

CITY OF DURANGO, CO

Water and Wastewater Rate and Fee Study

Final Report / September 13, 2019



September 13, 2019

Mr. Jarrod Biggs
Assistant Utilities Director
City of Durango
105 Sawyer Drive
Durango, CO 81303

Subject: Water and Wastewater Rate and Fee Study

Dear Mr. Biggs,

Raftelis is pleased to provide this Water and Wastewater Rate and Fee Study Report (Report) for the City of Durango (City).

The major objectives of the study include the following:

-)] Financial plans for the water and wastewater funds for the 6-year study period, 2020 – 2025 that meet annual revenue requirements, reserves, and debt service coverage
-)] Water and wastewater cost-of-service analyses which equitably recover the cost to provide service to customer classes
-)] Water and wastewater rates which recover class cost of service and meet the City's pricing objectives
-)] Water and wastewater plant investment fees which recover the cost to serve new development

This Report summarizes the key findings and recommendations related to the study.

It has been a pleasure working with you, and we thank you and the City staff for the support provided throughout the course of this study.

Sincerely,

A handwritten signature in black ink that reads 'Todd Cristiano'.

Todd Cristiano
Senior Manager

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Executive Summary

Introduction

The City of Durango (City) provides service to approximately 8,000 water and 5,900 wastewater accounts. The City maintains its water and wastewater utilities through separate self-sustaining enterprise funds. Funding for annual expenditures, including operation and maintenance expense, capital improvements, debt service, reserves, and debt service coverage, is met through user rate revenue, plant investment fees, and other miscellaneous sources.

The City retained Raftelis to complete a comprehensive rate and fee study. The purposes of this study were to ensure that revenue from user rates are adequate to fund the City's daily operations as well as future capital improvements, and plant investment fees are adequate to fund growth-related projects. The study includes the following:

-) Development of water and wastewater financial plans for the 6-year study period, 2020 - 2025
-) Analysis of customer class water and wastewater cost of service
-) Design of water and wastewater rates
-) Update of plant investment fees.

Raftelis used industry standard methodologies supported by the American Water Works Association (AWWA) *Manual of Practice – M1, Principles of Water Rates, Fees, and Charges* and the Water Environment Federation's *Manual of Practice 27, Financing for Wastewater Systems* for this rate study.

Appendix A and Appendix B contain the financial plan scenarios, cost of service analyses, and rate design alternatives for water and wastewater, respectively.

Study Goals and Objectives

The City identified several goals for this study:

-) Rate revenues that are sufficient to meet annual operating expenses, debt service, and capital expenditures.
-) Capital projects are funded with the optimal mix of rate revenue and debt to minimize impacts to customers.
-) Reserve levels are maintained in accordance with industry best practices and that debt service coverage targets are met.
-) Rates are based on a cost-of-service analysis which equitably recovers the cost to provide service to customer classes.
-) Plant investment fees (PIFs) are set to recover the cost to serve new connections.

Study Findings

Principal findings of this study are as follows:

WATER

- Rate revenue should be sufficient to meet annual operation and maintenance expenses, debt service, rate-funded capital improvements, debt service coverage, and target reserves. The City is anticipating the construction of a new water treatment plant (WTP) beginning in 2022, scheduled for completion in 2025. Annual revenue adjustments of 2.0% and state loan issues of \$16.2 million in 2024 and \$17.1 million in 2025 are required to meet annual expenditures and adequately fund the 14 MGD WTP. The value of these State loans represents approximately 62% of the total project costs. Table 1 shows the water utility cash flow summary.

Table 1: Water Utility – Combined Capital and Operating Fund Cash Flow Projections

Description	2020	2021	2022	2023	2024	2025
Annual Increase	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Cumulative Increase	2.0%	4.0%	6.1%	8.2%	10.4%	12.6%
Ending Balance, \$ mil [1]	\$17.5	\$17.4	\$13.3	\$3.7	\$3.7	\$3.7
Target Reserve, \$ mil	\$3.4	\$3.4	\$3.4	\$3.5	\$3.5	\$3.6
Over/(Under) Target, \$ mil [2]	\$14.2	\$14.0	\$9.8	\$0.2	\$0.2	\$0.1
Debt Service Coverage	14.87	15.16	15.33	15.33	6.51	2.38
Total Capital Funded, \$ mil	\$1.6	\$4.2	\$8.3	\$13.8	\$20.7	\$20.1
State Loans, \$ mil	\$0.0	\$0.0	\$0.0	\$0.0	\$16.8	\$17.1

[1] The utility maintains an operating and capital fund. The ending balance shown here is the combined fund balance. Appendix Tables A-1 and A-2 detail the capital and operating cash flows, respectively. Appendix Table A-3 shows the combined cash flow.

[2] Variances due to rounding.

- Raftelis recommends that the water financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.
- Raftelis designed rates using the financial plan and cost of service analysis. The City identified three key pricing objectives to be reflected in the proposed rates: customer class equitability, revenue stability, and essential use affordability. The proposed base charges recover approximately 25% of total rate revenue which is consistent with our experience with utilities in the Rocky Mountain region. Through the cost of service analysis, costs have been distributed to each customer class based on their proportionate share of the cost to provide service. The City’s residential tier 1 rate provides essential water use at the lowest possible cost. Table 2 compares the existing and proposed rates.
- Raftelis reviewed the cost-basis for a rate differential between inside and outside City customers. Rate differentials are often used by utilities when providing service to customers outside their jurisdictional boundaries. This analysis considers distribution system cost differences between serving inside City and outside City customers. Based on this analysis, a rate differential of 1.15 was applied to the outside City base charge. Table 2 compares the current and proposed 2020 rates.

Table 2: Water Utility – Comparison of Current and Proposed 2020 Rates

Description	Current		Proposed	
	Winter	Summer	Inside City	Outside City [1]
Monthly Base Charge				
5/8"	\$16.23	\$16.23	\$14.97	\$17.21
3/4"	\$24.35	\$24.35	\$21.40	\$24.61
1"	\$40.58	\$40.58	\$32.11	\$36.92
1 1/2"	\$81.17	\$81.17	\$75.47	\$86.79
2"	\$129.88	\$129.88	\$115.91	\$133.29
3"	\$243.52	\$243.52	\$239.10	\$274.96
4"	\$405.87	\$405.87	\$423.33	\$486.82
6"	\$811.74	\$811.74	\$930.79	\$1070.40
Volume rates, \$ per 1,000 gallons				
Residential				
0 – 4	\$3.16	\$3.16	\$3.44	\$3.44
4 – 10	\$4.76	\$5.22	\$5.50	\$5.50
11 – 18	\$7.13	\$7.85	\$8.25	\$8.25
Over 18	\$10.70	\$11.75	\$12.73	\$12.73
Duplex				
0 – 4	\$3.15	\$3.15	\$3.25	\$3.25
4 – 10	\$4.73	\$5.20	\$5.20	\$5.20
11 – 18	\$7.10	\$7.81	\$7.80	\$7.80
Over 18	\$10.65	\$11.70	\$12.02	\$12.02
Industrial/Commercial				
0 to 300	\$5.06	\$5.06	\$5.29	\$5.29
Over 300	\$6.57	\$7.22	\$7.41	\$7.41
Ft. Lewis	\$5.02	\$5.02	\$5.60	N/A
Water Dock	\$16.00	\$16.00	\$6.62	\$6.62
Raw Water	\$1.66	\$1.66	\$1.69	N/A
[1] Outside City base charges are 1.15 times inside City base charges				

RAFTELIS reviewed and updated water PIFs. PIFs were calculated using the buy-in method because the water system has available capacity to serve new connections. The underlying premise for the buy-in method is that, over time, existing customers have invested in a water system with capacity to serve new development. A new connector ‘buys into’ the system which places this new customer on par with existing customers’ investment in the system. The proposed water PIF was calculated using the current replacement cost of system assets, net of outstanding principal on state loans, and developer contributions. The proposed PIFs are compliant with Colorado Revised Statute 29-20.104.5 regarding PIFs. Table 3 compares the existing and proposed water PIFs.

Table 3: Water Utility – Comparison of Current and Proposed PIFs

Class/Meter Size	^{3/4} ” Equivalency Ratio	Current PIF	Proposed PIF	Change - \$	Change - %
Single Family					
3/4”	1.00	\$6,039	\$5,320	(\$719)	-11.9%
1”	1.67	\$10,092	\$8,880	(\$1,212)	-12.0%
1 1/2”	3.23	\$19,496	\$17,180	(\$2,316)	-11.9%
Multiunit dwellings					
Duplexes	1.00	\$6,039	\$5,320	(\$719)	-11.9%
Each additional dwelling unit	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Second detached dwelling unit	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Nonresidential					
3/4”	1.00	\$6,093	\$5,320	(\$773)	-12.7%
1”	1.67	\$10,183	\$8,880	(\$1,303)	-12.8%
1 1/2”	3.23	\$19,671	\$17,180	(\$2,491)	-12.7%
2”	5.32	\$32,399	\$28,300	(\$4,099)	-12.7%
3”	10.00	\$60,956	\$53,200	(\$7,756)	-12.7%

WASTEWATER

- Wastewater service rate revenue should be sufficient to meet annual operation and maintenance expenses, debt service, reserves, debt service coverage, and fund the capital improvement program. Equal annual revenue adjustments of 3.0% will satisfy these requirements. Table 4 shows the wastewater utility cash flow summary.

Table 4: Wastewater Utility – Combined Capital and Operating Fund Cash Flow Projections

Description	2020	2021	2022	2023	2024	2025
Annual Increase	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Cumulative Increase	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%
Ending Balance, \$ mil [1]	\$7.3	\$6.0	\$5.7	\$3.9	\$4.0	\$2.8
Target Reserve, \$ mil	\$2.1	\$2.1	\$2.2	\$2.2	\$2.2	\$2.3
Over/(Under) Target, \$ mil [2]	\$5.2	\$3.9	\$3.6	\$1.7	\$1.8	\$0.5
Debt Service Coverage	1.20	1.25	1.30	1.27	1.38	1.42
Total Capital Funded, \$ mil	\$2.3	\$2.4	\$1.5	\$3.0	\$1.4	\$2.9
State Loans, \$ mil	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

[1] The utility maintains an operating and capital fund. The ending balance shown here is the combined fund balance. Appendix Tables B-1 and B-2 detail the capital and operating cash flows, respectively. Appendix Table B-3 shows the combined cash flow.

[2] Variances due to rounding.

- Raftelis recommends that the wastewater financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.
- Raftelis designed rates using the financial plan and cost of service analysis. The City’s key pricing objective for proposed wastewater rates was revenue stability. Similar to the current base charge, the proposed wastewater base charge recovers approximately 25% of total rate revenue.
- Raftelis reviewed the cost-basis for a rate differential between inside and outside City customers. Rate differentials are often used by utilities when providing service to customers outside their jurisdictional boundaries. This analysis considers collection system cost differences between serving inside City and

outside City customers. Based on this analysis, a rate differential of 1.15 was applied to the outside City base charge. Table 5 compares the current and proposed 2020 rates.

Table 5: Wastewater Utility – Comparison of Current and Proposed 2020 Rates

Description	Inside City	Outside City [1]	Inside City	Outside City [2]
Residential, Duplex and Commercial				
Base Charge, \$ per bill by water meter size				
5/8"	\$19.21	\$38.42	\$21.49	\$24.71
3/4"	\$28.95	\$57.90	\$32.09	\$36.90
1"	\$48.27	\$96.53	\$47.99	\$55.18
1 1/2"	\$96.50	\$193.00	\$111.60	\$128.34
2"	\$154.39	\$308.79	\$175.20	\$201.48
3"	\$289.49	\$578.98	\$376.62	\$433.11
4"	\$482.48	\$964.97	\$673.45	\$774.46
6"	\$964.96	\$1,929.93	\$1,489.72	\$1,713.17
Volume Rate, \$ per 1,000 gallons [3]	\$10.74	\$21.49	\$11.36	\$11.36

[1] Outside City rates are 2.0 times greater than inside City. The differential applies to the base charge and the volume rate.

[2] Outside City base charges are 1.15 times greater than inside City. This differential applies only to the base charge.

[3] Based on the lower of average January / February / March water reads from the previous year.

)] Raftelis reviewed and updated wastewater PIFs. PIFs were calculated using the buy-in method because the wastewater system has available capacity to serve new connections. The underlying premise for the buy-in method is that, over time, existing customers have invested in a wastewater system with capacity to serve new development. A new connector ‘buys into’ the system which places this new customer on par with existing customers’ investment in the system. The proposed wastewater PIF was calculated using the current replacement cost of system assets, net of outstanding principal on state loans, and developer contributions. The proposed fees are compliant with Colorado Revised Statute 29-20.104.5 on PIFs. Table 6 compares the current and proposed wastewater PIFs.

Table 6: Wastewater Utility – Comparison of Current and Proposed PIFs

Class/Meter Size	3/4" Equivalency Ratio	Current PIF	Proposed PIF	Change - \$	Change - %
Single family	1.00	\$2,131	\$2,500	\$369	17.3%
Multiunit dwellings (incl. duplexes)	1.00	\$2,131	\$2,500	\$369	17.3%
Each additional dwelling unit within same building	0.50	\$1,065	\$1,250	\$185	17.3%
Nonresidential					
Up to 3/4"	1.00	\$2,311	\$2,500	\$189	8.2%
1"	1.65	\$3,814	\$4,125	\$311	8.2%
1 1/2"	3.13	\$7,244	\$7,825	\$581	8.0%
2"	4.77	\$11,034	\$11,925	\$891	8.1%
3"	8.13	\$18,784	\$20,325	\$1,541	8.2%

[1] Equivalency ratios extend beyond 2 decimals

Reliance on City-Provided Data

During this project, the City (and/or its representatives) provided Raftelis with a variety of technical information, including cost and revenue data. Raftelis did not independently assess or test for the accuracy of such historic or

projected data. Raftelis has relied on this data in the formulation of our findings and subsequent recommendations, as well as in the preparation of this report. There are often 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, and those differences may be material. As a result, Raftelis takes no responsibility for the accuracy of data or projections provided by or prepared on behalf of the City, nor do we have any responsibility for updating this report for events occurring after the date of this report.

Water Rates

The City's water utility is a self-supporting enterprise fund. The City has one combined fund for the water utility but tracks capital-related activities separately from the daily operations and maintenance expenses of the utility. For the purposes of this study, Raftelis developed two separate cash flows for the rate analysis:

-) Capital cash flow (includes restricted cash)
-) Operating cash flow (unrestricted cash)

The operating cash flow is used for the basis of rate-setting. Appendix Tables A-1 through A-5 contain the supporting the financial plan analysis. Appendix Tables A-6 through A-18 detail the cost of service and rate design analysis.

Financial Plan

CAPITAL FUND CASH FLOW

Because of the restrictions on the uses of certain bond proceeds and PIF revenues, this cash flow is tracked separately.

Beginning Balance

The capital fund balance as of January 1, 2020 is \$11.8 million. The capital fund balance consists of carryover funds from PIF revenue and other sources.

Sources of Funds

Sources include PIF revenue, revenue bond proceeds, investment income, and transfers from the operating cash flow. PIF revenue averages \$700,000 annually beginning in 2020. Annual PIF revenues are based on growth projections from the State Demography Office. Transfers from the operating cash balance average \$2.7 million per year during the study period. Investment income is calculated using a 1.0 percent annual interest rate applied to the average fund balance and averages \$0.6 million per year.

Uses of Funds

The cost of the City's water capital projects for the study period total \$75.2 million, inflated. This capital program includes a new 14.0 MGD water treatment plant (WTP), a new utilities administration building, and various water line replacement projects. The engineering design of the full 14.0 MGD plant will start in 2022, and construction will occur during 2023 to 2025. Siting, design and contracting for the full 14.0 MGD plant will be pursued through 2022 with construction to occur during 2023 to 2025.

State loans are proposed to assist in funding the new WTP. These proceeds total \$33.9 million. State loans are assumed to be a term of 20 years at an interest rate of 2.0% with no debt issuance costs. This state loan represents approximately 62% of the total project cost.

Capital Reserves

Because of the capital nature of water utilities, designated capital reserves are commonplace in the industry. Capital reserves are established to provide a utility with sufficient funds to meet unanticipated capital needs, such as an infrastructure failure or unexpected repair and replacement project costs. Given that capital expenditures generally fluctuate more than operating costs on a year-to-year basis, capital reserve targets can be calculated using a variety of approaches. Utilities often choose targets they find reasonably easy to administer, and that differs depending on where the utilities are in their infrastructure lifecycle. For example, one utility may have not

experienced major growth for years and has largely depreciated its assets while another utility may be rapidly growing and have just built a new treatment plant.

