PREPARED FOR:

PREPARED BY:

MARCH 2021

MAGNA WATER DISTRICT

WATER & SEWER RATE STUDY

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Prepared for:

MAGNA WATER DISTRICT

Prepared by:

BOWEN COLLINS & ASSOCIATES

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EXECUTIVE SUMMARY

INTRODUCTION

Magna Water District (District) faces significant upcoming capital improvement costs, loan service costs, and maintenance and operation costs due to the District's water and sewer systems facing three significant challenges:

- New regulatory requirements that require additional water and wastewater treatment plant improvements;
- Aging water and sewer infrastructure that must be replaced or rehabilitated; and
- Annexation and future growth (especially associated with Kennecott property along the foothills) will result in additional demands on the water and sewer systems.

The purpose of this study is to update the District's water and sewer service charges as necessary to meet those cost needs. Implementing the recommendations contained in this report will assist Magna Water District in adequately funding potential infrastructure improvements and staying on track with projected operation budgets.

SEWER RATE ANALYSIS

The primary objective of this sewer rate analysis is to establish rates that will be sufficient to meet revenue requirements for the District. To accomplish this goal, this analysis focused on four major tasks:

1. **Calculating Revenue Requirements:** Total revenue requirements for the District were projected for the next several years. Those requirements included operations and maintenance costs, capital improvement costs, facilities rehabilitation/replacement costs, and debt service.
2. **Comparing Revenue to Required Revenue:** Once revenue requirements are projected, it is possible to compare required revenue to revenue projections. Projected future capital improvement needs, as well as increases in operation and maintenance costs, show Magna Water District revenues falling below projected revenue requirements in future years.
3. **Developing a Funding Plan to Meet Projected Needs:** In order for the District to meet projected expenditures and maintain its reserve fund to acceptable levels, it is important that revenue be sufficient to accommodate future projects. This study develops a plan to maintain the District's savings fund and maintain funding levels appropriate to provide the desired level of service in the water and wastewater systems.
4. **Calculating Final Water and Sewer Rates:** Using the District's existing rate structure, water and sewer rates were adjusted and calculated to recover needed revenue based on operation and maintenance costs, debt service, and capital improvement costs.

REQUIRED RATES TO MEET REVENUE NEEDS

Based on projected revenue needs, recommended overall rate increases are summarized in Table ES-1.

Table ES-1
Recommended Annual Revenue Increases for the 10-Year Budget Plan

Year	Water Rate Revenue Increase	Sewer Rate Revenue Increase
2022	5%	5%
2023	5%	5%
2024	5%	5%
2025	5%	5%
2026	3%	3%
2027	3%	3%
2028	3%	3%
2029	3%	3%

COST-OF-SERVICE ANALYSIS RECOMMENDATIONS

When assembling rates, it is important to consider cost-of-service. The essential principle of cost-of-service is that water and wastewater revenue should be recovered from classes of customers in proportion to the cost of serving those customers. Thus, this report includes an evaluation of the District's existing rate structure generally following industry standard cost-of-service methodology for water[1] and sewer[2]. BC&A would offer the following major conclusions regarding cost-of-service and the District's existing rate structures:

1. Water (Culinary) – The balance between the District's existing culinary base rates and volume charges is generally consistent with cost-of-service.
2. Water (Culinary) – The District's existing tier system is acceptable but does undercharge slightly for peak water use. Cost-of-service associated with peak demands would suggest some cost should be shifted from Tier 1 to Tier 3.
3. Water (Secondary) – Cost-of-service suggests that the balance between the District's existing secondary base rates and volume charges is weighted a little too much toward base rates.
4. Water (Secondary) – Secondary tier volumes are significantly higher than tier volumes for culinary water use. To maintain equity between culinary and secondary customers, the District should consider modifying the tiers to have more consistency between culinary and secondary.
5. Sewer – Cost-of-service suggests that the balance between the District's existing sewer base rates and volume charges is weighted a little too much toward base rates.

[1] American Water Works Association, Manual M1 – Principles of Water Rates, Fees, and Charges, 2017.
[2] Water Environment Federation, American Society of Civil Engineers, and American Public Works Association. Financing and Charges for Wastewater Systems, 2018.

RECOMMENDED RATES

Based on the cost-of-service conclusions above and identified revenue needs, recommended water and sewer rates are shown in Tables ES-2, ES-3, ES-4, and ES-5[3]. These tables reflect a multiple year rate schedule needed to meet the projected costs of capital improvements and system renewal.

Table ES-2
Required Culinary Water Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Base Rate ($/month)	$19.12	$19.12	$20.08	$21.08	$22.14	$23.25	$23.95
Tier 1 (0 to 6 kgal)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tier 2 (6 to 18 kgal)	$2.08	$2.08	$2.18	$2.29	$2.40	$2.52	$2.60
Tier 3 (18 to 35 kgal)	$2.33	$2.33	$2.45	$2.57	$2.70	$2.84	$2.93
Tier 4 (>35 kgal)	$2.65	$2.65	$2.78	$2.92	$3.06	$3.22	$3.32

Table ES-3
Required Secondary Water Base Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Base Rate ($/month)	-	-	-	-	-	-	-
0 to 0.25 acre lot	$5.70	$5.70	$4.50	$4.50	$4.50	$4.50	$4.64
0.25 to 0.49 acre lot	$5.70	$5.70	$5.70	$6.75	$7.85	$9.00	$9.27
0.49 to 0.99 acre lot	$11.40	$11.40	$11.40	$13.50	$15.70	$18.00	$18.54
>0.99 acre lot ($/irrigated acre)	$28.50	$28.50	$28.50	$33.75	$39.25	$45.00	$46.35

Table ES-4
Required Secondary Water Volume Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Tier 1 (Not Used)	-	-	-	-	-	-	-
Tier 2 (0 to 22 kgal)	$0.87	$0.87	$1.00	$1.05	$1.12	$1.20	$1.24
Tier 3 (22 to 37 kgal)	$1.03	$1.03	$1.17	$1.25	$1.33	$1.42	$1.46
Tier 4 (>37 kgal)	$1.56	$1.56	$1.77	$1.90	$2.01	$2.15	$2.21

