



Pinery Water and Wastewater District, CO

2020 Comprehensive Water and Wastewater Rates and Fees Study – Draft Report

December 10, 2020





December 10, 2020

Ms. Heather Beasley,
District Manager
5242 Old Schoolhouse Rd,
Parker, CO 80134

Re: 2020 Water & Wastewater
Rates and Fees Study


Dear Ms. Beasley,


Stantec is pleased to provide you with this report of findings from the 2020 Water & Wastewater Rates and Fees Study completed for the Pinery Water and Wastewater District, CO. We appreciate the professional assistance provided by you and all members of District staff who participated in the study.

Key findings and recommendations are provided in the attached report.

If you or others at the District have any questions, please do not hesitate to call our Downtown District Denver office at (303) 291-2222 or email me at Carol.Malesky@stantec.com. We appreciate the opportunity to be of service to the District and look forward to the possibility of doing so again in the future.

Sincerely,


Carol Malesky
Principal/Project Manager


Siyuan Rao
Consultant

Enclosure

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1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Executive Summary presents an overview of the findings of the 2020 Water and Wastewater Rates and Fees Study (Study) that was completed for the Pinery Water and Wastewater District (hereafter referred to as “Pinery” or the “District”) by Stantec Consulting Services Inc. (Stantec). The findings of the Study are based on a set of assumptions and costs that are subject to change, which could have a measurable effect on the findings. While this Executive Summary presents the findings and recommendations of the Study, the full report presents the detailed analyses prepared to develop the findings.

1.2 OBJECTIVES

The principal objectives or components of the Study are as follows:

Financial Management Plans & Demand Analysis – Develop multi-year financial plans for the District’s water and wastewater systems that determine the level of annual revenue required to satisfy projected annual operating, debt service, and capital cost requirements as well as maintain adequate reserves.

Cost-of-Service Analysis – Determine the costs of providing water and wastewater service in order to compare system costs to revenues and allocate the costs of providing the District services to specific system functions for use in developing water and wastewater user rates.

Rate Design – Review the District’s existing rate structures and develop modifications, as appropriate, to ensure that the District’s rates conform to accepted industry practice and reflect the appropriate recovery of system costs. Assess the ability of the rate structures to achieve the District’s policy objectives, such as fiscal stability, affordability, and conservation to the greatest extent possible. Include an assessment of water budget-based rate structures using information gathered by District staff.

Review & Development of Tap Fees – Evaluate the cost impacts of new development following directives of Colorado state statute. Through review of existing District assets, system capacities, and planned capital improvements, provide that growth is paying for the costs of growth in a fair and equitable manner by calculating relevant tap fees (i.e., water system and wastewater system tap fees).

Comparative Rate Surveys – Survey neighboring utility rates to determine how the District’s water and wastewater rates compare to its neighbors. Calculate monthly water and wastewater bills to compare cost of services across communities. During this step, it is assumed that utilities likely follow differing asset replacement schedules and deliver different levels of service; therefore, this comparison of bill totals is provided simply as an objective look at neighboring rates and structures.

1.3 FINANCIAL MANAGEMENT PLANS & DEMAND ANALYSIS

The financial planning analysis evaluates the sufficiency of the District's revenues to meet all current and projected financial requirements over a 10-year projection period, and determines the level of any rate revenue adjustments necessary in each year of the projection period to provide sufficient revenues to fund all of the water and wastewater system cost requirements. Stantec independently reviewed financial documents of both the water and wastewater systems. Data and assumptions of the analysis were reviewed and discussed with District staff. Through this process, the recommended financial management plans and associated forecast of annual water and wastewater rate adjustments were developed and are presented in the main sections of this report.

The recommended financial management plans and corresponding plans of water and wastewater rate adjustments are based upon both audited and budgeted revenue and expense information, beginning balances, and assumptions as described in the body of this report. Detailed schedules presenting all components of the financial management plans are provided in Appendices A and B to this report. The following findings and conclusions are provided based on the financial planning analysis.

- Two scenarios are evaluated for the water fund:
 - 1) No Water Treatment Plant
 - 2) Surface Water Treatment Plant (\$10M in 2028 and 2029)

The evaluation of fund balances and the District's revenues generated from current rates and fees indicate that rate increases of 2.5% in fiscal year (FY) 2022-2026 are sufficient to cover revenue requirements within the water fund over the projection period under scenario 1. Additional rate increases of 3.0% from FY 2027-2030 are needed if the District decides to build a new water treatment plant under scenario 2.

- The wastewater fund is projected to maintain its reserves and meet revenue requirements with no rate increases from FY 2021 - 2030.

The recommended rate adjustments for the water and wastewater systems are presented in Table 1-1 below. The recommended rate plans maintain industry-recommended reserves for working capital and follow the District's own guidance as it prepares for large long-term water and wastewater projects as well as maintaining adequate debt service coverage. Overall, the recommended rate plans will enable the District to maintain its fiscally responsible nature and allow for flexibility in the future.

Table 1-1 Recommended Plans of Water and Wastewater Rate Adjustments

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water No WTP	0.0%	2.5%	2.5%	2.5%	2.5%	2.5%	0.0%	0.0%	0.0%	0.0%
Water w/ WTP	0.0%	2.5%	2.5%	2.5%	2.5%	2.5%	3.0%	3.0%	3.0%	3.0%
Wastewater	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

1.4 COST-OF-SERVICE ANALYSIS

Stantec allocated the District's water and wastewater costs in a cost-of-service (COS) analysis to determine the under or over-recovery of revenues generated from each system. The COS analysis evaluated projected FY 2021 annual costs the District will incur to provide its customers both water and wastewater service and determined the portion of system costs that are allocable to system functions. Customer classes require water and wastewater services depending on each class's usage characteristics. Therefore, Stantec analyzed customer class consumption patterns and requirements to determine the demand each class places on the District's systems.

Costs to serve each class of customers were calculated and compared against the revenue generated by the existing rates for each customer class. This comparison provides insight into the revenue sufficiency of existing rates to recover the costs for each class. Table 1-2 presents a summary of each customer class's costs compared to revenues collected assuming total revenue requirements for FY 2021 are approximately equal to \$4.79 million for the water system and \$2.56 million for the wastewater system. Customer classes include residential, commercial, large irrigation, Colorado Golf Course (CGC), Pradera Golf Course, Pinery Golf Course, and wholesale wastewater customers such as the Canyons and Cielo Metro District.

Table 1-2 Water Cost-of-Service Summary

Water System	Revenue Under Existing Rates	COS Revenue Requirement	Difference
Residential	\$3,842,223	\$3,724,631	\$117,592
Commercial	93,757	77,024	\$16,733
Large Irrigation	288,663	361,226	(\$72,562)
CGC & Pradera Golf Irrigation	326,996	377,514	(\$50,518)
Pinery Golf Irrigation	241,274	252,519	(\$11,245)
Total	\$4,792,913	\$4,792,913	\$0

Table 1-3 Wastewater Cost-of-Service Summary

Wastewater System	Revenue Under Existing Rates	COS Revenue Requirement	Difference
Residential	\$2,299,589	\$2,318,414	(\$18,825)
Commercial	82,911	60,111	\$22,800
Contract/ Wholesale	173,084	177,060	(\$3,975)
Total	\$2,555,584	\$2,555,584	\$0

A positive difference indicates the revenue collected from the class is more than the allocated costs of service; a negative difference indicates the revenue collected is less than the costs of service. The general comparison of allocated costs of service and revenues collected by class indicates that while there are small differences across customer classes, the revenues collected are, generally, in line with the COS by class.

1.5 RATE DESIGN

Stantec examined the District's current water and wastewater rate structures to assess how well the District's pricing objectives are being met across the different customer classes and profiles.

At the beginning of the rate study, Board Members and District staff voted Revenue Stability as the most important pricing objective, followed by Conservation / Demand Management and Avoid Punitive Structures as the 2nd and 3rd most important pricing objectives. Other objectives include Administrative Burden, Interclass Equity, and Intraclass Equity. During the rate and fee structure analysis, Stantec evaluated the sufficiency of each rate component, such as monthly fixed charges and tiered usage rates, in recovering the costs of serving customer types and determined possible adjustments to District's rate structure that may better meet the District's goals. Four alternative structures were analyzed and presented for evaluation by the Board, including a water budget-based rate structure.