A common capital reserve target is one year of annual depreciation expense at replacement cost. Raftelis has calculated target capital reserves equal to annual depreciation expense, currently \$2.4 million for the water utility.

OPERATING FUND CASH FLOW

Financial activities associated with annual operating revenues and revenue requirements are tracked separately from the activities associated with PIF project funding. Table A-3 summarizes the unrestricted operating cash flow.

Beginning Balance

The operating cash balance includes unrestricted net revenues carried over from previous years. The fund balance is projected to be \$3.3 million at the beginning of 2020.

Revenues

Operating revenue is derived from water rates, investment income, and other miscellaneous sources. Water sales revenue under current rates is based on the projected number of water accounts and water usage amounts for each customer class. Revenue from current rates averages \$7.3 million annually. This includes an average annual growth rate of approximately 2.0% based on the LaPlata County projections from the Colorado State Demography Office. Miscellaneous revenues include tapping fees, sale of fixed assets, and other revenue. Miscellaneous revenues average approximately \$130,000 per year.

Revenue Requirements

Revenue requirements imposed on these operating revenues include operation and maintenance expense (O&M), annual debt service payments, and transfers to the water capital fund to cash finance a portion of the capital improvement program (PAYGO). O&M consists of personnel, professional and contractual services, repairs and maintenance, materials and supplies, and transfers to the City's general fund for central services. O&M averages \$4.3 million annually during the study period. Transfers to the water capital fund occur when PIF revenues, reserves, or debt issuances are insufficient to meet the capital requirements. Transfers to the capital fund are anticipated to occur annually between 2022 to 2025 averaging \$5.3 million. Annual debt service payments will increase from \$246,000 in 2019 to a maximum of \$2.3 million by 2026.

Indicated Water Sales Revenue Adjustments

Water rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, maintain adequate reserves, and comply with bond covenants. A minimum operating reserve equal to 90 days of operating expenses is recommended, which is typical in the industry and for a utility of this size. Raftelis targeted a debt service coverage ratio of 1.25 times net revenue (excluding PIF revenue) to ensure that the City has sufficient coverage capacity to issue debt in the future. The state revolving loan program requires a debt service coverage of 1.1 times net income. Table 7 summarizes the combined capital and operating cash flow results for the study period. To achieve these goals, Raftelis recommends equal annual adjustments of 2.0% for the study period.

Table 7: Water Utility – Combined Capital and Operating Fund Cash Flow Projections

Description	2020	2021	2022	2023	2024	2025
Annual Increase	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Cumulative Increase	2.0%	4.0%	6.1%	8.2%	10.4%	12.6%
Ending Balance, \$ mil [1]	\$17.5	\$17.4	\$13.3	\$3.7	\$3.7	\$3.7
Target Reserve, \$ mil	\$3.4	\$3.4	\$3.4	\$3.5	\$3.5	\$3.6
Over/(Under) Target, \$ mil [2]	\$14.2	\$14.0	\$9.8	\$0.2	\$0.2	\$0.1
Debt Service Coverage	14.87	15.16	15.33	15.33	6.51	2.38
Total Capital Funded, \$ mil	\$1.6	\$4.2	\$8.3	\$13.8	\$20.7	\$20.1
State Loans, \$ mil	\$0.0	\$0.0	\$0.0	\$0.0	\$16.8	\$17.1

[1] The utility maintains an operating and capital fund. The ending balance shown here is the combined fund balance. Appendix Tables A-1 and A-2 detail the capital and operating cash flows, respectively. Appendix Table A-3 shows the combined cash flow.
 [2] Variances due to rounding.

Cost of Service

Equitable water rates fairly recover the cost to service each respective customer class. Determination of cost of service takes into account the volume of water used by the class, class peak rates of demand, number of customers within the class, and other relevant factors.

The cost of service analysis is conducted for a test year which is considered representative of the period in which resultant rates are expected to be in effect. The year 2020 was selected as the test year for this study.

COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class’s proportionate share of water demands and number of customers. The cost-of-service analysis consists of the following nine steps:

1. Determine the test year revenue requirement
2. Functionalize the revenue requirement
3. Allocate functionalized costs to cost components
4. Determine the total system units of service
5. Determine the unit costs of service
6. Determine customer class units of service
7. Distribute costs to customer classes
8. Design rates to recover class cost-of-service and the total revenue requirement

TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 8 shows the level of revenue required from rates with the 2020 proposed revenue adjustment. The revenue requirement is the net of operation and maintenance expense, debt service, change in fund reserve less miscellaneous revenue and interest income. The change in net reserve is positive which represents the accumulation of funds to meet annual capital improvement expenditures.

Table 8: Water Utility – Test Year Revenue Requirement

Description	2020
Expenditures	
Operation and Maintenance Expense	\$3,890,400
Debt Service	\$246,265
Transfers to the Capital Fund	\$0
Total Expenditures	\$4,136,665
Revenue Requirement Adjustments	
Other operating income	(\$118,600)
Interest Income	(\$49,600)
Change in Fund Balance [1]	\$3,301,826
Total Revenue Requirement Adjustments	\$3,133,626
Net Revenue Requirement [2]	\$7,270,291

[1] Held for future capital.

[2] Variances due to rounding.

REVENUE REQUIREMENT ALLOCATION

The underlying goal in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with customer water demands placed on the system. Those costs are proportionally allocated to customer classes based on the respective customer class units of service to determine class cost of service. Customer class units of service include average day, peak day, and peak hour demands, number of equivalent meters, and number of bills.

Functional Cost Components

Water systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and distribute water to customers. The separation of costs into functional components provides a means for distributing costs to customer classes based on their respective responsibility in the system. Typical functional categories for water systems include source of supply, transmission and distribution, treatment, pumping, storage, and customer-related costs.

Allocation Factors

Water systems are designed and operated to meet the average and peak demands of their customers. Therefore, data on annual consumption and peak demand contributions are needed to allocate costs equitably among customer classes. Since customers do not exert their maximum demand for water at the same time, water facilities are designed to meet the coincidental demands on the system. Using system peak demand to average demand ratios provides a means for distributing costs equitably to customer classes.

For every facility on the system, there is an average demand, or uniform rate of usage, exerted coincidentally by customers for which the average day cost component applies. Certain facilities are operated and designed to meet demand above the average day demand, or maximum day extra-capacity demand. Costs associated with those facilities are allocated to both the average day and maximum day cost components. Similarly, other facilities are designed to meet demands in excess of maximum day requirements or maximum hour extra-capacity. Costs associated with these facilities are allocated to the average day, maximum day, and maximum hour cost components.

The ratio of maximum day to average day demand is used to allocate costs between average day and maximum day cost components. Based on a 4-year average of WTP production data provided by the City, Raftelis calculated

a maximum day to average day ratio of 2.14. This indicates approximately 47% of the capacity of facilities designed and operated for maximum day demand is needed for average day demands use. Accordingly, the remaining 53% is for maximum day extra-capacity requirements.

Raftelis calculated a ratio of maximum hour to average day water use of 3.21 based on the City's Master Plan ratio of maximum hour demand to maximum day demand of 1.5. This ratio indicates 31% of the capacity of facilities designed and operated for maximum hour demand is needed for average day demands, 36% is required to meet maximum day extra-capacity demand, and the remaining 33% is for maximum hour extra-capacity demand. These ratios are used to allocate the line item functionalized costs to cost components. Other cost allocations are based on the allocation of all other categories.

Other revenue requirements can be directly assigned to specific cost components. Billing and administrative costs such as meter reading are allocated directly to the billing cost component. Indirect expenditures not specifically assigned are allocated in proportion to all other operations and maintenance cost components.

Allocation of Functionalized Costs

Once costs have been separated by function, they can be further allocated to cost components using the demand factors identified above. Allocating costs to cost components provides a means of assigning functionalized costs based on the design and functional parameters which that facility serves in the system. Cost components include average day demand, peak rates of demand, meters and services and customer. Below is a definition of the customer service characteristics.

- » **Volume-related costs**
 - **Average day** costs vary directly with the quantity of water sold under average day load conditions.
 - **Maximum day/maximum hour** costs represent those costs incurred to meet water demands that exceed average levels of water usage by customers. These costs are incurred to the water usage variations and peak demands imposed on a water system. Extra capacity costs are incurred to meet the capacity above the maximum day and maximum hour demands.
- » **Customer-related costs**
 - **Meter and services** costs vary based on the size of meter and include the meter repair and maintenance portion of capital costs associated with meeting the demands of the customer. The count of meters is typically stated on a per $\frac{3}{4}$ " equivalent meter cost basis.
 - **Billing** costs include the cost of billing, customer service, and customer accounting.

Functional O&M costs are generally allocated to the cost components that best reflect the design or functional parameter associated with that facility's expense. For example, water supply costs are allocated to the base or average day costs as source of supply facilities are designed to meet average day demands. Pump stations are designed to meet maximum day demands. These costs are allocated to the average day and maximum day cost components. Similarly, treatment, and transmission mains are designed to meet maximum day demand. Treated storage and distribution main facilities are designed to meet maximum hour demands. These costs are allocated to the average day, maximum day, and maximum hour cost components. Meter repair is associated with repair and replacement of customer meters. These costs are allocated directly to the meters and services cost component.

Water system assets provide a reasonable basis for allocating annual capital costs. Treatment, pumping, and transmission facilities are designed to meet the peak demands on the system. These costs are allocated to the average day and maximum day cost component. Treated storage and distribution mains are designed to meet maximum hour demands. These costs are allocated to the average day, maximum day, and maximum hour demands. Other costs not specifically assigned are allocated in proportion to all other assets.

Allocated Revenue Requirement

Table 9 summarizes the allocated revenue requirement from the analysis discussed above. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total customer service characteristics.

Table 9: Water Utility - 2020 Allocated Revenue Requirement
\$ millions

Description	Ave Day	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Meters and Services	Billing	Total
O&M Expense [1]	\$1.48	\$1.49	\$0.34	\$0.18	\$0.23	\$3.72
Capital Costs	\$1.62	\$1.32	\$0.52	\$0.08	\$0.00	\$3.55
Total Allocated Rev Req [2]	\$3.10	\$2.81	\$0.86	\$0.26	\$0.23	\$7.27

[1] Net of miscellaneous revenues

[2] Variances due to rounding.

Customer Class Units of Service

Customers of a water utility are often identified according to customer class. Each customer class has unique water demands and usage characteristics. Because cost-of-service is based on the concept of proportionality, customer service characteristics for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective demand profiles. Table 10 details the units of service.

Table 10: Water Utility – 2020 Customer Class Units of Service

Customer Class	Average Day Demand <i>1,000 gallons</i>	Maximum Day Extra Capacity <i>1,000 gpd [1]</i>	Max Hour Extra Capacity <i>1,000 gpd</i>	3/4" Equivalent Meters [2]	Billing bills
Inside City					
Residential	354,455	2,754	4,617	61,280	61,280
Duplex	22,229	132	228	3,071	3,057
Industrial/Commercial	468,540	3,106	5,302	27,978	15,795
Outside City					
Residential	32,682	254	426	4,999	4,999
Duplex	372	2	4	61	61
Industrial/Commercial	30,903	205	350	1,361	797
Ft. Lewis	23,154	102	184	71	12
Water Dock	4,544	27	46	0	0
Total [1]	936,879	6,582	11,156	98,821	86,000

[1] Gallons per day.

[2] ¾" equivalency based on the City's current cost for meters.

[3] Variances due to rounding.

Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. Table 11 shows the calculated unit cost of service.

Table 11: Water Utility – 2020 Unit Cost of Service

Description	Average Day Demand	Maximum Day Extra Capacity	Max Hour Extra Capacity	3/4" Equivalent Meters	Billing
Revenue Requirement (\$ mil)	\$3.10	\$2.81	\$0.86	\$0.26	\$0.23
<i>Units of Service</i>	<i>1,000 gallons</i>	<i>1,000 gpd [1]</i>	<i>1,000 gpd</i>	<i>Eq. Meters</i>	<i>Bills</i>
Units	936,879	6,582	11,156	98,821	86,000
Unit Cost of Service – Inside City	\$3.31	\$427.65	\$77.35	\$2.67	\$2.66

[1] Gallons per day.

Distribution of Costs to Customer Classes

Table 12 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 12 are multiplied by the unit cost of service in Table 13 to determine the customer class cost of service.

Table 12: Water Utility – 2020 Customer Class Cost of Service

Customer Class	Avg Day	Max Day Extra Capacity	Max Hour Extra Capacity	3/4" [1] Equivalent Meters	Billing	Total Class COS
Inside City						
Residential	\$1,173,047	\$1,177,841	\$357,113	\$163,519	\$162,702	\$3,034,222
Duplex	\$73,567	\$56,302	\$17,630	\$8,196	\$8,116	\$163,811
Industrial/Commercial	\$1,550,606	\$1,328,478	\$410,071	\$74,656	\$41,937	\$3,405,748
Outside City						
Residential	\$108,160	\$108,602	\$32,927	\$13,339	\$13,272	\$276,300
Duplex	\$1,231	\$942	\$295	\$163	\$162	\$2,793
Industrial/Commercial	\$102,272	\$87,621	\$27,047	\$3,631	\$2,116	\$222,687
Ft. Lewis	\$76,627	\$43,547	\$14,268	\$189	\$32	\$134,662
Water Dock	\$15,038	\$11,444	\$3,586	\$0	\$0	\$30,069
Total [1]	\$3,100,548	\$2,814,777	\$862,938	\$263,692	\$228,336	\$7,270,291
Percent of Total (%)	42.6%	38.7%	11.9%	3.6%	3.1%	100.0%

[1] Variances due to rounding.

Comparison of 2020 Cost of Service to Revenue at Current rates

Table 13 shows the comparison of 2020 cost of service to revenue under current rates for each customer class. The change in each customer class' cost is a product of two components - 1) the functionalization and allocation of the revenue requirement, and 2) the distribution of these costs to customer classes based on their units of service.

Table 13: Water Utility – Comparison of 2020 Cost of Service to Revenue at Current rates

Customer Class	2020 Cost of Service	2020 Revenue Under Current rates	Change - \$	Change - %
Inside City				
Residential	\$3,034,222	\$2,914,435	\$119,786	4.1%
Duplex	\$163,811	\$163,752	\$59	0.0%
Industrial/Commercial	\$3,405,748	\$3,363,533	\$42,214	1.3%
Outside City				
Residential	\$276,300	\$277,753	(\$1,453)	-0.5%
Duplex	\$2,793	\$2,548	\$245	9.6%
Industrial/Commercial	\$222,687	\$211,907	\$10,779	5.1%
Ft. Lewis	\$134,662	\$121,104	\$13,559	11.2%
Water Dock	\$30,069	\$72,704	(\$42,635)	-58.6%
Total [1]	\$7,270,291	\$7,127,737	\$142,555	2.0%

[1] Variances due to rounding.

RATE DESIGN

In the development of schedules of water rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. Schedules of rates are normally designed to meet average conditions for groups (classes) of customers with similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

The City identified three key pricing objectives to be reflected in the proposed rates: revenue stability, customer class equitability, and essential use affordability.

Revenue Stability

The City recovers approximately 27% of total rate revenue from the monthly base charge. Many utilities in Colorado have moved to recovering a higher proportion of revenue fixed charges to maintain a stable revenue stream over the course of a year. The proposed cost of service recovers 6.7% (\$492,000) of total revenue. To retain that level of recovery, Raftelis designed a base charge which recovers the customer-related costs as well as a portion of capital related costs. Specific capital-related distribution costs associated with providing service to inside and outside City customers are included in this capital component. The combined customer and capital costs recover 25% of the total revenue requirement.

Customer Class Equitability

The cost of service described above serves as the basis for developing the customer class revenue requirement. This process uses each individual classes' customer demand and characteristics. Included in the 25% base charge recovery is the additional cost of serving outside City customers.

Raftelis reviewed the cost-basis for a rate differential between inside and outside City customers. Rate differentials are often used by utilities when providing service to customers outside their jurisdictional boundaries. This analysis considers distribution system cost differences between serving inside City and outside City customers. In general, the service area outside the City is less densely populated than inside City. This lower density requires additional distribution main footage to serve those customers. Using an inventory of mains provided by the City, Raftelis conducted an analysis to determine the length per account of distribution mains required to serve inside and outside City customers. Based on this data, the ratio of main footage to serve an outside City customer is approximately 1.63 times more than an inside City customer on a per customer basis. From this density differential, Raftelis developed a rate differential to account for this additional infrastructure required to serve

outside City customers. Raftelis used detailed asset record data to approximate the portion of annual depreciation expense (\$515,000) associated with these mains. For a ¾” meter, the unit cost for an inside City customer is \$3.66 per bill and \$5.97 per bill for an outside City customer. The unit cost varies by meter size based on meter capacity equivalency ratios. When combined with the customer costs, the effective rate differential for outside City customers is 1.15 times the inside City monthly base charge.

