Final Report

Truckee Donner Public Utility District

2020 Water Rate Study

December 2020

December 9, 2020

Mr. Brian Wright
Water Utility Director
Truckee Donner Public Utility District
11570 Donner Pass Road
Truckee, CA 96161

Subject: Comprehensive Water Rate Study Final Report

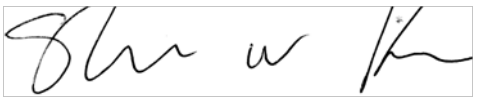
Dear Mr. Wright:

HDR Engineering, Inc. (HDR) is pleased to present to the Truckee Donner Public Utility District (District) the final report for the 2020 comprehensive water rate study. The District's comprehensive water rate study was developed to provide cost-based and equitable rates. This was accomplished by developing a revenue requirement, cost of service, and proposed rates that generate sufficient revenue to prudently fund the operating and capital needs of the District.

This report outlines the overall approach used to achieve these objectives, along with our findings, conclusions, and recommendations. This report was developed utilizing the District's accounting, operating, and customer billing records. HDR has relied upon this information to develop our analyses that form our findings, conclusions, and recommendations. The study is a continuation of the use of generally accepted methodologies (i.e., AWWA) established in the District's 2015 comprehensive water rate study completed by HDR. This report was developed and documented to provide cost-based, equitable, and defensible rates, compliant with the requirements of Proposition 218, as it is currently understood.

We appreciate the assistance provided by the District's management and staff in the development of this study. More importantly, HDR appreciates the opportunity to provide these technical and professional services to the District.

Sincerely yours,
HDR Engineering, Inc.



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Executive Summary

Introduction

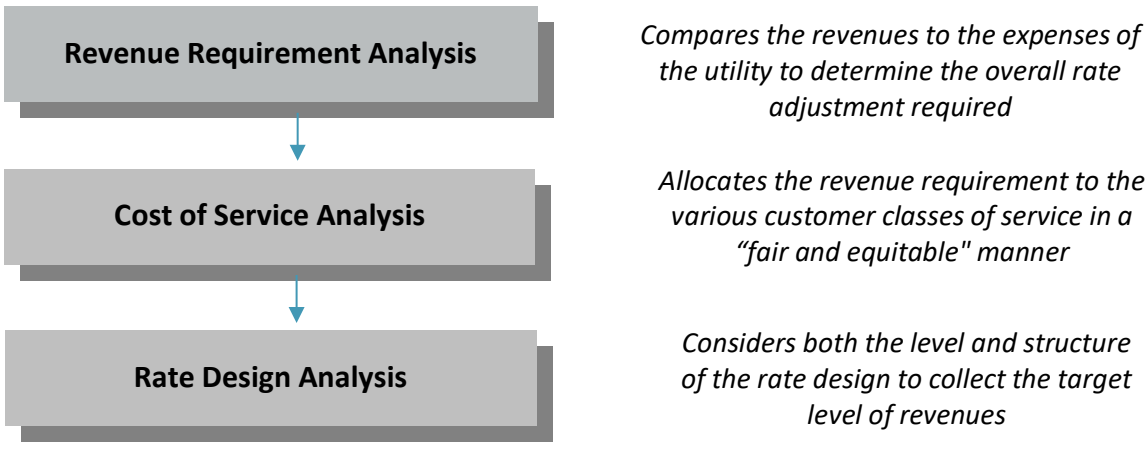
HDR Engineering, Inc. (HDR) was retained by the Truckee Donner Public Utility District (District) to conduct a comprehensive water rate study. The objective of the rate study was to review the District's operating and capital costs in order to develop a financial plan and cost-based and equitable rates for the District's water customers. This study determined the adequacy of the existing water rates and provided the framework and cost basis for any needed future adjustments. The District has historically used comprehensive water rate studies to establish their rates and this study is a continuation of that past practice.

The District owns and operates a water supply, treatment, transmission, and distribution system. The determination of the total costs associated with providing water supply, treatment, transmission and distribution of water to the District's customers has been developed based upon the District's accounting, operating, and customer billing records and other relevant information.

Overview of the Rate Study Process

A comprehensive water rate study uses three interrelated analyses to address the adequacy and equity of a utility's rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis. These three analyses are illustrated below in Figure ES - 1.

Figure ES – 1
Overview of the Comprehensive Water Rate Analyses



The above framework for reviewing and evaluating the District's water rates was utilized in the development of this study.