Stantec proposes the following changes to the existing water and wastewater rates:

1.5.1 Water System

1. Reduce existing 6-tier residential rate structure down to 5 tiers
2. Adjust residential tier 5 rate to achieve revenue neutrality
3. Increase irrigation and golf courses volumetric rates by 5% to recover allocated costs for these classes

1.5.2 Wastewater System

1. Develop a two-tier monthly fixed charge based on average winter water consumption (AWC) for residential customers
2. Align ¾" commercial monthly fixed charge to residential 2nd tier charge.

All rates and fees adjustments will be effective January 1, 2021. The existing and proposed rate schedules for FY 2021 are presented below.

Table 1-4 Existing and FY 2021 Proposed Water Rate Schedules

Description	FY 2020	FY 2021
Residential		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	12.50	12.50
Volumetric Charge (\$/ kgal)		
0 – 5,000 gallons	\$2.58	\$2.58
5,000 – 20,000 gallons	3.74	3.74
20,000 – 30,000 gallons	4.71	4.71
30,000 – 50,000 gallons	6.13	6.13
50,000 – 60,000 gallons	8.36	10.79
Over 60,000 gallons	16.78	10.79
Large Irrigation		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	12.50	12.50
Volumetric Charge (\$/ kgal)	\$4.14	\$4.35
Golf Courses		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	250.00	250.00
Volumetric Charge (\$/ kgal)		
Pinery Golf Course	\$3.74	\$3.93
Pradera/ Colorado Golf Course	3.40	3.57

Description	FY 2020 Commercial				
Commercial	3/4"	1"	1 1/2"	2"	3"
Monthly Fixed Charge (\$/ Month)					
Fixed Monthly Charge	\$29.22	\$48.26	\$68.61	\$97.89	\$185.49
Water Project Fee	\$12.50	\$25.00	\$50.00	\$87.50	\$200.00
Volumetric Charge (\$/ kgal)					
Tier 1: \$2.58/ kgal	0 - 5 kgal				
Tier 2: \$3.74/ kgal	5 - 20 kgal				
Tier 3: \$4.71/ kgal	20 - 30 kgal	2x 3/4" Threshold	4x 3/4" Threshold	7x 3/4" Threshold	16x 3/4" Threshold
Tier 4: \$6.13/ kgal	30 - 50 kgal				
Tier 5: \$8.36/ kgal	Over 50 kgal				

Description		Proposed FY 2021 Commercial				
Commercial	3/4"	1"	1 1/2"	2"	3"	
Monthly Fixed Charge (\$/ Month)						
Fixed Monthly Charge	\$29.22	\$48.26	\$68.61	\$97.89	\$185.49	
Water Project Fee	\$12.50	\$25.00	\$50.00	\$87.50	\$200.00	
Volumetric Charge (\$/ kgal)						
Tier 1: \$2.58/ kgal	0 - 5 kgal	2x 3/4" Threshold	4x 3/4" Threshold	7x 3/4" Threshold	16x 3/4" Threshold	
Tier 2: \$3.74/ kgal	5 - 20 kgal					
Tier 3: \$4.71/ kgal	20 - 30 kgal					
Tier 4: \$6.13/ kgal	30 - 50 kgal					
Tier 5: \$10.79/ kgal	Over 50 kgal					

Table 1-5 Existing and FY 2021 Proposed Wastewater Rate Schedules

Description	FY 2020	FY 2021
Residential		
0 – 5,000 gallons AWC	\$42.92	\$36.75
> 5,000 gallons AWC	42.92	53.99
Commercial, \$ per month		
3/4" meter	\$60.41	\$53.99
1" meter	120.81	107.98
1 1/2" meter	241.63	215.96
2" meter	422.86	377.93
3" meter	966.53	863.84

1.6 TAP FEE ANALYSIS

Stantec completed a comprehensive review of the District's water and wastewater tap fees. Following the hybrid method for the water system and buy-in approach for the wastewater system in AWWA Manual M1¹ and WEF Manual of Practice No. 27², Stantec focused on the value of the water and wastewater systems using the replacement cost new less depreciation (RCNLD) method. There are four accepted asset valuation methodologies including replacement cost new (RCN), RCNLD, original cost, and net book value. RCNLD values existing fixed assets according to the costs of replacing the asset in today's dollars, adjusted by depreciation that has occurred in the system since the asset was placed in service. Next, the cost of

¹ American Water Works Association, Manual of Water Supply Practices M1, Principles of Water Rates, Fees, and Charges, 7th ed., 2017.

² Water Environment Federation, Manual of Practice No. 27, Financing and Charges for Sewer Systems, 2005.

new capital improvements needed to serve new customers was added to the RCNLD of the existing assets. The total system costs represent the value of the District's investment in its water and wastewater systems to serve new customers.

In addition to determining the system value, Stantec applied system capacity values for the water and wastewater systems obtained from the recent master plans and discussions with District staff. Total capacity and the number of single family equivalent units (SFEs) able to be served were used to determine the tap fee for each new unit connecting to the District's water and wastewater systems. Given these independent calculations, Table 1-6 below presents the current and proposed tap fees for a ¾" meter.

Table 1-6 Current and Proposed Tap Fees

System	Proposed Tap Fee (\$/ SFE)	Existing Tap Fee (\$/ SFE)	Difference
Water System	\$35,990	\$35,273	\$717
Wastewater	7,695	7,415	280
Total	\$43,685	\$42,688	\$997

1.7 COMPARATIVE RATE ANALYSIS TO NEIGHBORING UTILITIES

Stantec completed a rate survey for neighboring utilities that captures the water and wastewater volumetric rates and monthly fixed fees as well as rate structure of each District. A list of neighboring utilities, excluding those with water budget-based rate structures, includes:

- Roxborough Water & Wastewater District
- Parker Water & Sanitation District
- Aurora Water
- City of Lakewood
- East Cherry Creek Valley Water District
- Stonegate Village Metropolitan District

The graph below presents the comparison of total monthly water and wastewater bills for each community as of 2020 assuming 25,000 gallons of water usage and 5,000 gallons of wastewater flow. Water usage is based on the Pinery's average summer monthly water usage while wastewater flow is based on the Pinery's average winter water consumption using 2019 billing data. The average water and wastewater monthly bill combined at this usage level for all communities is \$209.05. Given the survey results, the Pinery's current and proposed water and wastewater rates are less than the average for water and wastewater bills.

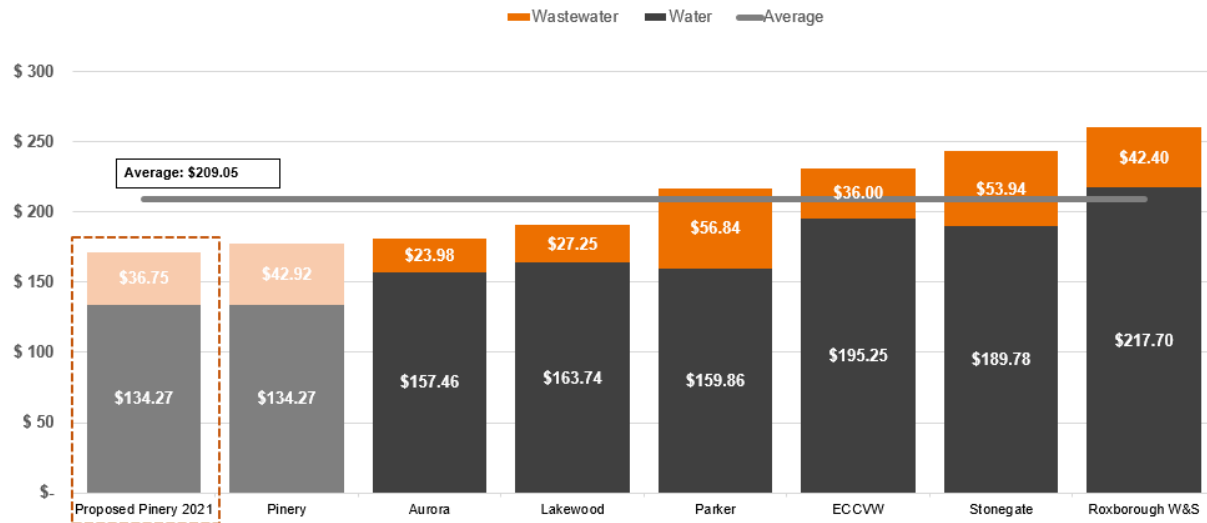


Figure 1-1 Monthly Bill Comparison at 25,000 Gallons of Water Use

1.8 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A summary of Study recommendations based on the development of the financial analysis for the District's water and wastewater utilities is presented below.

