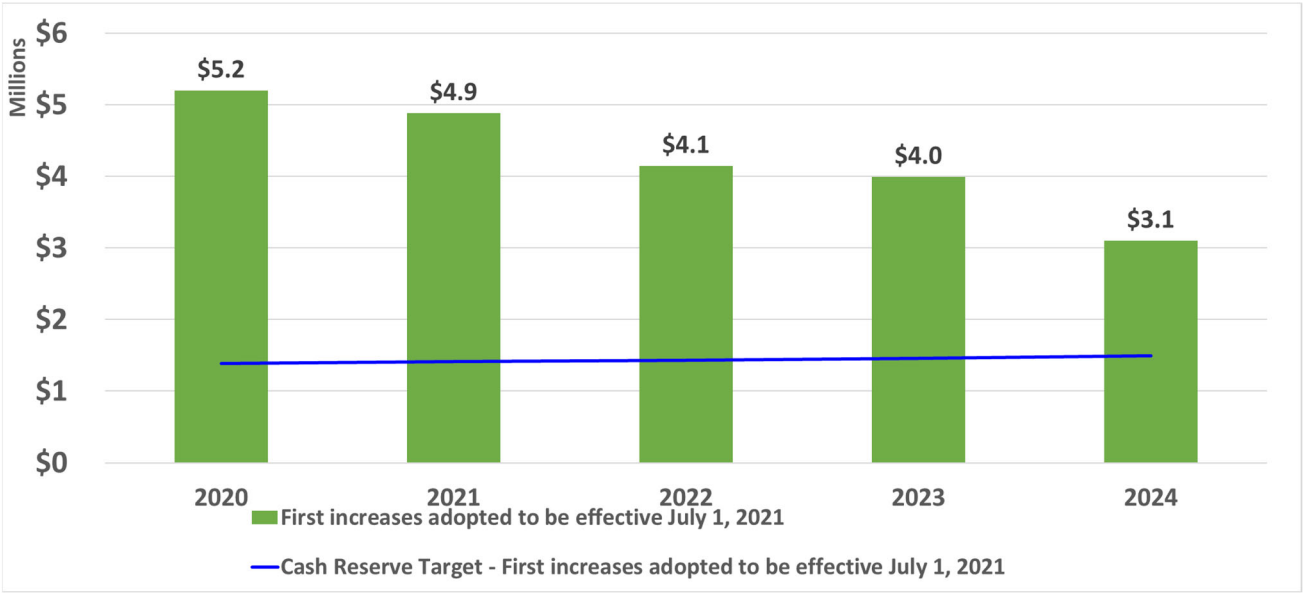
FY 2020 sewer user charge revenue is projected to be $2.45 million. Figure 4-1 summarizes proposed sewer rate revenue increases during the Study Period that are necessary to fund annual expenditures and meet financial performance criteria. The proposed 2022 sewer rates based on 5.0% overall rate revenue adjustments are detailed in Section 6.2 of this report.

Figure 4-5: Projected Annual Sewer Rate Revenue Increases



Sewer rate increases are also effective July 1st of each year. Figure 4-2 shows the end-of-year cash balance and reserves for the sewer combined fund. The cash reserve targets are exceeded throughout the Study Period.

Figure 4-6: Projected Total Sewer Fund End-of-Year Cash Balances and Reserve Targets



No sewer debt is outstanding or anticipated to be issued over the Study Period.

4.2.1.1. Total Sewer Fund

All water fund revenues and expenditures are summarized on page E-1. For financial planning purposes, Raftelis developed two different subfunds within the sewer fund: an operations subfund and a capital improvement subfund as previously discussed.

A total water fund balance of approximately $4.74 million was available as of July 1, 2020, including an operating cash reserve minimum of $1.02 million, leaving $3.72 million as unrestricted. Raftelis proposes

creating a new capital reserve effective in FY 2022 equal to the average annual cash-funded capital project outlay. To mitigate the effect of this recommendation, the reserve is calculated in two 5-year increments of FY 2020 through FY 2024 and FY 2025 through FY 2029.

- Operations subfund is summarized on page E-2 and
- Capital improvement subfund is summarized on page E-4.

4.2.1.2. Revenues

FY 2020 user charge revenues were adjusted based on estimated actual results provided in July 2020. FY 2021 user charge revenues were projected by Raftelis using historic FY 2018 and FY 2019 billing data from, adjusted for projected growth. Projections for the remainder of the study period are adjusted based on customer growth and developed in a variety of worksheets included in pages E-4 through E-8. Sewer user charge revenue is projected to range from $2.45 million in FY 2020 to $3.99 million in FY 2029. Proposed sewer rates are discussed in Section 5.2.2.

Capacity fees are one-time capital recovery fees assessed to new or increased development to recover the cost of system capacity necessary to serve customers. Proposed sewer capacity fees are discussed in Section 8 of this report. Capacity fee revenue is projected to range from $0.43 million in 2020 to $1.74 million in FY 2029.

The sewer fund has only a few miscellaneous fee and charge revenues listed on page E-2. Miscellaneous revenues were budgeted to be $60,000 in FY 2020 and projected to increase at 1.0% per year. Interest earnings are projected based on the average annual cash balance and an interest earnings rate of 2.5%.

4.2.1.3. Operations and Maintenance

Page E–8 summarizes projected utility O&M expenditures over the Study Period. Projected O&M expenditures are based on the Town's line-item 2020 and 2021 budgets and adjusted for anticipated cost increases and inflation, ranging from $2.04 million in FY 2020 to $2.97 million by FY 2029.

- Materials: 5.0%
- Personnel: 5.0%
- Benefits: 5.0%
- Supplies: 5.0%
- Operating: 5.0%
- Utility: 5.0%
- Services: 3.0%
- Other: 3.0%
- Indirect Costs: 5.0%
- Capital: 7.0%

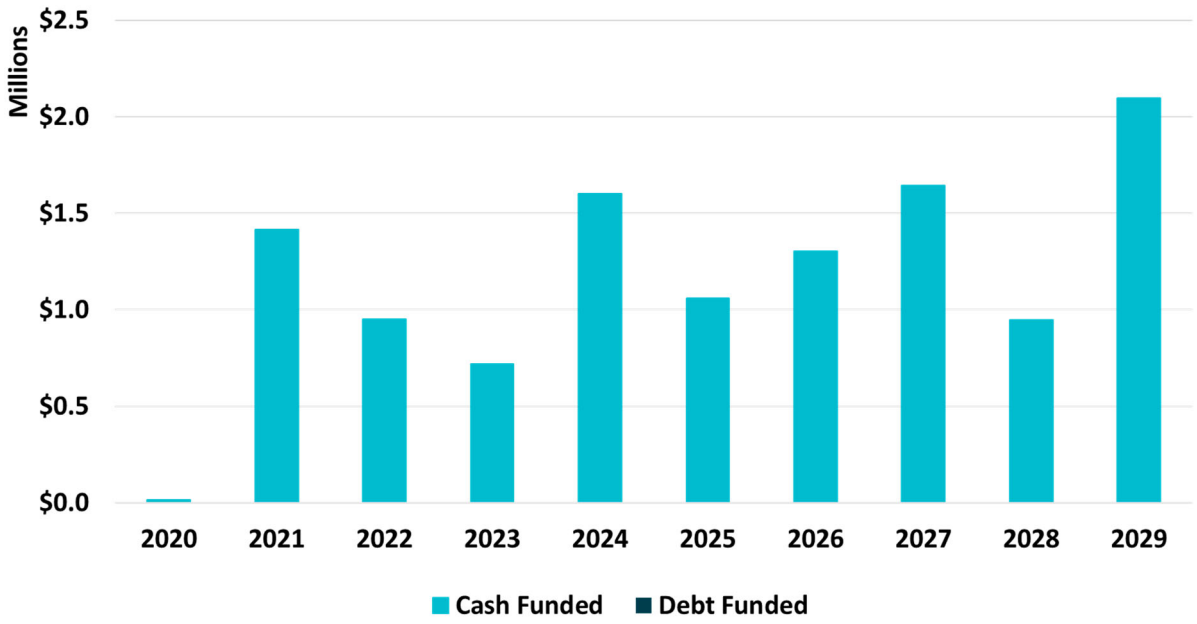
4.2.1.4. Capital Improvement Projects

The projects listed in the CIP were provided by Town staff in 2020 dollars for the years FY 2020 through FY 2029. The CIP totals $8.90 million, adjusted for inflation. The detailed project listing on pages E-9 and E-10

includes the dollar amount in current year and inflated dollars based on the anticipated year expended over the Study Period.

The financial plan and capital funding incorporate the inflated CIP amounts based on the anticipated timing of the projects and an assumed capital inflation rate of 7.0% applied starting in FY 2021. Figure 4-4 shows the annual sewer capital projects broken down by funding source.

Figure 4-7: Sewer Capital Projects and Projected Capital Funding



Major CIP projects include:

- Gregory Lane Sewer - $1.21 million design and construction (FY 2022 through FY 2024)
- West Cache - $0.58 million design (FY 2021)
- Hillside Townhomes - $0.84 million design and construction (FY 2023 through FY 2025)
- Powderhorn Lane - $1.09 million (FY 2027 through FY 2029)

4.2.1.5. Debt and Debt Service

The Town has no outstanding sewer fund debt. No additional debt is anticipated to be issued over the Study Period to fund identified capital improvements.

5. Water Cost-of-Service Analysis and Rate Recommendations

5.1. Cost-of-Service

Raftelis completed a cost-of-service analysis for a FY 2022 test-year to identify customer, base, and extra capacity costs. Detailed calculations are presented in Appendix C.

5.1.1. OVERVIEW OF THE WATER COST-OF-SERVICE PROCESS

The purpose of a cost-of-service study is to allocate the water utility revenue requirement to each customer class in direct proportion to the demands they impose on the utility system. To accomplish this objective, Raftelis conducted a detailed analysis of customer water consumption characteristics and engaged in a multi-step cost allocation process. The procedures followed by Raftelis were based on the industry standard "base-extra capacity method" of cost allocations as published by the American Water Works Association in the Seventh Edition of the Manual of Water Supply Practices M1, Principles of Water Rates, Fees, and Charges.

The primary steps in the water cost-of-service study process include the following which essentially functionalize, allocate and distribute the defined or net revenue requirements of the water utility:

- **Costs and Demand:** Determining the test-year revenue requirement and forecast billed water consumption.
- **Cost Functionalization:** Functionalizing the O&M, capital, and non-rate revenue components of the revenue requirement. This process results in the assignment of costs to the specific water utility functional activities they are incurred to perform.
- **Cost Allocation:** Allocating the functionalized O&M, capital, and non-rate revenue components of the revenue requirement to specific cost parameters such as base demand, maximum day demand, and maximum hour demand. This process results in the assignment of costs to the specific types of water service they are incurred to serve.
- **Units of Service:** Determining the customer class units of service for each cost parameter based on metrics such as annual average day billed usage, maximum day and maximum hour extra capacity demand, the number of equivalent meters, and annual number of water bills.
- **Unit Cost-of-Service:** Determining the utility-wide unit cost-of-service for each cost parameter. The unit cost-of-service is determined by dividing the revenue requirement assigned to each cost parameter by its associated utility-wide units of service.

» **Customer Class Revenue Requirements:** Distributing the total revenue requirement by multiplying the customer class specific units of service for each cost parameter by the associated utility-wide unit cost-of-service.

5.1.2. WATER UTILITY FY 2022 REVENUE REQUIREMENT

The total 2022 financial plan revenue requirement of $3.71 million consists of $2.18 million in O&M expenses and $1.53 million in capital costs. These costs are partially offset by $0.96 in non-rate revenues, reserves, and external debt proceeds. Water user charge revenues of $2.75 million are required to fund the remaining revenue requirements as summarized in Table 5-1 and detailed on page C-1.

Table 5-1: Water Fund Revenue Requirements

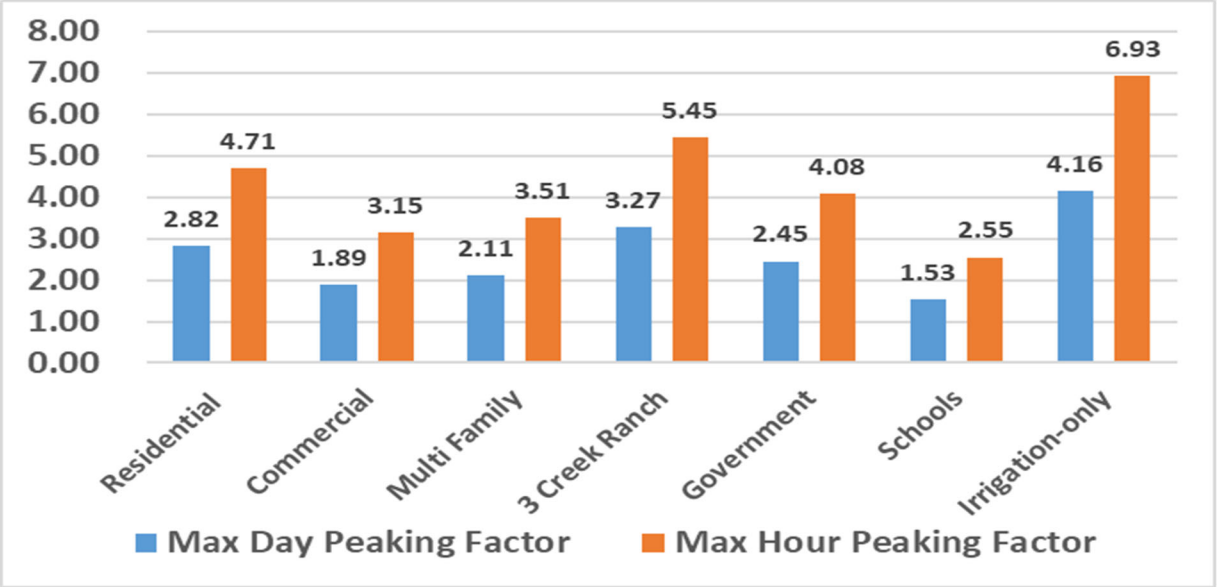
Description	FY 2022 Cost-of- Service
O&M Expenses	$2.18 M
Capital Costs	1.53 M
Other Cash (Inflows) / Outflows	(1.73 M)
Increase (Decrease) in Cash Reserves	0.77 M
Water User Charge Revenues	$2.75 M

5.1.3. CUSTOMER CLASS PEAKING FACTORS

A water utility system cannot be designed, constructed, or operated merely to meet the average day demands imposed by customers. Instead, it must be designed, constructed, and operated to meet total system maximum day and maximum hour peak demands imposed by customers. These peak demands occur on a single day or during a single hour each year and are significantly greater than typical average day demands. The maximum day to average day demand peaking factor of 2.40 and a maximum hour to average day demand peaking factor of 4.00 based on 10% above actual FY 2019 peaking factors. This was reviewed with Town and Nelson Engineer staff and was deemed reasonable.