Table ES-5
Required Sewer Rates to Meet Projected Revenue Needs

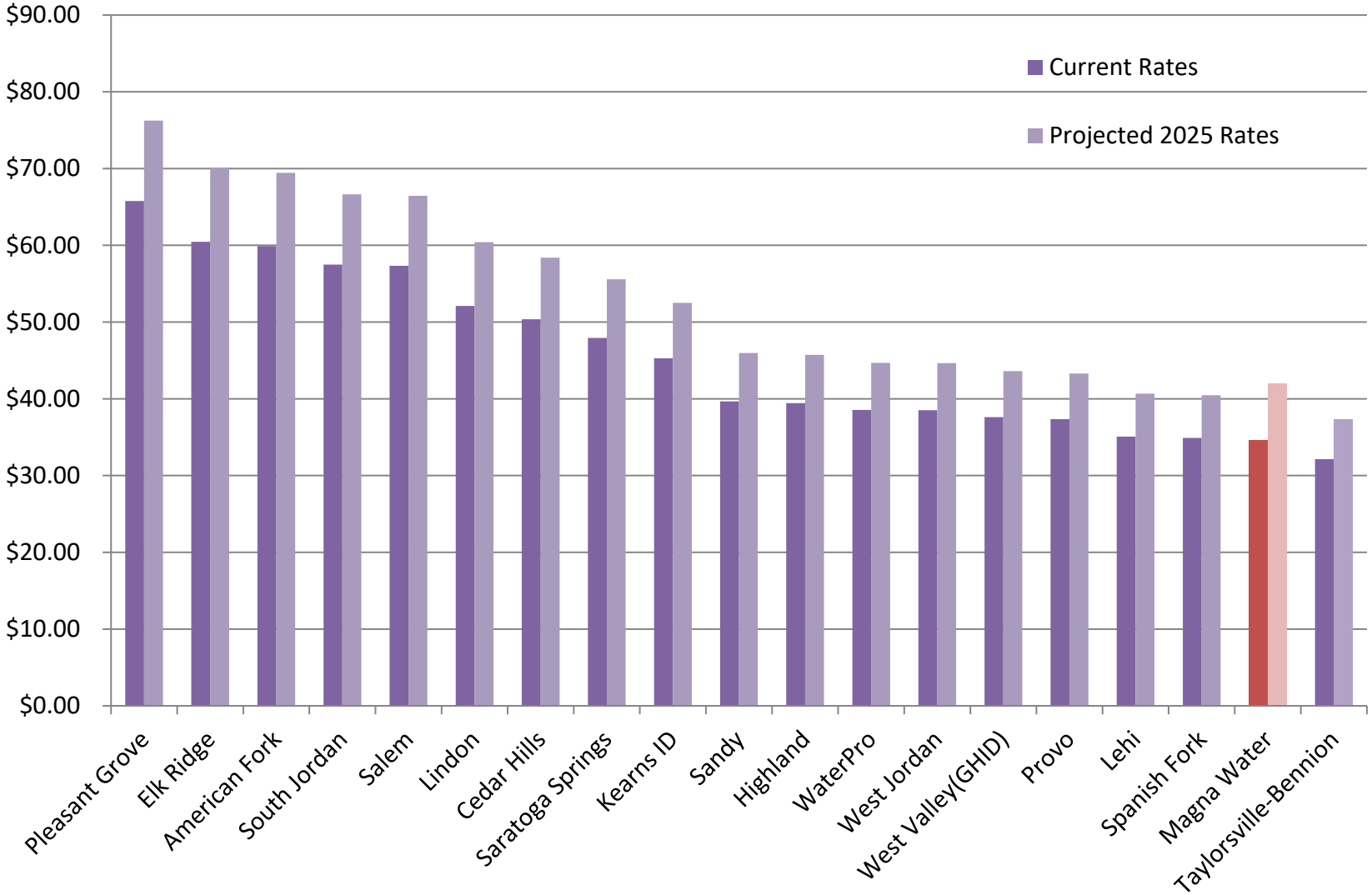
Rate Type	Existing	2021	2022	2023	2024	2025	2026
Monthly Base Rate	$29.81	$29.81	$31.09	$32.37	$33.73	$35.17	$36.23
Volume Rate	$1.23	$1.23	$1.39	$1.55	$1.72	$1.90	$1.96

IMPACT ON MAGNA WATER DISTRICT CUSTOMERS

As shown in Figures ES-1 and ES-2, the District's existing rates are currently at the lower end of service entities surveyed as part of this study. Water rates are particularly low, with only one entity currently with lower rates than the District. With the rate increases recommended here, the monthly rates in Magna Water District will still be near the lowest surveyed for water rates and in the bottom half for sewer rates.

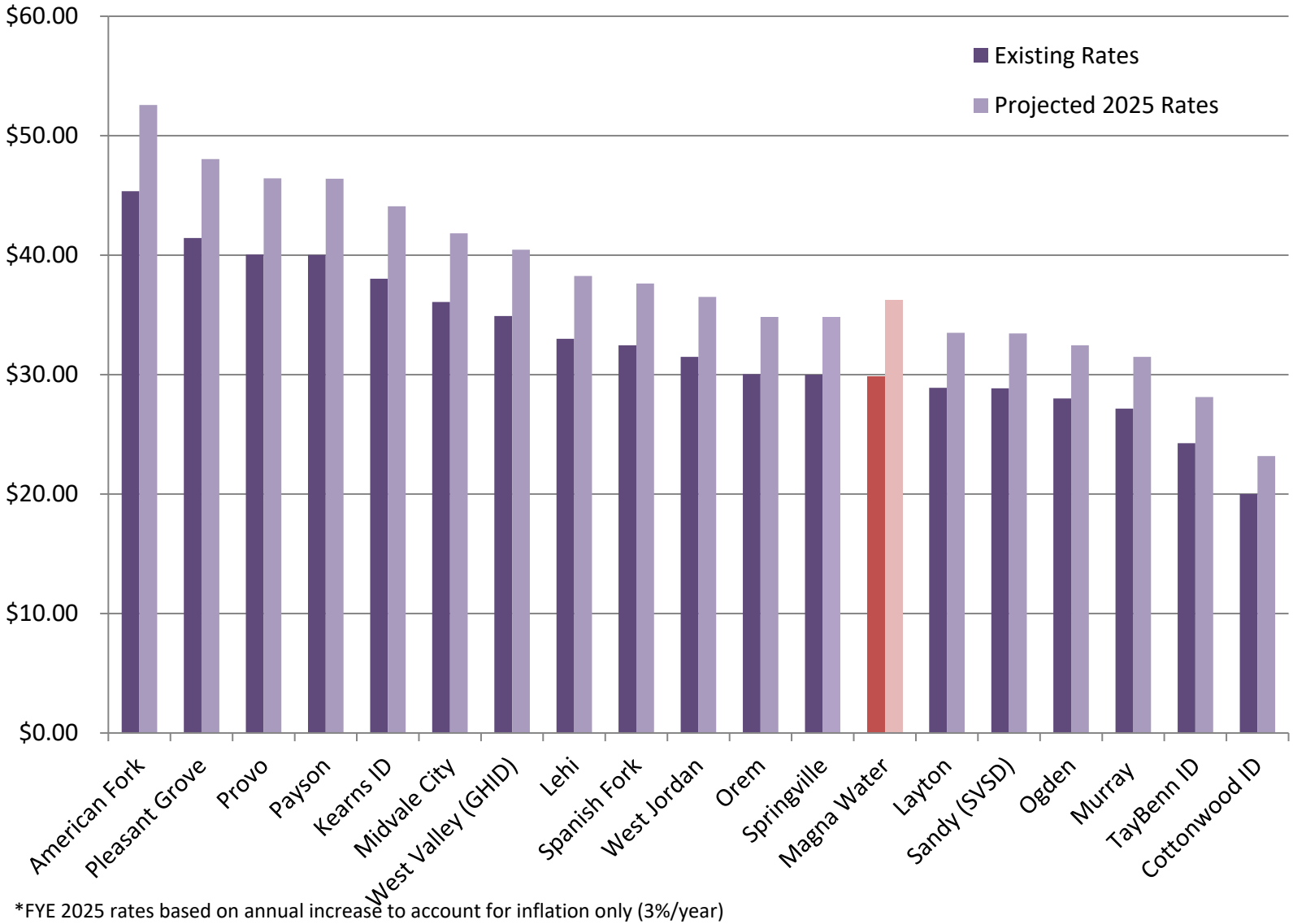
[3] Except where noted, all results are per Residential Equivalent (RE). A residential equivalent is generally based on a single-family residential connection with a 5/8-inch water meter.