The remaining \$811,000 recovered in the base charge represents a portion of annual capital repair and replacement costs incurred on annual basis.

Essential Use Affordability

The goal of essential use affordability is to provide residential customers essential use water (indoor use for cooking, bathing, and other domestic uses) at the lowest possible cost. The first tier of the residential block structure provides up to 4,000 gallons of usage at the lowest possible cost.

Existing and Proposed Rates

The City’s current rate structure consists of a monthly base rate that varies by meter size and volumetric rates for usage. Volume rates and structure vary by customer class.

The proposed rates retain the existing structure. However, Raftelis recommends that the City eliminate the winter and summer rates. There is little difference between the winter and summer rates and moving to a year-round rate improves equity, revenue stability, and customer understanding. Table 14 compares the current and proposed 2020 water rates.

Table 14: Water Utility – Comparison of Current and Proposed 2020 Water Rates

Description	Current		Proposed	
	Winter	Summer	Inside City	Outside City [1]
Monthly Base Charge				
5/8”	\$16.23	\$16.23	\$14.97	\$17.21
3/4”	\$24.35	\$24.35	\$21.40	\$24.61
1”	\$40.58	\$40.58	\$32.11	\$36.92
1 ½”	\$81.17	\$81.17	\$75.47	\$86.79
2”	\$129.88	\$129.88	\$115.91	\$133.29
3”	\$243.52	\$243.52	\$239.10	\$274.96
4”	\$405.87	\$405.87	\$423.33	\$486.82
6”	\$811.74	\$811.74	\$930.79	\$1070.40
Volume rates, \$ per 1,000 gallons				
Residential				
0 – 4	\$3.16	\$3.16	\$3.44	\$3.44
4 – 10	\$4.76	5.22	\$5.50	\$5.50
11 – 18	\$7.13	7.85	\$8.25	\$8.25
Over 18	\$10.70	11.75	\$12.73	\$12.73
Duplex				
0 – 4	\$3.15	\$3.15	\$3.25	\$3.25
4 – 10	\$4.73	\$5.20	\$5.20	\$5.20
11 – 18	\$7.10	\$7.81	\$7.80	\$7.80
Over 18	\$10.65	\$11.70	\$12.02	\$12.02

Description	Current		Proposed	
	Winter	Summer	Inside City	Outside City [1]
Industrial/Commercial				
0 to 300	\$5.06	\$5.06	\$5.29	\$5.29
Over 300	6.57	7.22	\$7.41	\$7.41
Ft. Lewis	\$5.02	\$5.02	\$5.60	N/A
Water Dock	\$16.00	\$16.00	\$6.62	\$6.62
Raw Water	\$1.66	\$1.66	\$1.69	N/A
[1] Outside City base charges are 1.15 times inside City base charges				

Wastewater Rates

Introduction

The City's wastewater utility is a self-supporting enterprise fund. The City has one combined fund for the wastewater utility but tracks capital related activities separately the daily operations and maintenance expenses of the utility. For the purposes of this study, Raftelis developed two separate wastewater cash flows for the rate analysis:

-) Capital cash flow (includes restricted cash)
-) Operating cash flow (unrestricted cash)

The operating cash flow is used for the basis of rate-setting. Appendix Tables B-1 through B-5 contain the tables supporting the financial plan analysis; Appendix Tables B-6 through B-9 detail the cost of service and rate design analysis.

Financial Plan

CAPITAL FUND CASH FLOW

Because of the restrictions on the uses of certain bond proceeds and PIF revenues, this cash flow is tracked separately.

Beginning Balance

The capital fund balance as of January 1, 2020 is \$7.8 million. The capital fund balance consists of carryover funds from PIF revenue and other sources.

Sources of Funds

Sources include PIF revenue, revenue bond proceeds, investment income, and transfers from the operating cash flow. Plant investment fee revenue averages \$225,000 annually beginning in 2020. Annual PIF revenues are based on data from City staff projections. Transfers from the operating cash balance average \$1.6 million per year during the study period. Investment income is calculated using a 1.0 percent annual interest rate applied to the average fund balance.

Uses of Funds

The City's capital projects for the study period total \$24.2 million, inflated. This program includes lift station and sewer line replacements, river crossings, collection system monitoring and control systems, Santa Rita Utilities administration building, and a vector garage. The financial plan for the wastewater utility does not include any debt issuance, as the City recently constructed a new WWTP and a majority of the future capital items are routine repair and rehabilitation.

Capital Reserves

Because of the capital nature of wastewater utilities, designated capital reserves are commonplace in the industry. Capital reserves are established to provide a utility with sufficient funds to meet unanticipated capital needs, such as an infrastructure failure or unexpected repair and replacement project costs. Given that capital expenditures generally fluctuate more than operating costs on a year-to-year basis, capital reserve targets can be calculated using a variety of approaches. Utilities often choose targets they find reasonably easy to administer, and that differ depending on where the utilities are in their infrastructure lifecycle. For example, one utility may have not

experienced major growth for years and has largely depreciated its assets while another utility may be rapidly growing and have just built a new treatment plant.

A common capital reserve target is one year of annual depreciation expense at replacement cost. Raftelis has calculated target reserves equal to annual depreciation expense, currently \$1.4 million. The capital reserve target will be fully funded in the first year of the financial plan.

OPERATING FUND CASH FLOW

Financial activities associated with annual operating revenues and revenue requirements are tracked separately from the activities associated with PIF project funding.

Beginning Balance

The cash fund balance includes unrestricted net revenues carried over from previous years. The fund balance is projected to be \$881,000 at the beginning of 2020.

Revenues

Operating revenue is derived from water rates, investment income, and other miscellaneous sources. Wastewater sales revenue under current rates is based on the projected number of wastewater accounts and wastewater usage amounts for each customer class. Revenue from current rates averages \$8.1 million annually. This includes an average annual growth rate of approximately 2.0% based on the LaPlata County projections from the Colorado State Demography Office.

Revenue Requirements

Revenue requirements include operation and maintenance expense (O&M), annual debt service payments, and transfers to the wastewater capital fund to cash finance a portion of the capital improvement program (PAYGO). O&M consists of personnel, materials and supplies associated with sewage treatment and collection, transfers to the City's general fund for shared services, and other general operating activities. O&M averages \$5.0 million annually during the study period. Transfers to the wastewater capital fund occur when PIF revenues, reserves, or debt issuances are insufficient to meet the capital requirements. Transfers are \$1.7 million and \$1.2 million in 2023 and 2024, respectively. Existing debt service payments average \$3.4 million per year over the study period.

Indicated Wastewater Service Revenue Adjustments

Wastewater rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, and maintain adequate reserves and debt service coverage ratios. A minimum operating reserve equal to 60 days of operating expenses is recommended. This amount provides a reasonable operating allowance for sound wastewater utility operations. Raftelis targeted a debt service coverage ratio of 1.25 times net income (excluding PIF revenue) to ensure that the City has sufficient coverage capacity to issue debt in the future. The state revolving loan program requires a debt service coverage of 1.1 times net income. Table 15 summarizes the combined capital and operating cash flow results for the study period. To achieve these goals, Raftelis recommends equal annual adjustments of 3.0% for the study period.

Table 15: Wastewater Utility – Combined Capital and Operating Fund Cash Flow Projections

Description	2020	2021	2022	2023	2024	2025
Annual Increase	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Cumulative Increase	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%
Ending Balance, \$ mil [1]	\$7.3	\$6.0	\$5.7	\$3.9	\$4.0	\$2.8
Target Reserve, \$ mil	\$2.1	\$2.1	\$2.2	\$2.2	\$2.2	\$2.3
Over/(Under) Target, \$ mil [2]	\$5.2	\$3.9	\$3.6	\$1.7	\$1.8	\$0.5
Debt Service Coverage	1.20	1.25	1.30	1.27	1.38	1.42
Total Capital Funded, \$ mil	\$2.3	\$2.4	\$1.5	\$3.0	\$1.4	\$2.9
State Loans, \$ mil	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

[1] The utility maintains an operating and capital fund. The ending balance shown here is the combined fund balance. Appendix Tables B-1 and B-2 detail the capital and operating cash flows, respectively. Appendix Table B-3 shows the combined cash flow.
 [2] Variances due to rounding.

COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class’s proportionate share of wastewater service characteristics and number of customers. The cost-of-service analysis consists of the following nine steps:

1. Determine the test year revenue requirement
2. Functionalize the revenue requirement
3. Allocate functionalized costs to cost components
4. Determine the total system units of service
5. Determine the unit costs of service
6. Determine customer class units of service
7. Distribute costs to customer classes
8. Design rates to recover class cost-of-service and the total revenue requirement

TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 16 shows the level of revenue required from rates with the 2020 proposed revenue adjustment. The revenue requirement is the net of operation and maintenance expense, debt service, change in fund reserve less miscellaneous revenue and interest income. The change in net reserve is positive which represents the accumulation of funds to meet annual capital improvement expenditures.

Table 16: Wastewater Utility – Test Year Revenue Requirement

Item	2020 [1]
Operation and Maintenance Expense	\$4,184,500
Debt Service	\$3,397,743
Total Expenditures	\$8,251,452
Other Revenue Adjustments	
Miscellaneous Revenue	(\$5,200)
Investment Income	(\$12,200)
Change in Fund Balance [1]	
Total Revenue Adjustments	\$17,400
Net Revenue Requirement[2]	\$8,234,052

[1] Change in fund balance is for funding future capital projects

[2] Variances due to rounding

REVENUE REQUIREMENT ALLOCATION

The underlying goal in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with customer flow characteristics. Those costs are proportionally allocated to customer classes based on their respective customer class units of service to determine class cost of service. Customer class units typically include flow, strength, and customer components. Because the City does not assess charges for high strength customers, the strength cost component is excluded from the cost of service analysis.

Functional Cost Components

Wastewater systems are comprised of several facilities (unit processes or functions) designed and operated to collect, treat, and dispose of effluent to natural bodies of water. The separation of costs into functional components provides a means for distributing costs to customer classes based on their respective responsibility in the system.

Allocation of Functionalized Costs

The City assess the same volume rate for residential and commercial classes. This indicates there is no difference in strength concentrations between the two classes. As a result, allocating the functionalized costs to strength components such as biochemical oxygen demand (BOD) and total suspended solids (TSS) is not necessary for determining the wastewater cost of service. Functionalized costs are allocated to flow and billing only.

Allocated Revenue Requirement

Table 17 summarizes the allocated revenue requirement. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total units of service.

Table 17: Wastewater Utility – 2020 Allocated Revenue Requirement

Description	Flow	Bills	Total
Expenditures	\$7,830,211	\$421,241	\$8,251,452
Adjustments	\$0	(\$17,400)	(\$17,400)
Total Revenue Requirement [1]	\$7,830,211	403,841	8,234,052
<i>Percent of Total</i>	<i>95.1%</i>	<i>4.9%</i>	<i>100.0%</i>

[1] Variances due to rounding.

Customer Class Units of Service

Customers of a wastewater utility are often identified according to customer class. Because cost-of-service is based on the concept of proportionality, the units of service for each customer class must be analyzed to distribute the

functionalized and allocated system revenue requirements based on their respective flow and billing profiles. Table 21 details the units of service.

Table 18: Wastewater Utility – 2020 Customer Class Units of Service

Customer Class	Bills	Volume (1,000 gal)	Revenue (\$ millions)
Residential - Single Family [1]	53,525	154,906	\$2.75
Residential - Duplex	2,996	14,930	\$0.22
Commercial & Industrial [2]	12,023	332,615	\$4.15
Residential - Single Family - Outside	3,209	14,953	\$0.46
Residential - Duplex - Outside	49	254	\$0.01
Commercial & Industrial - Outside	466	14,496	\$0.35
Total [3]	72,267	543,397	\$7.99

[1] Includes sewer flat class

[2] Includes sewer comm other class

[3] Variances due to rounding.

Cost of Service

The development of cost of service includes the allocation of flow related costs and customer costs proportionately to each customer class. The allocated revenue requirement shown in Table 20, the units of service in Table 21, and the pricing objectives below were used in developing the customer class cost of service.

The City identified two key pricing objectives to be reflected in the proposed rates: customer class equitability and revenue stability.

Revenue Stability

The City recovers approximately 25% of total rate revenue from the monthly base charge. The proposed cost of service recovers 4.9% or \$404,000. To retain that level of recovery, Raftelis designed a base charge which recovers the customer-related costs as well as a portion of capital related costs. Specific capital-related collection costs associated with providing service to inside and outside City customers are included in this capital component. The combined customer and capital costs recover 25% of the total revenue requirement.

Customer Class Equitability

The cost of service described above serves as the basis for developing the customer class revenue requirement. This process uses each individual classes' customer flow and customer characteristics. Included in the 25% base charge recovery is the additional cost of serving outside City customers.

Raftelis reviewed the cost-basis for a rate differential between inside and outside City customers. Rate differentials are often used by utilities when providing service to customers outside their jurisdictional boundaries. This analysis considers distribution system cost differences between serving inside City and outside City customers. In general, the service area outside the City is less densely populated than inside City. This lower density requires additional distribution main footage to serve those customers. Using an inventory of mains provided by the City, Raftelis conducted an analysis to determine the length per account of distribution mains required to serve inside and outside City customers. Based on this data, the ratio of main footage to serve an outside City customer is approximately 2.49 times more than an inside City customer on a per customer basis. From this density differential, Raftelis developed a rate differential to account for this additional infrastructure required to serve outside City customers. Raftelis used detailed asset record data to approximate the portion of annual depreciation expense (\$515,000) associated with these mains. For a ¾" meter, the unit cost for an inside City customer is \$2.15

per bill and \$5.34 per bill for an outside City customer. The unit cost varies by meter size based on meter capacity equivalency ratios. When combined with the customer costs, the effective rate differential for outside City customers is 1.15 times the inside City monthly base charge.

The remaining \$1.4 million recovered in the base charge represents a portion of annual capital repair and replacement costs incurred on annual basis. Table 19 shows the allocated cost of service by customer class for the billable volume and customer components.

Table 19: Wastewater Utility – 2020 Customer Class Cost of Service

Customer Class	Customer Costs	Volume Costs	Cost of Service
Residential - Single Family	\$1,209,789	\$1,760,349	\$2,970,137
Residential - Duplex	\$65,729	\$169,940	\$235,669
Commercial & Industrial	\$659,663	\$3,904,075	\$4,563,739
Residential - Single Family - Outside	\$93,349	\$170,189	\$263,538
Residential - Duplex - Outside	\$1,207	\$2,834	\$4,042
Commercial & Industrial - Outside	\$28,782	\$168,152	\$196,934
Total [1]	\$2,058,520	\$6,175,539	\$8,234,059

[1] Variances due to rounding.

Comparison of 2020 Cost of Service to Revenue at Current rates

Table 20 shows the comparison of 2020 cost of service to revenue under current rates for each customer class. The change in each customer class' cost is a product of two components - 1) the functionalization and allocation of the revenue requirement, and 2) the distribution of these costs to customer classes based on their units of service.

Table 20: Wastewater Utility - Comparison of 2020 Cost of Service to Revenue at Current rates

Customer Class	2020 Adj. Cost of Service	2020 Revenue at Current Rates	Change - \$	Change - %
Residential - Single Family [1]	\$2,970,137	\$2,748,752	\$221,385	8.1%
Residential - Duplex	\$235,669	\$219,199	\$16,470	7.5%
Commercial & Industrial	\$4,563,739	\$4,201,030	\$362,709	8.6%
Residential - Single Family – Outside [2,3]	\$263,538	\$463,246	(\$199,708)	-43.1%
Residential - Duplex - Outside	\$4,042	\$7,340	(\$3,298)	-44.9%
Commercial & Industrial - Outside	\$196,934	\$354,658	(\$157,731)	-44.5%
Total [4]	\$8,234,059	\$7,994,225	\$239,827	3.0%

[1] Includes sewer flat customers.

[2] Includes sewer comm other customers.

[3] The decreases to outside City customers is primarily due to the change in rate differential.

[4] Variances due to rounding.