The approach used by Raftelis to estimate customer maximum day and maximum hour peaking factors is like that described in Appendix A of the AWWA Manual M1. Raftelis utilized 2019 billing data, adjusted as previously discussed, and the results of this process are shown in Figure 5-1. These estimated peaking factors were used by Raftelis to establish the maximum day and maximum hour extra capacity units of service for each customer class as used in the cost-of-service study. These extra capacity units of service are a key driver of the allocation of the revenue requirement for each customer class.

Figure 5-1: Customer Class Peaking Factors FY 2019 Water Use



Due to the peak demands they impose on a water utility system, customer classes that have higher maximum day and maximum hour peaking factors generally make a large proportional contribution to the coincident peak demands experienced by a utility, i.e., place greater summer season demands on the system. As a result, through of the cost-of-service process, they are allocated a larger proportional share of the water utility revenue requirement.

5.1.4. RESULTS OF THE COST-OF-SERVICE STUDY

The goal of a cost-of-service study is to implement user charges that equitably recover the cost of providing service to each customer class. Thus, the critical question the cost-of-service study process attempts to answer is: do the user charge revenues collected from each customer class correspond to the cost of providing service? If the answer to this question is no, it indicates that one or more customer classes are not making a fair and equitable contribution to the utility's overall revenue recovery.

Customer classes include additional separated customer groupings of customers were evaluated (e.g., irrigation-only) separately for the cost-of-service analysis. Some of these customer groupings were consolidated for purposes of rate setting.

As shown in Table 5-2, the projected FY 2022 user charge revenue recovery for each water customer class does not match the calculated FY 2022 cost-of-service. Specifically, residential, schools, irrigation-only, and 3 Creek customers are paying too little and commercial and multi-family customers are paying too much relative to the indicated cost-of-service. There are several reasons such an outcome can occur. Typically, if a water utility has not adjusted its cost-of-service user charges for a significant period, a misalignment between revenue recovery and the actual cost of providing service can occur due to changes in customer class water consumption characteristics or changes in the composition of the overall utility-wide revenue requirements. The Town also instituted system-wide water volume rates irrespective of customer class except for 3 Creek contract water customers.

Table 5-2 shows the results of the FY 2022 cost-of-service analysis aggregating the classes into their respective current rate structure designations.

Table 5-2: FY 2022 Cost-of-Service Results

Customer Class	Cost-of-Service	Revenue Under Existing Rates	Difference Revenue ($)	Difference in Revenue (%)
Residential	$1,159,457	$863,851	$295,606	34%
Multi-Family	222,276	236,280	(14,004)	(6%)
Commercial	789,649	973,904	(184,255)	(19%)
Irrigation-Only	223,913	158,129	65,785	42%
School	23,639	11,187	12,452	111%
3 Creek	318,950	271,012	47,938	18%
Outside Town	9,114	11,502	(2,388)	(21%)
Total	**2,746,998**	**$2,525,865**	**$221,133**	**9%**

5.2. Rate Design

The water user charge design process allows utility governing bodies to determine how they wish to recover the cost-of-service study-derived revenue requirement from rates from each customer class. Generally, utility governing bodies have significant discretion to achieve specific financial, water conservation or public policy objectives via the water rate design process. Raftelis and Town staff reviewed various rate design alternatives that achieve the required revenue requirement for the water utility. The recommended rates achieve system-wide cost-of-service rates in FY 2022 and improve customer class cost-of-service recovery for each customer class and future rate adjustments will be necessary to achieve full customer class cost-of-service recovery. Appendix D includes more detailed information related to the recommended rates.

5.2.1. EXISTING RATES

The Town's current water user charges have been in place since January 1, 2015 and are shown in Tables 5-3 and 5-4. The existing water rate structure includes inside and outside city rates, a monthly service charge that increases by meter size that is applicable to all customer classes and system-wide uniform volumetric charges.

5.2.2. RATE STRUCTURE ALTERNATIVES

Raftelis developed three rate alternatives for the FY 2022 test-year that are calculated to be “revenue-neutral”, meaning the same level of revenue as calculated in the financial plan is projected to be generated under each alternative. However, the revenue will be recovered differently between classes under each alternative.

Raftelis worked with Town staff to develop three water rate alternatives. The following recommendations are integrated within one or more alternatives:

- Establish a stand-alone customer class for Irrigation-only customers. Irrigation-only customers as a class typically exert the highest peak demands; creating a separate class is consistent with providing pricing signals for the efficient use of water.
- Assess a monthly base charge by meter size to Irrigation-only customers. Irrigation-only customers incur meter reading, meter replacement, customer service, and billing like other accounts and assessing a base charge recovers these costs.
- Incorporate a minimum volume allowance for all customers to provide more guaranteed revenue stream for low volume uses and when accounts are otherwise using little or no water. This promotes equity amongst all users as utility infrastructure needs to be maintained and replaced whether the account is an active user.
- Adopt a tiered volumetric rate, where higher water users pay more for higher volumes of water used; this will improve the conservation pricing signal to promote more efficient water use for discretionary purposes.
- Apply the same rate structures to 3 Creek as proposed for in-Town Residential customers, while setting unit prices to recover the higher cost of providing service to serve 3 Creek customers.
- Begin to rebalance the way costs to serve specific customer classes are recovered to make sure everyone is paying their fair share but do this more gradually to avoid rate shock in a single year.

The following table summarizes, compares, and contrasts each final water rate alternative.

Table 5-4: Water Rate Objective Matrix Summary

Attribute	Current	Alt. 1	Alt. 2	Adopted
Irrigation-Only Customer Class	N	Y	Y	Y
Irrigation-Only Pays Base Charge	N	Y	Y	Y
System-Wide Rates	Y	Y	Y	N
Increase Revenue Recovery Via Base Charge	N	Y	Y	Y
Minimum Use Included in Base Charge	N	N	Y	Y
Conservation Pricing Signal Increased	N	N	Y	Y
Class Cost of Service Recovery	N	N	N	N
3 Creek Customer Full Cost Recovery	Y	Y	Y	Y

5.2.3. ADOPTED JULY 1, 2021, TOWN RATES

Raftelis worked with Town staff and the CRC to evaluate the rate structure alternatives and recommend adopting the alternative 3 rates presented above. The adopted rates maintain the existing monthly base rates increasing by meter size and include different volumetric rate by customer classes for Residential, Commercial, and Irrigation-Only which transition closer to customer class cost of service while increasing overall user charges by 8.0%. Table 5-4 presents the current water rates compared to the recommended In-Town rates which are proposed to go into effect July 1, 2021. Separate Commercial and Irrigation-Only customer volume rates reflect a minimum allowance of 2,000 gallons per account and varying uniform volume rates for use over 2,000 gallons. Commercial includes Multi-Family Residential and all Non-Residential customer classes (e.g., Commercial, School, and Government).

Tables 5-3 and 5-4 summarize current adopted base charges and residential volume water rates.

Table 5-3: Adopted FY 2022 Water Base Charges

Meter Size	Current	Adopted
¾-inch and less	$ 7.22	$ 11.00
1-inch	9.93	16.39
1 ½-inch	17.41	28.54
2-inch	18.98	43.61
3-inch	54.54	86.39
4-inch	86.26	132.65
6-inch	159.34	259.66
8-inch	N/A	414.33

Table 5-4: Adopted FY 2022 Residential Volume Water Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	2,001 – 6,000	2.12	1.24
Tier 3	6,001 – 25,000	2.12	2.48
Tier 4	Over 25,000	2.12	3.72

Figure 5-1 summarizes monthly bills for four residential customer profiles with a 3/4-inch meter size and 2,000 to 30,000 gallons of water use under the current and adopted FY 2022 rates.

Figure 5-2: Typical Monthly Water Residential Bill Impact

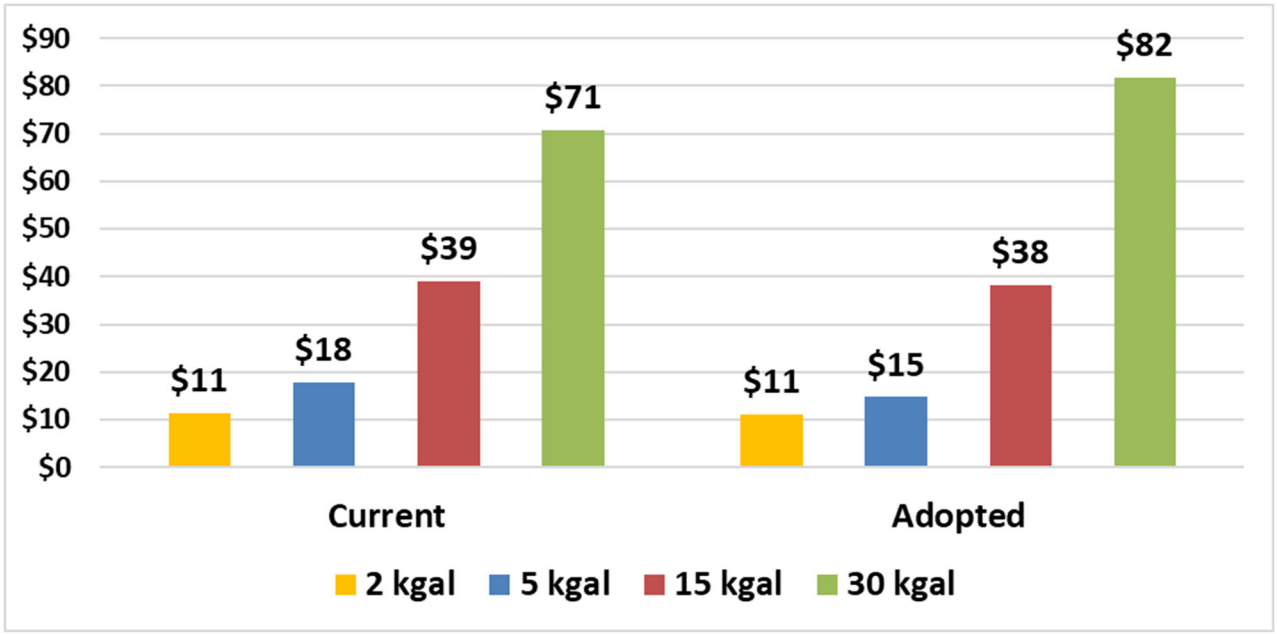


Figure 5-3 shows the monthly water bills for a ¾-inch Residential using 0 to 30,000 gallons per month under the current and adopted rates.

Figure 5-3: Monthly Residential Customer Bill Comparison

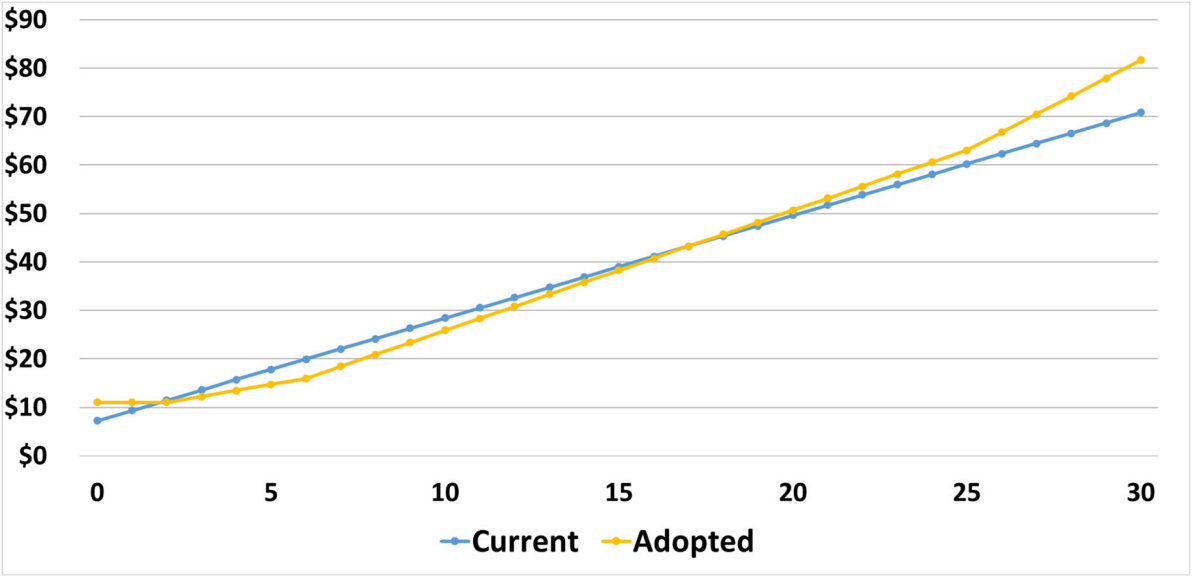


Table 5-5 summarizes current adopted multi-family and non-residential volume rates.