Figure ES-1
Comparison of Average Monthly Water Rates, Average Residential Customer



*FYE 2025 rates based on annual increase to account for inflation only (3%/year)

Figure ES-2
Comparison of Monthly Sewer Rates, Average Residential Customer



*FYE 2025 rates based on annual increase to account for inflation only (3%/year)

WATER AND SEWER RATE STUDY

INTRODUCTION

Magna Water District (District) faces significant upcoming capital improvement costs, loan service costs, and maintenance and operation costs due to the District's water and sewer systems facing three significant challenges:

- New regulatory requirements that require additional water and wastewater treatment plant improvements;
- Aging water and sewer infrastructure that must be replaced or rehabilitated; and
- Annexation and future growth (especially associated with Kennecott property along the foothills) will result in additional demands on the water and sewer systems.

The purpose of this rate study is to update the District's water and sewer rates to support the capital improvements implementation plans as recently developed in the District's Water and Sewer Master Plans. The rate study will calculate detailed rates for the next five years and present a longer-term finance plan to achieve the District's primary objectives of:

- Maintain high quality and reliable water and sewer service at affordable prices for customers;
- Sustain stable revenue generation adequate to fund both system expansion and system rehabilitation needs;
- Encourage secondary water use where possible to support the District's long-term water supply strategy;
- Equitably distribute costs between customers based on cost-of-service principles and
- Keep rates as affordable as possible for all District customers.

Implementing the recommendations contained in this report will help Magna Water District keep its water and sewer systems adequately funded to maintain its infrastructure and continue to provide dependable service to its customers.

BACKGROUND

The District presently provides culinary water treatment and distribution, secondary water distribution, and sanitary sewer collection and treatment services to customers within the District's boundaries. The District recently completed and adopted water and sewer system master plans. These plans outlined upcoming needs in the system and outlined a capital improvement plan for addressing these needs. Based on these plans, the District also updated impact fees for both water and sewer to make sure that future development is paying its fair share of future costs. The final step in the District's planning process is to update rates as needed to support the adopted master plans. The analysis contained in this report calculates rates for culinary water, secondary water, and sewer for the District.

A rate study consists of three general steps:

- Revenue Needs Analysis
- Cost-Of-Service Evaluation
- Rate Design and Final Rate Calculation

The remainder of this report discusses each of these steps in detail.

REVENUE NEEDS ANALYSIS

This section looks at the District's total expenditures and income and then develops and overall plan for meeting the future revenue needs of the District.

Expected Revenue Requirements

The first step in this process is to project future expenditures. Historic and projected expenditures for the District's water and sewer systems from 2016 to 2028 are shown in Figure 1 and Figure 2, respectively. Future expenditures can be grouped into three categories:

- **Operation and Maintenance Expenditures –** These are the annual costs of running the system. They include items such as salaries and benefits for Magna Water District staff, equipment and supplies, power costs, system repairs, and all other costs associated with doing business throughout the year. The projected operation and maintenance costs for Magna Water District were based on the District's historic expenditures through 2020. Beyond 2020, it has been assumed that the O&M cost categories will annually increase at an assumed inflation rate of 3.0 percent with a small additional increase for expected system growth.

  For categories other than labor, the O&M cost increase associated with growth has simply been set equal to the expected system growth rate for categories directly tied to water or wastewater volume (e.g. chemical or power costs), or half the expected system growth rate for categories not directly affected by volume (e.g. system repairs or office supplies). Assuming only half the growth rate for these types of expenses takes into account the principle of economy of scale. For labor related categories, no fixed growth rate has been included. Instead costs have been increased to reflect the following projected needs for additional staff:

  - 2 Additional Office Staff in 2021
  - 1 Additional Water Staff in 2021
  - 1 Additional Sewer Staff in 2021
  - 2 Additional Water Staff in 2025
  - 2 Additional Sewer Staff in 2025
  - 3 Additional Office Staff in 2025
- **Debt Service –** These are the costs paid toward the loans that are currently being paid off by the District and the loans that the District plan to take out in the planning window. These costs are easily predictable because they are tied to set loan repayment schedules. Currently, the District has three bonds being paid from both water and sewer revenues (2013, 2017, and 2019 GO Bonds) with a fourth being paid solely from water revenues (2007 Revenue Bond). Two more bonds are expected within the planning window (as will be discussed subsequently).
- **Capital Improvement Expenditures from Reserves and Loan Proceeds –** These are costs for constructing new facilities within Magna Water District. This can include completely new facilities or replacement of existing facilities. Capital improvement expenditures are usually the most volatile of expenditure categories. Because O&M and debt service costs are basically fixed, budgets are usually balanced by increasing or

decreasing capital improvement expenditures, as necessary. The District has quite a few new capital improvement projects that are projected during this planning window.

Included in this category are recommended costs associated with rehabilitation and replacement of existing infrastructure and other minor improvements. As with most things, each component of a water or sewer system has a finite service life. As such, it is necessary to continually budget money for the rehabilitation or replacement of these system components. If adequate funds are not set aside for regular investment into the system, the system will fall into disrepair and be incapable of providing the level of service customers in the District expect. To maintain the water and sewer systems in good operating condition, it is recommended that the District's annual investment into the system be approximately equal to the replacement value of the system divided by its estimated service life (as discussed in greater detail in the Water and Sewer Master Plan).

Expected Revenue from Existing Rates

Using Magna Water District's existing water and sewer rates, Bowen, Collins & Associates (BC&A) calculated the revenue the District could expect to receive over the next 10 years. These projections include consideration of future system growth.

Based on these projections, it is possible to compare expected revenue to required revenue. As can be seen in Figure 1 and Figure 2, projected revenue based on existing rates will fall well short of needs for both water and sewer. While some of the larger immediate needs can (and likely should) be met through bonding, the revenues appear to be falling further and further behind as time progressed. To satisfy the District's anticipated operation and maintenance costs and to fund projected capital improvement projects in the future, a rate increase is needed.

Recommended Long-Term Funding Level

As can be seen in the figures, the District has some significant expenditures coming up in the next few years. Before making any final conclusions regarding rate increases, it is useful to consider recommended long-term funding levels. Correspondingly, a line has been added to each of the figures representing the level of funding needed to sustainably maintain each system in the long run. This line is based on expected O&M costs plus the estimated replacement value of each system divided by its expected life span[4].

[4] See the Water and Sewer Master Plans for additional discussion regarding recommended system rehabilitation and replacement investment.