Rate Design

In the development of schedules of wastewater rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. Schedules of rates are normally designed to meet average conditions for groups (classes) of customers with similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

Comparison of Current and Proposed Rate Structure

The City’s current rate structure consists of a monthly base rate that varies by water meter size and a volume rate for all billable volume which is the same for all classes. The outside City base charge and volume rate is 2 times more than the inside City base charges and volume rate.

The proposed rates retain the existing structure; a monthly base charge which varies by water meter size and a uniform volume rate which is the same for all classes. The outside City base charge is 1.15 times more than the inside City base charge. This is to recognize the cost difference in serving outside City customers. The volume rate is the same for inside City and outside City customers. Table 21 compares the current and proposed rates.

Table 21: Wastewater Utility – Comparison of Current Rates to Proposed 2020 Rates

Description	Inside City	Outside City [1]	Inside City	Outside City [2]
Residential, Duplex and Commercial				
Base Charge, \$ per bill by water meter size				
5/8”	\$19.21	\$38.42	\$21.49	\$24.71
3/4”	\$28.95	\$57.90	\$32.09	\$36.90
1”	\$48.27	\$96.53	\$47.99	\$55.18
1 ½”	\$96.50	\$193.00	\$111.60	\$128.34
2”	\$154.39	\$308.79	\$175.20	\$201.48
3”	\$289.49	\$578.98	\$376.62	\$433.11
4”	\$482.48	\$964.97	\$673.45	\$774.46
6”	\$964.96	\$1,929.93	\$1,489.72	\$1,713.17
Volume Rate, \$ per 1,000 gallons [3]				
	\$10.74	\$21.49	\$11.36	\$11.36
[1] Outside City rates are 2.0 times greater than inside City. The differential applies to the base charge and the volume rate.				
[2] Outside City base charges are 1.15 times greater than inside City. This differential applies only to the base charge.				
[3] Based on the lower of average January / February / March water reads from the previous year.				

Plant Investment Fees

Introduction

Plant investment fees (PIFs) are one-time charges assessed to new development to recover the cost for the capacity required to provide service. PIFs provide a source of funds that allow utilities to finance future projects to serve growth, as well as a reimbursement mechanism for the costs of previous expansion projects. They serve to mitigate inequities between new and existing customers by requiring growth to ‘pay its own way.’ The philosophy behind PIFs is that the costs of incremental capacity are borne by those who require it.

The pricing objectives and policy goals of a governing body can greatly influence the development of PIFs. At a minimum, the following should be considered during PIF development:¹

-) Local and state legal requirements
-) Financial objectives of the utility
-) Generally accepted wastewater utility industry financing and pricing practices
-) Generally accepted methodologies for determining tap fees

The development of PIFs is typically based on three primary components: the value of backbone system facilities, the capacity associated with those facilities, and the customer demand requirements. Backbone facilities include major infrastructure such as wastewater treatment plants, lift stations, trunk lines, and force mains. The basic approach for calculating PIFs is as follows:

-) Determine value of existing system assets and future capacity-related project costs
-) Estimate single family equivalent (SFE) system capacity
-) Calculate the per SFE unit cost of capacity

Colorado legal framework and precedent

Colorado Revised Statutes (CRS) §29-20-104.5 outlines the requirements for calculating and implementing a PIF. The basic tenets of the Statute are listed below.

-) Fees must be generally applicable to a broad class of property (e.g. residential, commercial, etc.)
-) Intended to defray the projected impacts on capital facilities caused by proposed development
-) Fee is directly related to service that a local government is authorized to provide
-) Capital facilities have an estimated useful life of five years or longer
-) Is required by the charter or general policy of a local government pursuant to a resolution or ordinance.

PIF Methodologies

The following sections review the generally-accepted methodologies used to calculate PIFs. Each method is designed to recover the cost of capacity to serve new growth. The selection of a methodology should consider a utility’s goals and objectives for recovering capacity-related capital costs. The three methodologies include:

-) **Buy-in.** Available existing capacity is sufficient to accommodate new growth

¹ Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices, 7th edition, M1. (2017). American Water Works Association: Denver, CO.

-) **Incremental.** No existing capacity available with significant future capacity requirements needs
-) **Hybrid.** Some existing capacity available with future capacity requirements needed to accommodate new growth

The buy-in method was selected to calculate the City’s PIFs as there are no significant planned expansion projects over the study period and the current system has capacity to serve new development.

BUY-IN METHODOLOGY

The buy-in method considers the valuation of existing assets and the capacity of those assets to determine the PIF . This method is typically reserved for utilities that have capacity available in the existing system to serve new customers in the near and long term. The buy-in method recoups the value of connecting new development to facilities that existing customers have already invested in constructing - new development is buying into the existing system. However, this methodology does not imply a transfer or impart ownership of the assets to the customer.

Existing backbone assets were valued at replacement cost new (RCN) using the Engineering News Record Cost Construction Index (ENR-CCI). This index is commonly used to determine the current value of water assets. Backbone assets include major facilities which benefit all customers and exclude those smaller facilities which may serve a more localized area. The RCN method recognizes the increase in value of facilities and fairly compensates existing customers for the carrying cost of building facilities in advance of serving new development.

To determine net value in the system, the cost of existing facilities is often reduced by grants, contributions in aid of construction, and principal on outstanding debt associated with backbone facilities in service to avoid double recovery of costs through the PIF and user charges.

To determine the ¾” equivalent PIF, the net asset value is divided by the number of equivalent meter able to be served by the system. Tables 22 and 23 show the water and wastewater PIFs for each customer class, respectively.

Table 22: Water Utility – Comparison of Current and 2020 Proposed 2020 PIFs

Class/Meter Size	¾” Equivalency Ratio	Current PIF	Proposed PIF	Change - \$	Change - %
Single Family					
¾”	1.00	\$6,039	\$5,320	(\$719)	-11.9%
1”	1.67	\$10,092	\$8,880	(\$1,212)	-12.0%
1 ½”	3.23	\$19,496	\$17,180	(\$2,316)	-11.9%
Multiunit dwellings					
Duplexes	1.00	\$6,039	\$5,320	(\$719)	-11.9%
Each additional dwelling unit	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Second detached dwelling unit	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Nonresidential					
¾”	1.00	\$6,093	\$5,320	(\$773)	-12.7%
1”	1.67	\$10,183	\$8,880	(\$1,303)	-12.8%
1 ½”	3.23	\$19,671	\$17,180	(\$2,491)	-12.7%
2”	5.32	\$32,399	\$28,300	(\$4,099)	-12.7%
3”	10.00	\$60,956	\$53,200	(\$7,756)	-12.7%

Table 23: Wastewater Utility – Comparison of Current and Proposed 2020 PIFs

Class/Meter Size	³ / ₄ " Equivalency Ratio	Current PIF	Proposed PIF	Change - \$	Change - %
Single family	1.00	\$2,131	\$2,500	\$369	17.3%
Multiunit dwellings (incl. duplexes)	1.00	\$2,131	\$2,500	\$369	17.3%
Each additional dwelling unit within same building	0.50	\$1,065	\$1,250	\$185	17.3%
Nonresidential					
Up to ³ / ₄ "	1.00	\$2,311	\$2,500	\$189	8.2%
1"	1.65	\$3,814	\$4,125	\$311	8.2%
1 1/2"	3.13	\$7,244	\$7,825	\$581	8.0%
2"	4.77	\$11,034	\$11,925	\$891	8.1%
3"	8.13	\$18,784	\$20,325	\$1,541	8.2%

APPENDIX A:
**WATER UTILITY
FINANCIAL PLAN,
COST OF SERVICE, AND
RATE DESIGN**

Table A-1
City of Durango, CO
Water Utility
Capital Fund Cash Flow Analysis
Full 14 MGD WTP Starting in 2022

Line No.	Description	Projected					
		2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
	Sources of Funds						
1	Transfer From Operating Fund	0	0	2,672,032	13,023,653	3,217,338	2,235,312
2	Plant Investment Fees	588,979	607,860	659,189	709,034	704,264	700,228
3	Revenue Bond Proceeds	0	0	0	0	0	0
4	State and Other Loan Proceeds	0	0	0	0	16,800,000	17,100,000
5	Investment Income	113,500	91,500	49,300	24,400	24,200	24,200
6	Total Sources	702,479	699,360	3,380,520	13,757,088	20,745,802	20,059,740
	Uses of Funds						
7	Capital Projects	1,601,650	4,195,860	8,335,481	13,781,988	20,746,002	20,059,740
8	Debt Service Reserve and Iss. Exp.	0	0	0	0	0	0
9	Transfer To Operating Fund	0	0	0	0	0	0
10	Total Uses	1,601,650	4,195,860	8,335,481	13,781,988	20,746,002	20,059,740
11	Annual Surplus (Deficiency)	(899,171)	(3,496,500)	(4,954,961)	(24,900)	(200)	0
12	Beginning Balance	11,799,932	10,900,760	7,404,261	2,449,300	2,424,400	2,424,200
13	Ending Balance	10,900,760	7,404,261	2,449,300	2,424,400	2,424,200	2,424,200
14	Target Res. (1 yr Dep. Exp. @ RCN)	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
15	Unrestricted	8,500,760	5,004,261	49,300	24,400	24,200	24,200

[1] RCN = Replacement Cost New

Table A-2
City of Durango, CO
Water Utility
Operating Fund Cash Flow Analysis
Full 14 MGD WTP Starting in 2022

Line No.	Description	Projected					2025
		2020	2021	2022	2023	2024	
		\$	\$	\$	\$	\$	\$
	Sources of Funds						
	Service Charge Revenue						
1	Total Revenue from Existing Water Rates	7,127,737	7,192,037	7,261,768	7,336,771	7,411,270	7,485,342
2	Addtl. Water Sales Rev. from Rate Inc.	142,555	290,558	444,478	604,786	771,371	944,369
3	Total Water Rate Revenue	7,270,291	7,482,596	7,706,246	7,941,557	8,182,641	8,429,710
4	Other Miscellaneous Revenue	118,600	122,300	126,000	129,800	133,700	137,700
5	Transfer From Capital Fund	0	0	0	0	0	0
6	Investment Income	49,600	83,100	104,100	60,600	12,800	12,500
7	Total Sources	7,438,491	7,687,996	7,936,346	8,131,957	8,329,141	8,579,910
	Uses of Funds						
8	Total Operations and Maintenance	3,890,400	4,046,000	4,209,600	4,382,100	4,564,100	4,756,500
	Debt Service						
9	Existing	246,265	246,266	246,265	246,265	246,265	246,266
10	Proposed - Revenue Bonds	0	0	0	0	0	0
11	Proposed - State and Other Loans	0	0	0	0	0	1,027,433
12	Interest During Construction	0	0	0	0	336,000	342,000
13	Total Debt Service	246,265	246,266	246,265	246,265	582,265	1,615,699
14	Transfer To Capital Fund	0	0	2,672,032	13,023,653	3,217,338	2,235,312
15	Total Uses	4,136,665	4,292,266	7,127,897	17,652,018	8,363,703	8,607,511
16	Annual Surplus (Deficiency)	3,301,826	3,395,730	808,449	(9,520,061)	(34,563)	(27,601)
17	Beginning Balance	3,312,732	6,614,558	10,010,288	10,818,737	1,298,676	1,264,113
18	Ending Balance	6,614,558	10,010,288	10,818,737	1,298,676	1,264,113	1,236,512
19	Target Operating Reserves	960,000	1,000,000	1,040,000	1,080,000	1,130,000	1,170,000
20	Unrestricted Funds	5,654,558	9,010,288	9,778,737	218,676	134,113	66,512
21	Annual Water Service Revenue Inc.	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
22	Cumulative Revenue Increase	2.0%	4.0%	6.1%	8.2%	10.4%	12.6%

Table A-3
City of Durango, CO
Water Utility
Combined Water Enterprise Fund
Full 14 MGD WTP Starting in 2022

Line No.	Description	Projected					2025
		2020	2021	2022	2023	2024	
		\$	\$	\$	\$	\$	\$
SOURCES OF FUNDS							
Water Rate Revenue							
1	Revenue from Existing Water Rates	7,127,737	7,192,037	7,261,768	7,336,771	7,411,270	7,485,342
2	Addtl. Water Rate Rev. from Rate Inc.	142,555	290,558	444,478	604,786	771,371	944,369
3	Total Water Rate Revenue	7,270,291	7,482,596	7,706,246	7,941,557	8,182,641	8,429,710
Miscellaneous Revenues							
4	Other Miscellaneous Revenue	118,600	122,300	126,000	129,800	133,700	137,700
5	Plant Investment Fees	588,979	607,860	659,189	709,034	704,264	700,228
6	Revenue Bond Proceeds	0	0	0	0	0	0
7	State and Other Loan Proceeds	0	0	0	0	16,800,000	17,100,000
8	Investment Income	163,100	174,600	153,400	85,000	37,000	36,700
9	Total Miscellaneous Revenues	870,679	904,760	938,589	923,834	17,674,964	17,974,628
10	TOTAL SOURCES OF FUNDS	8,140,970	8,387,355	8,644,835	8,865,392	25,857,604	26,404,339
USES OF FUNDS							
11	O&M Expense	3,890,400	4,046,000	4,209,600	4,382,100	4,564,100	4,756,500
12	Total Capital	1,601,650	4,195,860	8,335,481	13,781,988	20,746,002	20,059,740
Debt Service							
13	Existing Debt	246,265	246,266	246,265	246,265	246,265	246,266
14	Proposed - Revenue Bonds	0	0	0	0	0	0
15	Proposed Debt - State & Other	0	0	0	0	0	1,027,433
16	Interest During Construction	0	0	0	0	336,000	342,000
17	Total Debt Service	246,265	246,266	246,265	246,265	582,265	1,615,699
18	Debt Service Reserve and Iss. Exp.	0	0	0	0	0	0
19	Total Uses of Funds	5,738,315	8,488,126	12,791,346	18,410,353	25,892,367	26,431,939
20	Annual Surplus (Deficiency)	2,402,655	(100,770)	(4,146,511)	(9,544,961)	(34,763)	(27,601)
21	Beginning Balance	15,112,663	17,515,318	17,414,548	13,268,037	3,723,076	3,688,313
22	Ending Balance	17,515,318	17,414,548	13,268,037	3,723,076	3,688,313	3,660,712
23	Target Reserves	3,360,000	3,400,000	3,440,000	3,480,000	3,530,000	3,570,000
24	Unrestricted Reserves	14,155,318	14,014,548	9,828,037	243,076	158,313	90,712
25	Annualized Water Service Rev. Inc.	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
26	Cumulative Revenue Increase	2.0%	4.0%	6.1%	8.2%	10.4%	12.6%
27	Debt Service Coverage (Including PIFs)	17.26	17.63	18.01	18.21	7.72	2.81
28	Debt Service Coverage (Excluding PIFs)	14.87	15.16	15.33	15.33	6.51	2.38

Table A-4
City of Durango, CO
Water Utility
Water Capital Improvement Plan (Inflated)
Full 14 MGD WTP Starting in 2022

Annual Inflation	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Cumulative Inflation	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%