Key Water Rate Study Results

The water rate study was developed to establish equitable and proportional rates sufficient to meet the District's operating and capital costs. The water rate analysis resulted in the following findings, conclusions, and recommendations.

- A revenue requirement analysis was developed for the projected time period of FY 2021 through FY 2030
- The District's FY 2021 budget was used as the starting point of the analysis
- Operation and maintenance expenses are projected to increase at inflationary levels based on District current and future projections
- The capital funding analysis assumes that the water utility will need to issue long-term debt in order to funded necessary capital improvements; this estimate of additional annual debt service maintains the current levels of annual debt service payments as existing debt is being retired
- The revenue requirement analysis resulted in proposed water rate revenue adjustments to increase rate revenues sufficient to support water operating and capital needs over the projected time period
- A cost of service analysis was developed to review the equity of the existing rates and proportionally allocate the revenue requirement between the various customer classes (e.g., rate schedules)
- The results of the cost of service analysis provide equitable and proportional unit costs (i.e., cost basis) which were used to establish the proposed rates
- The study has developed proposed rates for the FY 2021 – FY 2025 time period, by customer class of service (e.g., rate schedule)

Summary of the Water Revenue Requirement Analysis

The revenue requirement analysis is the first analytical step in the development of the water rate study. This analysis determines the adequacy of the existing water rates. From this analysis, a determination can be made as to the overall level of rate revenue adjustments needed to provide adequate and prudent funding for both operating and capital needs.

For this study, the revenue requirement was developed for a projected time period (FY 2021 – FY 2030) with a rate setting period identified as FY 2021 through FY 2025. Reviewing a multi-year time frame is recommended in that it allows the utility to better anticipate future financial requirements and allow the District to begin planning for these impacts sooner, thereby minimizing short-term rate impacts and overall long-term rates.

The revenue requirement analysis was developed using a "cash basis" methodology. The cash basis methodology is the most commonly used methodology by public/municipal utilities to set their revenue requirement. Under a cash basis methodology annual O&M expenses, transfer payments or taxes, annual debt service, and capital projects funded through rate revenues are

summed to equal the total revenue requirement. The primary financial inputs in the development of the District's revenue requirement analysis were the District's FY 2021 budget, FY 2020 billed customer and consumption data, and the District's water system capital plan developed as part of the Water Infrastructure Capital Improvement Plan Development conducted by Farr West Engineering in May 2020.

After the operating and maintenance (O&M) expenses have been projected over the time period based on annual inflationary indices, the next step is to develop the funding plan for capital improvement projects (CIP). The proper and adequate funding of capital projects is important to help minimize rates over time. A general financial guideline states that, at a minimum, a utility should fund an amount equal to or greater than annual depreciation expense through rates for capital projects. The most recently available depreciation figure for the District's water utility was FY 2019 of approximately $4.5 million. Currently, the District is projected in the capital finding analysis to fund an amount greater than annual depreciation expense over the projected time period. The level of rate funded capital developed in the capital funding analysis ranges from $3.0 million to $6.8 million, increasing in future years to reflect renewal and replacement funding needs. It is assumed that – in addition to the rate funded capital improvements – the District will need to utilize other funding sources in order to fully fund the CIP, namely long-term borrowing to fund the identified capital improvements. Provided below in Table ES - 1 is a summary of the CIP, including the assumed funding sources, over the five-year rate setting period.

Table ES – 1
Summary of the Annual Rate Funded Capital ($000)

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Total Capital Projects	$3,270	$5,300	$6,500	$7,600	$8,100
Plus: Funds Held in Reserve for Future Projects	0	1,100	0	1,100	0
Less: Debt Issues	0	2,200	0	2,200	0
Less: Other Funding	270	200	1,300	200	1,300
Total Capital Projects	**$3,000**	**$4,000**	**$5,200**	**$6,300**	**$6,800**

As can be seen, the difference between annual capital improvement needs and rate funded capital is being funded through other funding sources which includes existing reserves and long-term debt. The District's capital plan reflects the capital projects needed to maintain the existing system and repair or replace deteriorating infrastructure as well as projects related to growth or redundancy. The full capital improvement plan is found in the Technical Appendix in Exhibit 3.

The revenue requirement analysis for District's customers was developed to determine the rate projections based on the specific costs of the District's water utility. Provided below, in Table ES – 2, is a summary of the revenue requirement analysis developed for the District's water utility as part of the 2020 comprehensive water rate study. A more detailed discussion and analysis of

the revenue requirement can be found in Section 3 of this report as well as in the Technical Appendix in Exhibit 3.