Figure 1
10-Year Revenue and Expenditures - Water

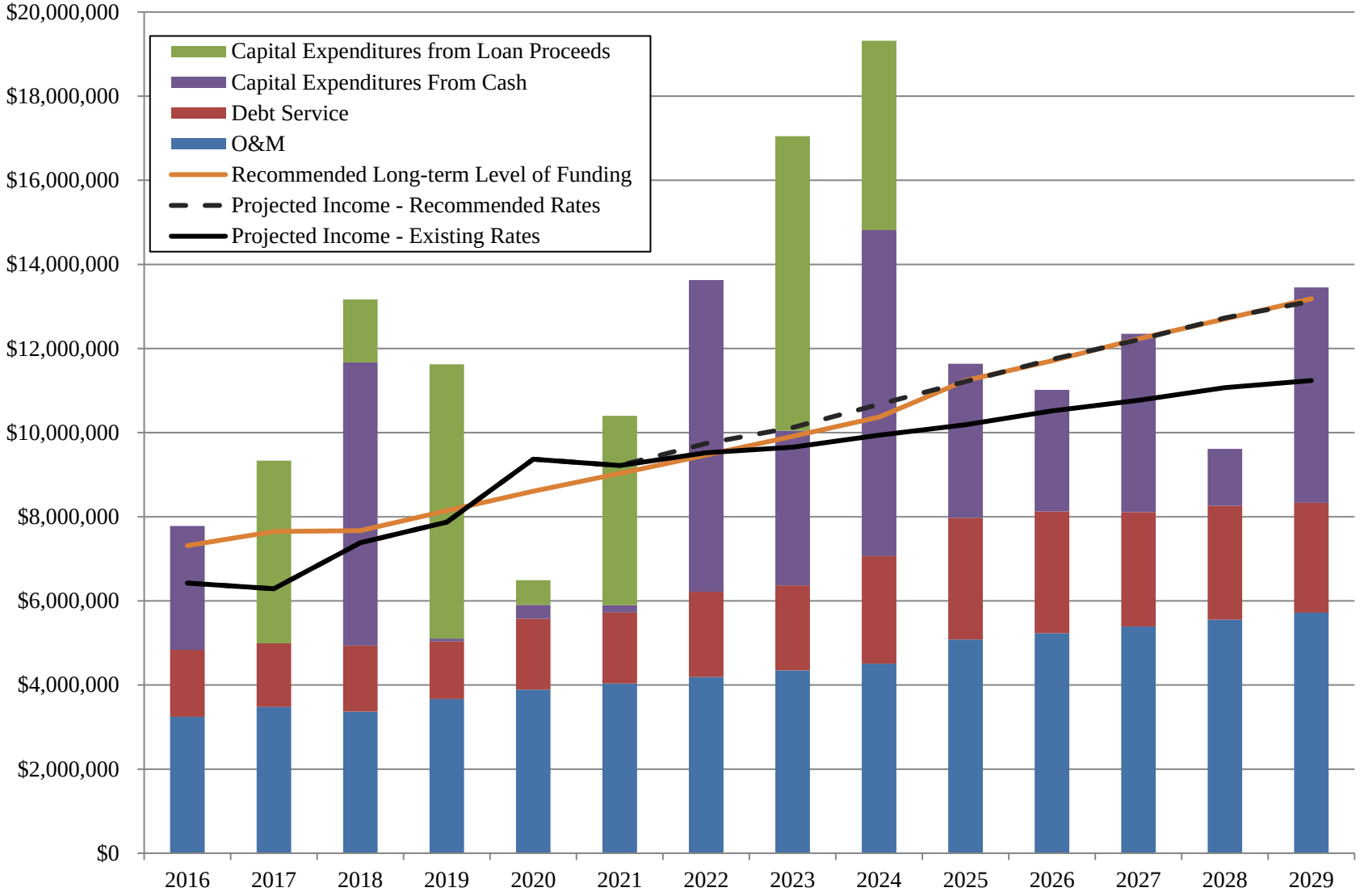
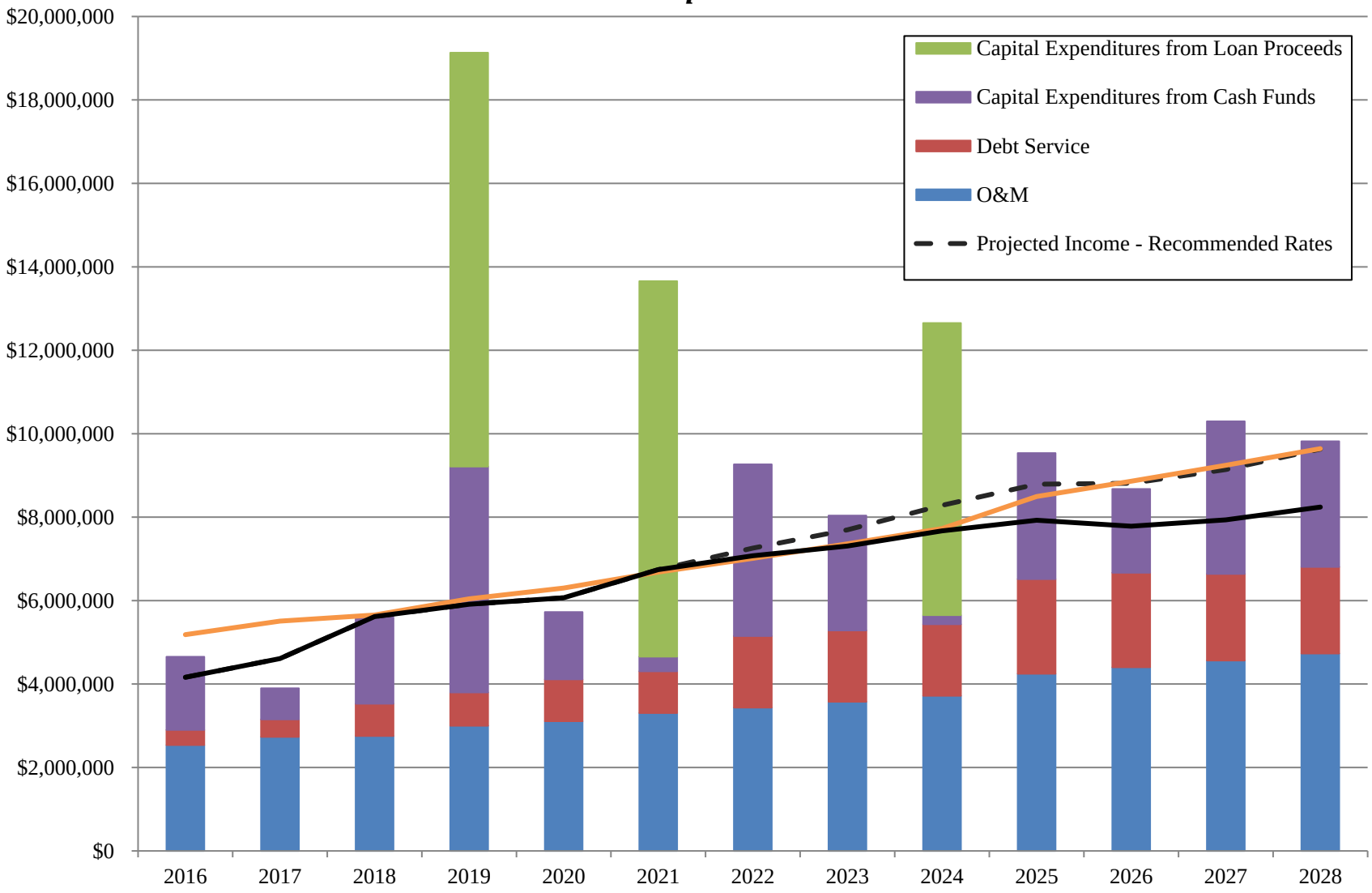


Figure 2
10-Year Revenue and Expenditures - Sewer



As shown in the figures, District expenditures have historically been in line with recommended long-term sustainable funding levels. Thus, no large initial increases in rates appear to be needed from this perspective. Over time, however, it does appear that revenues will fall behind recommended funding levels suggesting that ongoing inflationary rate increases will be needed to keep pace with system needs.