Table 5-5: Adopted FY 2022 Multi-Family and Non-Residential Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	Over 2,000	2.12	2.12

Figure 5-4 shows the monthly water bills for five Non-Residential customer profiles with a 1-inch meter using 10,000 to 100,000 gallons per month under the current and adopted rates.

Figure 5-4: Monthly Commercial 1-inch Water Meter Customer Bill Comparison

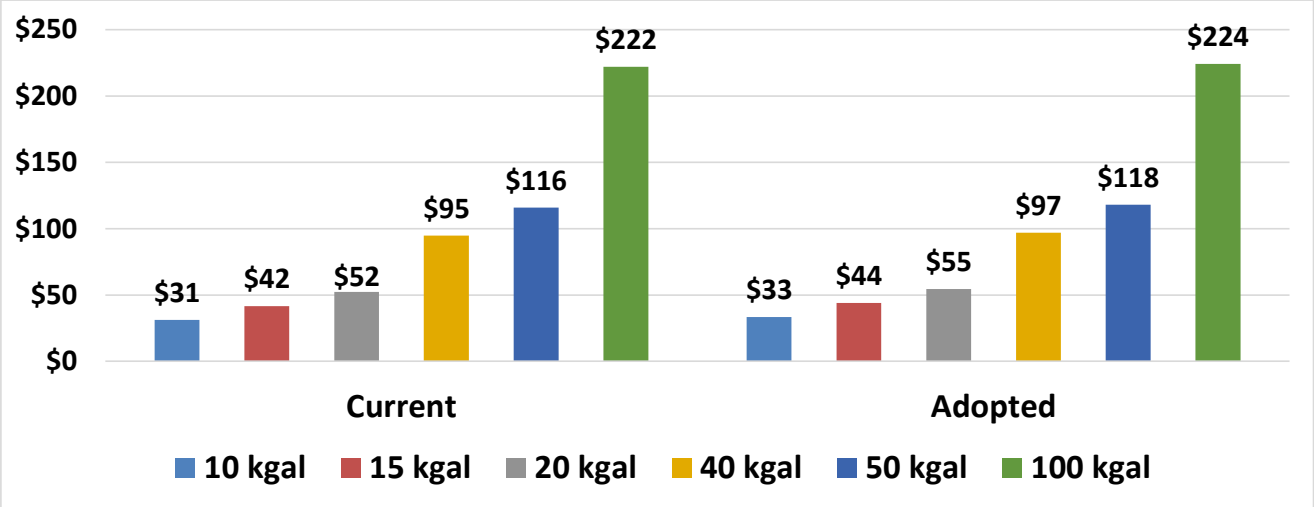


Figure 5-5 shows the monthly water bills for Irrigation-Only customer with a 1-inch water meter from 0 to 60,000 gallons of billed consumption under current and adopted monthly service charge and volume rates.

Figure 5-5: Monthly Non-Residential 1- inch Water Meter Customer Bill Comparison

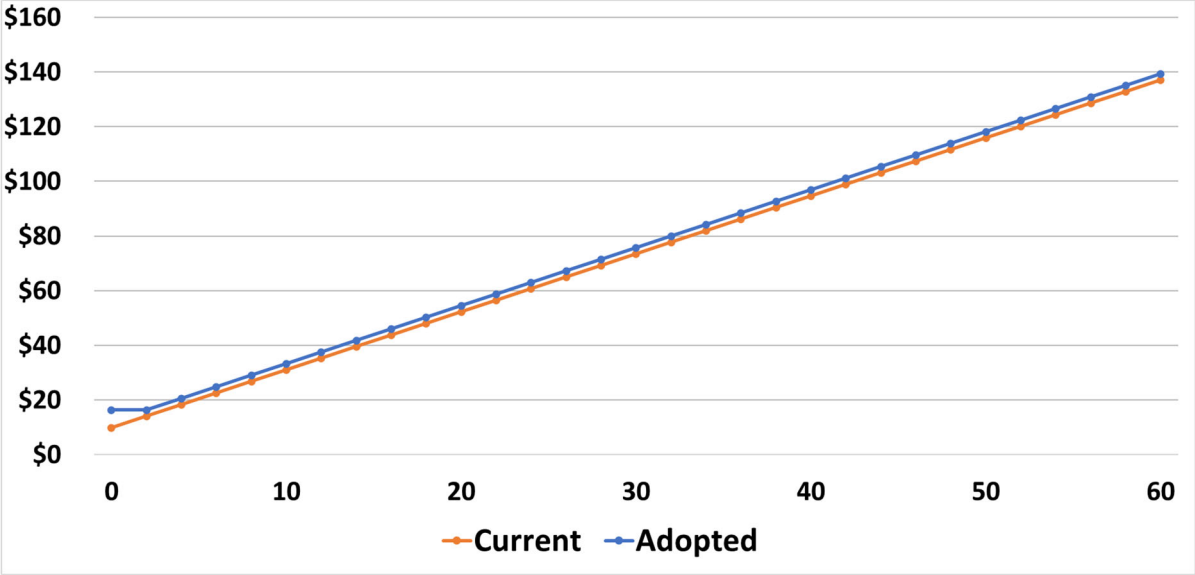


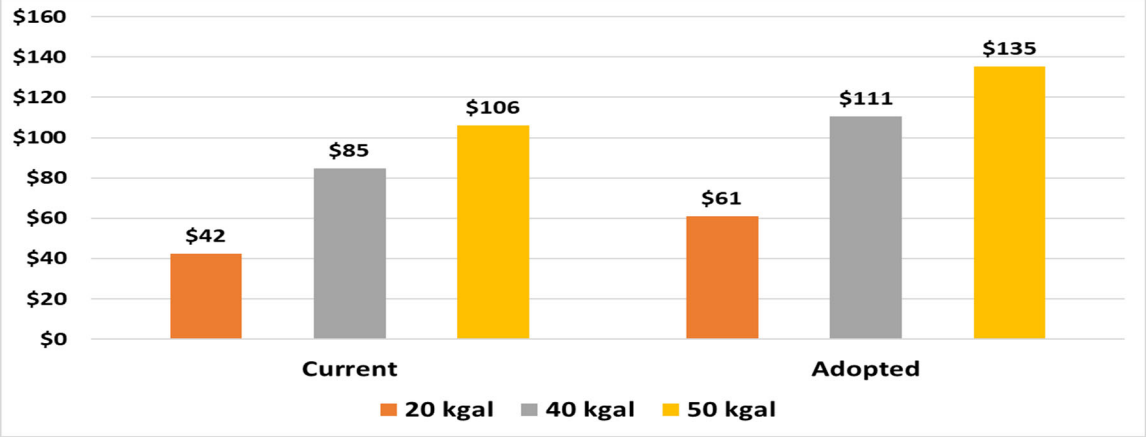
Table 5-6 summarizes current adopted Irrigation-Only customer volume rates.

Table 5-6: Adopted FY 2022 Irrigation-Only Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	Over 2,000	2.12	2.48

Figure 5-6 shows the monthly water bills for three Irrigation-Only customer profiles with a 1-inch meter using 20,000 to 50,000 gallons per month under the current and adopted rates.

Figure 5-6: Monthly Irrigation-Only 1-inch Water Meter Customer Bill Comparison



6. Sewer Cost-of-Service Analysis and Rate Recommendations

6.1. Cost of Service

Raftelis completed a cost-of-service analysis for a 2022 test-year to identify customer, volume, and extra strength costs. Detailed calculations are presented in Appendix G.

6.1.1. REVENUE REQUIREMENTS

The total FY 2022 financial plan revenue requirement of $3.11 million consists of $2.16 million in O&M expenses and $0.95 million in capital costs. These costs are partially offset by $0.40 million from other revenue sources as well as $0.18 million decrease in the cash balance of the operations subfund. Sewer user charges revenues of $2.53 million are required to fund the remaining revenue requirements as summarized in Table 6-1 and detailed on page G-1.

Table 6-1: Sewer Fund Revenue Requirements

Description	FY 2022 Cost of Service
O&M Expenses	$ 2.16 M
Capital Costs	0.95 M
Other Cash (Inflows) / Outflows	(0.40 M)
Increase (Decrease) in Cash Reserves	(0.18 M)
Sewer User Charge Revenues	$ 2.53 M

6.1.2. UNITS OF SERVICE

Service requirements for each class are based on contributed wastewater volume, accounts, metering, and billing requirements. Page G-8 summarizes estimated FY 2022 class units of service.

Wastewater volume consists of two elements: contributed wastewater flow and infiltration/inflow (I/I) from stormwater runoff, snow melt, and/or groundwater that seeps into the wastewater collection and interceptor system. I/I is allocated equally between volume and equivalent meters to reflect that these parameters are dependent on the size of the system and size of pipelines.

Contributed wastewater flow is a portion of the annual water use that enters the sanitary wastewater system. Estimates of the contributed volume are based on annualized AWC water use. Annualized wastewater volumes for each customer classification, adjusted for estimated I/I, are summarized on page G-7; values across all service categories used in the cost-of-service analysis are located on page G-8.

The Town also incurs customer costs related to local wastewater collectors, meters and services, and billing. Local wastewater collection lines are allocated based on the number of equivalent meters using meter capacity. Meters and services costs are based on equivalent meter replacement costs that vary based on water meter size. Billing costs are the same for each bill regardless of service requirements.

6.1.3. ALLOCATION TO COST COMPONENTS

There are three basic wastewater system cost components evaluated: volume, strength, and customer costs. Volume costs are directly related to the quantity of billed wastewater flow. Strength costs include three categories of wastewater strength: BOD, TSS, and TKN. Customer costs include a portion of local collection system costs, meters and services, and customer accounting and billing.

6.1.4. ALLOCATION TO FUNCTIONAL COST COMPONENTS

Various functions or processes are involved in conveying and treating wastewater influent to meet environmental standards that apply to both operating and capital costs. The following functional cost categories were evaluated as part of the sewer cost of service analysis:

- Treatment: includes wastewater treatment plant-related assets
- Interceptor: includes constructed water lines that are 10-inches and greater in diameter
- Collector: includes constructed water lines that are less than 10-inches in diameter
- Meters & Services: includes meter reading costs
- Customer Accounting, Meter, and Billing: includes billing and customer service-related costs

Raftelis grouped existing assets into similar functions for the cost-of-service analysis. The approach included summarizing the original cost of existing sewer system assets by function as well as projected CIP by function added through improvements to a FY 2022 test-year. Page G-15 summarizes existing assets by function and the projected cumulative system improvements by functional designation. The total of the existing system assets and projected CIP as of the FY 2022 test-year is included by functional area on page G-4.

Adjustments to cost of service include a variety of miscellaneous operating revenues and expenditures and capital expenditures (including cash inflows and outflows) as summarized on page G-6.

Page G-9 shows the results of the allocation of revenue requirements to cost components. The cost-of-service process consists of two main steps. The first step allocates revenue requirements to the functional cost components. The second step allocates the functional costs among service characteristics. For example, collection system expense is allocated to volume and customer costs (based on the proportion of interceptors and location of collection lines) because a portion of the local collection lines provide available capacity to customers regardless of wastewater flows. Interceptors, or the system lines that are 10 inches or greater, which convey wastewater effluent to the wastewater treatment plant are allocated based on the volume of wastewater flows.

There are two basic wastewater flow-based components: volume and customer. Volume costs vary with the quantity of wastewater contributed. Customer costs vary in proportion to the number of customer equivalents and monthly bills.

Administration and general expenses are identified with system facilities or activities to the extent possible to simplify the allocation process. Those expenses that are not specifically assigned are allocated in proportion to all other operating expenses.

Once operating and capital facilities are organized by function, the functional costs are allocated among service demand categories based on the service provided. This process is summarized in Appendix G-5 through G-9.

6.1.5. UNIT COST OF SERVICE

Unit cost of service forms the basis for class cost of service and is equal to the net cost of service divided by the applicable units of service in a customer class. The unit cost of service, or unit cost, is based on the proportional demands of all customers. Lines 26 and 27 of page G-9 summarize the FY 2022 test-year units of service and unit costs of service, respectively. Class cost of service is the product of unit cost and class units detailed on pages G-10 and G-11.

Table 6-2 summarizes the cost of service for each customer classification compared to the projected FY 2022 revenues generated at current rates. Overall, the system revenue increases required by FY 2022 total 5.0%. The differences between the cost of service and revenue generated from the current rates provides the indicated adjustments to user charges necessary to achieve cost of service results by FY 2022.

Table 6-2: FY 2022 Cost of Service Compared to Revenue Under Existing Rates

Customer Class	2022 Test-year Cost of Service	2022 Revenue at Existing Rates	Indicated Revenue Increase / (Decrease)
Residential	$567,788	$528,524	7%
Multi-Family	163,330	152,930	7%
Commercial	1,234,087	1,098,407	12%
3 Creek	64,287	91,121	(29%)
Full Service	254,767	270,936	(6%)
Wholesale	156,100	144,180	8%
Septage Haulers	87,516	112,744	(22%)
Total	2,527,875	2,398,572	5%

Residential, Multi-Family Residential, Commercial, and Wholesale Contract customers are paying under their class cost-of-service for the evaluated FY 2022 test-year. Conversely, 3 Creek[4], Full Service contract, and Septage Hauler customers are paying over their class cost-of-service for the evaluated FY 2022 test-year.