- Reduce the water residential rate structure to a 5-tier rate structure starting in FY 2021; a 5% rate increase will be applied to large irrigators and golf courses volumetric rates to align with cost-of-service results in FY 2021.
- In subsequent years, annually evaluate rate adjustment based on actual operating results. This Study projects 2.5% increases from FY 2022 through FY 2026 for the water system. If the District is planning on constructing the new water treatment plant, additional rate increases of 3.0% from FY 2027 – FY 2030 are projected.
- Based on Board input, Stantec proposes a two-tier monthly fixed charge structure for wastewater residential customers based on winter average water consumption (AWC) starting in FY 2021. Align ¾" commercial customers with the residential 2nd tier monthly fixed charge.
- Maintain current rates for the wastewater system from FY 2022 – FY 2030.
- Increase water tap fees from \$35,273 to \$35,990 for a ¾" meter connection.
- Increase wastewater tap fees from \$7,415 to \$7,695 for a ¾" meter connection.
- Review the existing commercial water customers' monthly fixed charge meter equivalency ratio and consider aligning the meter equivalencies with the water project fee ratios by meter size during the next rate study.
- Evaluate District performance annually to assess rate revenue needs and update financial planning models.

- Review water and wastewater rate structures continually to ensure fairness and equity across customer classes.
- Review tap fees every 3-5 years or when changes to the growth-related CIP are expected.

2. INTRODUCTION

Stantec completed a comprehensive 2020 Water and Wastewater Rates and Fees (Study) for the Pinery Water and Wastewater District (hereafter referred to as “Pinery” or “District”). This report presents the objectives, approach, methodologies, source data, assumptions, as well as the findings and recommendations of the Study.

2.1 BACKGROUND

The Pinery Water and Wastewater District provides water and wastewater services to approximately 13,000 residents in northeastern Douglas County. The District population is expected to grow slowly and steadily to over 17,000 residents by buildout sometime after 2050.

The District’s current primary water supply comes from two sources: groundwater from Denver Basin aquifer wells and Cherry Creek Alluvial wells. The District is currently participating in the WISE (Water, Infrastructure and Supply Efficiency) project, which is a regional water supply project among Denver Water, City of Aurora, and members of the South Metro Water Supply Authority. The District receives 500 acre-feet (AF) of WISE water on average each year. In addition, the District owns and operates a tertiary wastewater treatment plant that discharges to Cherry Creek. Average daily wastewater treatment is currently around 1.0 million gallons per day. The treatment plant is rated to treat up to 2.0 million gallons per day.

This comprehensive rates and fees study addresses the following objectives:

2.2 OBJECTIVES

The principal objectives or components of the Study are as follows:

Financial Management Plans & Demand Analysis – Develop multi-year financial plans for the District’s water and wastewater systems that determine the level of annual revenue required to satisfy projected annual operating, debt service, and capital cost requirements as well as maintain adequate reserves.

Cost-of-Service Analysis – Determine the costs of providing water and wastewater service in order to compare system costs to revenues and allocate the costs of providing District services to specific system functions for use in developing water and wastewater user rates for each respective service.

Rate Development – Review the District’s existing rate structures and develop modifications, as appropriate, to ensure that the District’s rates conform to accepted industry practice and reflect the appropriate distribution of system costs. Assess the ability of the rate structures to achieve the District’s policy objectives, such as fiscal stability, affordability, and conservation to the greatest extent possible.

Include an assessment of water budget-based rate structures using information gathered by District staff.

Review & Development of Tap Fees – Evaluate the cost impacts of new development following directives of Colorado state statute. Through review of existing District assets, system capacities, and planned capital improvements, provide that growth is paying for the costs of growth in a fair and equitable manner by calculating relevant tap fees (i.e., water system and wastewater system tap fees).

Comparative Rate Analysis – Survey neighboring utility rates to determine how the District's water and wastewater rates compare to its neighbors. Calculate monthly water and wastewater bills to compare cost of services across communities. During this step, it is assumed that utilities likely follow differing asset replacement schedules and deliver different levels of service; therefore, this comparison of bill totals is provided simply as an objective look at neighboring rates and structures.

3. FINANCIAL MANAGEMENT PLANS & DEMAND ANALYSIS

3.1 DESCRIPTION

This section presents the financial management plans and corresponding plans of water and wastewater rate adjustments developed in the financial planning analysis conducted as part of the Study. The following sub-sections of the report describe the source data, assumptions, and results of the analysis, while Appendices A and B include detailed supporting schedules for the District's financial management plans identified for the water system and wastewater system. The supporting schedules in Appendix A assume the District will construct a surface water treatment plant in FY 2028 and FY 2029 (scenario 2).

During the financial planning analysis, Stantec reviewed alternative multi-year financial management plans and corresponding water and wastewater rate adjustment plans through several interactive work sessions with District staff. During these work sessions, the impact of various inputs or assumptions upon key financial indicators was evaluated. The recommended financial management plans and corresponding plans of annual water and wastewater rate adjustments presented in this report allow the District to fund its cost requirements throughout the projection period and meet its financial performance goals and objectives.

The District's historical and budgeted financial information regarding the operation of its water and wastewater systems, as well as historical customer counts and volume data by class of customer were used. Additionally, the District's multi-year capital improvement program (CIP) was received from District staff, as well as documented current debt service obligations and covenants, or promises made to lenders, relative to coverage requirements, reserves, etc. Trends in demands, planned developments/customer growth, debt coverage levels, levels of reserves, capital funding sources, earnings on invested funds, escalation rates for operating costs, and others were discussed and included as part of the analysis.

This information was entered into Stantec's Financial Analysis and Management System (FAMS) interactive modeling system. FAMS produces a 10-year projection of the sufficiency of the revenue provided by the current rates of the system to meet current and projected financial requirements, and determines the level of rate adjustments necessary in each year of the projection period to satisfy the system's annual financial requirements.

FAMS utilizes all projected available funds in each year of the projection period to pay for capital projects. The model is set up to reflect the use of cash for projects as defined and applied by District staff, and it produces a detailed summary of the funding sources to be used for each project in the CIP. To the extent that current revenues and unrestricted reserves are not adequate to fund all capital projects in any year of the projection period, the model identifies a borrowing requirement to fund those projects, or portions thereof that are determined to be eligible for borrowing. The FAMS model is used to develop a borrowing program that includes the required borrowing amount by year and the resulting annual debt service requirements for each year in the projection period.

Interactive work sessions were conducted with District staff focusing on using the financial models to graphically represent impacts to identified key performance indicators under various scenarios. Inputs and assumptions used in the forecasting models were adjusted to model alternative scenarios for the systems. Local information and District staff input helped develop the recommended financial management plans for the District and the resulting plans of water and wastewater rate adjustments presented in this report. The results are financial plans that make use of the District's current and best assumptions and data to satisfy the District's revenue requirements over a multi-year projection period, while meeting key financial performance objectives and minimizing rate adjustments to the greatest extent possible.

3.2 SOURCE DATA

The following presents the key source data relied upon in conducting the financial planning analysis:

3.2.1 Beginning Fund Balances

Unaudited FY 2019 financials and supporting trial balance schedules available as of December 31, 2019 were provided by District staff to establish the beginning FY 2020 cash composition for the District's utility systems. The District reports financials for water and wastewater systems combined. Based on discussion with District staff, a 70% water - 30% wastewater split was used to allocate ending fund balance between water and wastewater systems.

3.2.2 Revenues

The revenues utilized in the analysis reflect an evaluation of four years of historical budgets and actual results as well as the FY 2020 Budget and FY 2020 Year End Projections used for future projections. Revenues consist of rate revenue, tap fee revenue, interest income, and other revenues from miscellaneous charges. FY 2020 rate revenue is forecasted based on year-to-date actuals. FY 2020 has been an exceptionally hot and dry year in the District. As a result, the projected FY 2020 revenues are much higher than the adopted budget. To be conservative, the FY 2021 rate revenues are based upon the FY 2020 adopted budget, adjusted to reflect assumed customer growth and changes in demand. Projections of all other revenues reflect the amounts within the FY 2020 budgets, excluding interest income³, which was calculated annually based upon projected average fund balances and assumed interest rates, and revenue from tap fees, which are calculated based on the assumed growth in new accounts and proposed changes to the existing tap fees. Cash inflows to the water and wastewater systems can be found in Schedule 3 of Appendices A and B.

³ Interest Income in FY 2021-2030 is calculated annually based upon projected average fund balance and calculated interest rates at 0.25% annually.