Proposed Rate Plan

Based on the conclusions above, the figures include a plan to transition from existing revenue levels to revenue adequate to support long-term system needs. To close the gap between projected revenue from existing rates and recommended rate revenue for long-term system needs in future needs, it is recommended that existing rates be increased starting in the year 2022. To generate the revenue shown in the budget plan in Figure 1 and Figure 2, approximate annual overall rate revenue increases will need to be as shown in Table 1.

Table 1
Recommended Annual Revenue Increases for the 10-Year Budget Plan

Year	Water Rate Revenue Increase	Sewer Rate Revenue Increase
2022	5%	5%
2023	5%	5%
2024	5%	5%
2025	5%	5%
2026	3%	3%
2027	3%	3%
2028	3%	3%
2029	3%	3%

Bonding and Cash Flow

Adopting the proposed rate plan above will keep District revenues in line with recommended long-term funding levels. However, it will not generate enough revenue in the next few years to meet upcoming needs. To meet immediate needs, the District will need to use a combination of its cash funding, grants, and bond proceeds.

Presently, the District combines its water and sewer reserve funds. The purpose of a reserve fund is to allow the District flexibility to deal with various potential issues such as unexpected revenue reductions, ability to avoid bonding for smaller projects, or other emergency purposes. BC&A recommends that the District attempt to maintain a combined reserve fund balance approximately equal to 12 months of O&M expenses. This is approximately $9.7 million in 2020 but will increase over time as the District's expenses increase (through system growth and inflation).

Figure 3 shows the anticipated reserve fund balance with expected transfers into and out of savings based on system revenue and capital improvement projects. To keep the reserve fund balance generally above the recommended minimum, two bonds are expected. This includes a bond for $13.5 million ($4.5 million for water and $9.0 million for sewer) in 2021 and $18.5 million ($11.5 million for water and $7.0 million for sewer) in 2024. If the District is able to secure grant funding for any improvements, this can be used to offset the size of required bonds in these years.

COST-OF-SERVICE EVALUATION

When assembling rates, it is important to consider cost-of-service. The essential principle of cost-of-service is that water and wastewater revenue should be recovered from classes of customers in proportion to the cost of serving those customers. Thus, this report includes an evaluation of the District's existing rate structure generally following the cost-of-service methodology recommended by the American Water Works Association[5] for water and the design cost-causative procedure recommended by the Water Environment Federation (WEF), American Society of Civil Engineers (ASCE), and American Public Works Association (APWA)[6] for sewer.

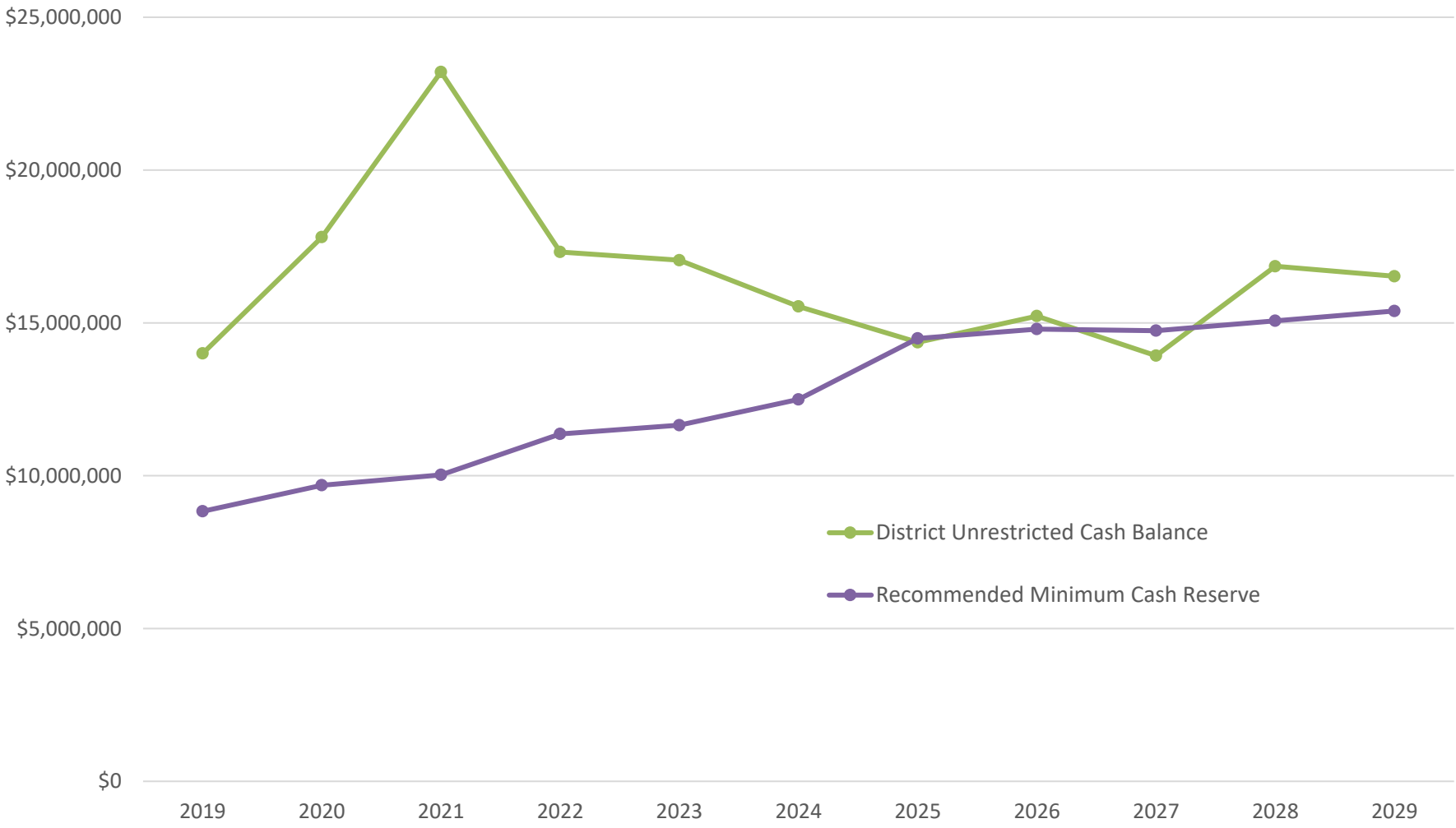
A key step in a cost-of-service evaluation is the allocation of costs to customer service characteristics. For the purposes of this study, costs were allocated into one of four cost allocation categories for both water and sewer. These categories are similar for both services but are described in slightly different terms in each of the methodologies.

Water:

- **Volume Costs –** Volume costs are charged based on the amount of water used. Typically, volume costs include two considerations:
    - **Average Day Costs –** This refers to costs that are associated with water use volume, but that are generally independent of the rate at which the water is used. One way to think of these costs is to consider the cost of providing the water if it were delivered at a constant rate year-round.
    - **Peak Day Costs –** This refers to the extra costs of delivering water at a peak rate. This often includes the cost of storage and the cost of oversizing facilities to deliver water during peak demand.
- **System Availability Costs –** System availability costs are typically costs associated simply with the ability to use water from the system, independent of the volume used. This includes two types of costs:
    - **Meters and Services –** Meter and service-related costs are those costs associated with the standby capacity that allows each customer the opportunity to intermittently take flow. As a result, each customer should be paying for their potential demand on the system, even though this capacity may be rarely used.