6.2. Rate Design

Raftelis and Town staff reviewed various rate design alternatives that achieve the required revenue requirement for the sewer utility. The recommended rates achieve system-wide cost of service rates in FY 2022. Appendix H includes more detailed information related to the recommended rates.

[4] Excludes Capital Replacement Fee.

6.2.1. EXISTING RATES

The existing sewer rate structure includes a monthly service charge that increases by meter size. The Town's rate classes include:

- Residential
- Multi-Family
- Commercial Class I – Class VI
- 3 Creek
- Full Service[5]
- Wholesale Contract[6]

All customers are assessed a volume rate per kgal based on water use during the AWC period. The Town's existing rates vary amongst residential, multi-family, and commercial customer classes. Town rates were last adjusted July 1, 2015.

6.2.2. ADOPTED FY 2022 SEWER RATES

Raftelis worked with Town staff to evaluate rate structure alternatives which recover the cost of providing sewer services from customers. The recommended rates consist of system-wide cost-of-service monthly service charges increasing by meter size with the same volume rate per kgal for all customers in FY 2022.

Raftelis worked with Town staff to develop two sewer rate alternatives based on the existing rate structure. The Town bills water customers monthly. The current rate structure includes a monthly base charge increasing by meter size and a system-wide volume rate per 1,000 gallons of AWC[7] for residential customers and metered water use for all other customers.

The Town maintains a separate rate schedule for 3 Creek that is typically updated annually. All sewer customers outside of 3 Creek pay the same base charges and volume rates today as inside Town.

The following recommendations are integrated within one or more alternatives:

- Incorporate a minimum volume allowance for all customers to provide more guaranteed revenue stream for low volume uses and when accounts are otherwise using little or no water.
- 3 Creek customers to have the same rate structure as in-Town Residential customers, but unit prices are set to recover the cost of service to serve 3 Creek customers as a stand-alone and separate customer classification.
- Begin to rebalance the way costs to serve specific customer classes are recovered to make sure everyone is paying their fair share but do this gradually to avoid rate shock in a single year.
- Update strength-based wastewater rates and assessment approaches to equitably recover the cost of higher strength discharges from excess-strength customers.

[5] Melody Ranch, Rafter J, Teton School, and other.
[6] Wilson, Airport, Gros Ventre, Saddle Butte, and Spring Creek.
[7] The average of monthly metered water use in January through March is the basis for residential customer sewer billings for the other month.

Table 6-3 summarizes different aspects of the existing and alternative rates which include common and differing aspects.

Table 6-3: Wastewater Rate Objectives Matrix Summary

Attribute	Current	Alt. 1	Adopted
System-Wide Rates	**Y**	**Y**	**Y**
Increase Revenue Recovery Via Base Charge	N	Y	Y
Minimum Use Included in Base Charge	**N**	**N**	**Y**
Class Cost of Service Recovery	N	N	N
3 Creek Customer Full Cost Recovery	**Y**	**Y**	**Y**

Raftelis has developed two alternative rates which include varying base charge and/or volume rate structure elements. The two alternatives include:

- Alternative 1:
  - Base charge increasing by meter size without minimum use of 2,000 gallons
  - System-wide volume rate per 1,000 gallons
  - Updated surcharges for excess-strength customers
  - Increased septage hauler rate increased
- Alternative 2 (Adopted):
  - Base charge increasing by meter size with minimum use of 2,000 gallons
  - System-wide volume rate per 1,000 gallons
  - Updated surcharges for excess-strength customers
  - Increased septage hauler rate increase of 9% proposed

Table 6-4 summarizes existing and proposed base rates by meter size. Table 6-5 summarizes FY 2022 volume rates effective July 1, 2021. Rates apply for all sewer customers except 3 Creek.

Table 6-4: Adopted FY 2022 Sewer Base Rates

Meter Size	Current	Adopted
¾-inch and less	$ 7.00	$ 11.55
1-inch	9.80	14.61
1 ½-inch	17.11	23.61
2-inch	25.20	31.64
3-inch	52.76	53.34
4-inch	81.24	81.02
6-inch	153.23	146.34
8-inch	N/A	224.97

Table 6-5: Recommended FY 2022 Residential and Non-Residential Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.27	$ 0.00
Tier 2	Over 2,000	2.27	2.27

Monitored customers are proposed to be assessed the "domestic" rate per kgal plus a surcharge per pound of BOD, TSS, and/or TKN above "domestic" strengths consistent with current rates and surcharges. Excess strength surcharges as calculated to be assessed for the monitored strengths above "domestic" levels by class as detailed in Table 6-6. Raftelis recommends that the Town consider implementing increased BOD and TSS surcharges in FY 2023 delayed due to the large potential impacts to individual customers.

Table 6-6: Calculated FY 2022 Class 2 through Class 6 Volume Rates

Description	Flow	BOD	TSS	Total
Class II	$1.32	$0.87	$1.08	$3.27
Class III	1.32	1.53	2.00	4.85
Class IV	1.32	2.19	2.92	6.43
Class V	1.32	2.84	3.84	8.00
Class VI	1.32	3.50	4.76	9.58

The recommendation reflects the BOD and TSS classification summarized in Section 3 and strengths by customer type detailed in Table 6-7. While Raftelis evaluated TKN within the sewer cost of service analysis, all customers are anticipated to have the same "domestic" strength discharge of TKN and absent a higher than domestic strength for a particular customer, a TKN specific rate element was not proposed as part of this study. The Town should continue to track TKN and consider potential modifications to TKN surcharges or rate components as part of a future rate evaluation and as circumstances warrant.

Table 6-7: MG / L BOD, TSS, and TKN by Customer Type

Description	BOD	TSS	TKN
Residential / Class I	225	150	48
Class II	400	350	48
Class III	700	650	48
Class IV	1,000	950	48
Class V	1,300	1,250	48
Class VI	1,600	1,550	48

Figure 6-1 summarizes monthly residential bills for four customer profiles with a 3/4-inch meter size and billed wastewater volumes of 2,000 to 20,000 gallons under the current and adopted FY 2022 rates.

Figure 6-1: Monthly ¾-Inch Water Meter Customer Sewer Bill Impact

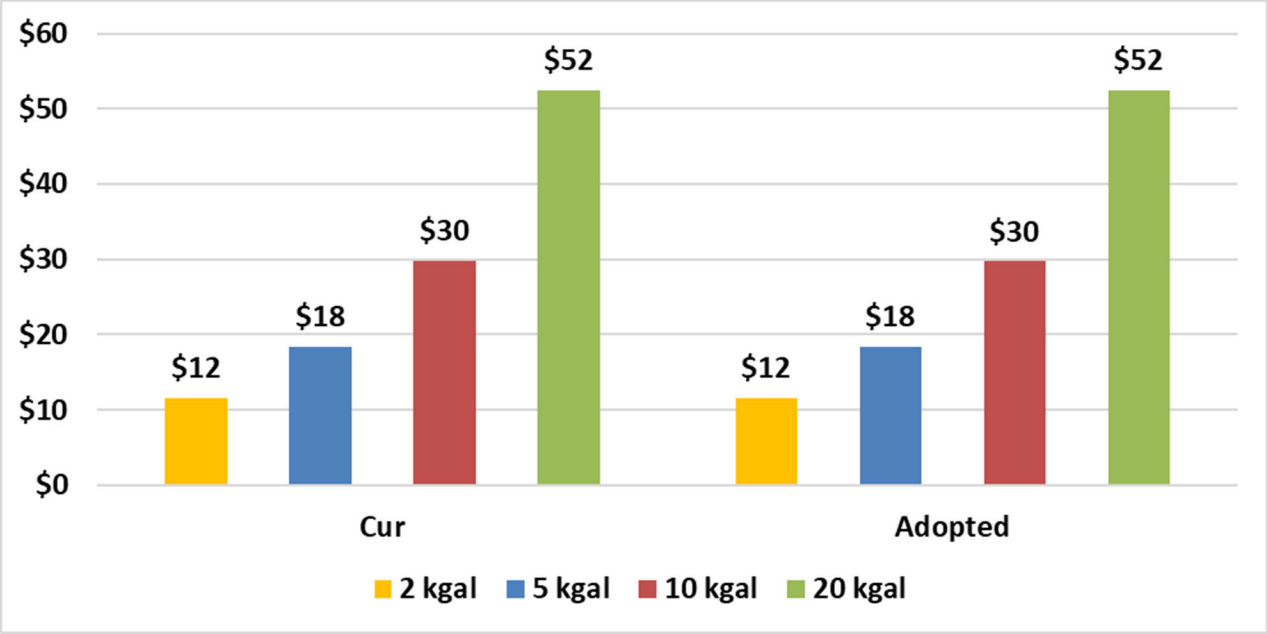
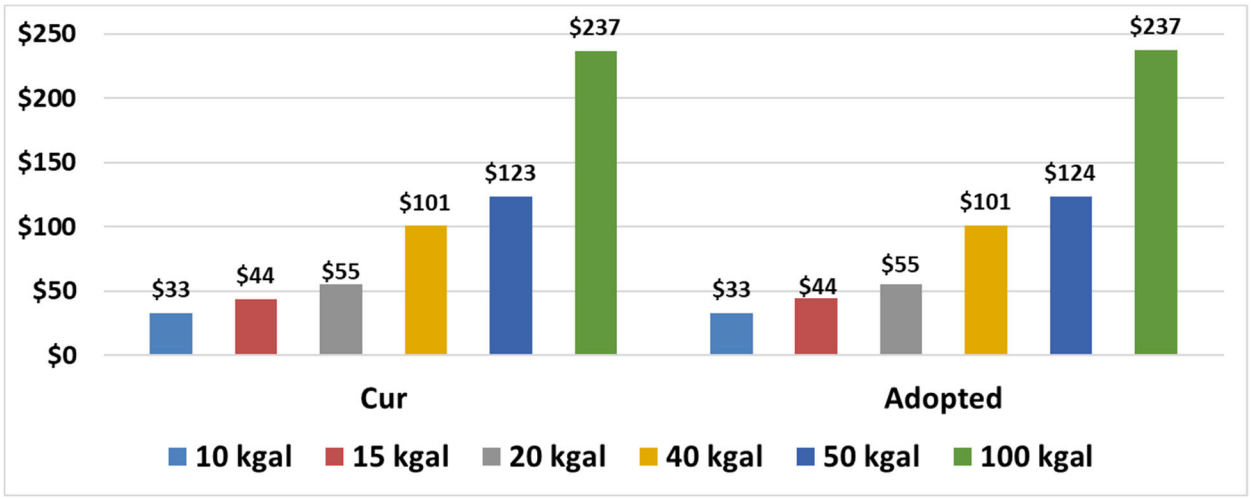


Figure 6-2 summarizes monthly customer bills for six customer profiles with 1-inch water meter and billed wastewater volumes of 10,000 gals. to 100,000 gallons.

Figure 6-2: Monthly 1-Inch Water Meter Customer Sewer Bill Impact



6.3. 3 Creek Rates July 1, 2021

Raftelis worked with Town staff to evaluate the rate structure alternatives and recommend adopting 3 Creek customer rates which mirror the adopted Town rates while recovering the cost-of-service of providing contract retail services to 3 Creek customers. The rates reflect the cost-of-service to provide 3 Creek water and sewer services. 3 Creek customers are sited on large lots and many exert more significant peak usage ratios than Town Residential customers on a per account basis.

Raftelis reviewed the 3 Creek Water and Sewer Capital Replacement Charge detailed in Table 6-8. Raftelis and Town Staff, and 3 Creek representatives met to review preliminary 3 Creek base and volume rates. Following the meeting, the Town and 3 Creek agreed to remove some of the pipelines for purposes of calculating the Capital Replacement Charge as other customers are receiving sewer services. This amount is the "adjustment" reference in Table 6-7. The Town has updated the Capital Replacement Charge annually since 2007. The charge is calculated as the annual replacement value per 3 Creek lot and is assessed in addition to the 3 Creek base charge.

Table 6-8: 3 Creek FY 2022 Capital Replacement Charge Calculation

Description	Water	Sewer	Total
3 Creek Infrastructure	$1.84 M	$1.80 M	$3.64 M
ENR-CCI Ratio 2020/2007	1.43	1.43	1.43
Replacement Cost	2.63 M	1.69 M	5.20 M
Adjustment	(0.81 M)	(0.88 M)	(1.70 M)
Subtotal	$1.82 M	$1.69 M	$3.50 M
Use Full Life - Years	60	60	
Annual Replacement Cost	$30,273	$28,117	
Lots at Build-Out	142	142	
Capital Replacement Fee	$17.77	$16.50	$34.27
Current	$24.56	$24.01	$48.57
Change - $	($6.79)	($7.51)	($14.30)
Change - %	(38%)	(46%)	(42%)

The adopted 3 Creek rates maintain the existing monthly base rates increasing by meter size. 3 Creek customers are assessed an additional Capital Replacement Charge for 3 Creek only infrastructure and this additional charge is proposed to be decreased. The adopted rates include different volumetric rate by customer classes for Residential, Commercial, and Irrigation-Only which more fairly recover additional costs from customers with larger outdoor water use. Tables 6-9, 6-10, 6-11, and 6-12 present the current water rates compared to the recommended adopted rates which are proposed to go into effect July 1, 2021. Separate Commercial and Irrigation-Only customer volume rates reflect a minimum allowance of 2,000 gallons per account and varying uniform volume rates for use over 2,000 gallons. Commercial includes Multi-Family Residential and all Non-Residential customer classes (e.g., Commercial, School, and Government).