Table ES - 2
Summary of the Revenue Requirement Analysis ($000)

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Revenues					
Rate Revenues	$13,128	$13,242	$13,357	$13,473	$13,590
Misc. Revenues	655	609	613	616	617
Total Revenues	**$13,784**	**$13,852**	**$13,970**	**$14,088**	**$14,207**
Expenses					
O & M	10,386	11,189	11,508	11,837	12,176
Rate Funded Capital	3,000	4,000	5,200	6,300	6,800
Annual Debt Service	2,659	1,983	1,982	2,129	2,132
Transfers/Reserve Funding	(1,080)	(829)	(939)	(980)	(340)
Total Expenses	**$14,965**	**$16,343**	**$17,752**	**$19,286**	**$20,768**
Bal./(Def.) of Funds	**($1,182)**	**($2,491)**	**($3,782)**	**($5,198)**	**($6,561)**
Bal. as a % of Rate Rev.	-9.0%	-18.8%	-28.3%	-38.6%	-48.3%
Proposed Rate Rev Adjust.	**9.0%**	**9.0%**	**8.0%**	**8.0%**	**7.0%**
Add'l Rev. from Rate Adj.	**$1,182**	**$2,491**	**$3,782**	**$5,198**	**$6,561**
Total Bal./(Def.) of Funds	**$0**	**$0**	**$0**	**$0**	**$0**

As can be seen, the revenue requirement analysis has summed O&M, rate funded capital, net debt service and transfers/reserve funding. The total revenue requirement (i.e., expenses) are then compared to the total revenue sources of the water utility. From this comparison, a balance (+) or deficiency (-) of funds in each year can be determined. This balance or deficiency of funds in each year is then compared to the present rate revenues to determine the level of rate adjustment necessary to meet the revenue requirement in a particular year. It is important to note, the "Bal. / (Def.) of Funds" row is cumulative. That is to say, any adjustments in the initial years will reduce the deficiency in the later years. Over this projected time period, the total deficiency of rate revenue is approximately 48%. To meet the overall revenue needs of the five year rate period, annual rate adjustments of 9.0% in FY 2021 and FY 2022, followed by 8.0% annually in FY 2023 and FY 2024, and 7.0% in FY 2025 are proposed.

The above rate revenue adjustments, on a cumulative basis, meet the overall deficiency of 48% over the five year period reviewed. Based on the revenue requirement analysis developed, HDR has concluded that the District will need to adjust the level of water rate revenues as noted above to maintain cost-based rates. HDR has reached this conclusion for the following reasons:

- Rate adjustments are necessary to fully fund the Districts capital improvement plan
  - The CIP was based on the Farr West Water Infrastructure Capital Improvement Plan Development

- The proposed rate adjustments maintain the District's financial health and provide long-term, sustainable funding levels
- Prior to the implementation of the fifth, and final, proposed rate adjustment in FY 2025, the District should complete a review/update of the water rates

In reaching this conclusion, HDR would recommend that the District adopt the proposed rate revenue adjustments through FY 2025 in order to provide sufficient funding for the annual operating expenses and capital improvement program. A more detailed discussion of the development of the revenue requirement analysis is provided in Section 3 of this report.

Summary of the Water Cost of Service Analysis

A cost of service analysis determines the equitable and proportional allocation of the revenue requirement to the various customer classes of service (e.g., residential, commercial, and pump zone charges). The objective of the cost of service analysis is different from determining the revenue requirement analysis. Whereas a revenue requirement analysis determines the utility's overall financial needs, the cost of service analysis determines the equitable and proportional manner to collect the revenue requirement from each customer class of service (e.g., rate schedule).

In summary form, the cost of service analysis began by functionalizing the revenue requirement for the District's water utility. The functionalized revenue requirement was then allocated into the various cost components. The individual allocation totals were then distributed to the various customer classes of service proportionally based on the appropriate distribution factors. The distributed expenses for each customer class were then aggregated to determine each customer class's overall revenue responsibility. Table ES - 3 provides the summary of the cost of service analysis for the test year.