[5] American Water Works Association, Manual M1 – Principles of Water Rates, Fees, and Charges, 2017.
[6] Water Environment Federation, American Society of Civil Engineers, and American Public Works Association. Financing and Charges for Wastewater Systems, 2018.

Figure 3
10-Year Reserve Fund Balance - MWD Water and Sewer



This category includes a portion of major transmission infrastructure along with the actual cost of meters and services.

- **Billing and Collection Costs –** Billing and collection costs are those costs that are independent of the quantity of water supplied and the potential size of connection as discussed above. This category includes both administrative facilities such as shop and office buildings as well as administrative services such as the cost of generating and sending out bills each month.

Sewer:

- **Volume Costs –** Volume costs are charged based on the amount of wastewater produced. Typically volume costs include two considerations:
  - **Volume Related Costs –** This refers to costs that are directly determined by the volume of wastewater generated in the system.
  - **Strength Costs –** Strength costs are those costs determined by BOD or TSS concentrations of the wastewater.
- **System Availability Costs –** System availability costs are typically costs associated simply with the ability to discharge to the system, independent of the volume used. This includes two types of costs:
  - **Capacity Related Costs –** Capacity related costs are those costs associated with the standby capacity that allows each customer the opportunity to intermittently discharge flows. As a result, each customer should be paying for their potential to discharge into the system, even though this capacity may be rarely used. This category would include such items as the design and construction of major trunk lines since they are generally sized based on peak flow rates.
  - **Customer Related Costs –** Customer related costs are those costs that are independent of the quantity or quality of wastewater generated. This category includes both administrative facilities such as shop and office buildings as well as administrative services such as the cost of generating and sending out bills each month.

An evaluation of historic District costs based on these categories has been prepared for both water and sewer. Percentages have been assigned to each category in the District's budget to distribute system costs among the customer service classes. These are then added up to produce an estimate of the total revenue requirement for each customer service characteristic. These allocations are based on professional engineering judgment and knowledge of system operations.

Cost-of-Service Conclusions

Based on this analysis, BC&A would offer the following major conclusions regarding cost-of-service and the District's existing rate structures:

1. Water (Culinary) – The balance between the District's existing culinary base rates and volume charges is generally consistent with cost-of-service.
2. Water (Culinary) – The District's existing tier system is acceptable but does undercharge slightly for peak water use. Cost-of-service associated with peak demands would suggest some cost should be shifted from Tier 1 to Tier 3.

3. Water (Secondary) – Cost-of-service suggests that the balance between the District's existing secondary base rates and volume charges is weighted a little too much toward base rates.
4. Water (Secondary) – Secondary tiers are significantly higher than tiers for culinary water use. To maintain equity between culinary and secondary customers, the District should consider modifying the tiers to have more consistency between culinary and secondary.
5. Sewer – Cost-of-service suggests that the balance between the District's existing sewer base rates and volume charges is weighted a little too much toward base rates.

Future rate design should be structured to be consistent with these cost-of-service conclusions.

RATE DESIGN AND FINAL RATE CALCULATION

Based on the District's identified goals and the cost-of-service conclusions above, recommended changes in rate design for both water and sewer are discussed in the sections below. Using the recommended rate design changes, proposed rates are then calculated based on revenue needs.

Water Rates

To address District goals and the cost-of service conclusions above, the following changes are recommended for water rates:

- Leave the culinary rate structure approximately the same. While it may be advisable to adjust the ratio of cost between the culinary tiers at some point in the future, this is not recommended in this planning window. Because there are already several other changes proposed for this planning window, any adjustment to tier cost ratios should be reserved for a future rate study.
- For ease of administration, combine the fluoride rate into the overall base rate. These were originally separated to communicate the additional cost associated with Salt Lake County's mandate to fluoridate, but the need for this communication tool has passed.
- Address the two observed challenges with secondary rates (balance of base rate to volume rates and difference between culinary and secondary tiers) by adding a new secondary billing class. The new class will be formed by dividing the current secondary class for customers with properties from 0 to 0.49 acres into two categories: properties from 0 to 0.24 acres and properties with 0.25 to 0.49 acres.
- For the new smaller property classification (0 to 0.24 acres), reduce the base rate (to improve the cost-of-service balance between base rates and volume rates) and cut the tier allowances in half (to bring the secondary tiers in better alignment with the culinary tiers). Based on historic water use data, it appears that this reduction in tiers will still provide enough water to reasonably irrigate these smaller properties and will make the allocation of water fairer between small and large properties.
- Consistent with the goals of the adjustments to the secondary rate structure, overall rate increases for secondary water uses should be focused on the volume charges and the base rates for larger customers until the ratio or base rates is consistent for all customer classes (i.e. the rate for the 0.25 to 0.49 acre properties is approximately twice the cost of the 0 to 0.25 properties).

Based on this approach, the recommended District rates are summarized in Table 2 for culinary water. Table 3 and Table 4 show the base rates and volume rates for secondary water, respectively[7].

Table 2
Required Culinary Water Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Base Rate ($/month)	$19.12	$19.12	$20.08	$21.08	$22.14	$23.25	$23.95
Tier 1 (0 to 6 kgal)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tier 2 (6 to 18 kgal)	$2.08	$2.08	$2.18	$2.29	$2.40	$2.52	$2.60
Tier 3 (18 to 35 kgal)	$2.33	$2.33	$2.45	$2.57	$2.70	$2.84	$2.93
Tier 4 (>35 kgal)	$2.65	$2.65	$2.78	$2.92	$3.06	$3.22	$3.32

Table 3
Required Secondary Water Base Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Base Rate ($/month)	-	-	-	-	-	-	-
0 to 0.25 acre lot	$5.70	$5.70	$4.50	$4.50	$4.50	$4.50	$4.64
0.25 to 0.49 acre lot	$5.70	$5.70	$5.70	$6.75	$7.85	$9.00	$9.27
0.49 to 0.99 acre lot	$11.40	$11.40	$11.40	$13.50	$15.70	$18.00	$18.54
>0.99 acre lot ($/irrigated acre)	$28.50	$28.50	$28.50	$33.75	$39.25	$45.00	$46.35

Table 4
Required Secondary Water Volume Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Tier 1 (Not Used)	-	-	-	-	-	-	-
Tier 2 (0 to 22 kgal)	$0.87	$0.87	$1.00	$1.05	$1.12	$1.20	$1.24
Tier 3 (22 to 37 kgal)	$1.03	$1.03	$1.17	$1.25	$1.33	$1.42	$1.46
Tier 4 (>37 kgal)	$1.56	$1.56	$1.77	$1.90	$2.01	$2.15	$2.21

Table 5 shows a breakdown of the tiers to be used for the secondary water volume rates above.