Appendix H contains additional detail related to the recommended 3 Creek rates.

Table 6-9: Adopted FY 2022 3 Creek Water Base and Capital Replacement Charge

Meter Size	Current Base	Current Cap. Rep.	Current Total	Adopted Base	Adopted Cap. Rep.	Adopted Total
¾-inch and less	$ 118.97	$24.56	$ 143.53	$ 13.56	$17.77	$31.33
1-inch	118.97	24.56	143.53	20.16	17.77	37.93
1 ½-inch	118.97	24.56	143.53	35.18	17.77	52.95
2-inch	118.97	24.56	143.53	53.76	17.77	71.53
3-inch	118.97	24.56	143.53	106.50	17.77	124.27
4-inch	118.97	24.56	143.53	163.52	17.77	181.29
6-inch	118.97	24.56	143.53	320.09	17.77	337.86

Table 6-10: Adopted FY 2022 Residential 3 Creek Volume Water Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.11	$ 0.00
Tier 2	2,001 – 6,000	1.11	2.02
Tier 3	6,001 – 25,000	1.11	4.04
Tier 4	Over 25,000	1.11	6.06

Table 6-11: Adopted FY 2022 Commercial 3 Creek Volume Water Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.11	$ 0.00
Tier 2	Over 2,000	1.11	2.02

Table 6-12: Adopted FY 2022 3 Creek Irrigation-Only Volume Water Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$2.12	$ 0.00
Tier 2	2,001 – 25,000	2.12	4.04
Tier 3	Over 25,000	2.12	6.06

Table 6-13 summarizes existing and adopted 3 Creek sewer base and Capital Replacement Charges by meter size. Table 6-14 summarizes the FY 2022 3 Creek sewer volume rates effective July 1, 2021, which are the same as other volume rates.

Table 6-13: Adopted FY 2022 3 Creek Sewer Base and Capital Replacement Charges

Meter Size	Current Base	Current Cap. Rep.	Current Total	Adopted Base	Adopted Cap. Rep.	Adopted Total
¾-inch and less	$ 70.71	$24.01	$ 94.72	$ 17.75	$16.50	$34.25
1-inch	70.71	24.01	94.72	22.45	16.50	38.95
1 ½-inch	70.71	24.01	94.72	36.28	16.50	52.78
2-inch	70.71	24.01	94.72	48.62	16.50	65.12
3-inch	70.71	24.01	94.72	81.97	16.50	98.47
4-inch	70.71	24.01	94.72	124.51	16.50	141.01
6-inch	70.71	24.01	94.72	224.89	16.50	241.39
8-inch	N/A	N/A	N/A	345.73	16.50	362.23

Table 6-14: Adopted FY 2022 Commercial 3 Creek Sewer Volume Rates

Description	Water Allocation	Current	Adopted
Tier 1	0 – 2,000	$1.88	$ 0.00
Tier 2	Over 2,000	1.88	2.27

7. Rate Survey Comparisons

Raftelis completed a survey of comparable resort utilities to compare to the Town's current and adopted monthly bills using 5,000 gallons per month for water and billed wastewater. Figure 7-1 shows a typical monthly under the current and adopted July 1, 2021, rates compared to the survey group. Figure 7-2 shows the monthly bill for a commercial customer with a 1-inch water meter using 12,000 gallons per month water and 5,000 gallons per month billed wastewater under the current rates and adopted July 1, 2021, rates compared to the survey group.

Figure 7-1: Residential Monthly Water Bill Survey

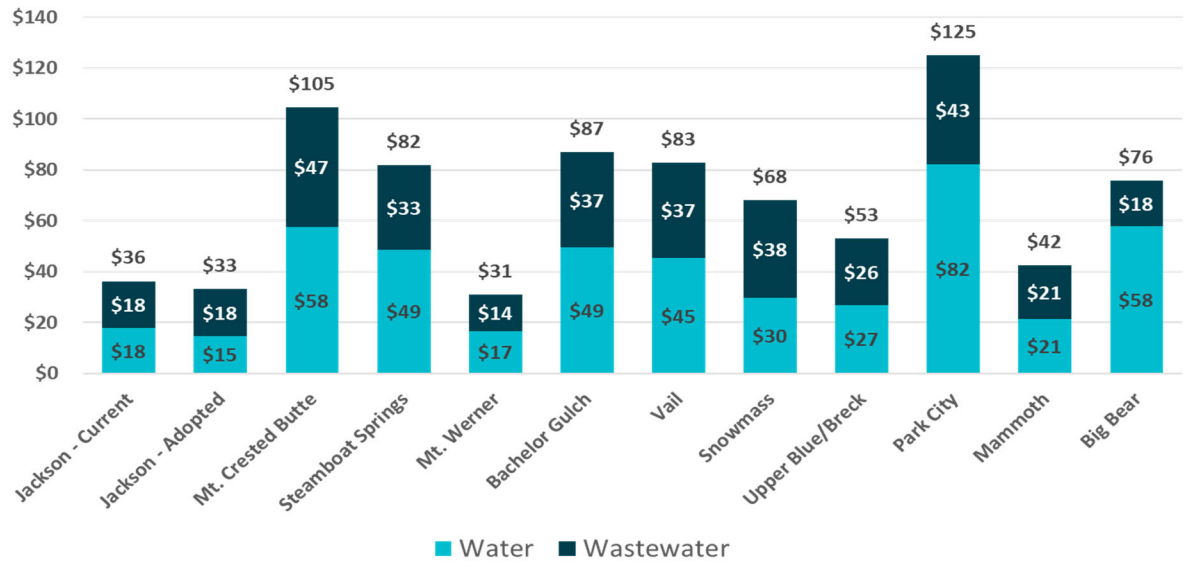
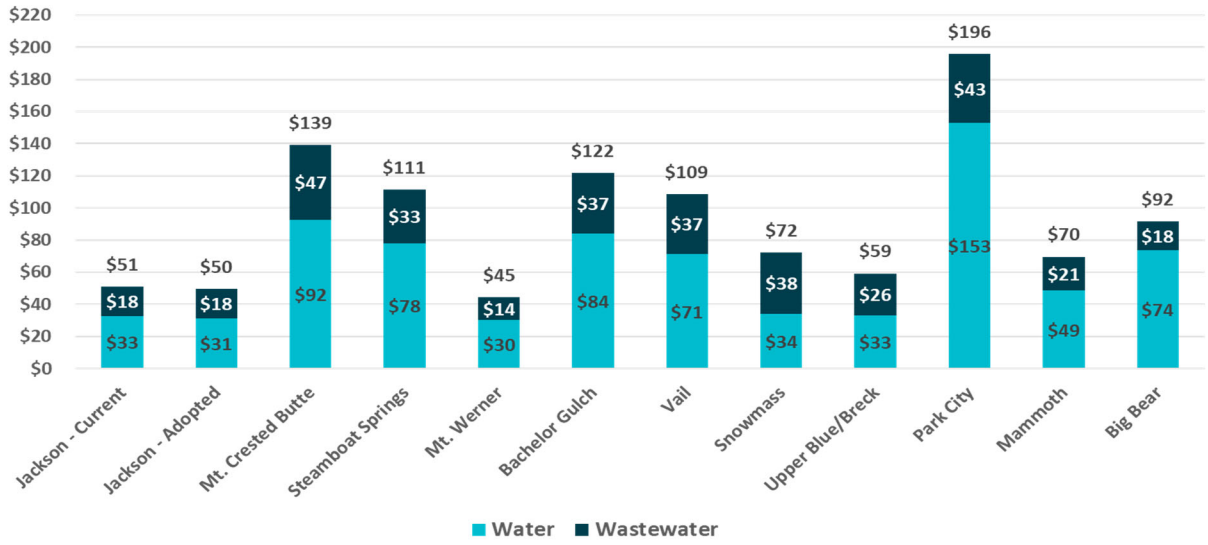


Figure 7-2: Commercial 1-inch Meter Monthly Water Bill Survey



8. Capacity Fees

8.1. Capacity Fee Description

The primary funding sources used by water utilities to pay for required CIP expenditures are operating revenues from water rates and capacity fee receipts. In growing communities such as the Town, capacity fee receipts can provide a significant portion of required CIP funding and/or debt repayment of external debt financing providing upfront funding. As a result, the determination of capacity fees and the projection of the future capacity fee receipts is a critical part of the financial planning process discussed in Section 4 of this Report.

Capacity fees are also referred to as system development charges, plant investment fees, capacity fees, tap fees, and a variety of other terms. As described in the AWWA M1, these fees compensate a community for the cost of acquiring, constructing, and extending infrastructure to support new development:

> "A system development charge (SDC) is a one-time charge paid by a new water system customer for system capacity. It is also assessed to existing customers requiring increased system capacity. The receipts from this charge are used to finance the development of capacity-related water facilities and are an important funding/financing source for growth-related or capacity-related water facilities."

There are several legal standards that define the design and application of capacity fees. For example, capacity fees cannot pay for O&M expenses but may fund capital and repay debt service obligations. There must also be a rational nexus between the capacity fees paid by new development and the costs such fees are used to pay for. This means that capacity fee receipts are dedicated for infrastructure expansion required by new development. In addition, capacity fees must be proportional to a new development's share of growth-related infrastructure costs.

8.2. Calculation Methodologies

The three primary industry accepted methodologies for calculating water capacity fees are the Equity Buy-In, Incremental Cost, and Hybrid or Combined approaches. Depending on the unique circumstances of the utility in question, the use of one or more of these approaches results in a conceptually defensible and fundamentally equitable method for recovering the cost of system capacity additions required to serve new development. Not only can different methods be used between utilities of the same entity, but different methods can be used within the same utility. For example, in the case of the Town, depending on the circumstances it would be appropriate to use different methods for the water infrastructure versus sewer infrastructure.

8.2.1. BUY-IN METHODOLOGY

The buy-in method is typically used by utility systems with existing available capacity to meet the long-term demands imposed by new development. This method estimates the value of a unit of system capacity based upon customer equity in existing capacity-related assets. Thus, the resulting capacity fee reflects the

proportional cost of new customer's share of existing system capacity. Under the buy-in method, the cost of existing capacity-related facilities is generally estimated using based on current replacement cost. However, some utilities, depending on their unique circumstances, choose to value existing capacity-related assets at original cost, net book value, or replacement cost less depreciation.

8.2.2. INCREMENTAL COST METHODOLOGY

The incremental cost method focuses on the cost of the additional capacity-related assets required to serve new customers. The incremental cost method is most appropriate for utility systems that do not have existing available capacity to serve growth. The resulting capacity fee reflects the proportional cost of each new customer's share of future system capacity. As such, the incremental cost method is most appropriately used when a utility has a well-defined capital improvement program or utility master plan.

8.2.3. HYBRID METHODOLOGY

In addition to the equity buy-in and incremental cost methods, it is also common for many water utilities to use a combination of these two approaches. This combined "hybrid" approach is often used when a utility has some existing system capacity to accommodate growth but will also be required to construct additional new capacity in the future. For example, assume that a water utility has adequate treatment capacity to accommodate long-term demand growth but that it has a shortage of backbone transmission main and pumping capacity. In such a situation, it may be appropriate to utilize the equity buy-in method to calculate that portion of the capacity fees associated with existing facilities and the incremental cost method to calculate that portion of the capacity fees related to planned capacity additions.

8.2.4. STEPS IN THE WATER CAPACITY FEE CALCULATION PROCESS

Calculating a capacity fee requires a multi-step process which begins with the valuation of capacity-related facilities. The second step in the capacity fee calculation process is to determine the appropriate units of capacity to use in the calculation. In many cases, the fundamental unit of capacity is defined as single family residential maximum day or annual average day water demand. This is the approach used by Raftelis to calculate the Town's capacity fees.

The third step in the capacity fee calculation process is to determine the unit cost of capacity. This is achieved by dividing capacity-related costs by the appropriate units of capacity. Finally, an assessment schedule is developed to reflect the demand relationships between various types of customers, land uses and meter sizes. Table 8-1 summarizes these steps for each capacity fee calculation methodology.

Table 8-1: Steps in the Water Capacity fee Calculation Process

Step	Buy-In	Incremental Cost	Hybrid
#1: Asset Valuation	Estimate value of existing assets	Estimate value of future growth-related asset additions	Estimate value of existing assets and future growth-related asset additions
#2: Units of Capacity	Determine units of existing capacity	Estimate future capacity unit additions	Determine existing units of capacity and future capacity unit additions
#3: Unit Cost of Capacity	Calculate unit cost of existing capacity	Calculate unit cost of incremental capacity additions	Calculate unit cost of combined existing and future capacity additions
#4: Assessment Schedule	Determine the capacity fee assessment schedule		

8.3. Capacity Fee Recommendation

Raftelis calculated the unit cost of water infrastructure and resources for recovery from the water capacity fee using all three industry standard calculation methodologies. Our recommendation is that the Town base the water infrastructure component of the capacity fee on the hybrid methodology and the sewer fee using the buy-in methodology. The Town has anticipated expansionary water capital improvements of $3.95 million over the Study Period in addition to available capacity within existing water infrastructure. Conversely, the wastewater utility has sufficient capacity to serve anticipated development over the Study Period with existing infrastructure. The approaches result in the maximum supportable contribution to reimburse current customers for the cost of capacity-related infrastructure.