Table ES - 3
Summary of the Cost of Service Analysis ($000)

Class of Service	Present Revenues (FY 2021)	Allocated Costs	$ Difference	% Difference
Residential	$11,177	$12,288	($1,112)	9.9%
Commercial	1,405	1,333	72	-5.1%
Pump Zones	546	688	(142)	25.9%
Total	$13,128	$14,310	($1,182)	9.0%

The cost of service study allocates the proportional share of the revenue requirement to each customer class based on their respective demands on the system and the facilities required to provide service. The results of the analysis indicate that slight cost differences exist between the various customer classes of service. It is important to understand that a cost of service analysis

is based on a projection of customer consumption data based on recent year's consumption history.

As noted above, some cost differences exist between the customer classes of service. Given the requirements of Proposition 218, the cost of service results must be implemented in order to achieve equitable and proportional rates. A key element of this study is the continuation of cost of service adjustments to reflect the study results as noted in the 2016 water rate study. Additionally, it is important to understand that customer characteristics and system operations vary from year to year. These variations can be further impacted by pandemics, droughts, and changing weather. As a result, it is important to review the cost of service results continuously to maintain equitable and cost based rates.

Another key outcome of the cost of service analysis is the development of unit costs (e.g., $ / customer or $/1,000 gallons). The unit costs provide the cost-basis for the development of the District's proposed rates. Provided below in Table ES - 4 is a summary of the unit costs derived in the cost of service analysis that will be used to develop the proposed rate designs by customer class.

Table ES – 4
Summary of the Unit Costs

	Average	Residential	Commercial
Fixed Meter Costs	$75.74	System Average	System Average
Tier 1 Commodity Use		$0.99	N/A
Tier 2 Commodity Use		$1.40	N/A
All Consumption		N/A	$1.37

Section 4 of this report provides a detailed discussion of the cost of service analysis conducted for the District's water utility and the development of the unit costs.

Summary of the Present and Proposed Water Rate Designs

The final step of a comprehensive rate study process is the design of the proposed water rates to collect the required level of revenue, based on the results of the revenue requirement and cost of service analyses. The revenue requirement analysis provided a set of recommendations related to the level of annual rate adjustments, or the level of total revenues necessary to provide sufficient funding. The cost of service analysis resulted in recommendations as to how the revenue is equitably and proportionally collected from each customer classes of service. The unit costs developed as a part of the cost of service are used as the proposed rates in the first year.

The District's proposed water rates have been developed with the intent of meeting the legal requirements of California constitution article XIII D, section 6 (Article XIII D), also known as Proposition 218. A key component of Article XIII D is the development of rates which reflect the

cost of providing service and are proportionally allocated among the various customer classes of service. HDR would point out that there is no single methodology for equitably assigning costs to the various customer groups. The American Water Works Association (AWWA) M1 Manual clearly delineates various methodologies which may be used to establish cost-based rates. Article XIII D does not prescribe a particular methodology for establishing rates, consequently, HDR developed the District's proposed water rates based on the AWWA M1 manual methodology to meet the requirements of Article XIII D and recent legal decisions to provide an administrative record of the steps taken to establish the District's water rates.

HDR is of the opinion that the proposed rates comply with legal requirements of Article XIII D. HDR reaches this conclusion based upon the following:

- **The revenue derived from water rates does not exceed the funds required to provide the property related service (i.e., water service).** The proposed rates are designed to collect the overall revenue requirements of the District's water utility.
- **The revenues derived from water rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the District's water rates are used exclusively to operate and maintain the District's water system.
- **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** This study has focused exclusively on the issue of proportional assignment of costs to customer classes of service. The proposed rates have appropriately grouped customers into customer classes of service (residential, commercial, and pump zones) that reflect the varying consumption patterns and system requirements of each customer class of service. The grouping of customers and rates into these classes of service creates the equity and fairness expected under Article XIII D by having differing rates by customer classes of service which reflect both the level of revenue to be collected by the utility, but also the manner in which these costs are incurred and equitably assigned to customer classes of service based upon their proportional impacts and burdens on District's the water system and water resources.