Table 5
Secondary Water Rate Tiers by Lot Size

Lot Size	Tier 1	Tier 2	Tier 3	Tier 4
0 to 0.25 acre lot	-	0 to 22 kgal	22 to 37 kgal	>37 kgal
0.25 to 0.49 acre lot	-	0 to 44 kgal	44 to 74 kgal	>74 kgal
0.49 to 0.99 acre lot	-	0 to 88 kgal	88 to 148 kgal	>148 kgal
>0.99 acre lot (per irrigated acre)	-	0 to 220 kgal	220 to 370 kgal	>370 kgal

Sewer Rates

The only cost-of-service concern identified with sewer rates was the balance between base rates and volume rates. Thus, the following change is recommended for sewer rates:

[7] Except where noted, all results are per Residential Equivalent (RE). A residential equivalent is generally based on a single-family residential connection with a 5/8-inch water meter.

- For the planning window of this study, apply all recommended rate increases to the volume portion of rates only. This will gradually shift costs from the base rate to the volume charge to achieve improved cost-of-service balance.

Following this recommendation does not mean that the District's current base rates will go unchanged. It should be remembered that the District's current base rate includes a built-in volume charge for 8,000 gallons of wastewater production (i.e. The current base rate of $29.81 includes a volume component of $9.84 [8,000 gallons @ $1.23 per thousand gallons] and a sewer availability component of $19.97). Thus, recommended increases will not be applied to the availability component of the base rate, but the base rate will still increase as the volume component is increased to achieve the needed revenue.

Based on this approach, the recommended District rates are summarized in Table 6[8].

Table 6
Required Sewer Rates to Meet Projected Revenue Needs

Rate Type	Existing	2021	2022	2023	2024	2025	2026
Monthly Base Rate	$29.81	$29.81	$31.09	$32.37	$33.73	$35.17	$36.23
Volume Rate	$1.23	$1.23	$1.39	$1.55	$1.72	$1.90	$1.96

RATE COMPARISON

Figure 4 and Figure 5 show a comparison of Magna Water District's current and proposed water and sewer rates for an average residential customer with other communities in Utah. The figures display the projected 2020 average monthly sewer rate and the estimated sewer rate in 2025 for several water and sewer service entities. For all entities other than the District, it has been assumed that rates will increase simply at the rate of inflation. This is likely an underestimate of future rates for these other entities. Many of them are facing the same issues as the District and will likely have larger increases than inflation. However, the rates with inflation only provide a conservative estimate of where District rates might fall in the future compared to these other entities.

As shown in the figures, the District's current rates are very competitive compared to other entities. The District's current water rates are near the lowest of all the entities that were surveyed for this analysis. With the proposed rate increases over the next several years, the District's monthly water rates may bump up a few spots but will still be in the bottom quartile for water rates compared to the other entities in 2025.

The District's current sewer rates are a little higher up the list but are still below average compared to other cities and service districts. With the proposed rate increases over the next several years, the District's monthly sewer rates are expected to still be in the bottom half for sewer rates compared to the other entities in 2025.

In addition to average rates, it is useful to consider how some of the rate changes will affect various types of customers differently. Table 7 compares the proposed outdoor water rate structure for an average user (lot size less than 0.24 acres) to a user with a 0.49-acre lot. This table includes consideration of a culinary irrigator and secondary irrigator for each of these users.

[8] All results are per Residential Equivalent (RE). A residential equivalent is generally based on a single-family residential connection with a 5/8-inch water meter.

Table 7
Water Rate Comparison for Irrigator Type (Total Annual Cost)

	Existing	2021	2022	2023	2024	2025	2026
Average User (< 0.24-acre lot)							
Culinary Irrigator	$414.80	$414.80	$435.39	$457.16	$480.02	$504.02	$519.14
Secondary Irrigator	$391.19	$391.19	$397.82	$416.53	$435.93	$456.79	$470.50
Difference	$23.62	$23.62	$37.56	$40.63	$44.08	$47.22	$48.64
% Increase Culinary	-	0.0%	5.0%	5.0%	5.0%	5.0%	3.0%
% increase Secondary	-	0.0%	1.7%	4.7%	4.7%	4.8%	3.0%
0.49-acre lot							
Culinary Irrigator	$791.20	$791.20	$830.54	$872.07	$915.67	$961.46	$990.30
Secondary Irrigator	$527.18	$527.18	$567.53	$607.96	$651.32	$698.36	$719.31
Difference	$264.01	$264.01	$263.02	$264.11	$264.36	$263.10	$270.99
% Increase Culinary	-	0.0%	5.0%	5.0%	5.0%	5.0%	3.0%
% increase Secondary	-	0.0%	7.7%	7.1%	7.1%	7.2%	3.0%

Several conclusions can be made based on the information contained in this table:

- For the user with a larger lot size (0.49-acre lot), the current cost savings of being connected to secondary irrigation (vs. culinary irrigation) is much more significant than it would be for the average user. This partially explains why the District has struggled to get smaller lots connected to the secondary. There has historically been only a small financial benefit to make the switch.
- With the addition of a new lot size category (0 to 0.24 acre lot versus 0 to 0.49 acre lot), future rates have been designed to address this issue. As shown in the table, proposed rates maintain about the same differential between culinary and secondary rates for larger users but generate an increasing secondary benefit for smaller users. This is expected to have a positive effect on the secondary adoption rate for smaller users.
- To accomplish this shift, larger secondary users will see a slightly larger than average increase in rates over the next several years (approximately 7% per year vs. 5% average). This is necessary to keep the future revenue increases fairly distributed between those with access to secondary water and those without. This should not be perceived as an inequity for larger secondary users as, even with the slightly higher rate increases, they will still have significant savings over other customer types.