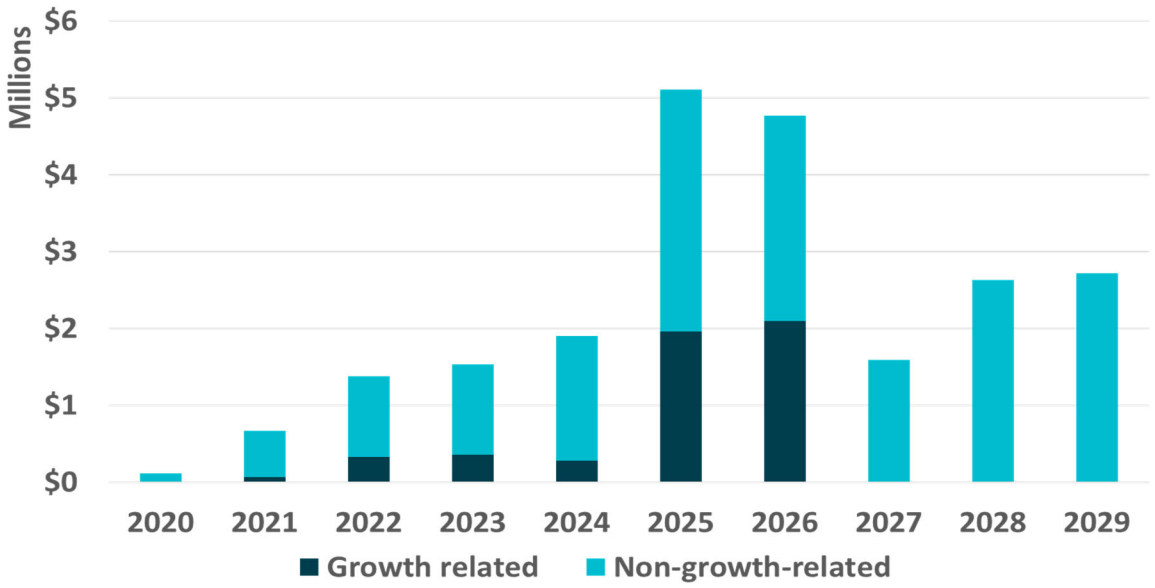
Our recommendations are also consistent with input collected from the Town of Jackson's CRC. To summarize guidance provided by this group of stakeholders representing a diverse set of community perspectives, capacity fees should:

- Adequately recover costs that development places on the utility systems
- Account for redevelopment of properties where square footage (and thus impact) increases while meter size remains the same
- Not disincentivize the development of affordable housing

The Buy-In value of the existing wastewater system represents the replacement cost new (RCN) of the water system components. This RCN is determined by escalating original facility asset values based on the Engineering New Record – Construction Cost Index (ENR-CCI). The value of minor assets, miscellaneous improvements and older assets that are reserved were contributed by developers, or were contributed by other parties, are excluded from the Buy-In value of facilities available to serve new ERUs. By including the RCN of the water facilities available to serve new ERUs, the City can use water capacity fee revenues to pay annual payments on, or retire debt issued to fund the existing portion water facilities.

Town and Nelson Engineering Staff developed the multi-year CIP and prioritized capital improvements. The growth-related water facilities include 50% of Well 9 and the Zone 3 Water Storage Tank. Figure 8-1 shows annual improvements by year over the Study Period.

Figure 8-1: FY 2020 through FY 2029 Growth and Non-Growth Related Water CIP



8.4. Water Capacity Fees

Raftelis calculated maximum supportable water capacity fees per ERU. Table 8-2 summarizes the maximum supportable water capacity fee of $2,793 per ERU. The current water capacity fee, at $690 for new connections with a ¾-inch water meter. The existing water capacity fee has not been substantially updated in many years and does not reflect the impact new users place on the water system.

Table 8-2: Maximum Supportable Water Capacity Fee Calculation

Description	Calculation
Water System RCN (1)	$95.23 M
Distribution System RCN (1) (2)	(31.71M)
Growth-Related Capital FY 2020 – FY 2029	3.95 M
Net Present Value of Future Interest	1.93 M
Total for Capacity Fee Calculation	$69.41 M
Total for Capacity Fee Calculation	$69.41 M
Treatment Capacity – MGD	15.26 M
Unit Cost of Capacity - $ / gal.	$4.52
Unit Cost of Capacity - $ / gal.	$ 4.52
Peak Day Design Capacity – gal / ERU	X 617
Capacity Fee per ERU	$2,793

(1) Per Nelson Engineering estimates provided in May 2020.
(2) Excludes 8-inch and smaller distribution system pipelines.
(3) FY 2019 Water Use per ERU.

Raftelis developed two alternative water capacity assessment alternatives as follows:

- Alternative 1
  - Maintains meter size-based fees for all customers and adjusts the fees to the maximum supportable fee of $2,793 for a ¾-inch customer.
  - Fees increase by meter size using proposed capacity ratios by meter size per AWWA M18.
- Alternative 2 (adopted)
  - Establishes a separate assessment schedule for residential (including multi-family) and all other customer types.
  - Residential assessment includes:
  - Fee based on the number of bedrooms through 3 bedrooms and an incremental fee per bedroom for each additional bedroom
  - Fee based on the Land Development Regulation (LDR) Landscape Ratio (LSR), representing the cost per square foot of landscaped square feet.
- Non-residential and irrigation-only customer assessment of fees by meter size as summarized in Table 8-3

Table 8-3 summarizes the existing water capacity fee compared to the alternative 1 capacity fee assessment schedule – both by meter size. The same capacity fees are proposed for non-residential developments under Alternative 2.

[8] Flow in gallons per minute is based on meter capacity standards published in the American Water Works Association (AWWA) Manual M1, Principles of Water Rates, Fees, and Charges, 7th Edition.

Table 8-3: Current and Adopted FY 2022 Non-Residential and Irrigation-Only Water Capacity Fee by Meter Size

Meter Size	Current	Adopted
3/4-inch	$690	$2,793
1-inch	1,227	4,664
1 ½-inch	2,761	9,301
2-inch	4,909	14,887
3-inch	11,044	29,801
4-inch	19,633	46,559
6-inch	44,176	93,091
8-inch	N/A	148,951

For residential and multi-family customers, the adopted assessment is intended to correct an apparent disparity within the current meter sized based fee assessment. The adopted assessment approach will:

- Enable the Town to fully recover costs development places on the water system
- Provide more scalable fees and resulting impacts to the range of bedroom (and related housing sizes) resulting from new development and redevelopment.

Separating indoor and outdoor water use requirements will also enable the Town to assess capacity fees separately for the two main drivers of residential water use (people and landscaping), but as separately assessed rather than combined within the requirements sizing the meter.

In developing the modified capacity fee structure, Raftelis, Nelson Engineering and Town staff evaluated indoor water use for different bedrooms as the basis for the residential indoor fees by type and per bedroom.

- Irrigation-only water use reflects efficient irrigation systems and resulting water use per day in the peak period per irrigated square foot[9].
- The indoor portion of the assessment schedules reflect peak water demands per bedroom.
- The outdoor portion of reflects peak irrigation season water use per square foot of landscaped area for all residential and irrigation-only customers.
    - Landscaped areas reflect the greater of the
        - Minimum LDR LSR requirements, or
        - Actual landscaped areas.

Table 8-4 summarizes the Alternative 2 (adopted) residential water capacity fee assessment schedule. A 3 bedroom is assessed the same fee as ¾-inch meter and is considered one ERU.

[9] Annual irrigation requirements developed using *Guidelines for Estimating Unmetered Landscaping Water Use*, Federal Energy Management Program, USDOE, July 2010. Peak period monthly irrigation use is assumed to be 20% of annual requirement.

Table 8-4: Adopted FY 2022 Residential and Landscaped Area Water Capacity Fee Assessment

Type	GPD (1)	$ / GPD	Adopted Fee
1 Bedroom	140	$4.52	$633
2 Bedroom	210	4.52	949
3 Bedroom	280	4.52	1,265
Each Add' l Bedroom (1)	70 / BR	4.52	316
Per 1,000 Sq. Ft. of Landscaped Area (2)			365

(1) GPD or gallon per day. Per Nelson Engineering staff including kitchen, bathroom, and laundry.
(2) Assumes 10 gallons per year per sq. ft. of irrigable area with 25% in peak-month or 0.08 gallons per day applied to the $4.52 per gallon per day.

8.5. Wastewater Capacity fees

Raftelis worked with Town staff to update the Sewer Capacity Fee as well as evaluate the assessment schedule. Raftelis calculated maximum supportable Wastewater Capacity Fee per ¾-inch wastewater meter ERU. Table 8-5 summarizes the maximum supportable Wastewater Capacity Fee of $4,547 per ERU. The current Wastewater Capacity Fee is $2,172 per residential dwelling unit with 2 or more bedrooms. The existing sewer capacity fee has not been substantially updated in many years and does not reflect the impact new users place on the sewer system.

Table 8-5: Maximum Supportable Wastewater Fee Calculation

Description	Calculation
Wastewater System RCN (1)	$113.97 M
Collection System RCN (1) (2)	(32.09M)
Total for Capacity Fee Calculation	$81.20 M
Total for Capacity Fee Calculation	$81.20 M
Treatment Capacity – MGD (1)	5.00
Unit Cost of Capacity - $ / gal.	$16.24
Unit Cost of Capacity - $ / gal.	$ 16.24
Peak Day Design Capacity – gal / ERU (3)	X 280
Capacity Fee per ERU	$4,547

(1) Per Nelson Engineering estimates provided in May 2020.
(2) Excludes 8-inch and smaller distribution system pipelines.
(3) Indoor water use Per ERU or 3-bedroom residential unit .

Raftelis developed two alternative wastewater capacity fee assessment alternatives as follows:

- Alternative 1
    - Maintains existing assessment categories and updates the anticipated gallon per day use in the peak day; applies the updated unit cost of $16.24 per gallon per day of wastewater facility capacity.
    - 2 bedroom and greater per dwelling unit updated
    - Apartment and 1-bedroom unit fees with and without laundry per dwelling unit updated.
- Alternative 2 (adopted)
    - Establishes a separate assessment schedule for residential (including multi-family).
    - Residential assessment includes fee based on the number of bedrooms through 3 bedrooms and an incremental fee for each additional bedroom
    - Non-residential assessment of fees same as Alternative 1

Table 8-6 summarizes the existing wastewater capacity fees and assessment criteria by development type. The assumed gallon per day (GPD) by type reflects a review of assessment categories updating previously assumed water use and for many categories, the expected use per day has been modified. The previous assumptions have been in place for several years. As previously discussed, the differences between Alternatives 1 and 2 are entirely for residential and multi-family residential customers and are proposed to be solely based on the number of bedrooms regardless of the type of residential unit.

In developing the adopted capacity fees, Raftelis, Nelson Engineering and Town staff evaluated indoor water use for different residential and non-residential land uses. Note that there are additional categories proposed where an existing category does not exist.

Table 8-6: Adopted FY 2022 and Current Wastewater Capacity Fee Assessment Schedule

Description	GPD	Assessment	Current	Adopted
Apartment, Studio or 1 BR	**140**	**Per Unit**	**$1,088**	**$2,274**
Residential Unit (2BR)	**210**	**Per Unit**	**2,172**	**3,410**
Residential Unit (3BR)	**280**	**Per Unit**	**2,172**	**4,547**
Residential Unit Each Additional BR	**70**	**Per Add' l BR**	**N/A**	**316**
Unfinished Habitable Space	70	Per 400 sq. ft.	**N/A**	**N/A**
Bars, Tavern and Lounge (no food)	20	Per 15 sq. ft.	297	325
Restaurants (full service)	64	Per Seat (1)	399	1,039
Restaurants (paper service only – no dishes)	50	Per 100 sq. ft.	N/A	812
Restaurants (single service)	30	Per Seat (1)	N/A	487
Caterers	80	Per 100 sq. ft.	N/A	1,299
Motels and Hotels	140	Per Room	985	2,274
Bed and Breakfast	140	Per Room	1,116	2,274
Assembly (no food)	3	Per 5 sq. ft. Net	24	49
Assembly (w/ food)	5	Per 15 sq. ft. Net	36	81
RV Parks (w ind. Sewer hookups)	100	Per Site	493	1,624
Camps, Parks, Campgrounds (w/ comfort station)	75	Per Site	369	1,218
Mobile Home Park	210	Per Site	2,174	3,410
Laundry (self service)	450	Per Machine	1,486	7,308
Laundry (commercial 100#pp capacity)	1,000	Min./Machine	5,435	16,240
Breweries (per annual production 1 barrel is 31 gals.	20	Per Gal. Ann. Capacity	ICB	325
Fitness (Gyms, Dance Studies, Yoga, Karate)	50	Per 100 sq. ft.	N/A	812
Medical Offices and Dentists	250	Per Practitioner	614	4,060
Veterinary Offices (not including boarding)	250	Per Practitioner	N/A	4,060
Animal Boarding	20	Per Cage	N/A	325
Offices	15	Per Employee	147	244
Retail Stores	5	Per 1,000 sq. ft.	24	81
Unfinished Commercial Space	5	Per 1,000 sq. ft.	N/A	81
Public Access Restrooms	325	Per Fixture		5,278
Service Stations	220	Per Pump	1,088	3,573
Car Washes	1,000	Per Bay	4,927	16,240
Public Spas, Pools or Hot Tubs (Per kgal capacity)	10	Per 50 sq. ft. Gross	N/A	162
Schools (w/ Cafeteria, Gym, and Showers)	20	Per Student	98	325
Schools (w/ Cafeteria, No Gym)	15	Per Student	N/A	244
Schools (without Cafeteria and Gym)	10	Per Student	N/A	162
Day Care and Pre School	20	Per Student	98	325
Others Not Listed Wastewater Service		Avg. Max GPD x $16.24		

(1) 15 square feet per seat net anticipated for full service or single service restaurants.