3.2.3 Operating Expenditures

The District's operating expenditures include all personnel services expenses, operating and maintenance expenses, and minor capital outlay. The financial planning analysis based operating and maintenance expenditure projections on the individual expense categories and expenses amounts within the District's FY 2020 Budget and FY 2020 Year End Projections, adjusted annually thereafter based upon assumed cost escalation factors that were reviewed with District staff. Schedule 4 in Appendices A and B provides the District's projected line item expenditures over the projection period.

3.2.4 Debt Service

The annual debt service schedules for existing outstanding debt includes a 2010 Water Revenue Bond, a 2015 Colorado Water Resources and Power Development Authority (CWRPDA) Water Loan, two Colorado Water Conservation Board (CWCB) Water Loans, and two CWRPDA Wastewater Loans. In addition, it includes estimated future debt service schedules for longer-term financings assumed to occur during the projection period for the water system if the District decides to build a new water treatment plant (WTP). All debt information was provided by District staff and included in the financial planning analysis.

3.2.5 Capital Improvement Program

District staff provided the multi-year CIP in project and funding level detail from FY 2020 through FY 2029. A 3-year average from FY 2027-2029 CIP is used to project FY 2030 capital improvement expenditures. Beginning in FY 2022, the model includes an annual cost inflation factor of 2.84% (based upon 5-year average increases observed in the Engineering News Record Construction Cost Index) to account for the inflation in the future cost of construction.

In total, the CIP in future year dollars from FY 2020-FY 2030 is approximately \$67.4 million (\$55.5 million related to water and \$11.9 million related to wastewater), not including the water treatment plant costs. A complete list of projects and costs by year is included on Schedule 6 of Appendices A and B.

3.3 ASSUMPTIONS

The following presents the key assumptions utilized in the financial planning analysis.

3.3.1 Cost Escalation

Annual cost escalation factors for the various types of operating and maintenance expenses were developed based upon a review of historical trends, industry experience, and detailed discussions with District staff. The specific escalation factors assumed for the various categories of expenses can be found

on Schedule 5 of Appendices A and B. A CPI-based escalation factor⁴ of 2.20% annually was utilized for most operating and maintenance expenses, with the exception of salaries which were escalated at 3.00% annually and benefits which were escalated at 5.09% annually.

3.3.2 Interest Earnings

Interest Income throughout the projection period is calculated annually based upon projected average fund balance and assumed interest rates. Interest earnings rates of 0.15% are assumed for FY 2020 and 0.25% from FY 2021-FY 2030 for the water and wastewater systems.

3.3.3 Customer Growth & Volume Forecast

New connection and sales projections were based upon a review of historical growth data from FY 2016 through FY 2019. Additionally, we considered local environmental and economic conditions as well as discussions with staff regarding the anticipated number of new service connections to the District through FY 2030.

Schedule 1 in Appendices A and B provides a summary of projected customers and billed volume by system over the projection period.

3.3.4 Minimum Reserve Policy

Reserve balances for the District's systems are funds set aside for a specific cash flow requirements, financial needs, projects, tasks, or legal covenants. These balances are maintained in order to meet short-term cash flow requirements, and at the same time minimize the risk associated with meeting the financial obligations and continued operational and capital needs under adverse conditions. The level of reserves maintained by utilities is an important component and consideration of developing a utility system multi-year financial management plan.

Many utilities, rating agencies, and the investment community as a whole place a significant emphasis on having sufficient reserves available for potentially adverse conditions. The rationale related to the maintenance of adequate reserves is twofold. First, it helps to provide adequate funds available to meet financial obligations during unusual periods (i.e. when revenues are unusually low and/or expenditures are unusually high). Second, it provides funds that can be used for emergency repairs or replacements to the system that can occur because of natural disasters or unanticipated system failures.

Stantec has recommended that both the water and wastewater enterprise funds hold a working capital reserve equal to 2 months of operations and maintenance (O&M) expenses each. Financial policies should articulate how these balances are established, their use, and how to determine the adequacy of the reserve

⁴ Headline CPI projected for 2019 – 2028 from Philadelphia Federal Reserve Bank.

fund balances. The overall targeted levels of operating reserves are consistent with 1) our industry experience for similar systems, 2) the findings of reserve studies conducted by the American Water Works Association (AWWA), and 3) a healthy level of reserves for a municipal District system per the evaluation criteria published by the municipal City rating agencies (Fitch, Moody's, and Standard & Poor's).

It is important to note that once reserve targets are established, they should be reviewed annually during the budgeting process to monitor current levels and assure conformance with stated policies and practices. Decisions can be made to maintain, increase, or spend down the reserve balances, as appropriate, depending upon the impact of such decisions to the upcoming budget period.

In addition to the O&M reserve target recommended, the District's water system also holds a 2010 Wells Fargo debt service reserve, a groundwater protection reserve, a rate stabilization fund reserve, a well rehab reserve, and a CWCB loan debt service for a total of \$2.3M in FY 2020. The District's wastewater system also has two additional restricted reserve requirements: \$1.25M operation reserve for 2002 CWRPDA loan and \$0.5M rate stabilization fund reserve. District staff recommends a catastrophic reserve to achieve \$1.5M by FY 2030 as identified in Schedule 1 in Appendices A and B.

3.3.5 Future Borrowing & Capital Funding

It is anticipated that the District will not need to issue new debt during the projection period to assist in the funding of the CIP besides funding the construction of the new Water Treatment Plant in FY 2028 and FY 2029. This analysis assumed that revenue bonds would be utilized with 30-year terms at interest rates of 4.00%. Schedule 9 of Appendix A and B presents a summary of the capital project funding plan for major capital projects.

3.3.6 Debt Service and Coverage

One of the most important covenants the District makes relative to the issuance of debt is that its annual net revenues will be at least 1.10 times greater than its debt service requirements for the water and wastewater systems combined.

These debt service coverage requirements represent the District's minimum requirements. Should the District be unable to meet these requirements, it could be found in technical default. This would result in the District facing a potential downgrade in its credit rating, which would affect the interest rate and terms of any future financing initiatives.

As a policy decision, utilities often measure revenue sufficiency and set rates based upon a higher debt service coverage level so as to comply with these type of covenants in the event future projections of revenue and expenses do not occur as predicted (due to extended drought conditions, unanticipated capital requirements or operating cost increases, natural disasters, etc.). The financial management plans assume minimum debt service requirements.

3.4 RESULTS

Based upon the data, assumptions, and policies presented herein, the District's current water rates will not provide sufficient revenue to meet its ongoing debt service, capital, operating, and reserve requirements over a multi-year projection period; the District's current wastewater rates will provide sufficient revenue to meet all financial requirements over a multi-year projection period. The recommended plan of rate increases for each system is presented in the table below.

Two scenarios are evaluated for the water fund:

1. No Water Treatment Plant
2. Surface Water Treatment Plant (\$10M in 2028 and 2029)

The evaluation of fund balances and the District's revenues generated from current rates and fees indicate that rate increases of 2.5% in FY 2022-2026 are sufficient to cover revenue requirements within the water fund over the projection period under scenario 1. Additional rate increases of 3.0% from FY 2027-2030 are needed if the District decides to build a new water treatment plant under scenario 2.

The wastewater fund is projected to maintain its reserves and meet revenue requirements with no rate increases from FY 2021-2030.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Water No WTP	0.0%	2.5%	2.5%	2.5%	2.5%	2.5%	0.0%	0.0%	0.0%	0.0%
Water w/ WTP	0.0%	2.5%	2.5%	2.5%	2.5%	2.5%	3.0%	3.0%	3.0%	3.0%
Wastewater	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Each financial management plan and corresponding plan of rate revenue adjustments will meet the District's current and projected cost requirements, including funding of capital projects, building and sustaining target reserve fund balances, and maintaining appropriate debt service coverage.

Appendices A and B include detailed schedules presenting all components of the financial management plan developed for the District's water and wastewater funds.

4. COST-OF-SERVICE ANALYSIS

As part of the Study, Stantec performed a water and wastewater cost-of-service analysis for each system to evaluate the District's current cost recovery among customer classes within each system. As separate water and wastewater financial management plans were developed during the financial planning analysis, we were able to quickly determine the portion of those costs allocable to each respective system. Through discussion with District staff, system functions were identified. The corresponding allocation of costs to functions was utilized in the calculation of updated base and usage charges. The District's water and wastewater rates differ among its separate customer classes – residential, commercial, large irrigators, golf courses, and wholesale wastewater customers.