RECOMMENDATIONS

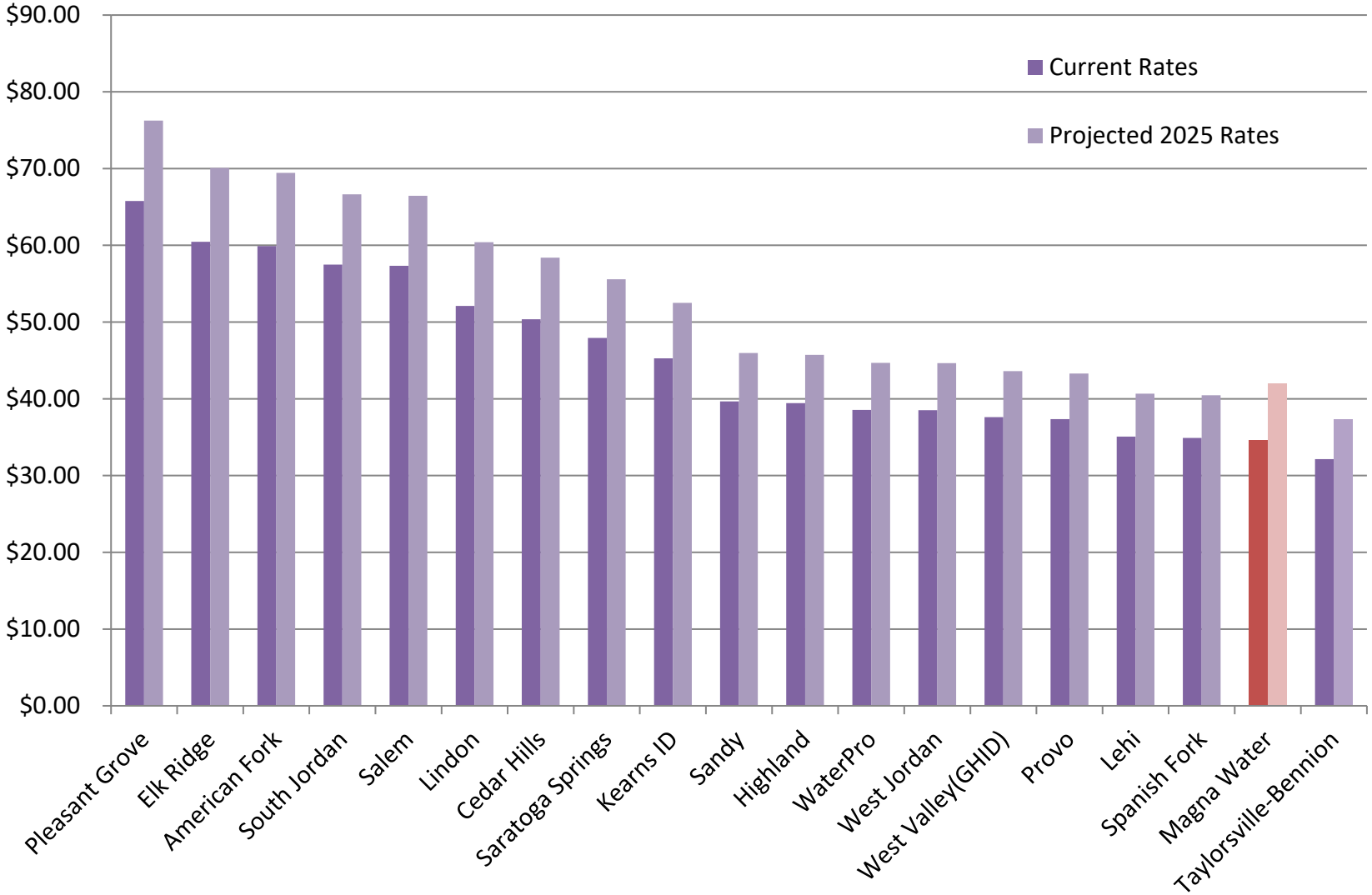
Based on the analysis contained in this report, the following actions are recommended:

Adopt Recommended Rates: It is recommended that Magna Water District adopt the rates summarized in Tables 2 through 6. These increases are needed to meet immediate operation and maintenance needs and to fund capital expenditures to meet the District's longer-term system investment goals.

Consider a Multiple Year Rate Schedule: If at all possible, it is recommended that the District adopt the full multiple year rate schedule through 2026. By adopting a multiple year rate schedule, the District can program the desired increases to the rates consistent with the results of this report and provide longer notice to customers.

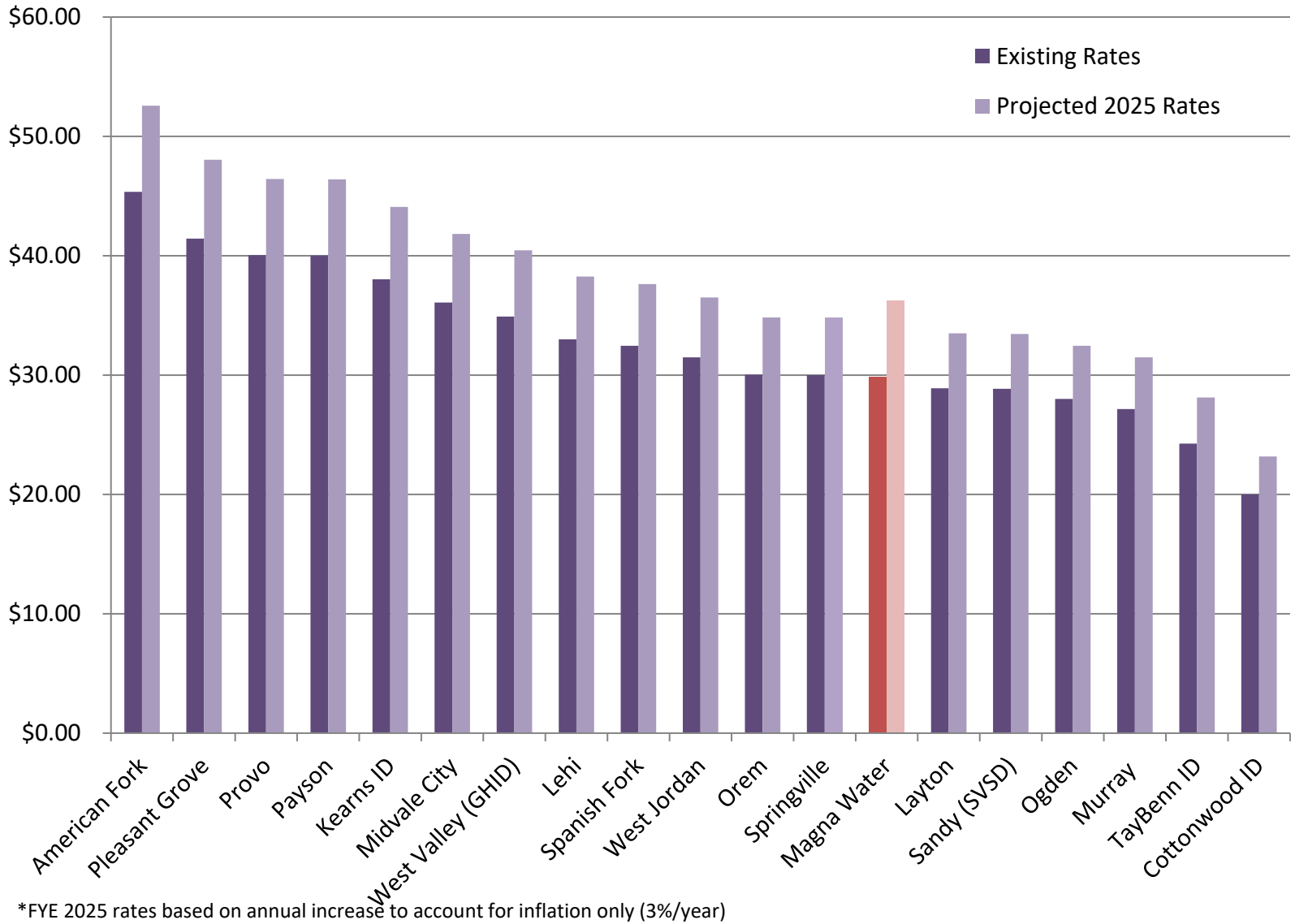
Update This Rate Study Frequently: After the implementation of any major change to the rate structure, we would suggest that the District monitor customer responses and system revenue for a period to two to three years. Following this initial observation period, the rates should be re-examined to determine if there should be any subsequent minor rate adjustments. A comprehensive review of this rate study should also be performed in three to five years. The projections, assumptions, and data contained in this report may need to be revised over time. For these reasons, it is prudent to update the rates to ensure they are sufficient to meet system requirements, as well as maintain cost-of-service equity in charges to customers.

Figure 4
Comparison of Average Monthly Water Rates, Average Residential Customer



*FYE 2025 rates based on annual increase to account for inflation only (3%/year)

Figure 5
Comparison of Monthly Sewer Rates, Average Residential Customer



*FYE 2025 rates based on annual increase to account for inflation only (3%/year)

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