Given the requirements to develop rates based on cost of service principles, the unit costs in Table ES - 4 were used to design the proposed water rates for the District's customer classes of service. The District currently has established customer classes of service that were reviewed and discussed with District staff in the development of this study. The customer classes of service and corresponding rate schedules reflect the various customer types served by the District. All customers are charged a fixed monthly meter charge, which varies by meter size to reflect the demands (costs) that larger meters place on the system. As a point of reference, the monthly meter charge is the same, by meter size, for all customers regardless of customer type. The residential consumption charge is an increasing two block tiered rate structure. The block sizes are based on the typical customer consumption patterns and provides 8,000 gallons per month (billing period) in the first tier. This level of usage, based on the District's customer specific data, provides ample consumption in the winter period, or when outside watering needs are minimal. All consumption over the first tier is charged at a higher rate (increasing block structure) to reflect the cost of providing service at higher levels of consumption and capacity use. For commercial customers, the rate structure has a monthly fixed meter charge and a consumption charge which

is a uniform rate structure. The use of uniform rate structure for commercial customers is a common industry approach given the wide variations of types of commercial customers and their total monthly usage patterns. Even with these variation, the overall customer characteristics are similar within the commercial customer class. Finally, the District assesses pump zone charges to reflect the costs associated with pumping water into higher (elevation) pressure zones. The analysis is based on the average cost of pumping and maintenance in total, and then applied to each pump zone, or the number of zones water must be pumped through to reach the pressure zone providing service. The pump zone charges are applied to all customers in the applicable pump zones.

Provided in Table ES - 5 is a summary of the current and proposed water rates over the five year rate setting period.

Table ES - 5
Summary of the Current and Proposed Water Rates

	Current Rate	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Residential						
Fixed Charge $/Month						
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
Commodity Charge $/1,000 gal.						
0 - 8,000 gal (block 1)	$0.78	$0.99	$1.08	$1.16	$1.26	$1.34
8,000 + gal (block 2)	0.97	1.40	1.53	1.65	1.78	1.91
Commercial						
Fixed Charge $/Month						
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
1-1/2"	116.80	126.99	138.42	149.49	161.45	172.75
2"	160.58	174.59	190.30	205.52	221.97	237.50
3"	268.81	292.26	318.56	344.05	371.57	397.58
4"	384.62	418.17	455.80	492.27	531.65	568.87
6"	576.93	627.25	683.71	738.40	797.48	853.30
8"	721.16	784.07	854.63	923.00	996.84	1,066.62
Commodity Charge - $/1,000 gallons	$1.91	$1.37	$1.49	$1.61	$1.74	$1.86
Pump Zone Charges						
Zone 1	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Zone 2	0.60	0.75	0.82	0.89	0.96	1.03
Zone 3	1.20	1.50	1.64	1.77	1.91	2.04
Zone 4	1.80	2.25	2.45	2.65	2.86	3.06
Zone 5	2.40	3.00	3.27	3.53	3.81	4.08
Zone 6	3.00	3.75	4.09	4.42	4.77	5.10
Zone 7	3.60	4.50	4.91	5.30	5.72	6.12

As can be seen, the proposed rates have been adjusted to reflect the overall revenue needs of the water utility based on the revenue requirement and cost of service analysis and have been adjusted by customer class based on the unit costs from the cost of service analysis.

Section 5 of this report provides a detailed discussion of the current and proposed water rates along with a component by component summary of the proposed water rates for FY 2021 – FY 2025.

Water Rate Study Recommendations

Based on the results of the water rate study, HDR recommends the following:

- Rate revenue adjustments are necessary to prudently fund operating expenses as well as necessary capital investment in renewal and replacement of the existing system
- Water rates should be adjusted 9% in FY 2021 and FY 2022, 8% in FY 2023 and FY 2024, and 7% in FY 2025.
- The proposed rates reflect the results of the cost of service analysis and the proportional allocation of costs to the various customer classes of service
- Prior to the implementation of the fifth, and final, proposed rate adjustment the District should complete a review of the water rates

Presentation of the Water Rate Study

The results of the water rate study were presented to the District Board for review and discussion at several public Board meetings. This included the following meetings:

- September 2, 2020 – presentation of the preliminary revenue requirement and overview of the cost of service and rate design analyses
- October 7, 2020 – presentation of the study results and recommendations, including the proposed rates and setting the public hearing
- December 2, 2020 – public hearing and presentation of the study results and recommendations

At the December 2, 2020 public hearing, the Board received public comment and reviewed the number of protests received. At the conclusion of the public hearing, given there was not a majority protest, the Board adopted the proposed rates as outlined in this report.

Summary of the Water Rate Study

This completes the summary of the development of the comprehensive rate study for the District's water utility. The focus of this study has been the prudent and adequate funding of water utility operating and capital needs as well as the development of proportional and equitable proposed rates for a five-year period. A full and complete discussion of the development of the District's comprehensive water rate study can be found in following sections of this report.