4.1 COST-OF-SERVICE STEPS

The following steps were used to prepare the COS analysis:

1. **Determine the revenue requirements for a specified annual period referred to as a test year.** Revenue requirements are defined as the amount of money the District must recover from the rates charged to customers in order to meet the operating and capital expenditures anticipated for the test year. The revenue requirements are described in more detail in the financial planning results section. For purposes of evaluating alternative rates and rate structures, FY 2021 is set as the test year.
2. **Allocate the revenue requirements to functions and customer classes.** Following cost allocation guidelines from AWWA and WEF, revenue requirements are allocated to functions of the water and wastewater systems as well as to specific customer classes based on how various classes impact the system functions. Demand characteristics of customer classes and allocations of costs to customer classes are summarized in this section.
3. **Determine rates for service.** Rates are based on the allocated costs of service for each customer class, meaning that recommended rates for a given class reflect the cost to serve that class.

4.2 REVENUE REQUIREMENTS

Revenue requirements for the District's water and wastewater systems include total operating and capital expenditures (including debt service requirements, funding of reserves, and cash funding of capital expenditures) that must be recovered from the revenues provided from its rate and fee structure. Revenue requirements for FY 2021 are summarized below. Non-rate revenues include miscellaneous fees and charges that reduce the revenue required from rates.

Table 4-1 FY 2021 Water and Wastewater Revenue Requirements

Description	Water	Wastewater
Operating and Maintenance Expenses	\$4,287,670	\$1,628,556
Annual Debt Service	1,761,030	749,685
Cash Funded Capital	5,940,199	479,022
Change in Fund Balance	(3,142,891)	746,948
Total Revenue Requirement	8,846,008	3,604,212
Less: Other Revenues	(4,053,094)	(1,048,627)
Total User Charge Requirement	\$4,792,914	\$2,555,584

4.3 CUSTOMER DEMAND CHARACTERISTICS

Cost-of-service ratemaking is a process of allocating the system rate revenue requirements to customers based on the demands they place on the system. Individual customer demands vary depending on the nature of the use at the location where service by the District is provided. For example, water service demand for a family residing in a typical single-family home is different than the water service demand for an irrigation customer, primarily due to peak use behavior which drives the need for infrastructure sizing and operating costs. Rates are developed for each customer class, with each individual customer paying the customer class's average allocated cost of service for each unit of specific usage.

The District's water customer classes include:

- Residential
- Commercial
- Large Irrigator
- Colorado Golf Course & Pradera Golf Course
- Pinery Golf Course

The District's wastewater customer classes include:

- Residential
- Commercial
- Wholesale

4.4 ALLOCATIONS TO FUNCTIONS

Each cost from the FY 2021 budgeted expenditures was allocated to the primary system functions of source of supply, treatment, transmission/distribution, storage & pumping, administration, and meter. Costs for the wastewater system were allocated to treatment, collection, interceptors, and administration functions.

Where possible, costs were directly assigned to specific functions. For example, all costs in the administration division were allocated to the administration function. Where cost items supported more than one function, proper allocation criteria were identified to apportion the line item cost to system functions. For example, costs related to implementing the CIP were allocated based upon an analysis of the different functions served by the capital improvement plan for each system and was determined with the assistance of District staff.

Tables 4-2 and 4-3 provide summaries of the total allocation of system costs for each system for FY 2021. The FY 2021 costs in each table below are equal to the revenue requirements shown in Table 4-1.

Table 4-2 Water System Cost Allocation Summary

System Function	FY 2021 Costs	%
Source of Supply	\$1,924,805	41%
Treatment	359,844	7%
Transmission & Distribution	426,582	9%
Storage & Pumping	916,340	19%
Administration	732,591	15%
Meter	432,751	9%
Total	\$4,792,913	100%

Table 4-3 Wastewater System Cost Allocation Summary

System Function	FY 2021 Costs	%
Treatment	\$1,519,155	59%
Collection	481,063	19%
Interceptors	256,932	10%
Administration	298,435	12%
Total	\$2,555,584	100%

4.5 ALLOCATED COST OF SERVICE BY CLASS

Functional allocations are next used to allocate cost of service by class. Each customer class's water demands, wastewater flow, and other service requirements are applied to determine costs of service by class. Each customer class's proportion of use within each category of flow, max-day, max-hour, and customer for water and flow and customer for wastewater is applied to the cost of each category. Finally, total allocated costs are used to determine the total cost of service by customer class for FY 2021.

The results of the cost-of-service analysis for the water and wastewater systems are summarized in the figures below.

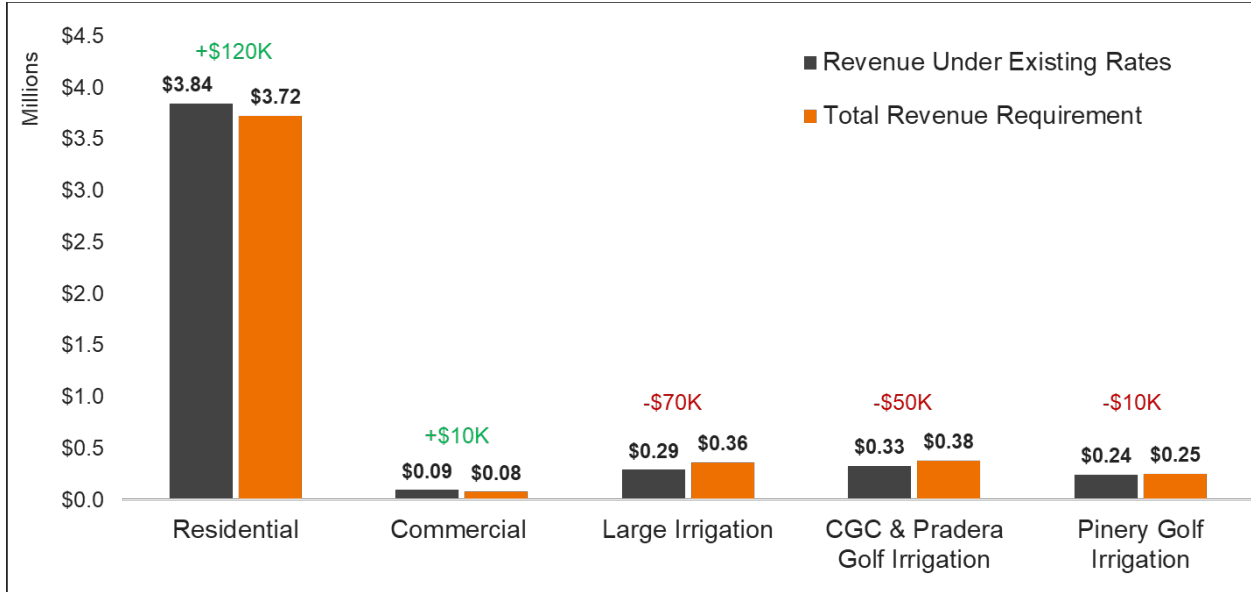


Figure 4-1 Water System Cost of Service Summary

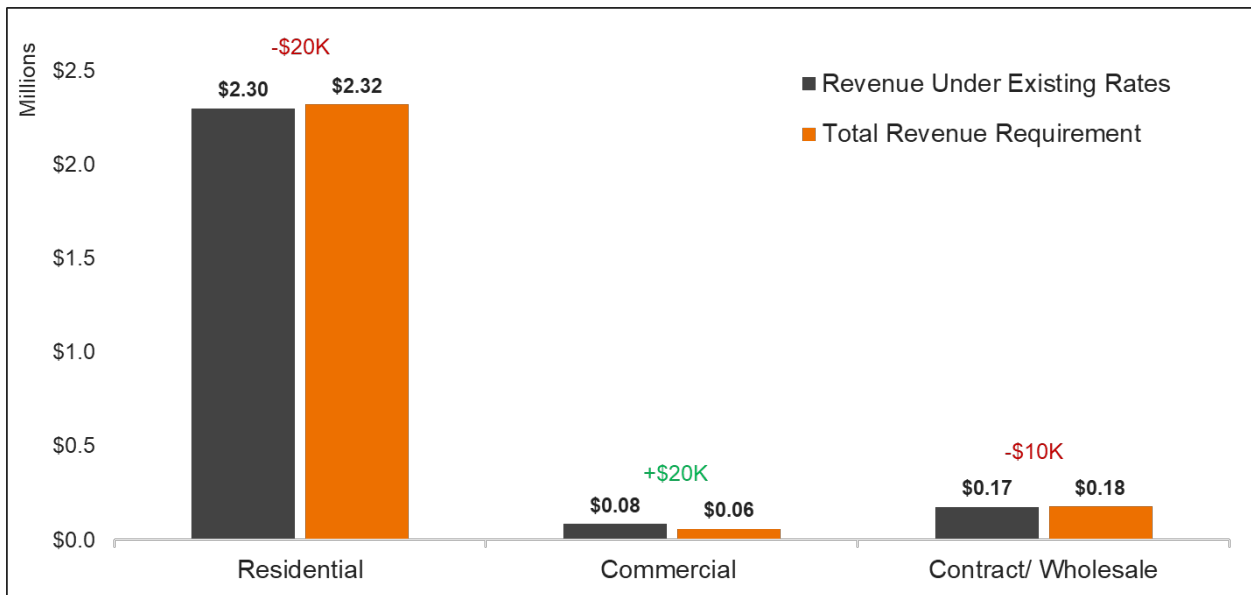


Figure 4-2 Wastewater System Cost of Service Summary

4.6 RECOMMENDATIONS

Several factors drive the difference between expected revenue under existing rates by class and calculated class costs of service. Policy decisions, peaking factors, usage by class in each tier, and block rate ratios all contribute to potential differences between actual revenues and costs of service.