8.6. Capacity Fee Customer Impacts

Raftelis completed a variety of capacity fee impacts comparing the adopted to the current fees.

Tables 8-7 and 8-8 summarize residential water and wastewater capacity fees under current and adopted fees by customer profile. Residential customer profiles include:

- Home A: 3-bedroom, 7,500 sq. ft. lot, 60% LSR, and ¾-inch water meter.
- Home B: 4-bedroom, 12,500 sq. ft. lot, 60% LSR, and 1-inch water meter.
- Home C: 5-bedroom, 15,000 sq. ft. lot, 60% LSR, and 1-inch water meter.
- Home D: 2-bedroom, 5,000 sq. ft. lot, 60% LSR, and ¾-inch water meter.

Table 8-7: Example Residential Water Capacity Fees by Customer Profile

Type	Current	Indoor	Outdoor	Adopted
Home A	$ 690	$1,266	$1,640	$2,906
Home B	1,227	1,582	2,734	4,316
Home C	1,227	1,898	3,281	5,179
Home D	690	949	1,094	2,043

Table 8-8: Example Residential Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
Home A	$ 2,172	$4,547
Home B	2,172	4,547
Home C	2,172	4,547
Home D	2,172	4,547

Tables 8-9 and 8-10 summarize Multi-Family Residential water and wastewater capacity fees under current and adopted fees by customer profile. Multi-Family Residential development profiles include:

- MF A: 7, 1-bedroom unit, 2,000 sq. ft. irrigable, and 1-inch water meter.
- MF B:13, 1-bedroom units, 5,000 sq. ft. irrigable, and 1 ½-inch water meter.

Table 8-9: Example Multi-Family Residential Water Capacity Fees by Customer Profile

Type	Current	Indoor	Outdoor	Adopted
MF A	$ 1,227	$4,430	$730	$5,160
MF B	2,761	8,229	1,825	10,054

Table 8-10: Example Multi-Family Residential Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
MF A	$7,616	$21,160
MF B	14,144	45,940

Tables 8-11 and 8-12 summarize Office and Retail customer water and wastewater capacity fees under current and adopted fees by customer profile. The following profiles were used for commercial connections:

- Office space: 50 employees and 1-inch water meter.
- Retail store: 10,000 sq. ft indoor and 1-inch water meter.

Table 8-11: Example Office and Retail Water Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$1,227	$4,664
Retail	1,227	4,664

Table 8-12: Example Office and Retail Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$7,350	$12,200
Retail	1,470	2,440

Tables 8-13 and 8-14 summarize Restaurant customer water and wastewater capacity fees under current and adopted fees by customer profile. The following profiles were used for restaurant connections:

- Restaurant A: 2,000 sq. ft indoor and 1-inch water meter.
- Restaurant B: 4,000 sq. ft indoor and 1 ½-inch water meter.

Table 8-13: Example Restaurant Water Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$1,227	$4,664
Retail	2,761	9,301

Table 8-14: Example Restaurant Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$53,200	$138,533
Retail	106,400	277,067

Tables 8-15 and 8-16 summarize Lodging customer water and wastewater capacity fees under current and adopted fees by customer profile. The following profiles were used for lodging connections:

- Lodging A: 15 rooms and 1 ½-inch water meter. Excludes separately calculated components of water and sewer capacity fees associated with laundry, pools, spas and/or restaurants.
- Lodging B: 30 rooms and 2-inch water meter. Excludes separately calculated components of water and sewer capacity fees associated with laundry, pools, spas and/or restaurants.

Table 8-15: Example Lodging Water Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$2,761	$9,301
Retail	4,909	14,887

Table 8-16: Example Lodging Wastewater Capacity Fees by Customer Profile

Type	Current	Adopted
Office	$14,775	$31,110
Retail	29,550	68,220

Table 8-17 summarizes Irrigation-Only customer water and wastewater capacity fee under current and adopted fees for a single customer profile. Fee comparison reflects an Irrigation-Only connection assuming 20,000 sq. ft. irrigable area and a 1 ½-inch water meter.

Table 8-17: Example Irrigation-Only Water Capacity Fees by Customer Profile

Type	Current	Adopted
Home A	$2,761	$9,301

9. Capacity Fee Survey Comparison

Figure 9-1 shows the results of a survey Raftelis completed of comparable ski resort to compare to the Town's current and adopted water and wastewater capacity fees of "House A". House A includes 3 bedrooms, 2 bathrooms, 2,000 sq. ft. home, and a 4,500 sq. ft. irrigable area as part of a 7,500 sq. ft. lot. Figure 9-2 shows the results of the same survey group comparing water capacity fees to "House B". House B includes 4 bedrooms, 3 bathrooms, 3,000 sq. ft. home, and a 7,500 sq. ft. irrigable area as part of a 12,500 sq. ft. lot.

Figure 9-1: Residential Capacity Fee Survey House A

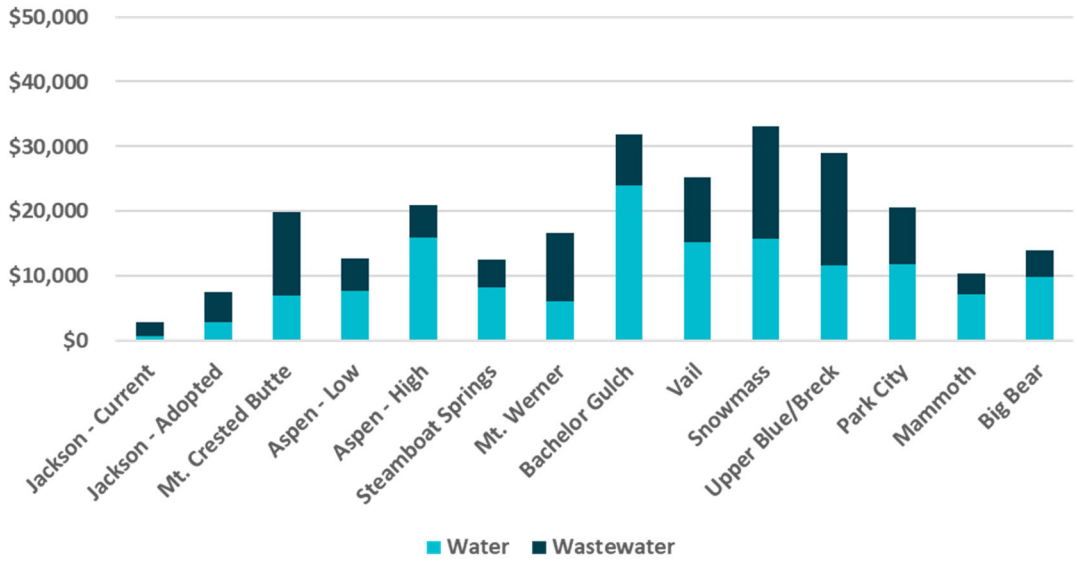
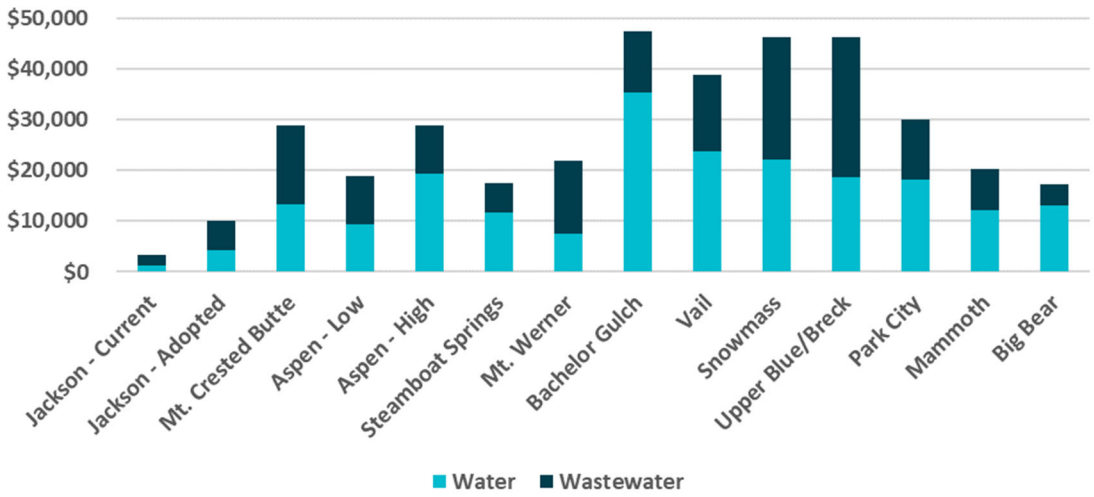


Figure 9-2: Residential Capacity Fee Survey House B



APPENDIX A:

WATER FUND FINANCIAL PLAN

APPENDIX B:

WATER CAPACITY FEE CALCULATIONS

Town of Jackson, WY | **FILE:** | **JAWY_W**
Water and Sewer Financial Plan and Rate Study | **SCHEDULE:** | **W_Cap_Fee**
Water Capacity Fee Calculation

Description	RCN
Total System Replacement Cost (1)	$95,232,915
Less: Distribution System (2)	($31,707,945)
Plus: NPV of Existing Borrowing Cost	0
Growth Related CIP FY 2020 - 2029	3,949,300
Plus: NPV of Future Borrowing Cost	1,931,438
Total Cost for Capacity Fee Calculation	$69,405,708
Total Treatment Capacity (MGD) (3)	15.34
Water System Unit Cost of Capacity (gpd)	$4.52
Residential Customer Peak Water Use (GPD) (4)	617
Value per 3/4" Equivalent Meter	$2,793
Current Fee per 3/4" Equivalent Meter	**690**
Difference - $	$2,103
Difference - %	304.84%

(1) RCN is the water system inventory and replacement cost per unit per Nelson Engineering May 2020.
(2) Excludes 8-inch and smaller collection system pipelines.
(3) Per Nelson Engineering, 11.74 MGD (Current) and 3.60 MGD (Future) capacity.
(4) August 2018 Residential customer use per ERU.

Town of Jackson, WY **FILE: JAWY_W**
Water and Sewer Financial Plan and Rate Study **SCHEDULE: W_RCNAssets**
Water Assets as of 6/30/2019 (From Nelson Engineering)

Line No	Item	Quantity	Unit	Unit Cost	Replacement Cost New
1	4" DIP Water Main	10,969	Linear Foot	$125.00	$1,371,125
2	6" DIP Water Main	47,666	Linear Foot	150.00	7,149,900
3	8" DIP Water Main	115,398	Linear Foot	200.93	23,186,920
4	10" DIP Water Main	21,566	Linear Foot	255.07	5,500,900
5	12" DIP Water Main	100,104	Linear Foot	310.42	31,074,164
6	14" DIP Water Main	11,385	Linear Foot	329.67	3,753,288
7	16" DIP Water Main	3,045	Linear Foot	385.02	1,172,372
8	18" DIP Water Main	0	Linear Foot	454.80	0
9	Fire Hydrant	385	Hydrant	10,251.23	3,946,722
10	Air Valve / PRV Vault	11	Vault	8,450.00	92,950
11	Well #1		Each		1,135,000
12	Well #2		Each		1,135,000
13	Well #3		Each		1,135,000
14	Well #5		Each		1,121,000
15	Well #6		Each		1,127,000
16	Well #7		Each		1,127,000
17	Well #8		Each		1,127,000
18	Broadway Pump Station		Each		446,107
19	Spruce Dr. Pump Station		Each		334,580
20	Snow King Estates Pump Station		Each		356,886
21	Snow King Estates Tank		Each		540,000
22	Elk Refuge Tank		Each		3,900,000
23	Virginian Tank		Each		4,500,000
24	**Total**				**$95,232,915**