1 Introduction and Overview

1.1 Introduction

HDR Engineering, Inc. (HDR) was retained by the Truckee Donner Public Utility District (District) to conduct a comprehensive water rate study. The objective of a comprehensive water rate study is to develop equitable and proportional water rates which are in compliance with the legal requirements of Proposition 218. This is accomplished by first reviewing and analyzing the District's water operating and capital costs, and developing a projection of the overall revenue requirements of the utility. Then, the District's revenue requirements are equitably and proportionally to the District's customer classes of service (e.g., residential, commercial). The findings and conclusions from the cost allocation process is then used to develop the District's proposed water rates which are reflective of how the District's costs are incurred. The end result of the comprehensive rate study process is cost-based and equitable water rates reflective of the District's specific costs.

The District owns and operates a water system which is comprised of water supply, treatment, transmission, and distribution facilities. The determination of the total costs associated with providing water supply, treatment, transmission and distribution of water to the District's customers has been developed based on the District's accounting, operating, and customer billing records and other relevant information.

1.2 Goals and Objectives

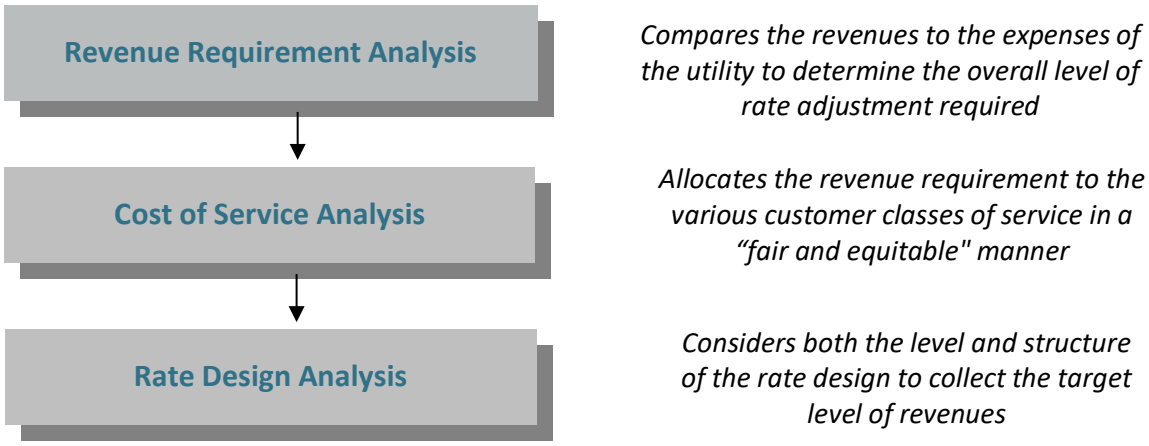
The District had a number of key objectives in developing the water rate study. These key objectives provided a framework for policy decisions contained within the rate study. These key objectives were as follows:

- Develop the study in a manner that is consistent with the principles and methodologies established by the American Water Works Association (AWWA), M1 Manual, Principles of Water Rates, Fees, and Charges
- Review the District's rates utilizing "generally accepted" rate making methodologies to determine adequacy and equity of the utility rates, while recognizing and acknowledging the specific and unique characteristics of the District's system
- Meet the District's financial planning criteria as it relates to legally required debt service coverage ratios, adequate funding of capital infrastructure, and maintenance of adequate and prudent reserve levels
- Develop a final proposed rate transition plan which adequately supports the utility's funding requirements, while attempting to minimize overall impacts to rates.
- Provide proposed rates designed to meet the legal requirements of Article XIII D and recent legal decisions related to Article XIII D.

1.3 Overview of the Rate Study Process

The rates a utility charges must be set at a level where a utility's operating and capital expenses are met with the revenues received from customers. This is an important point, as failure to achieve this objective may lead to insufficient funds to maintain system integrity. To evaluate the adequacy of the existing rates, a comprehensive rate study is often performed. A comprehensive water rate study consists of three interrelated analyses. Figure 1 - 1 below provides an overview of these analyses.

Figure 1 – 1
Overview of the Comprehensive Water Rate Analyses



The above framework was utilized for reviewing and evaluating rates the District's water utility.