A comparison of the allocated costs of service and the revenues collected by class indicates that while there are differences across customer classes, the revenues collected by class are, generally, in line with the cost-of-service by class. Based on the cost-of-service analysis, large irrigators and golf course revenues are not sufficient to meet these classes' revenue requirements. In the rate and fee structure analysis section, Stantec evaluated alternative rate structures to better align water and wastewater rates among customer classes.

5. RATE DESIGN

The purpose of the financial plan is to identify required rate adjustments to meet the revenue requirements of the water and wastewater systems. The purpose of the COS analysis is to identify which system functions are driving the costs of the systems, which rate components should recover the costs, and how much each customer class should share. The final component of the Study is to evaluate the District's existing rates and rate structure and to provide recommended rates for FY 2021.

5.1 RATE STRUCTURE REVIEW

Common industry practice is a two-part rate structure comprising both fixed and variable charges. Generally accepted practice recovers a portion of the costs of the system in a fixed monthly charge, recognizing that utilities have substantial investments in District-related costs and other year-round fixed costs to maintain a state of readiness to meet peak demands of their customers when they occur. In addition, fixed charges also include recovery of customer-related costs.

The District currently has a monthly fixed charge for water service, which is scaled based upon meter size. In addition, the District currently applies a usage charge to its customers based on metered water use. For wastewater service, customers within the District are charged a flat monthly fixed charge by meter size.

The District's current rate structures for both water and wastewater services comply with common industry practice. At the beginning of the rate study, Board members were presented with a set of pricing objectives that are used to evaluate alternative rate structures. The table below presents the set of criteria discussed with the Board.

Table 5-1 Pricing Objectives for Evaluations

Category	Pricing Objectives
Revenue	Revenue Stability
Equity	Interclass Equity – <i>Res vs. Non-Res</i>
	Intraclass Equity – <i>Low vs. High users</i>
	Intergenerational Equity – <i>Current users vs. Future users</i>
Customer Impact	Essential Use Affordability
	Conservation/ Demand Management
	Bill Stability
Administration	Administrative Burden
Others	Avoid punitive structures

Board Members voted Revenue Stability as the most important pricing objective, followed by Conservation/ Demand Management and Avoid Punitive Structures as the 2nd and 3rd most important pricing objectives. Other objectives include Administrative Burden, Interclass Equity, and Intraclass Equity.

The District's current residential water rate structure consists of six usage tiers. At tier 6, which includes water consumption over 60,000 gallons per month, the volumetric rate is \$16.78/ 1,000 gallons. While the current rate structure meets the conservation / demand management pricing objective, the volumetric rate in the top tier may be perceived as punitive for some customers. Based on feedback from District Staff as well as Board Members, Stantec prepared four alternative rate structures for the Board's consideration.

1. Increase Tier 1 Threshold - Adjust residential tier 1 threshold from 5kgal to 6kgal
2. 5-Tier Rate Structure - Eliminate tier 6 and adjust tier 5 rates
3. 4-Tier Rate Structure - Eliminate tier 5 and 6 and adjust tier 3 & 4 rates
4. Water Budget - Individualized tier structure based on lot size (4 categories)

For each alternative, Stantec proposes a 5% rate increase to large irrigators as well as golf courses volumetric rates to promote inter-class equity based on the cost-of-service results.

For the wastewater system, residential customers pay a monthly fixed charge of \$42.92 regardless of wastewater flow. Stantec evaluated two alternative wastewater residential rate structures:

1. Align commercial & residential rates - align commercial monthly flat rates to residential monthly flat rates
2. Step residential monthly flat rates according to average winter water consumption (AWC) water use - align commercial monthly flat rates to residential monthly flat rates

The Board evaluated the alternatives and approved a 5-tier water rate structure with a 5% increase in large irrigators and golf courses volumetric rates, as well as a stepped residential monthly flat rate based on AWC with aligned commercial rates by meter size. The recommended rate structure adjustments provide sufficient revenues for each system to meet its revenue requirements over the projection period. The tables below summarize the existing and proposed FY 2021 water and wastewater rates.

Table 5-2 Existing and FY 2021 Proposed Water Rate Schedules

Description	FY 2020	FY 2021
Residential/ Commercial 3/4"		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	12.50	12.50
Volumetric Charge (\$/ kgal)		
0 – 5,000 gallons	\$2.58	\$2.58
5,000 – 20,000 gallons	3.74	3.74
20,000 – 30,000 gallons	4.71	4.71
30,000 – 50,000 gallons	6.13	6.13
50,000 – 60,000 gallons	8.36	10.79
Over 60,000 gallons	16.78	10.79
Large Irrigation		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	12.50	12.50
Volumetric Charge (\$/ kgal)	\$4.14	\$4.35
Golf Courses		
Monthly Fixed Charge (\$/ Month)		
Fixed Monthly Charge	\$29.22	\$29.22
Water Project Fee	250.00	250.00
Volumetric Charge (\$/ kgal)		
Pinery Golf Course	\$3.74	\$3.93
Pradera/ Colorado Golf Course	3.40	3.57

Description		FY 2020 Commercial				
Commercial	3/4"	1"	1 1/2"	2"	3"	
Monthly Fixed Charge (\$/ Month)						
Fixed Monthly Charge	\$29.22	\$48.26	\$68.61	\$97.89	\$185.49	
Water Project Fee	\$12.50	\$25.00	\$50.00	\$87.50	\$200.00	
Volumetric Charge (\$/ kgal)						
Tier 1: \$2.58/ kgal	0 – 5 kgal	2x 3/4" Threshold	4x 3/4" Threshold	7x 3/4" Threshold	16x 3/4" Threshold	
Tier 2: \$3.74/ kgal	5 - 20 kgal					
Tier 3: \$4.71/ kgal	20 - 30 kgal					
Tier 4: \$6.13/ kgal	30 - 50 kgal					
Tier 5: \$8.36/ kgal	Over 50 kgal					

Description		Proposed FY 2021 Commercial				
Commercial	3/4"	1"	1 1/2"	2"	3"	
Monthly Fixed Charge (\$/ Month)						
Fixed Monthly Charge	\$29.22	\$48.26	\$68.61	\$97.89	\$185.49	
Water Project Fee	12.5	25	50	87.5	200	
Volumetric Charge (\$/ kgal)						
Tier 1: \$2.58/ kgal	0 – 5 kgal	2x 3/4" Threshold	4x 3/4" Threshold	7x 3/4" Threshold	16x 3/4" Threshold	
Tier 2: \$3.74/ kgal	5 - 20 kgal					
Tier 3: \$4.71/ kgal	20 - 30 kgal					
Tier 4: \$6.13/ kgal	30 - 50 kgal					
Tier 5: \$10.79/ kgal	Over 50 kgal					

Table 5-3 Existing and FY 2021 Proposed Wastewater Rate Schedules

Description	FY 2020	FY 2021
Residential		
0 – 5,000 gallons AWC	\$42.92	\$36.75
> 5,000 gallons AWC	42.92	53.99
Commercial, \$ per month		
3/4" meter	\$60.41	\$53.99
1" meter	120.81	107.98
1 1/2" meter	241.63	215.96
2" meter	422.86	377.93
3" meter	966.53	863.84

6. TAP FEE ANALYSIS

This section presents the objectives, approach, methodologies, source data, assumptions, as well as the findings and recommendations of the review and development of the District's tap fees.