Water Capital Projects - CIP 2 — **Before Inflation**

Line No	Description	Function	Growth	Non-Growth	Funding Source	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
1	N. King Street Water Design	1	0%	100%	Cash	$11,900										$11,900
2	High School/South Park PRV Design	4	0%	100%	Cash	9,700										9,700
3	Well #7	2	0%	100%	Cash	75,000										75,000
4	Rancher Street Water Design	6	0%	100%	Cash		44,400									44,400
5	Well #9 Design	2	50%	50%	Cash		100,000									100,000
6	Flat Creek South Water Replacement Design	6	0%	100%	Cash		26,400									26,400
7	N. King Street Water Construction	6	0%	100%	Cash		33,638									33,638
8	High School/South Park PRV Construction	6	0%	100%	Cash		130,000									130,000
9	Zone 3 Tank and Supply Study	3	50%	50%	Cash		100,000									100,000
10	Gregory Lane Water Replacement Design	6	0%	100%	Cash			74,000								74,000
11	Rancher Street Water Construction	6	0%	100%	Cash			270,250	270,250							540,500
12	Well #9 Construction	2	50%	50%	Debt1			621,000	621,000							1,242,000
13	Flat Creek South Water Replacement Construction	6	0%	100%	Cash			343,800								343,800
14	Vine Street Water Replacement Design	6	0%	100%	Cash				23,000							23,000
15	Snow King Avenue Water Replacement Design	6	0%	100%	Cash				40,800							40,800
16	Gregory Lane Water Replacement Construction	6	0%	100%	Cash				480,950	480,950						961,900
17	W. Aspen Street Water Replacement Design	6	0%	100%	Cash					19,000						19,000
18	Spruce Drive Water Replacement Design	6	0%	100%	Cash					13,600						13,600
19	Zone 3 Tank Design	3	50%	50%	Debt1					461,200						461,200
20	Pine Drive Water Replacement Design	6	0%	100%	Cash					12,300						12,300
21	Vine Street Water Replacement Construction	6	0%	100%	Cash					299,600						299,600
22	Snow King Avenue Water Replacement Construction	6	0%	100%	Cash					264,950	264,950					529,900
23	N. Millward Phase 1 Design	6	0%	100%	Cash						47,700					47,700
24	W. Aspen Street Water Replacement Construction	6	0%	100%	Cash						247,100					247,100
25	Spruce Drive Water Replacement Construction	6	0%	100%	Cash						177,000					177,000
26	Zone 3 Tank Construction	3	50%	50%	Debt1						2,997,700	2,997,700				5,995,400
27	Pine Drive Water Replacement Construction	6	0%	100%	Cash						160,500					160,500
28	East Broadway Water Replacement Design	6	0%	100%	Cash							57,700				57,700
29	N. Millward Phase 2 Design	6	0%	100%	Cash							34,500				34,500
30	N. Millward Phase 1 Construction	6	0%	100%	Cash							309,950	309,950			619,900
31	S. Millward Water Replacement Design	6	0%	100%	Cash								32,800			32,800
32	Powerhorn Lane Water Replacement Design	6	0%	100%	Cash								54,000			54,000
33	Snow King Drive Water Line and Pump Station Design	6	0%	100%	Cash								65,500			65,500
34	N. Millward Phase 2 Construction	6	0%	100%	Cash								224,150	224,150		448,300
35	East Broadway Water Replacement Construction	6	0%	100%	Cash								375,050	375,050		750,100
36	Upper Cache Creek Drive Phase 1 Water Replacemer	6	0%	100%	Cash									33,400		33,400
37	Broadway Hwy 22 to Animal Hospital Water Replacem	6	0%	100%	Cash									18,700		18,700
38	S. Millward Water Replacement Construction	6	0%	100%	Cash									213,550	213,550	427,100
39	Powerhorn Lane Water Replacement Construction	6	0%	100%	Cash									351,300	351,300	702,600
40	Snow King Drive Water Line and Pump Station Constr	6	0%	100%	Cash									425,550	425,550	851,100
41	Upper Cache Creek Drive Phase 2 Water Replacemer	6	0%	100%	Cash										42,700	42,700
42	Crabtree Lane Water Replacement Design	6	0%	100%	Cash										68,800	68,800
43	Berger Lane Water Replacement Design	6	0%	100%	Cash										20,700	20,700
44	Upper Cache Creek Drive Phase 1 Water Replacemer	6	0%	100%	Cash										217,450	217,450
45	Broadway Hwy 22 to Animal Hospital Water Replacem	6	0%	100%	Cash										242,900	242,900
46	Upper Cache Creek Drive Phase 2 Water Replacemer	6	0%	100%	Cash											0
47	Crabtree Lane Water Replacement Construction	6	0%	100%	Cash											0
48	Berger Lane Water Replacement Construction	6	0%	100%	Cash											0
49	Well House SCADA Update	2	0%	100%	Cash											0
50	Hydrant Flow Test	6	0%	100%	Cash											0
51	Well House Flow Meter Replacement	2	0%	100%	Cash	5,000	222,600									227,600
52	Calibrate Hydraulic Model	6	0%	100%	Cash	15,000	10,000									25,000
53	Virginian Lane Water Replacement Design	6	0%	100%	Cash											0
54	South Gros Ventre Water Replacement Design	6	0%	100%	Cash											0
55	Virginian Lane Water Replacement Construction	6	0%	100%	Cash											0
56	South Gros Ventre Water Replacement Construction	6	0%	100%	Cash											0
57	Snow King Loop Water Replacement Design	6	50%	50%	Cash											0
58	Snow King Loop Water Replacement Construction	6	50%	50%	Cash											0
59	Snow King Loop Water Replacement Design	6	50%	50%	Cash											0
60	Snow King Loop Water Replacement Construction	6	50%	50%	Cash											0
61	**Total**					**$116,600**	**$667,038**	**$1,309,050**	**$1,436,000**	**$1,551,600**	**$3,894,950**	**$3,399,850**	**$1,061,450**	**$1,641,700**	**$1,582,950**	**$19,932,438**

Water - NPV of Interest
Water Bond Issues

Line No.	Fiscal Year	Original Principal	NPV of Interest	Growth Allocation	Allocated NPV of Interest
1	2020	0	0		0
2	2021	0	0		0
3	2022	1,375,453	582,315	50.00%	291,157
4	2023	0	0		0
5	2024	4,494,363	1,759,207	50.00%	879,604
6	2025	0	0		0
7	2026	4,204,429	1,521,354	50.00%	760,677
8	2027	0	0		0
9	2028	0	0		0
10	2029	0	0		0
11	**Total**	**$10,074,245**	**$3,862,876**		**$1,931,438**

Bond Amortization Schedule
2022

Borrowing Rate	4.00%		Discount Rate
Years	30		4.00%
Annual Payment	$79,543		
Principal Amount	1,375,453		NPV of
Year of Issue	2022		Interest Payments
			$582,315

Fiscal Year	EOY Principal Balance	Principal	Interest	Total
2020	$0	$0	$0	$0
2021	0	0	0	0
2022	0	0	0	0
2023	1,363,190	12,263	27,509	39,772
2024	1,338,175	25,015	54,528	79,543
2025	1,312,159	26,016	53,527	79,543
2026	1,285,102	27,057	52,486	79,543
2027	1,256,963	28,139	51,404	79,543
2028	1,227,699	29,264	50,279	79,543
2029	1,197,264	30,435	49,108	79,543
2030	1,165,612	31,652	47,891	79,543
2031	1,132,693	32,919	46,624	79,543
2032	1,098,458	34,235	45,308	79,543
2033	1,062,853	35,605	43,938	79,543
2034	1,025,824	37,029	42,514	79,543
2035	987,314	38,510	41,033	79,543
2036	947,264	40,050	39,493	79,543
2037	905,612	41,652	37,891	79,543
2038	862,293	43,319	36,224	79,543
2039	817,242	45,051	34,492	79,543
2040	770,389	46,853	32,690	79,543
2041	721,662	48,727	30,816	79,543
2042	670,985	50,677	28,866	79,543
2043	618,281	52,704	26,839	79,543
2044	563,469	54,812	24,731	79,543
2045	506,465	57,004	22,539	79,543
2046	447,181	59,284	20,259	79,543
2047	385,525	61,656	17,887	79,543
2048	321,403	64,122	15,421	79,543
2049	254,716	66,687	12,856	79,543
2050	185,362	69,354	10,189	79,543
2051	113,233	72,129	7,414	79,543
2052	38,219	75,014	4,529	79,543
2053	0	38,718	1,054	39,772
2054				
2055				
Total		**$1,375,951**	**$1,010,339**	**$2,386,290**

Bond Amortization Schedule
2024

Borrowing Rate	4.00%	Discount Rate	
Years	30	4.00%	
Annual Payment	$259,909		
Principal Amount	4,494,363	NPV of	
Year of Issue	2024	Interest Payments	
		$1,759,207	

Fiscal Year	EOY Principal Balance	Principal	Interest	Total
2020	$0	$0	$0	$0
2021	0	0	0	0
2022	0	0	0	0
2023	0	0	0	0
2024	0	0	0	0
2025	4,454,296	40,067	89,888	129,955
2026	4,372,559	81,737	178,172	259,909
2027	4,287,552	85,007	174,902	259,909
2028	4,199,145	88,407	171,502	259,909
2029	4,107,202	91,943	167,966	259,909
2030	4,011,581	95,621	164,288	259,909
2031	3,912,135	99,446	160,463	259,909
2032	3,808,711	103,424	156,485	259,909
2033	3,701,150	107,561	152,348	259,909
2034	3,589,287	111,863	148,046	259,909
2035	3,472,949	116,338	143,571	259,909
2036	3,351,958	120,991	138,918	259,909
2037	3,226,127	125,831	134,078	259,909
2038	3,095,263	130,864	129,045	259,909
2039	2,959,165	136,098	123,811	259,909
2040	2,817,623	141,542	118,367	259,909
2041	2,670,419	147,204	112,705	259,909
2042	2,517,327	153,092	106,817	259,909
2043	2,358,111	159,216	100,693	259,909
2044	2,192,526	165,585	94,324	259,909
2045	2,020,318	172,208	87,701	259,909
2046	1,841,222	179,096	80,813	259,909
2047	1,654,962	186,260	73,649	259,909
2048	1,461,251	193,711	66,198	259,909
2049	1,259,792	201,459	58,450	259,909
2050	1,050,275	209,517	50,392	259,909
2051	832,377	217,898	42,011	259,909
2052	605,763	226,614	33,295	259,909
2053	370,085	235,678	24,231	259,909
2054	124,979	245,106	14,803	259,909
2055	0	126,511	3,444	129,955
Total		**$4,495,895**	**$3,301,376**	**$7,797,270**

Bond Amortization Schedule
2026

Borrowing Rate	4.00%	Discount Rate	
Years	30	4.00%	
Annual Payment	$243,143		
Principal Amount	4,204,429	NPV of	
Year of Issue	2026	Interest Payments	
		$1,521,354	

Fiscal Year	EOY Principal Balance	Principal	Interest	Total
2020	$0	$0	$0	$0
2021	0	0	0	0
2022	0	0	0	0
2023	0	0	0	0
2024	0	0	0	0
2025	0	0	0	0
2026	0	0	0	0
2027	4,166,946	37,483	84,089	121,572
2028	4,090,481	76,465	166,678	243,143
2029	4,010,957	79,524	163,619	243,143
2030	3,928,252	82,705	160,438	243,143
2031	3,842,239	86,013	157,130	243,143
2032	3,752,786	89,453	153,690	243,143
2033	3,659,754	93,032	150,111	243,143
2034	3,563,001	96,753	146,390	243,143
2035	3,462,378	100,623	142,520	243,143
2036	3,357,730	104,648	138,495	243,143
2037	3,248,896	108,834	134,309	243,143
2038	3,135,709	113,187	129,956	243,143
2039	3,017,994	117,715	125,428	243,143
2040	2,895,571	122,423	120,720	243,143
2041	2,768,251	127,320	115,823	243,143
2042	2,635,838	132,413	110,730	243,143
2043	2,498,129	137,709	105,434	243,143
2044	2,354,911	143,218	99,925	243,143
2045	2,205,964	148,947	94,196	243,143
2046	2,051,060	154,904	88,239	243,143
2047	1,889,959	161,101	82,042	243,143
2048	1,722,414	167,545	75,598	243,143
2049	1,548,168	174,246	68,897	243,143
2050	1,366,952	181,216	61,927	243,143
2051	1,178,487	188,465	54,678	243,143
2052	982,483	196,004	47,139	243,143
2053	778,639	203,844	39,299	243,143
2054	566,642	211,997	31,146	243,143
2055	346,165	220,477	22,666	243,143
2056	116,869	229,296	13,847	243,143
2057	0	119,234	2,338	121,572
2058				
Total		**$4,206,794**	**$3,087,496**	**$7,294,290**

APPENDIX C:

WATER COST-OF-SERVICE RESULTS

APPENDIX D:

FY 2022 WATER RATE RECOMMENDATIONS

APPENDIX E:

WASTEWATER FUND FINANCIAL PLAN

APPENDIX F:

WASTEWATER CAPACITY FEE CALCULATIONS

Town of Jackson, WY | **FILE:** | **JAWY_WW**
Water and Sewer Financial Plan and Rate Study | **SCHEDULE:** | **WW_Cap_Fee**
Wastewater Capacity Fee Calculation
Buy-In Approach

Description	Capacity	RCN
Total System Replacement Cost (1)		$113,291,543
Less: Small Main Collection System (2)		(32,094,540)
Plus: NPV of Borrowing Cost		0
Total Cost for Capacity Fee Calculation		$81,197,003
Treatment Plant Capacity (MGD) (3)		5.0
Value per 3/4" Equivalent Meter		$16.24
Residential ERU Indoor Water Use (GPD) (4)		280
Calculated Fee per 3/4" Equivalent Meter		4,547
Current Fee per 3/4" Equivalent Meter		2,172
Difference - $		$2,375
Difference - %		109%

(1) RCN is the water system inventory and replacement cost per unit per Nelson Engineering May 2020.
(2) Excludes 8-inch and smaller collection system pipelines.
(3) Per Nelson Engineering, 5 MGD wastewater treatment plant capacity.
(4) Indoor water use per ERU or 3-bedroom residential unit.

Town of Jackson, WY **FILE: JAWY_WW**
Water and Sewer Financial Plan and Rate Study **SCHEDULE: WW_Cap_Fee**
Sewer Assets as of 6/30/2019 (From Nelson Engineering)

Line No	Item	Quantity	Unit	Unit Cost	Total
1	6" PVC Sewer Main	13,194	Linear Foot	$122.07	$1,610,571
2	8"PVC Sewer Main	176,157	Linear Foot	173.05	30,483,969
3	10" PVC Sewer Main	6,893	Linear Foot	271.42	1,870,918
4	12" PVC Sewer Main	11,274	Linear Foot	301.58	3,400,023
5	15" PVC Sewer Main	15,296	Linear Foot	351.84	5,381,812
6	18" PVC Sewer Main	9,298	Linear Foot	394.93	3,672,035
7	48" dia. Manhole	1,405	Each	3,860.50	5,424,003
8	Lift Stations:				
9	Small Lift Stations	5	Each	419,642.56	2,098,213
10	Large Lift Stations	2	Each	1,400,000.00	2,800,000
11	Wastewater Treatment Plant	6,500,000	GPD	8.70	56,550,000
12	**Total**				**$ 113,291,543**

APPENDIX G:

WASTEWATER COST OF SERVICE ANALYSIS

APPENDIX H:

WASTEWATER RATE RECOMMENDATIONS