Line No.	Title	2020	2021	2022	2023	2024	2025	6-Year Total
		\$	\$	\$	\$	\$	\$	\$
1	Storage Tank Cleaning Refurbishing - 1085	0	318,270	0	337,653	0	358,216	1,014,138
2	Meter Replacement Program - 1079	0	0	54,636	0	0	0	1,354,636
3	CMWTP Site Pipe / Valve Replacement 1093	82,400	84,872	327,818	0	0	238,810	813,901
4	New RBWTP 14.0 MGD WTP - 1112	0	0	5,478,000	12,150,000	19,152,000	18,000,000	54,780,000
5	Pumping Station- PRV's, pumps, motors - 1097	103,000	0	109,273	0	115,927	0	328,200
6	CMWTP Process Piping Rehab - 1084	51,500	53,045	54,636	0	0	0	159,181
7	Florida Raw Water Line Replac. (engineering) - 1107	0	477,405	0	0	0	0	477,405
8	CMWTP Fencing - 1092	51,500	0	0	56,275	0	0	107,775
9	Valve Replacements - 1077	103,000	106,090	109,273	112,551	115,927	119,405	766,246
10	Water Mains, River Crossings Replacements - 1101	0	0	546,364	562,754	579,637	597,026	2,285,781
11	Santa Rita Pump Station Pump Replac./Rehab. - 1082	51,500	53,045	54,636	0	0	59,703	218,884
12	WTP HVAC Insulation Upgrades and New Roof - 1064	0	0	87,418	0	0	0	137,418
13	Ridges Basin WTP Water Main Extension - 1065	0	0	0	0	0	0	0
14	College Drive Waterline Upsize to 16 inch - 1111	0	0	655,636	0	0	0	655,636
15	ALP Scada/Outfall Improvements - 1066	103,000	106,090	0	0	0	0	209,090
16	CMWTP Fiber Redundancy	103,000	0	0	0	0	0	103,000
17	CMWTP Coagulant Pumps - 1115	0	0	0	0	0	0	0
18	Waterline Replacements 1033	515,000	0	546,364	562,754	579,637	597,026	2,800,781
19	Storage Tanks Control Panel Systems - 1104	0	0	109,273	0	115,927	0	325,200
20	Water Conservation audits 1059	77,250	0	81,955	0	86,946	0	246,150
21	Terminal Reservoir Expansion - 1108	0	0	0	0	0	0	0
22	ALP to Santa Rita River Crossing - 1057	0	2,440,070	0	0	0	0	2,440,070
23	Santa Rita Utilities Administration Building	0	0	0	0	0	0	3,750,000
24	Santa Rita Vactor Garage	0	0	0	0	0	0	400,000
25	CMWTP Paving roads and parking areas - 1096	51,500	0	54,636	0	0	0	106,136
26	CMWTP 7 MG Tank Rehab -	309,000	477,405	0	0	0	0	786,405
27	CMWTP Filter Media Replacement	0	0	65,564	0	0	0	65,564
28	CMWTP Replace polymer blend chem. feed pump sys.	0	79,568	0	0	0	89,554	169,121
29	1068 - WTP Reclaim/Sludge Management	0	0	0	0	0	0	100,000
30	Water Dock Upgrades	0	0	0	0	0	0	350,000
31	Water Rate Study	0	0	0	0	0	0	37,500
32	Waterline Upsize	0	0	0	0	0	0	100,000
33	Distribution System Condition Assessment	0	0	0	0	0	0	30,000
34	SCADA Network Upgrade	0	0	0	0	0	0	50,000
35	Total CIP Program - Inflated	1,601,650	4,195,860	8,335,481	13,781,988	20,746,002	20,059,740	75,168,220

Table A-5
City of Durango, CO
Water Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Cost Center Name	Class Name	Object Name	Projected					
				2020	2021	2022	2023	2024	2025
				\$	\$	\$	\$	\$	\$
1	Water Administration	Personnel	Salaries	125,000	128,800	132,700	136,700	140,800	145,000
2	Water Administration	Personnel	Overtime	0	0	0	0	0	0
3	Water Administration	Personnel	Insurance	35,500	39,100	43,000	47,300	52,000	57,200
4	Water Administration	Personnel	Retirement	15,000	16,500	18,200	20,000	22,000	24,200
5	Water Administration	Personnel	Medicare	2,000	2,200	2,400	2,600	2,900	3,200
6	Water Administration	Materials and Supplies	Office Supplies	2,100	2,200	2,300	2,400	2,500	2,600
7	Water Administration	Materials and Supplies	Clothing and Uniforms	600	600	600	600	600	600
8	Water Administration	Materials and Supplies	Other Supplies	4,100	4,200	4,300	4,400	4,500	4,600
9	Water Administration	Charges and Services	Professional Services	7,200	7,400	7,600	7,800	8,000	8,200
10	Water Administration	Charges and Services	Other Contracted Services	42,100	43,400	44,700	46,000	47,400	48,800
11	Water Administration	Charges and Services	Software Maintenance	6,500	6,700	6,900	7,100	7,300	7,500
12	Water Administration	Charges and Services	Printing	2,100	2,200	2,300	2,400	2,500	2,600
13	Water Administration	Charges and Services	Books, News & Periodicals	700	700	700	700	700	700
14	Water Administration	Charges and Services	Postage	14,500	14,900	15,300	15,800	16,300	16,800
15	Water Administration	Charges and Services	Publication & Legal Notices	1,500	1,500	1,500	1,500	1,500	1,500
16	Water Administration	Charges and Services	Credit Card Fees	36,100	37,200	38,300	39,400	40,600	41,800
17	Water Administration	Charges and Services	Dues And Memberships	5,500	5,700	5,900	6,100	6,300	6,500
18	Water Administration	Charges and Services	Auto Allowance & Mileage	0	0	0	0	0	0
19	Water Administration	Charges and Services	Professional Development and Travel	5,200	5,400	5,600	5,800	6,000	6,200
20	Water Administration	Charges and Services	Utilities - Telephone	2,400	2,500	2,600	2,700	2,800	2,900
21	Water Administration	Charges and Services	Cell Phone Stipend	0	0	0	0	0	0
22	Water Administration	Charges and Services	Vehicle Rent and Maintenance	700	700	700	700	700	700
23	Water Administration	Capital Purchase	Other Capital	0	0	0	0	0	0
24	Water Source of Supply	Materials and Supplies	Repair Parts & Materials	10,300	10,600	10,900	11,200	11,500	11,800
25	Water Source of Supply	Materials and Supplies	Other Supplies	1,500	1,500	1,500	1,500	1,500	1,500
26	Water Source of Supply	Charges and Services	Other Contracted Services	3,600	3,700	3,800	3,900	4,000	4,100
27	Water Source of Supply	Charges and Services	Software Maintenance	7,200	7,400	7,600	7,800	8,000	8,200
28	Water Source of Supply	Charges and Services	Repair & Maintenance	106,600	109,800	113,100	116,500	120,000	123,600
29	Water Source of Supply	Charges and Services	Utilities - Electric	0	0	0	0	0	0
30	Water Source of Supply	Charges and Services	Utilities - Telephone	0	0	0	0	0	0
31	Water Pumping	Materials and Supplies	Repair Parts & Materials	10,300	10,600	10,900	11,200	11,500	11,800
32	Water Pumping	Materials and Supplies	Other Supplies	3,100	3,200	3,300	3,400	3,500	3,600
33	Water Pumping	Charges and Services	Other Contracted Services	8,800	9,100	9,400	9,700	10,000	10,300
34	Water Pumping	Charges and Services	Software Maintenance	3,100	3,200	3,300	3,400	3,500	3,600
35	Water Pumping	Charges and Services	Utilities - Electric	67,000	69,000	71,100	73,200	75,400	77,700
36	Water Pumping	Charges and Services	Utilities - Gas	0	0	0	0	0	0
37	Water Pumping	Charges and Services	Utilities - Telephone	7,400	7,600	7,800	8,000	8,200	8,400
38	Water Pumping	Charges and Services	Repair & Maintenance	25,800	26,600	27,400	28,200	29,000	29,900
39	Water Pumping	Capital Purchase	Other Capital	0	0	0	0	0	0
40	Water Distribution	Personnel	Salaries	419,600	432,200	445,200	458,600	472,400	486,600
41	Water Distribution	Personnel	Overtime	37,600	38,700	39,900	41,100	42,300	43,600
42	Water Distribution	Personnel	Insurance	0	0	0	0	0	0
43	Water Distribution	Personnel	Retirement	54,700	60,200	66,200	72,800	80,100	88,100
44	Water Distribution	Personnel	Medicare	7,000	7,700	8,500	9,400	10,300	11,300
45	Water Distribution	Materials and Supplies	Office Supplies	500	500	500	500	500	500
46	Water Distribution	Materials and Supplies	Chemicals & Lab Supplies	5,200	5,400	5,600	5,800	6,000	6,200
47	Water Distribution	Materials and Supplies	Clothing and Uniforms	9,600	9,900	10,200	10,500	10,800	11,100
48	Water Distribution	Materials and Supplies	Fuel	29,900	30,800	31,700	32,700	33,700	34,700
49	Water Distribution	Materials and Supplies	Hand Tools	5,200	5,400	5,600	5,800	6,000	6,200
50	Water Distribution	Materials and Supplies	Repair Parts & Materials	77,800	80,100	82,500	85,000	87,600	90,200
51	Water Distribution	Materials and Supplies	Traffic Control Devices	1,500	1,500	1,500	1,500	1,500	1,500
52	Water Distribution	Materials and Supplies	Other Supplies	12,900	13,300	13,700	14,100	14,500	14,900
53	Water Distribution	Materials and Supplies	Service Line Repair Materials	11,300	11,600	11,900	12,300	12,700	13,100
54	Water Distribution	Charges and Services	Other Contracted Services	33,500	34,500	35,500	36,600	37,700	38,800
55	Water Distribution	Charges and Services	Software Maintenance	7,300	7,500	7,700	7,900	8,100	8,300
56	Water Distribution	Charges and Services	Dues And Memberships	0	0	0	0	0	0
57	Water Distribution	Charges and Services	Professional Development and Travel	8,200	8,400	8,700	9,000	9,300	9,600
58	Water Distribution	Charges and Services	Utilities - Telephone	5,500	5,700	5,900	6,100	6,300	6,500
59	Water Distribution	Charges and Services	Cell Phone Stipend	0	0	0	0	0	0
60	Water Distribution	Charges and Services	Vehicle Rent and Maintenance	186,900	192,500	198,300	204,200	210,300	216,600
61	Water Distribution	Charges and Services	Rentals	4,100	4,200	4,300	4,400	4,500	4,600
62	Water Distribution	Charges and Services	Repair & Maintenance	86,500	89,100	91,800	94,600	97,400	100,300
63	Water Distribution	Capital Purchase	Other Capital	15,500	16,000	16,500	17,000	17,500	18,000
64	Water Distribution	Personnel	Salaries	405,900	418,100	430,600	443,500	456,800	470,500
65	Water Treatment	Personnel	Part Time Salaries	16,000	16,500	17,000	17,500	18,000	18,500
66	Water Treatment	Personnel	Overtime	20,600	21,200	21,800	22,500	23,200	23,900
67	Water Treatment	Personnel	FICA	1,100	1,200	1,300	1,400	1,500	1,700
68	Water Treatment	Personnel	Insurance	116,600	128,300	141,100	155,200	170,700	187,800
69	Water Treatment	Personnel	Retirement	51,000	56,100	61,700	67,900	74,700	82,200
70	Water Treatment	Personnel	Medicare	6,800	7,500	8,300	9,100	10,000	11,000
71	Water Treatment	Materials and Supplies	Office Supplies	1,000	1,000	1,000	1,000	1,000	1,000
72	Water Treatment	Materials and Supplies	Chemicals & Lab Supplies	188,100	193,700	199,500	205,500	211,700	218,100
73	Water Treatment	Materials and Supplies	Janitorial Supplies	500	500	500	500	500	500
74	Water Treatment	Materials and Supplies	Clothing and Uniforms	4,000	4,100	4,200	4,300	4,400	4,500
75	Water Treatment	Materials and Supplies	Books & Other Materials	500	500	500	500	500	500
76	Water Treatment	Materials and Supplies	Fuel	3,100	3,200	3,300	3,400	3,500	3,600
77	Water Treatment	Materials and Supplies	Hand Tools	2,600	2,700	2,800	2,900	3,000	3,100
78	Water Treatment	Materials and Supplies	Painting Supplies	2,100	2,200	2,300	2,400	2,500	2,600
79	Water Treatment	Materials and Supplies	Repair Parts & Materials	39,100	40,300	41,500	42,700	44,000	45,300
80	Water Treatment	Materials and Supplies	Other Supplies	6,200	6,400	6,600	6,800	7,000	7,200
81	Water Treatment	Charges and Services	Other Contracted Services	36,100	37,200	38,300	39,400	40,600	41,800
82	Water Treatment	Charges and Services	Software Maintenance	9,300	9,600	9,900	10,200	10,500	10,800
83	Water Treatment	Charges and Services	Printing	300	300	300	300	300	300
84	Water Treatment	Charges and Services	Books, News & Periodicals	0	0	0	0	0	0
85	Water Treatment	Charges and Services	Postage	1,500	1,500	1,500	1,500	1,500	1,500
86	Water Treatment	Charges and Services	Relocation Expenses	0	0	0	0	0	0
87	Water Treatment	Charges and Services	Dues And Memberships	0	0	0	0	0	0
88	Water Treatment	Charges and Services	Professional Development and Travel	11,700	12,100	12,500	12,900	13,300	13,700
89	Water Treatment	Charges and Services							

Table A-5
City of Durango, CO
Water Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Cost Center Name	Class Name	Object Name	Projected					
				2020	2021	2022	2023	2024	2025
				\$	\$	\$	\$	\$	\$
90	Water Treatment	Charges and Services	Utilities - Electric	118,500	122,100	125,800	129,600	133,500	137,500
91	Water Treatment	Charges and Services	Utilities - Water, Sewer, Trash	800	800	800	800	800	800
92	Water Treatment	Charges and Services	Utilities - Gas	15,500	16,000	16,500	17,000	17,500	18,000
93	Water Treatment	Charges and Services	Utilities - Telephone	4,000	4,100	4,200	4,300	4,400	4,500
94	Water Treatment	Charges and Services	Cell Phone Stipend	0	0	0	0	0	0
95	Water Treatment	Charges and Services	Vehicle Rent and Maintenance	12,600	13,000	13,400	13,800	14,200	14,600
96	Water Treatment	Charges and Services	Rentals	2,100	2,200	2,300	2,400	2,500	2,600
97	Water Treatment	Charges and Services	Repair & Maintenance	52,000	53,600	55,200	56,900	58,600	60,400
98	Water Treatment	Capital Purchase	Capital Transfer Out	0	0	0	0	0	0
99	Water Treatment	Capital Purchase	Other Capital	0	0	0	0	0	0
100	Water Meters	Personnel	Salaries	47,400	48,800	50,300	51,800	53,400	55,000
101	Water Meters	Personnel	Part Time Salaries	0	0	0	0	0	0
102	Water Meters	Personnel	Overtime	2,100	2,200	2,300	2,400	2,500	2,600
103	Water Meters	Personnel	Part Time Overtime	0	0	0	0	0	0
104	Water Meters	Personnel	FICA	0	0	0	0	0	0
105	Water Meters	Personnel	Insurance	23,500	25,900	28,500	31,400	34,500	38,000
106	Water Meters	Personnel	Retirement	5,900	6,500	7,200	7,900	8,700	9,600
107	Water Meters	Personnel	Medicare	800	900	1,000	1,100	1,200	1,300
108	Water Meters	Materials and Supplies	Fuel	2,300	2,400	2,500	2,600	2,700	2,800
109	Water Meters	Materials and Supplies	Hand Tools	2,300	2,400	2,500	2,600	2,700	2,800
110	Water Meters	Materials and Supplies	Repair Parts & Materials	18,500	19,100	19,700	20,300	20,900	21,500
111	Water Meters	Materials and Supplies	Other Supplies	23,700	24,400	25,100	25,900	26,700	27,500
112	Water Meters	Charges and Services	Other Contracted Services	2,100	2,200	2,300	2,400	2,500	2,600
113	Water Meters	Charges and Services	Software Maintenance	5,700	5,900	6,100	6,300	6,500	6,700
114	Water Meters	Charges and Services	Printing	2,500	2,600	2,700	2,800	2,900	3,000
115	Water Meters	Charges and Services	Utilities - Telephone	2,500	2,600	2,700	2,800	2,900	3,000
116	Water Meters	Charges and Services	Cell Phone Stipend	0	0	0	0	0	0
117	Water Meters	Charges and Services	Vehicle Rent and Maintenance	0	0	0	0	0	0
118	Water Meters	Charges and Services	Repair & Maintenance	3,600	3,700	3,800	3,900	4,000	4,100
119	Water Meters	Capital Purchase	Other Capital	0	0	0	0	0	0
120	Non-Departmental Misc.	Personnel	Unemployment	57,300	63,000	69,300	76,200	83,800	92,200
121	Non-Departmental Misc.	Charges and Services	Liability Insurance	75,200	77,500	79,800	82,200	84,700	87,200
122	Non-Departmental Misc.	Finance Use Only	Salary Contingency	0	0	0	0	0	0
123	0	0	Interfund Transfer	733,100	755,100	777,800	801,100	825,100	849,900
124	Total			3,890,400	4,046,000	4,209,600	4,382,100	4,564,100	4,756,500

Table A- 6
City of Durango, CO
Water Utility
Total Cost of Service

Line No.	Description	Operating Expense	Capital Expense	Total
	Revenue Requirements			
1	Operating & Maintenance Expense	3,890,400		3,890,400
2	Debt Service		246,265	246,265
3	Transfer To Capital Improvement Fund		0	0
4	Total Revenue Requirements	<u>3,890,400</u>	<u>246,265</u>	<u>4,136,665</u>
	Revenue Requirement Adjustments			
5	Miscellaneous Revenue	(118,600)		(118,600)
6	Transfer From Capital Fund		0	0
7	Interest Income	(49,600)		(49,600)
8	Operating Reserve Increase (Decrease)		3,301,826	3,301,826
9	Total Adjustments	<u>(168,200)</u>	<u>3,301,826</u>	<u>3,133,626</u>
10	Subtotal	<u>3,722,200</u>	<u>3,548,091</u>	<u>7,270,291</u>
11	Net Revenue Requirement			<u>7,270,291</u>