6.1 TAP FEES

Tap fees (also referred to as “impact fees” or “system development fees” among other terms) are one-time fees charged to new connections to pay for their proportional share of water or wastewater service facilities that would be required to enable development of areas served by the District water or wastewater system. In other words, tap fees are assessed to new customers as a mechanism by which growth can “pay its own way” and minimize the extent to which existing customers must bear the cost of facilities that will be used to serve new customers. Utilities use these charges to finance the growth-related expenses incurred in furnishing source, treatment, storage, distribution, and related capital project expenses including, but not limited to, costs of acquisition and financing and necessary costs of improvement and extension of the water and/or wastewater systems.

The District currently charges both water and wastewater systems tap fees. For purpose of the Study, Stantec separated the water system tap fee between water system and water resource tap fees. The Table below summarizes the existing tap fee for a ¾” customer for each system.

Table 6-1 Existing ¾” Tap Fee

System	Water System	Wastewater System
Water System	\$18,701	NA
Water Resource	16,572	NA
Wastewater	NA	7,415
Total	\$35,273	\$7,415

6.2 LEGAL FRAMEWORK

Colorado Revised Statutes Sec. 29-20-104.5 entitled *Impact Fees*, provides in part, "A local government may impose an impact fee or other similar development charge to fund expenditures by such local government on capital facilities needed to serve new development."

6.3 SELECTION OF METHODOLOGY

The following provides a description of the industry-accepted methodologies for calculating the tap fees and the approach proposed by this Study. In the water and wastewater utility industry, there are two primary approaches to the calculation of tap fees (and a hybrid of the two), as described below.

6.3.1 Buy-In Method

The Buy-In Method calculates the tap fees solely on the value of existing utility system assets. Specifically, the approach calculates the replacement cost of each system’s major functional components then subtracts the depreciated value based on the age of each component. This approach is most appropriate for a system with sufficient excess capacity to serve anticipated growth. New connections to the system will be served by existing capacity and those new customers are effectively “buying-in” to the existing (and aged) infrastructure.

6.3.2 Incremental Cost Method

The Incremental Cost Method is based on the estimated cost of building new system capacity to serve growth. This approach is most appropriate when the existing system has limited or no excess capacity to accommodate growth. In this case, new developments (or re-developments with greater demand) must fund their proportional cost of new infrastructure needed to expand system capacity.

6.3.3 Hybrid Method

Finally, a third approach combines the two approaches described above and is commonly referred to as the Hybrid Method. This approach is most appropriate when there is both excess capacity in the current system that can accommodate a limited amount of growth, and additional capacity that will need to be built in order to accommodate anticipated growth.

Table 6-2 summarizes each of the three methodologies and typical applications.

Table 6-2: Common Tap Fee Calculation Methodologies

Methodology:	Description:	Often used by systems with:
Buy-In Method	New development shares in <u>capital costs previously incurred</u> , which is discounted by the age of the existing infrastructure	Sufficient excess capacity to accommodate anticipated growth
Incremental Cost Method	New development pays for projected <u>capital costs to be incurred in the future</u> which will provide capacity for new development	Limited or no excess capacity
Hybrid Method	Combination of the Buy-In and Incremental Cost methods	Some available capacity but not enough to serve all anticipated near-term growth.

After reviewing the District's systems, Stantec recommends using the Hybrid Method for the water system, Incremental Method for water resource system, and Buy-In Method for the wastewater system to calculate the tap fees.

6.4 TAP FEE CALCULATION

6.4.1 Existing System Value

The District provided a detailed asset inventory list for the water and wastewater systems which included asset identification, description, installation year, original cost, and expected useful life for each asset installed through 2019. Stantec separated out water assets between water system related and water supply related. District staff has completed a detailed review of the information included in the asset table.

Following the AWWA Manual M1 and WEF Manual of Practice No. 27, Stantec focused on the value of the water and wastewater systems using the RCNLD method. There are four accepted asset valuing methodologies including RCN, RCNLD, original cost, and net book value. RCNLD values existing fixed assets according to the costs of replacing the asset in today's dollars, adjusted by depreciation that has occurred in the system since the asset was placed in service. Table 6-3 provides a summary of the water and wastewater system fixed assets. Stantec also identified contributed assets that are excluded from the gross asset values.

Table 6-3: Summary of Gross Asset Values by System

System	Gross Asset Value - RCNLD
Water System	\$98,900,431
Water Resource	NA
Wastewater	48,027,373
Total	\$146,927,804

The value of a utility is not only measured by its existing physical assets but also by available cash reserves and the amount of debt carried by the enterprise. The value of system assets which the new customers are buying into may include cash reserves accumulated from charges from the utility's customers. For purposes of net system value for the District's water and wastewater systems, only physical assets were included in the determination of system value, excluding cash reserves from the calculation.

Outstanding debt principal is subtracted from the value of the utility because the same property owners that are paying a tap fee to join the system will become ratepayers, who will then become responsible for paying down the debt through user rates. Table 6-4 summarizes the net system valuation, factoring the RCNLD of existing assets, and outstanding debt principal related to each system as of the beginning of 2020.

Table 6-4: Summary of Net Asset Values by System

System	Gross Asset Value - RCNLD	Less: Principal Credit	Net System Value
Water System	\$98,900,431	\$6,663,697	\$92,236,734
Water Resource	NA	NA	NA
Wastewater	56,127,373	3,555,000	52,572,373
Total	\$155,027,804	\$10,218,697	\$144,809,107

Water and wastewater system values are then adjusted by the proportion of system capacities that are not subscribed or available for new customers. The percentage unsubscribed for water and wastewater systems are calculated to be 20.2% and 18.7% respectively, which is based on projected new single family equivalents (SFEs) through build-out divided by total number of SFEs the system could serve.

Table 6-5: Summary of System Values Unsubscribed

System	Net System Value	% Unsubscribed	System Unsubscribed
Water System	\$92,236,734	20.2%	\$18,620,526
Water Resource	NA	NA	NA
Wastewater	52,572,373	18.7%	9,817,047
Total	\$144,809,107		\$28,437,573

6.4.2 Growth-Related Capital Costs

The Study examined the District's 10-year CIP to analyze the cost of constructing new water and water resource system capacities. Since there is capacity available for new customers in the existing wastewater treatment plant, no growth-related wastewater capital projects are included in the tap fee calculation. The District provided project descriptions and project costs. Stantec and District staff reviewed each project to identify whether the project was designated for expansion or rehabilitation, and the percentage that is expansion related. Only expansion-related capital costs are included in the tap fee calculation. Table 6-6 summarizes the expansion related capital costs for each system.

Table 6-6 Summary of Growth-Related CIP by Function

System	Growth-Related CIP
Water System	\$10,768,609
Water Resource	24,941,297
Wastewater	NA
Total	\$35,709,906

6.4.3 Unit Cost of Capacity

The next step is to express the unit cost of capacity for the water, water resource, and wastewater systems. This is done by dividing the net system value by the total system capacity (in million gallons per day), as illustrated in Figure 6-1.

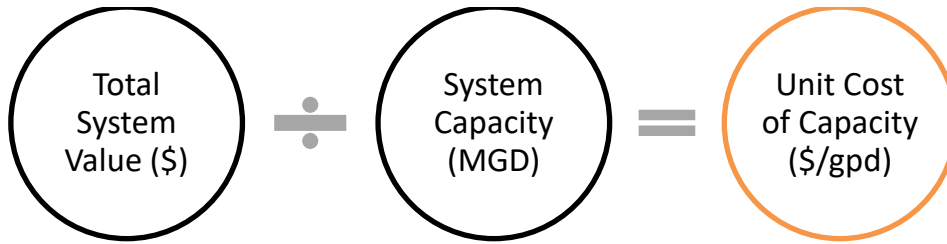


Figure 6-1 Illustration of Unit Cost of System Capacity

For this analysis, the District’s water treatment plant has a capacity of 10.25 MGD. Water resource capacity accounts for capacities provided by WISE, CCPWA, and Pinery local water supply projects, for a total of 1.09 MGD. Wastewater treatment has a total capacity of 2.0 MGD, less 0.61 MGD reserved for Intergovernmental agreements (IGAs), which results in 1.39 MGD capacity available. Capacity for each system was then adjusted by the percentage unsubscribed. Table 6-7 summarizes the calculation of unit cost of capacity for each system.

Table 6-7 Summary of Unit Cost of Capacity by Function

System	System Unsubscribed	Growth-Related CIP	Total System Value	Capacity (MGD)	Unit Cost (\$/ gpd)
Water System	\$18,620,526	\$10,768,609	\$29,389,135	2.07	\$14.20
Water Resource	NA	24,941,297	24,941,297	1.09	22.90
Wastewater	8,304,502	NA	8,304,502	0.26	32.06
Total	\$26,925,028	\$35,709,906	\$62,634,934		

6.4.4 Proposed Tap Fee

To calculate a tap fee per single family equivalent (SFE), the average water flow per SFE was estimated based on master plan data, treatment plant data, as well as billing data. Based on water treatment plant data from FY 2016-2019, the average daily water flow per single family equivalent (SFE) is 600 gallons per day (gpd). This level of service is used in calculating water resource system tap fee. A 4-year average peaking factor of 2.61 from treatment plant data is applied to the average water flow per SFE to calculate a peak usage per SFE of 1,567 gpd. This level of service is used in calculating the water system tap fee.

In determining the average wastewater flow per SFE, an assumption of 240 gpd/ SFE is used for wastewater flow based on wastewater treatment plant influent data from previous study.

As shown in table below, the tap fees calculated by multiplying the unit cost of capacity (\$/ gpd) by the level of service per SFE (gpd).

Table 6-8 Summary of Proposed Tap Fees

System	Unit Cost of Capacity (\$/ gpd)	LOS (gpd)	Tap Fee (\$/ SFE)
Water System	\$14.20	1,567	\$22,249
Water Resource	22.90	600	13,741
Wastewater	32.06	240	7,695

6.5 CONCLUSIONS

Based upon the tap fee analysis as discussed above, the following conclusions and recommendations are provided:

- 1) We recommend that the District consider adopting the proposed water and wastewater system tap fees presented in the table below.

Table 6-9 Summary of Tap Fees

System	Proposed Tap Fee (\$/ SFE)	Existing Tap Fee (\$/ SFE)	Difference
Water System	\$35,990	\$35,273	\$717
Wastewater	7,695	7,415	280
Total	\$43,685	\$42,688	\$997

- 2) We recommend that the District review its tap fees at a minimum every three to five years to provide that they remain fair and equitable and continue to reflect the current cost of capacity. As the District continues to expand its facilities, future changes in technology, demands, development patterns, or other factors may necessitate additional adjustments to its tap fees.
- 3) We recommend that as part of any system tap fees update, the District also evaluates the most appropriate accepted methodology for calculating its system unit cost of capacity as system capacity may change over time

7. COMPARATIVE RATE ANALYSIS TO NEIGHBORING UTILITIES

Stantec completed a rate survey for neighboring utilities that captures the water and wastewater volumetric rates and monthly fixed fees as well as rate structure of each District. A list of neighboring utilities, excluding those with water budget-based rate structures, includes:

- Roxborough Water & Wastewater District
- Parker Water & Sanitation District
- Aurora Water
- City of Lakewood
- East Cherry Creek Valley Water District
- Stonegate Village Metropolitan District

The graph below presents the comparison of total monthly water and wastewater bills for each community as of 2020 assuming 25,000 gallons of water usage and 5,000 gallons of wastewater flow. Water usage is based on the Pinery’s average summer monthly water usage while wastewater flow is based on the Pinery’s average winter water consumption using 2019 billing data. The average water and wastewater monthly bill combined at this usage level for all communities is \$209.05. Given the survey results, the Pinery’s current and proposed water and wastewater rates are below the average water and wastewater bills.

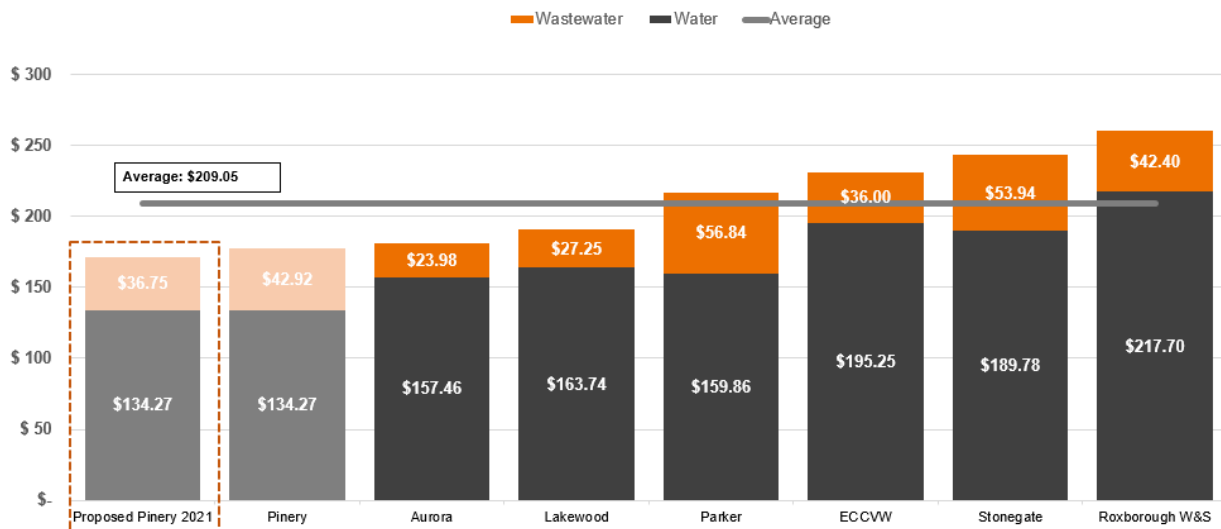


Figure 7-1 Monthly Bill Comparison at 25,000 Gallons

8. CONCLUSIONS AND RECOMMENDATIONS

A summary of Study recommendations based on the development of the financial analysis for the District's water and wastewater utilities is presented below.

- Reduce the water residential rate structure to a 5-tier rate structure starting in FY 2021; a 5% rate increase will be applied to large irrigators and golf courses volumetric rates to align with cost-of-service results in FY 2021.
- In subsequent years, annually evaluate rate adjustment based on actual operating results. This Study projects 2.5% increases from FY 2022 through FY 2026 for the water system. If the District is planning on constructing the new water treatment plant, additional rate increases of 3.0% from FY 2027 – FY 2030 are projected.
- Based on Board input, Stantec proposes a two-tier monthly fixed charge structure for wastewater residential customers based on winter average water consumption (AWC) starting in FY 2021. Align $\frac{3}{4}$ " commercial customers with the residential 2nd tier monthly fixed charge.
- Maintain current rates for the wastewater system from FY 2022 – FY 2030.
- Increase water tap fee from \$35,273 to \$35,990 for a $\frac{3}{4}$ " meter connection.
- Increase wastewater tap fee from \$7,415 to \$7,695 for a $\frac{3}{4}$ " meter connection.
- Review the existing commercial water customers monthly fixed charge meter equivalency ratio and consider aligning the meter equivalencies with the water project fee ratios by meter size during the next rate study.
- Evaluate District performance annually to assess rate revenue needs and update financial planning models.
- Review water and wastewater rate structures continually to ensure fairness and equity across customer classes.
- Review tap fees every 3-5 years or when changes to the growth-related CIP are expected.

Disclaimer

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APPENDIX A: SUPPORTING SCHEDULES – WATER FINANCIAL PLAN

Supporting Schedules for the Water Financial Plan

- Schedule 1 Assumptions
- Schedule 2 FY 2020 Beginning Balances as of 1/1/2020
- Schedule 3 Projection of Cash Inflows
- Schedule 4 Projected of Cash Outflows
- Schedule 5 Cost Escalation Factors
- Schedule 6 Capital Improvement Program
- Schedule 7 FAMS Control Panel
- Schedule 8 Pro Forma
- Schedule 9 Capital Project Funding Summary
- Schedule 10 Funding Summary by Fund
- Schedule 11 Senior Lien Borrowing Projections
- Schedule 12 WISE Water Cost Projection

APPENDIX B: SUPPORTING SCHEDULES – WASTEWATER FINANCIAL PLAN

Supporting Schedules for the Wastewater Financial Plan

- Schedule 1 Assumptions
- Schedule 2 FY 2020 Beginning Balances as of 1/1/2020
- Schedule 3 Projection of Cash Inflows
- Schedule 4 Projected of Cash Outflows
- Schedule 5 Cost Escalation Factors
- Schedule 6 Capital Improvement Program
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