Table A- 8
City of Durango, CO
Water Utility
Allocation of Water System Assets
And Annual Capital Costs
Common to All Customers

Common to All Customers											
Line No.	Description	Original Cost	Volume		Customer Related					Total	
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Not Used	Not Used		Not Used
Water System Assets											
1	Land	705,687	705,687	0	0	0	0	0	0	0	705,687
2	Source of Supply	7,147,731	7,147,731	0	0	0	0	0	0	0	7,147,731
3	Wells / Treatment	8,975,108	4,193,976	4,781,133	0	0	0	0	0	0	8,975,108
4	Pump Station	5,042,152	2,356,146	2,686,006	0	0	0	0	0	0	5,042,152
5	Treated Storage	3,719,103	1,158,599	1,320,803	1,239,701	0	0	0	0	0	3,719,103
6	Transmission Mains	10,134,115	4,735,568	5,398,547	0	0	0	0	0	0	10,134,115
7	Distribution Mains	22,820,762	7,109,272	8,104,570	7,606,921	0	0	0	0	0	22,820,762
8	Customer Billing	0	0	0	0	0	0	0	0	0	0
9	Meters & Services	1,348,153	0	0	0	1,348,153	0	0	0	0	1,348,153
10	Public Fire	0	0	0	0	0	0	0	0	0	0
11	Unused	0	0	0	0	0	0	0	0	0	0
12	All Other Infrastructure	0	0	0	0	0	0	0	0	0	0
13	All Other General	0	0	0	0	0	0	0	0	0	0
14	Total Water System Assets	59,892,810	27,406,978	22,291,058	8,846,621	1,348,153	0	0	0	0	59,892,810
15	Percent of Total		45.8%	37.2%	14.8%	2.3%	0.0%	0.0%	0.0%	0.0%	
16	Annual Capital Costs	3,548,091	1,623,608	1,320,538	524,080	79,865	0	0	0	0	

Table A- 10
City of Durango, CO
Water Utility
Allocation of O&M Expenses
Common to All Customers

Line No.	Description	Total	Volume		Common to All					Total	
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Not Used	Not Used		Not Used
Operation and Maintenance Expense											
1	Source of Supply	173,713	173,713	0	0	0	0	0	0	0	173,713
2	Wells / Treatment	1,518,782	709,711	809,071	0	0	0	0	0	0	1,518,782
3	Pump Station	168,739	78,850	89,889	0	0	0	0	0	0	168,739
4	Treated Storage	0	0	0	0	0	0	0	0	0	0
5	Transmission Mains	535,867	250,405	285,462	0	0	0	0	0	0	535,867
6	Distribution Mains	1,062,511	331,000	377,340	354,170	0	0	0	0	0	1,062,511
7	Customer Billing	238,654	0	0	0	238,654	0	0	0	0	238,654
8	Meters & Services	192,133	0	0	0	192,133	0	0	0	0	192,133
9	Public Fire	0	0	0	0	0	0	0	0	0	0
10	Unused	0	0	0	0	0	0	0	0	0	0
11	All Other Infrastructure	0	0	0	0	0	0	0	0	0	0
12	All Other General	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0
	0										
14	Total O&M Expense	3,890,400	1,543,680	1,561,762	354,170	192,133	238,654	0	0	0	3,890,400
15	Percent of Total		39.7%	40.1%	9.1%	4.9%	6.1%	0.0%	0.0%	0.0%	
16	Miscellaneous Revenue Offsets	(168,200)	(66,740)	(67,522)	(15,312)	(8,307)	(10,318)	0	0	0	(168,200)
16	Net Annual O&M Expenses	3,722,200	1,476,940	1,494,240	338,858	183,827	228,336	0	0	0	3,722,200

Table A- 11
City of Durango, CO
Water Utility
Units of Service

Line No.	Customer Class	Water Use		Maximum Day Demand			Maximum Hour Demand			Bills	Equivalent Meters		Direct Weighted Fire Units	Indirect Weighted Fire Units
		Annual	Average Day	Demand Factor	Total Demand	Extra Demand	Demand Factor	Total Demand	Extra Demand		Capacity	Cost		
		1,000 gal	1,000 gal											
1	Residential	354,455	971	384%	3,725	2,754	575%	5,588	4,617	61,280	61,280	61,280	15	15
2	Duplex	22,229	61	316%	193	132	474%	289	228	3,057	3,167	3,071	1	1
3	Industrial/Commercial	468,540	1,284	342%	4,390	3,106	513%	6,585	5,302	15,795	62,781	27,978	26	26
4	Residential - Outside	32,682	90	384%	343	254	575%	515	426	4,999	4,999	4,999	4	4
5	Duplex - Outside	372	1	316%	3	2	474%	5	4	61	61	61	0	0
6	Industrial/Commercial - Outside	30,903	85	342%	290	205	513%	434	350	797	2,811	1,361	1	1
7	Ft. Lewis	23,154	63	261%	165	102	391%	248	184	12	504	71	0	0
8	Water Dock	4,544	12	315%	39	27	472%	59	46	0	0	0	0	0
9	Total	936,879	2,567		9,149	6,582		13,723	11,156	86,000	135,603	98,821	48	48

Table A- 12
City of Durango, CO
Water Utility
Unit Costs of Service

Line No.	Description	Total	Volume		Customer Related					
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Not Used	Not Used	Not Used
Allocated Revenue Requirement - Common to All Customers										
1	Operation and Maintenance Expense	3,722,200	1,476,940	1,494,240	338,858	183,827	228,336	0	0	0
2	Capital Cost	3,548,091	1,623,608	1,320,538	524,080	79,865	0	0	0	0
3	Total Cost of Service	7,270,291	3,100,548	2,814,777	862,938	263,692	228,336	0	0	0
		100%	43%	39%	12%	4%	3%	0%	0%	0%
	<u>Units</u>		<u>1,000 gal</u>	<u>gpd</u>	<u>gpd</u>	<u>Equivalent Meter Cost</u>	<u># Bills</u>	<u>Equivalent Meter Capacity</u>		
Units of Service Common to All Units										
4	Inside City		872,922	6,121	10,377	92,399.818	80,144	127,732		
5	Outside City		63,957	461	779	6,420.714	5,857	7,871		
6	Total Common to All Units		936,879	6,582	11,156	98,821	86,000	135,603		
4	Inside City		872,922	6,121	10,377	92,400	80,144	127,732		
7	Outside City		63,957	461	779	6,421	5,857	7,871		
Common to All Unit Cost of Service Inside City Costs										
8	Operation and Maintenance Expense		\$1.58	\$227.02	\$30.37	\$1.86	\$2.66	\$0.00		
9	Capital Cost		\$1.73	\$200.63	\$46.98	\$0.81	\$0.00	\$0.00		
10	Total Common to All		\$3.31	\$427.65	\$77.35	\$2.67	\$2.66	\$0.00		
Common to All Unit Cost of Service Outside City Costs										
11	Operation and Maintenance Expense		\$1.58	\$227.02	\$30.37	\$1.86	\$2.66	\$0.00		
12	Capital Cost		\$1.73	\$200.63	\$46.98	\$0.81	\$0.00	\$0.00		
13	Total Common to All		\$3.31	\$427.65	\$77.35	\$2.67	\$2.66	\$0.00		
14	System Wide Unit Costs		\$3.31	\$427.65	\$77.35	\$2.67	\$2.66	\$0.00		

Table A- 13
City of Durango, CO
Water Utility
Customer Class Cost of Service

Line No.	Description	Total	Volume		Customer Related					
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Not Used	Not Used	Not Used
Unit Costs of Service - \$/unit Common to All										
1	Inside City		\$3.31	\$427.65	\$77.35	\$2.67	\$2.66	\$0.00	\$0.00	
2	Outside City		\$3.31	\$427.65	\$77.35	\$2.67	\$2.66	\$0.00	\$0.00	
Residential										
3	Units		354,455	2,754	4,617	61,280	61,280	61,280		
4	Cost of Service - \$	\$3,034,222	\$1,173,047	\$1,177,841	\$357,113	\$163,519	\$162,702	\$0	\$0	
Duplex										
5	Units		22,229	132	228	3,071	3,057	3,167		
6	Cost of Service - \$	\$163,811	\$73,567	\$56,302	\$17,630	\$8,196	\$8,116	\$0	\$0	
Industrial/Commercial										
7	Units		468,540	3,106	5,302	27,978	15,795	62,781		
8	Cost of Service - \$	\$3,405,748	\$1,550,606	\$1,328,478	\$410,071	\$74,656	\$41,937	\$0	\$0	
Residential - Outside										
9	Units		32,682	254	426	4,999	4,999	4,999		
10	Cost of Service - \$	\$276,300	\$108,160	\$108,602	\$32,927	\$13,339	\$13,272	\$0	\$0	
Duplex - Outside										
11	Units		372	2	4	61	61	61		
12	Cost of Service - \$	\$2,793	\$1,231	\$942	\$295	\$163	\$162	\$0	\$0	
Industrial/Commercial - Outside										
13	Units		30,903	205	350	1,361	797	2,811		
14	Cost of Service - \$	\$222,687	\$102,272	\$87,621	\$27,047	\$3,631	\$2,116	\$0	\$0	
Ft. Lewis										
15	Units		23,154	102	184	71	12	504		
16	Cost of Service - \$	\$134,662	\$76,627	\$43,547	\$14,268	\$189	\$32	\$0	\$0	
Water Dock										
17	Units		4,544	27	46	0	0	0		
18	Cost of Service - \$	\$30,069	\$15,038	\$11,444	\$3,586	\$0	\$0	\$0	\$0	
19	Total Cost of Service	\$7,270,291	\$3,100,548	\$2,814,777	\$862,938	\$263,692	\$228,336	\$0	\$0	

Table A-14
City of Durango, CO
Water Utility
Comparison of Cost of Service With Revenues Under Existing Rates

Line No.	Customer Class	2020 Cost of Service	Revenue Under Existing Rates	Indicated Revenue Adjustment
1	Residential	\$3,034,222	\$2,914,435	4.1%
2	Duplex	163,811	163,752	0.0%
3	Industrial/Commercial	3,405,748	3,363,533	1.3%
4	Residential - Outside	276,300	277,753	-0.5%
5	Duplex - Outside	2,793	2,548	9.6%
6	Industrial/Commercial - Outside	222,687	211,907	5.1%
7	Ft. Lewis	134,662	121,104	11.2%
8	Water Dock	30,069	72,704	-58.6%
9	Total System	\$7,270,291	\$7,127,737	2.0%

Table A- 15
City of Durango, CO
Water Utility
Development of Alternative 3 Base Charge Revenue Requirement

Line No.	Description	No Differential	Using Differential	
		Total	Inside City	Outside City
1	Cost of Service	\$7,270,291		
2	Percent of Costs Recovered in Fixed Charge	25.0%		
3	Total Fixed Charges to be Recovered	\$1,817,573		
4	Total Meter Cost of Service	\$263,692		
5	Inside - Equivalent Bills (Meter Cost)	92,400		
6	Outside - Equivalent Bills (Meter Cost)	6,421		
7	Inside - \$ Per Equivalent Bill	2.67	\$2.67	
6	Outside - \$ Per Equivalent Bill	2.67		\$2.67
	Billing and Admin Costs			
8	Total Billing Cost of Service	\$228,336		
9	Inside - Bills	80,144		
10	Outside - Bills	5,857		
11	Inside - \$ Per Bill	2.66	\$2.66	
12	Outside - \$ Per Bill	2.66		\$2.66
	Distribution Costs	\$514,935		
13	Inside - Equivalent Bills (Meter Capacity)	127,732		
14	Outside - Equivalent Bills (Meter Capacity)	7,871		
15	Inside - Unit Cost, \$ Equivalent Bill	\$3.80	\$3.66	
16	Outside - Unit Cost, \$ Equivalent Bill			\$5.97
17	Other Fixed Costs	\$810,610		
18	Inside - Equivalent Bills (Meter Capacity)	127,732		
19	Outside - Equivalent Bills (Meter Capacity)	7,871		
20	Inside - Unit Cost, \$ Equivalent Bill	5.98	\$5.98	
21	Outside - Unit Cost, \$ Equivalent Bill	5.98		\$5.98
22	Total	\$1,817,573	\$14.96	\$17.27

Table A- 16
City of Durango, CO
Water Utility
Inside City Monthly Fixed Base Charge

Line No.	Meter Size	Meter Capacity Ratio	Meter Cost Ratio	Meter Costs	Billing Costs	Capital Costs	Rounded Total	Bills	Charge
1	5/8 inch	1.00	1.00	\$2.67	\$2.66	\$9.64	\$14.97	70,073	\$1,048,998
2	3/4 inch	1.67	1.00	2.67	2.66	\$16.07	\$21.40	2,477	\$53,001
3	1 inch	2.67	1.40	3.74	2.66	\$25.71	\$32.11	3,468	\$111,367
4	1.5 inch	6.67	3.20	8.54	2.66	\$64.27	\$75.47	2,176	\$164,234
5	2 inch	10.67	3.90	10.41	2.66	\$102.84	\$115.91	1,447	\$167,696
6	3 inch	23.33	4.30	11.47	2.66	\$224.96	\$239.10	395	\$94,343
7	4 inch	42.00	5.90	15.74	2.66	\$404.93	\$423.33	96	\$40,512
8	6 inch	93.33	10.60	28.28	2.66	\$899.85	\$930.79	12	\$11,129
9	Total							80,144	\$1,691,281

City of Durango, CO
Water Utility
Outside City Monthly Fixed Base Charge

Line No.	Meter Size	Meter Capacity Ratio	Meter Cost Ratio	Meter Costs	Billing Costs	Capital Costs [1]	Rounded Total	Bills	Total Base Charge	Policy Adjusted [2]
1	5/8 inch	1.00	1.00	\$2.67	\$2.66	\$11.95	\$17.28	5,286	\$91,340	\$17.21
2	3/4 inch	1.67	1.00	\$2.67	\$2.66	\$19.92	\$25.24	190	\$4,804	\$24.61
3	1 inch	2.67	1.40	\$3.74	\$2.66	\$31.86	\$38.26	167	\$6,372	\$36.92
4	1.5 inch	6.67	3.20	\$8.54	\$2.66	\$79.66	\$90.86	190	\$17,293	\$86.79
5	2 inch	10.67	3.90	\$10.41	\$2.66	\$127.46	\$140.52	0	\$0	\$133.29
6	3 inch	23.33	4.30	\$11.47	\$2.66	\$278.81	\$292.95	24	\$6,970	\$274.96
7	4 inch	42.00	5.90	\$15.74	\$2.66	\$501.86	\$520.27	0	\$0	\$486.82
8	6 inch	93.33	10.60	\$28.28	\$2.66	\$1,115.25	\$1,146.20	0	\$0	\$1,070.40
9	Total							5,857	\$126,778	
									Total Inside City and Outside City	\$1,818,059

[1] Capital cost includes the outside City distribution costs adjusted for the 1.63 density differential in shown in Table A-15. The 3/4" outside City base charge will be 1.15 inside City. For larger meter sizes, the differential will increase as meter size increases. This is due to the increased capacity ratios.

[2] Service charge is adjusted to meet 1.15 differential for all meter sizes.

Table A- 18
City of Durango, CO
Water Utility
Development of Volume Rate Revenue

Line No.	Customer Class	Uniform Rate Calculation				Tiered Rate Calculation				Use (Kgal)	Uniform Charge Projected Revenue	Tiered Projected Revenue
		Total Adjusted COS	Fixed Base Charge Rev	Difference	Use (Kgal)	Uniform Rate	Upper Limit of Tier (Kgal)	Tier Differential	% Use in Tier			
1	Residential Inside	\$3,034,222	\$917,359	\$2,116,863	354,455	\$5.97				354,455	\$2,116,863	
2	0 - 4,000		30.2%	69.8%			4,000	1.00	47.0%	\$3.44		\$573,107
3	4,001 - 10,000						10,000	1.60	24.8%	\$5.50		483,643
4	10,001 - 18,000						18,000	2.40	13.7%	\$8.25		399,714
5	18,001 +						Over	3.70	14.5%	\$12.73		655,581
											Total	\$2,112,045
6	Duplex	\$163,811	\$46,859	\$116,951	22,229	\$5.26				22,229	\$116,951	
7	0 - 4,000		28.6%	71.4%			4,000	1.00	46.5%	\$3.25		\$33,551
8	4,001 - 10,000						10,000	1.60	31.2%	\$5.20		36,038
9	10,001 - 18,000						18,000	2.40	13.4%	\$7.80		23,246
10	18,001 +						Over	3.70	8.9%	\$12.02		23,900
											Total	\$116,735
11	Industrial/Commercial	\$3,405,748	\$721,983	\$2,683,765	468,540	\$5.73				468,540	\$2,683,765	
12	0 - 300,000		21.2%	78.8%			10,000	1.00	78.9%	\$5.29		\$1,958,093
13	300,001 +						Over	1.40	21.1%	\$7.41		731,613
											Total	\$2,689,706
14	Residential - Outside	276,300	\$86,378	\$189,922	32,682	\$5.81				32,682	\$189,922	
15	Tier 1		31.3%	68.7%			4,000	1.00	47.0%	\$3.44		\$52,843
16	Tier 2						10,000	1.60	24.8%	\$5.50		44,594
17	Tier 3						18,000	2.40	13.7%	\$8.25		36,855
18	Tier 4						Over	3.70	14.5%	\$12.73		60,448
											Total	\$194,740
19	Duplex Outside	2,793	\$1,056	\$1,737	372	\$4.67				372	\$1,737	
20	Tier 1		37.8%	62.2%			4,000	1.00	46.5%	\$3.25		\$561
21	Tier 2						10,000	1.60	31.2%	\$5.20		603
22	Tier 3						18,000	2.40	13.4%	\$7.80		389
23	Tier 4						Over	3.70	8.9%	\$12.02		400
											Total	\$1,953
24	Industrial/Commercial Outside	222,687	\$39,344	\$183,343	30,903	\$5.93				30,903	\$183,343	
25	Tier 1		17.7%	82.3%			10,000	1.00	78.9%	\$5.29		\$129,148
26	Tier 2						Over	1.40	21.1%	\$7.41		48,254
											Total	\$177,402
27	Ft. Lewis	134,662	\$5,080	\$129,582	23,154	\$5.60				23,154	\$129,582	\$129,582
28	Water Dock	30,069	0	\$30,069	4,544	\$6.62				4,544	\$30,069	\$30,069
		<u>\$7,270,291</u>	<u>\$1,818,059</u>								<u>\$5,452,232</u>	<u>\$5,452,232</u>

APPENDIX B:

**WASTEWATER UTILITY
FINANCIAL PLAN, COST
OF SERVICE, AND RATE
DESIGN**

Table B-1
City of Durango, CO
Wastewater Utility
Capital Fund Cash Flow Analysis

Line No.	Description	2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
Sources of Funds							
1	Transfer From Operating Fund	0	0	0	1,656,993	1,188,303	2,671,221
2	Plant Investment Fees	201,875	208,347	225,940	243,025	241,390	240,007
3	Revenue Bond Proceeds	0	0	0	0	0	0
4	State and Other Loan Proceeds	0	0	0	0	0	0
5	Investment Income	68,300	47,800	30,900	19,400	14,200	14,100
6	Total Sources	270,175	256,147	256,840	1,919,418	1,443,893	2,925,328
Uses of Funds							
7	Capital Improvement Projects	2,266,000	2,360,503	1,529,818	2,954,461	1,449,093	2,925,428
8	Debt Service Reserve and Issuance Expense	0	0	0	0	0	0
9	Transfer To Operating Fund	0	0	0	0	0	0
10	Total Uses	2,266,000	2,360,503	1,529,818	2,954,461	1,449,093	2,925,428
11	Annual Surplus (Deficiency)	(1,995,825)	(2,104,356)	(1,272,978)	(1,035,042)	(5,200)	(100)
12	Beginning Balance	7,827,600	5,831,775	3,727,420	2,454,442	1,419,400	1,414,200
13	Ending Balance	5,831,775	3,727,420	2,454,442	1,419,400	1,414,200	1,414,100
14	Target Reserve (1 yr. Dep. Exp. @ RCN)	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000

[1] RCN = Replacement Cost New

Table B-2
City of Durango, CO
Wastewater Utility
Operating Fund Cash Flow Analysis

Line No.	Description	2020 \$	2021 \$	2022 \$	2023 \$	2024 \$	2025 \$
Sources of Funds							
Service Charge Revenue							
1	Total Revenue from Existing Wastewater Fees [1]	7,924,225	8,060,051	8,131,436	8,208,218	8,284,484	8,360,313
2	Additional Wastewater Rate Rev. from Rate Inc.	237,727	490,857	754,004	1,030,204	1,319,504	1,622,338
3	Total Wastewater Rate Revenue	8,161,952	8,550,909	8,885,440	9,238,422	9,603,988	9,982,651
4	Other Miscellaneous Revenue	5,200	5,400	5,600	5,800	6,000	6,200
5	Transfer From Capital Fund	0	0	0	0	0	0
6	Investment Income	11,800	18,900	27,800	28,900	25,500	19,700
7	Total Sources	8,178,952	8,575,209	8,918,840	9,273,122	9,635,488	10,008,551
Uses of Funds							
8	Total Operations and Maintenance	4,184,500	4,362,500	4,550,500	4,978,800	4,968,700	5,193,500
Debt Service							
9	Existing	3,397,743	3,396,841	3,393,663	3,394,031	3,397,231	3,397,686
10	Proposed - Revenue Bonds	0	0	0	0	0	0
11	Proposed - State and Other Loans	0	0	0	0	0	0
12	Total Debt Service	3,397,743	3,396,841	3,393,663	3,394,031	3,397,231	3,397,686
13	Transfer To Capital Fund	0	0	0	1,656,993	1,188,303	2,671,221
14	Total Uses	7,582,243	7,759,341	7,944,163	10,029,824	9,554,234	11,262,407
15	Annual Surplus (Deficiency)	596,709	815,868	974,677	(756,702)	81,254	(1,253,857)
16	Beginning Balance	881,078	1,477,787	2,293,654	3,268,331	2,511,629	2,592,883
17	Ending Balance	1,477,787	2,293,654	3,268,331	2,511,629	2,592,883	1,339,026
18	Target Operating Reserves	700,000	730,000	760,000	830,000	830,000	870,000
19	Unrestricted Funds	777,787	1,563,654	2,508,331	1,681,629	1,762,883	469,026
20	Annual Wastewater Service Rev. Inc.	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
21	Cumulative Revenue Increase	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%

[1] Projected 2020 wastewater rate revenue has been reduced by approximately \$70,000 to reflect a correction in projected commercial billable volume. The revenue requirement is unadjusted amount of \$8,234,052.

Table B-3
City of Durango, CO
Wastewater Utility
Combined Wastewater Enterprise Fund

Line No.	Description	2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
SOURCES OF FUNDS							
Wastewater Rate Revenue							
1	Revenue from Existing Wastewater Fees	7,924,225	8,060,051	8,131,436	8,208,218	8,284,484	8,360,313
2	Additional Wastewater Rate Rev. from Rate Inc.	237,727	490,857	754,004	1,030,204	1,319,504	1,622,338
3	Total Wastewater Rate Revenue	8,161,952	8,550,909	8,885,440	9,238,422	9,603,988	9,982,651
Miscellaneous Revenues							
4	Other Miscellaneous Revenue	5,200	5,400	5,600	5,800	6,000	6,200
5	Plant Investment Fees	201,875	208,347	225,940	243,025	241,390	240,007
6	Revenue Bond Proceeds	0	0	0	0	0	0
7	State and Other Loan Proceeds	0	0	0	0	0	0
8	Investment Income	80,100	66,700	58,700	48,300	39,700	33,800
9	Total Miscellaneous Revenues	287,175	280,447	290,240	297,125	287,090	280,007
10	TOTAL SOURCES OF FUNDS	8,449,128	8,831,356	9,175,680	9,535,547	9,891,078	10,262,658
USES OF FUNDS							
11	Operation and Maintenance Expense	4,184,500	4,362,500	4,550,500	4,978,800	4,968,700	5,193,500
12	Capital Improvement Projects	2,266,000	2,360,503	1,529,818	2,954,461	1,449,093	2,925,428
Debt Service							
13	Existing	3,397,743	3,396,841	3,393,663	3,394,031	3,397,231	3,397,686
14	Proposed - Revenue Bonds	0	0	0	0	0	0
15	Proposed - State & Other	0	0	0	0	0	0
16	Interest During Construction	0	0	0	0	0	0
17	Total Debt Service	3,397,743	3,396,841	3,393,663	3,394,031	3,397,231	3,397,686
18	Debt Service Reserve and Issuance Exp.	0	0	0	0	0	0
19	TOTAL USES OF FUNDS	9,848,243	10,119,844	9,473,981	11,327,292	9,815,024	11,516,614
20	Annual Surplus (Deficiency)	(1,399,115)	(1,288,488)	(298,301)	(1,791,744)	76,054	(1,253,957)
21	Beginning Balance	8,708,678	7,309,562	6,021,074	5,722,773	3,931,029	4,007,083
22	Ending Balance	7,309,562	6,021,074	5,722,773	3,931,029	4,007,083	2,753,126
23	Target Reserves	2,100,000	2,130,000	2,160,000	2,230,000	2,230,000	2,270,000
24	Unrestricted Reserves	5,209,562	3,891,074	3,562,773	1,701,029	1,777,083	483,126
25	Annualized Wastewater Service Rev. Inc.	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
26	Cumulative Revenue Increase	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%
27	Debt Service Coverage (Including PIFs)	1.26	1.32	1.36	1.34	1.45	1.49
28	Debt Service Coverage (Excluding PIFs)	1.20	1.25	1.30	1.27	1.38	1.42

Table B-4
City of Durango, CO
Wastewater Utility
Wastewater 10-Yr Capital Improvement Plan (Inflated)

Annual Inflation	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Cumulative Inflation [1]	3.0%	6.1%	9.3%	12.6%	15.9%	19.4%

Line No.	Title	2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
1	Lift Station Replacement	0	424,360	0	450,204	0	477,621
2	In-Situ Sewer Line Replacement and MH Rehab.	1,287,500	1,326,125	1,365,909	1,406,886	1,449,093	1,492,565
3	LiftStation Generators	0	185,658	0	196,964	0	0
4	River Crossings	412,000	0	0	450,204	0	477,621
5	Collection System Flow Mon. and Control Sys. (I/I)	103,000	0	109,273	0	0	0
6	Sewer Inflow Study	0	0	0	0	0	0
7	Limited Storage Liftstation/Emergecnry Vaults	0	424,360	0	450,204	0	477,621
8	Fiber upgrade and expansion	51,500	0	54,636	0	0	0
9	Santa Rita Utilities Administration Building	0	0	0	0	0	0
10	Vactor Garage	0	0	0	0	0	0
11	Sewer Rate Study	0	0	0	0	0	0
12	Sanitary Sewer Trunkline Maintenance	412,000	0	0	0	0	0
13	Collections System Assessment	0	0	0	0	0	0
14	SCADA Network Upgrade	0	0	0	0	0	0
	2018 Capital Estimate	0	0	0	0	0	0
	0	0	0	0	0	0	0
15	Total CIP Program	2,266,000	2,360,503	1,529,818	2,954,461	1,449,093	2,925,428

Table B-5
City of Durango, CO
Wastewater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Object Name	Projected					
		2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
1	Salaries	226,100	232,900	239,900	247,100	254,500	262,100
2	Overtime	1,600	1,600	1,600	1,600	1,600	1,600
3	Insurance	56,900	62,600	68,900	75,800	83,400	91,700
4	Retirement	27,300	30,000	33,000	36,300	39,900	43,900
5	Medicare	3,500	3,900	4,300	4,700	5,200	5,700
6	Office Supplies	2,600	2,700	2,800	2,900	3,000	3,100
7	Clothing and Uniforms	900	900	900	900	900	900
8	Other Supplies	3,100	3,200	3,300	3,400	3,500	3,600
9	Professional Services	0	0	0	0	0	0
10	Other Contracted Services	35,000	36,100	37,200	38,300	39,400	40,600
11	Software Maintenance	5,200	5,400	5,600	5,800	6,000	6,200
12	Printing	700	700	700	700	700	700
13	Books, News & Periodicals	500	500	500	500	500	500
14	Postage	11,300	11,600	11,900	12,300	12,700	13,100
15	Credit Card Fees	36,100	37,200	38,300	39,400	40,600	41,800
16	Dues And Memberships	2,200	2,300	2,400	2,500	2,600	2,700
17	Auto Allowance & Mileage	0	0	0	0	0	0
18	Professional Development and Travel	6,600	7,300	8,000	8,800	9,700	10,700
19	Utilities - Telephone	1,100	1,100	1,100	1,100	1,100	1,100
20	Cell Phone Stipend	0	0	0	0	0	0
21	Vehicle Rent and Maintenance	0	0	0	0	0	0
22	Other Capital	0	0	0	0	0	0
23	Salaries	467,200	481,200	495,600	510,500	525,800	541,600
24	Overtime	24,200	24,900	25,600	26,400	27,200	28,000
25	FICA	0	0	0	0	0	0
26	Insurance	192,200	211,400	232,500	255,800	281,400	309,500
27	Retirement	58,700	64,600	71,100	78,200	86,000	94,600
28	Medicare	7,600	8,400	9,200	10,100	11,100	12,200
29	Office Supplies	200	200	200	200	200	200
30	Chemicals & Lab Supplies	1,500	1,500	1,500	1,500	1,500	1,500
31	Clothing and Uniforms	8,800	9,100	9,400	9,700	10,000	10,300
32	Fuel	10,300	10,600	10,900	11,200	11,500	11,800
33	Hand Tools	3,100	3,200	3,300	3,400	3,500	3,600
34	Repair Parts & Materials	40,700	41,900	43,200	44,500	45,800	47,200
35	Traffic Control Devices	1,500	1,500	1,500	1,500	1,500	1,500
36	Inventory Writeoff	0	0	0	0	0	0
37	Other Supplies	12,600	13,000	13,400	13,800	14,200	14,600
38	Other Contracted Services	77,500	79,800	82,200	84,700	87,200	89,800
39	Software Maintenance	8,200	8,400	8,700	9,000	9,300	9,600
40	Dues And Memberships	0	0	0	0	0	0
41	Professional Development and Travel	7,000	7,700	8,500	9,400	10,300	11,300
42	Utilities - Electric	25,800	26,600	27,400	28,200	29,000	29,900
43	Utilities - Gas	0	0	0	0	0	0
44	Utilities - Telephone	15,000	15,500	16,000	16,500	17,000	17,500
45	Cell Phone Stipend	0	0	0	0	0	0
46	Vehicle Rent and Maintenance	192,700	198,500	204,500	210,600	216,900	223,400
47	Rentals	5,200	5,400	5,600	5,800	6,000	6,200
48	Repair & Maintenance	39,300	40,500	41,700	43,000	44,300	45,600
49	Other Capital	15,500	16,000	16,500	17,000	17,500	18,000
50	Salaries	552,200	568,800	585,900	603,500	621,600	640,200

Table B-5
City of Durango, CO
Wastewater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Object Name	Projected					
		2020	2021	2022	2023	2024	2025
		\$	\$	\$	\$	\$	\$
51	Overtime	20,600	21,200	21,800	22,500	23,200	23,900
52	Insurance	174,700	192,200	211,400	232,500	255,800	281,400
53	Retirement	68,500	75,400	82,900	91,200	100,300	110,300
54	Medicare	8,900	9,800	10,800	11,900	13,100	14,400
55	Chemicals & Lab Supplies	62,600	64,500	66,400	68,400	70,500	72,600
56	Office Supplies	0	0	0	0	0	0
57	Janitorial Supplies	1,000	1,000	1,000	1,000	1,000	1,000
58	Clothing and Uniforms	1,800	1,900	2,000	2,100	2,200	2,300
59	Fuel	6,200	6,400	6,600	6,800	7,000	7,200
60	Hand Tools	2,100	2,200	2,300	2,400	2,500	2,600
61	Painting Supplies	1,500	1,500	1,500	1,500	1,500	1,500
62	Repair Parts & Materials	82,400	84,900	87,400	90,000	92,700	95,500
63	Other Supplies	9,300	9,600	9,900	10,200	10,500	10,800
64	Professional Services	0	0	0	0	0	0
65	Other Contracted Services	278,800	287,200	295,800	304,700	313,800	323,200
66	Software Maintenance	7,200	7,400	7,600	7,800	8,000	8,200
67	Books, News & Periodicals	500	500	500	500	500	500
68	Postage	2,100	2,200	2,300	2,400	2,500	2,600
69	Dues And Memberships	0	0	0	0	0	0
70	Professional Development and Travel	8,800	9,700	10,700	11,800	13,000	14,300
71	Utilities - Electric	187,500	193,100	198,900	204,900	211,000	217,300
72	Utilities - Water, Sewer, Trash	3,900	4,000	4,100	4,200	4,300	4,400
73	Utilities - Gas	20,600	21,200	21,800	22,500	23,200	23,900
74	Utilities - Telephone	2,300	2,400	2,500	2,600	2,700	2,800
75	Cell Phone Stipend	0	0	0	0	0	0
76	Vehicle Rent and Maintenance	9,500	9,800	10,100	10,400	10,700	11,000
77	Rentals	5,200	5,400	5,600	5,800	6,000	6,200
78	Repair & Maintenance	77,800	80,100	82,500	85,000	87,600	90,200
79	Other Capital	6,900	7,100	7,300	236,000	14,600	15,000
80	Unemployment	31,100	34,200	37,600	41,400	45,500	50,100
81	Liability Insurance	62,600	68,900	75,800	83,400	91,700	100,900
82	Salary Contingency	29,200	32,100	35,300	38,800	42,700	47,000
83	Interfund Transfer	823,200	847,900	873,300	899,500	926,500	954,300
84	Total	4,184,500	4,362,500	4,550,500	4,978,800	4,968,700	5,193,500

Table B-6
City of Durango, CO
Wastewater Utility
Total Cost of Service

Line No.	Description	Flow Costs \$	Customer Billing Costs \$	Total \$
	Revenue Requirements			
1	Operation and Maintenance Expense	3,763,259	421,241	4,184,500
2	Capital	669,209		669,209
3	Debt Service	3,397,743		3,397,743
4	Total Revenue Requirements	7,830,211	421,241	8,251,452
	Revenue Requirement Adjustments			
5	Other Miscellaneous Revenue		(5,200)	(5,200)
6	Investment Income		(12,200)	(12,200)
				0
8	Total Adjustments	0	(17,400)	(17,400)
				0
9	Net Revenue Requirement	7,830,211	403,841	8,234,052

Table B-7
City of Durango, CO
Wastewater Utility
Calculation of Fixed Charge and Volume Rate

Line No.	Description	Total City Amount	With Differential	
			Inside City	Outside City
1	Total 2020 Revenue Requirement	\$8,234,052		
2	Percent of Costs Recovered in Fixed Charge	25.0%		
3	Total Fixed Charges to be Recovered	\$2,058,513		
4	Total Customer and Billing Costs	\$403,841		
5	Inside - Bills	68,523		
6	Outside - Bills	3,743		
7	Inside Unit Cost, \$ per Bill	5.59	5.588	
8	Outside Unit Cost, \$ per Bill	5.59		5.588
9	Collection System Depreciation Costs	238,007		
10	Inside - Equivalent Bills (Meter Capacity)	97,610		
11	Outside - Equivalent Bills (Meter Capacity)	5,369		
12	Inside Unit Cost, \$ per Bill	2.31	2.145	
13	Outside Unit Cost, \$ per Bill	2.31		5.340
14	Other Fixed Costs	\$1,416,665		
15	Inside - Equivalent Bills (Meter Capacity)	97,610		
16	Outside - Equivalent Bills (Meter Capacity)	5,369		
17	Inside Unit Cost, \$ per Bill	13.76	13.757	
18	Outside Unit Cost, \$ per Bill	13.76		13.757
19	Total \$ per 3/4" Equivalent Meter	\$2,058,513	\$21.49	\$24.69
20	Total Costs to be Recovered in Volume Charge	\$6,175,539		

Customer Class	Billable Volume	% of Total	Revenue Distribution	Unit Rate
21 Residential - Single Family	154,832	28.5%	\$1,759,621	\$11.36
21 Residential - Duplex	14,953	2.8%	169,940	11.36
22 Commercial & Industrial	338,915	62.4%	3,851,661	11.36
22 Sewer Only Flat	64	0.0%	727	11.36
23 Sewer Comm Other	4,612	0.8%	52,414	11.36
23 Residential - Single Family - Outside	14,975	2.8%	170,189	11.36
24 Residential - Duplex - Outside	249	0.0%	2,834	11.36
24 Commercial & Industrial - Outside	14,796	2.7%	168,152	11.36
25 Total	543,397	100.0%	6,175,539	\$11.36

Table B-8
City of Durango, CO
Wastewater Utility
Calculation of Base Charge

Inside City

Line No.	Meter Size	Meter Capacity Ratio	Meter Costs	Collection Costs	Rounded Total	Bills	Base Charge Revenue	Billing Revenue	Collection Revenue	Total
1	5/8 inch	1.00	\$5.59	\$2.14	\$21.49	57,749	\$1,241,024	\$322,714	\$123,849	\$1,241,005
2	3/4 inch	1.67	\$5.59	\$3.57	\$32.09	5,833	\$187,182	\$32,596	\$20,849	\$187,186
3	1 inch	2.67	\$5.59	\$5.72	\$47.99	2,575	\$123,552	\$14,387	\$14,724	\$123,557
4	1.5 inch	6.67	\$5.59	\$14.30	\$111.60	1,441	\$160,857	\$8,055	\$20,608	\$160,854
5	2 inch	10.67	\$5.59	\$22.88	\$175.20	697	\$122,159	\$3,896	\$15,950	\$122,162
6	3 inch	23.33	\$5.59	\$50.04	\$376.62	224	\$84,510	\$1,254	\$11,229	\$84,510
7	4 inch	42.00	\$5.59	\$90.07	\$673.45	24	\$15,907	\$132	\$2,128	\$15,907
8	6 inch	93.33	\$5.59	\$200.16	\$1,489.72	0	\$0	\$0	\$0	\$0
9	Total					68,543	\$1,935,192	\$383,034	\$209,337	\$1,935,182

Outside City

Line No.	Meter Size	Meter Capacity Ratio	Billing Costs	Collection Costs [1]	Rounded Total	Equivalent Bills	Service Charge Revenue	Billing Revenue	Collection Revenue	Total	Policy Adjusted [2]
1	5/8 inch	1.00	\$5.59	\$5.34	\$24.69	3,076	\$75,938	\$17,187.55	\$16,424.37	\$75,923.50	\$24.71
2	3/4 inch	1.67	\$5.59	\$8.90	\$37.42	461	\$17,238	\$2,574.22	\$4,099.87	\$17,235.95	\$36.90
3	1 inch	2.67	\$5.59	\$14.24	\$56.51	47	\$2,660	\$263.02	\$670.24	\$2,659.90	\$55.18
4	1.5 inch	6.67	\$5.59	\$35.60	\$132.90	117	\$15,483	\$651.03	\$4,147.47	\$15,482.97	\$128.34
5	2 inch	10.67	\$5.59	\$56.96	\$209.29	12	\$2,438	\$65.10	\$663.59	\$2,438.21	\$201.48
6	3 inch	23.33	\$5.59	\$124.60	\$451.18	0	\$0	\$0.00	\$0.00	\$0.00	\$433.11
7	4 inch	42.00	\$5.59	\$224.28	\$807.66	12	\$9,598	\$66.41	\$2,665.25	\$9,597.74	\$774.46
8	6 inch	93.33	\$5.59	\$498.41	\$1,787.97	0	\$0	\$0	\$0	\$0	\$1,713.17
9	Total					3,723	\$123,355	\$20,807	\$28,671	\$123,338	
							Total	\$403,841	\$238,007	\$2,058,520	

[1] Capital cost includes the outside City distribution costs adjusted for the 1.63 density differential in shown in Table A-15. The 3/4" outside City base charge will be 1.15 inside City. For larger meter sizes, the differential will increase as meter size increases. This is due to the increased capacity ratios.

[2] Service charge is adjusted to meet 1.15 differential for all meter sizes.

Table B-9
City of Durango, CO
Wastewater Utility
Comparison of 2020 Cost of Service to 2020 Revenue at Current Rates

Line No	Customer Class	Cost of Service	2020 Revenue at 2019 Rates	Change - \$	Change - %
1	Residential - Single Family	\$2,968,980	\$2,748,368	\$220,613	8.0%
2	Residential - Duplex	\$235,669	\$219,199	\$16,470	7.5%
3	Commercial & Industrial	\$4,508,646	\$4,151,538	\$357,108	8.6%
4	Sewer Only Flat	\$1,157	\$384	\$773	201.2%
5	Sewer Comm Other	\$55,092	\$49,492	\$5,600	11.3%
6	Residential - Single Family - Outside	\$263,538	\$463,246	(\$199,708)	-43.1%
7	Residential - Duplex - Outside	\$4,042	\$7,340	(\$3,298)	-44.9%
8	Commercial & Industrial - Outside	\$196,927	\$354,658	(\$157,731)	-44.5%
9	Total	\$8,234,052	\$7,994,225	\$239,827	3.0%

APPENDIX C:
PLANT INVESTMENT FEES

Table C-1
City of Durango
Water Utility
Development of 3/4" Plant Investment Fee

Description	Calculation
Total Backbone Replacement Cost	\$134,860,481
Less: Developer Contributed Assets (2)	<u>(30,371,042)</u>
Net Replacement Cost Assets (3)	\$104,489,439
Total peak day capacity (MGD) [4]	14.0
Peak day 5/8" & 3/4" meter water use (gpd) [5]	712
System 5/8" & 3/4" meter capacity	19,651
Value per 5/8" & 3/4" meter	<u>\$5,317</u>
Tap Fee	
Proposed PIF (Up to a 3/4" Meter)	\$5,320
Current PIF (Up to 3/4" Meter)	<u>\$6,039</u>
Difference - \$	<u>(\$719)</u>
Difference - %	<u>-12%</u>

[1] Source: 2018BalanceSheetPreliminaryWaterSewer.pdf

[2] Assets marked as developer contributed in City's asset listing.

[3] Excludes principal credit on 2013 State Loans for water rights purchases. Water rights are not included in asset listir

[4] Source: Email from J. Biggs on 3/18/19

[5] Average daily use of 273.63 gpd per account from all 5/8" & 3/4" meters in 2018, multiplied by peaking factor of 2.6 (Comprehensive Plan Update, December 2006, Boyle Engineering, pg. 10)

Residential Usage 2018	347,879.00 kgal
Residential Accounts 2018	5,033 accounts
Residential Annual Use Per Account	69.12 kgal/account
Residential Daily Use Per Account	189.37 gal/day/account
Coincidental Peaking Factor	2.60
Residential Peak Daily Use Per Account	492.36 gal/day/account

Total City Water Usage 2018	929,278.00 kgal
3/4" Equivalents	7,197.40 equivalents
Use per Equivalent	129.11 kgal/equivalent
Average Day Use per Equivalent	353.73 gal/day/equivalent
Coincidental Peaking Factor	2.60
Peak Day Usage per 3/4" Equivalent	919.71 gal/day/equivalent

5/8" & 3/4" Meter Usage 2018	538,365.00 kgal
5/8" & 3/4" Meter Accounts 2018	5,383 accounts
5/8" & 3/4" Meter Annual Use Per Account	100.01 kgal/account
5/8" & 3/4" Meter Daily Use Per Account	274.01 gal/day/account
Coincidental Peaking Factor	2.60
5/8" & 3/4" Meter Peak Daily Use Per Account	712.41 gal/day/account

Table C-2
City of Durango
Water Utility
Comparison of Current and Proposed Plant Investment Fees

Class/Meter Size	Existing Ratios	Current	Proposed PIFs	Change - \$	Change - %
Single Family					
3/4"	1.00	\$6,039	\$5,320	(\$719)	-11.9%
1"	1.67	\$10,092	\$8,880	(\$1,212)	-12.0%
1 1/2"	3.23	\$19,496	\$17,180	(\$2,316)	-11.9%
Multiunit Dwellings (inc. Duplexes)					
Each Additional Dwelling Unit	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Second Detached DU - 600 sq ft or less	0.50	\$3,019	\$2,660	(\$359)	-11.9%
Nonresidential					
Up to 3/4" Meter	1.00	\$6,093	\$5,320	(\$773)	-12.7%
1" Meter	1.67	\$10,183	\$8,880	(\$1,303)	-12.8%
1 1/2" Meter	3.23	\$19,671	\$17,180	(\$2,491)	-12.7%
2" Meter	5.32	\$32,399	\$28,300	(\$4,099)	-12.7%
3" Meter	10.00	\$60,956	\$53,200	(\$7,756)	-12.7%

Table C-3
City of Durango
Wastewater Utility
Development of 3/4" Equivalent Plant Investment Fee

Description	Calculation
Total System Replacement Cost (1)	\$66,955,955
Less: Developer Contributed Assets (2)	(12,529,642)
Net Replacement Cost Assets	\$54,426,312
Total WWTP Capacity (MGD) (3)	3.20
Estimated 5/8" & 3/4" Flow (GPD) (4)	147.0
System Capacity	21,771
Value per 3/4" Meter	\$2,500
Tap Fee	
Proposed PIF (Up to a 3/4" Meter)	\$2,500
Current PIF (Up to 3/4" Meter)	\$2,311
Difference - \$	\$189
Difference - %	8.0%

- (1) Excludes \$17 million 2018 WWTP costs and corresponding credit from outstanding principal.
(2) Assets marked as developer contributed in City's fixed asset listing.
(3) Treatment capacity of WWTP, per email from J. Biggs on 3/18.
(4) Average daily usage of 147 gal/day for all 3/4" and 5/8" meters in 2018.

3/4" & 5/8" AWC 2018	23,769	kgal
3/4" & 5/8" Accounts 2018	5,383	
3/4" & 5/8" Use Per Account	4.42	kgal
3/4" & 5/8" Average Day Use Per Account	147.19	gal/day
Peaking Factor	1.69	
3/4" & 5/8" Meter Peak Daily Use Per Account	248.41	gal/day

Table C-4
 City of Durango
 Wastewater Utility
 Comparison of Current and Proposed Plants Investment Fees

Class/Meter Size	$\frac{3}{4}$ " Equivalency Ratio	Current PIF	Proposed PIF	Change - \$	Change - %
Single family	1.00	\$2,131	\$2,500	\$369	17.3%
Multiunit dwellings (incl. duplexes)	1.00	\$2,131	\$2,500	\$369	17.3%
Each additional dwelling unit within same building	0.50	\$1,065	\$1,250	\$185	17.3%
Nonresidential					
Up to $\frac{3}{4}$ "	1.00	\$2,311	\$2,500	\$189	8.2%
1"	1.70	\$3,814	\$4,125	\$311	8.2%
1 $\frac{1}{2}$ "	3.13	\$7,244	\$7,825	\$581	8.0%
2"	4.77	\$11,034	\$11,925	\$891	8.1%
3"	8.13	\$18,784	\$20,325	\$1,541	8.2%

APPENDIX D:
ASSUMPTIONS

Assumptions

The table below presents the major assumptions used in this study. Changes in these assumptions could materially impact the results of the findings and conclusions.

Description	Units
Escalation Factors	
Salaries	3.0%
City Paid Benefits	10.0%
Supplies	3.0%
Charges	3.0%
Services	3.0%
Training	3.0%
Utilities	3.0%
Infrastructure	3.0%
Materials	3.0%
Maintenance	3.0%
Fuel	3.0%
Other	3.0%
2020 Projected Beginning Balance - Water	
Water – Operating Fund	\$3.3 million
Water – Capital Fund	\$11.8 million
Water – Total	\$15.1 million
2020 Projected Beginning Balance - Wastewater	
Wastewater – Operating Fund	\$0.8 million
Wastewater – Capital Fund	\$7.8 million
Wastewater – Total	\$8.7 million
Annual % Account Growth [1]	
2020	1.89%
2021	1.91%
2022	2.04%
2023	2.15%
2024	2.09%
2025	2.00%
Water Fund Reserve Targets	
Operating	90 days of O&M
Capital	1-year's depreciation expense at replacement cost new (RCN); currently \$2.4 million
Wastewater Fund Reserve Targets	
Operating	60 days of O&M
Capital	1-year's depreciation expense at replacement cost new (RCN); currently \$1.4 million
Future Debt Issuances – State Funding	
Term	20 years
Interest Rate	2.0%
Issuance Expense	0.0%
Debt Service Coverage (DSC) Targets	
Water	1.25x
Wastewater	1.25x

[1] Based on La Plata County Projections, CO State Demography Office