1.4 Organization of the Study

This report is organized in a sequential manner that first provides an overview of utility rate setting principles, followed by sections that detail the specific steps used to review the District's water rates. The following sections comprise the District's water rate study report:

- **Section 2** – Overview of Water Rate Setting Principles
- **Section 3** – Development of the Revenue Requirement Analysis
- **Section 4** – Development of Cost of Service Analysis
- **Section 5** – Development of the Proposed Rate Designs

A Technical Appendix is attached at the end of this report, which details the various technical analyses that were undertaken in the preparation of the District's comprehensive water study.

1.5 Summary

This report will review the comprehensive water rate analyses prepared for the District. This report has been prepared utilizing generally accepted water rate setting techniques.

2 Overview of Water Rate Setting Principles

2.1 Introduction

This section of the report provides background information about the water rate setting process, including descriptions of generally accepted principles as outlined in the American Water Works Association M1 Manual (AWWA M1), types of utilities, methods of determining the revenue requirement, cost of service analysis, and rate design. This information is useful for gaining a better understanding of the details presented in Sections 3 through 5 of this report.

2.2 Generally Accepted Rate Setting Principles

As a practical matter, all utilities should consider setting their rates around some generally accepted or global principles and guidelines. Utility rates should be:

- Cost-based, equitable, and set at a level that meets the utility's full revenue requirement
- Easy to understand and administer
- Designed to conform to generally accepted rate setting techniques
- Stable in their ability to provide adequate revenues for meeting the utility's financial, operating, and regulatory requirements
- Established at a level that is stable from year-to-year from a customer's perspective

2.3 Determining the Revenue Requirement

Most public utilities use the "cash basis"[1] methodology or approach for establishing their revenue requirement and, ultimately, their rates. The cash basis methodology is well documented in rate setting literature. The methodology conforms to most public utility budgetary requirements and, additionally, the calculation is easy to understand. A public utility totals its cash expenditures for a period of time to determine required revenues. The revenue requirement for a public utility is usually comprised of the following costs or expenses:

- **Total Operating Expenses:** This includes a utility's operation and maintenance (O&M) expenses, plus any applicable taxes or transfer payments. Operation and maintenance expenses include the labor, benefits, materials, electricity, chemicals, supplies, etc., needed to keep the utility functioning.
- **Total Capital Expenses:** Capital expenses are calculated by adding debt service payments (principal and interest) to capital improvement projects financed with rate revenues. In lieu of including capital improvement projects financed with rate revenues, a utility sometimes includes depreciation expense or annual renewal and replacement costs to stabilize the annual revenue requirement.

[1] "Cash basis" as used in the context of rate setting is not the same as the terminology used for accounting purposes and recognition of revenues and expenses. As used for rate setting, "cash basis" simply refers to the specific cost components to be included within the revenue requirement analysis.

Under the cash basis approach, the sum of the total O&M expenses plus the total capital expenses equals the utility's revenue requirement during any selected period of time (historical or projected).

Note that the two portions of the capital expense component (debt service and capital improvement projects financed from rates) are necessary under the cash basis methodology because utilities generally cannot finance all their capital facilities with long-term debt. At the same time, it is often difficult to pay for all capital projects (capital expenditures) on a "pay-as-you-go" basis given that some major capital projects may have significant rate impacts upon a utility, even when financed with long-term debt. Many utilities have found that some combination of pay-as-you-go funding and long-term financing will often lead to minimization of rate increases (impacts) over time.

As noted, public utilities typically use the cash basis methodology or approach to establish their revenue requirements. An exception occurs if a public utility provides service to a wholesale or large contract customer. In this situation, a public utility could use the "utility basis" approach (see Table 2 - 1) to earn a fair return on the investment needed to serve the wholesale or large contract customer.

Table 2 – 1
Cash Versus Utility Basis Comparison

	Cash Basis		Utility Basis (Accrual)
+	O&M Expenses	+	O&M Expenses
+	Taxes/Transfer Payments	+	Taxes/Transfer Payments
+	Capital Improv. Funded From Rates (≥ Depreciation Expense)	+	Depreciation Expense
+	Debt Service (Principal + Interest)	+	Return on Investment
=	**Total Revenue Requirement**	=	**Total Revenue Requirement**

The District's study developed herein has used the "cash basis" methodology to establish the District's total revenue requirements. This aspect of the study is discussed in more detail in Section 3.

2.4 Analyzing Cost of Service

After the total revenue requirement is determined, it is equitably allocated and proportionally distributed to the users of the service. This process, developed through a cost of service analysis, reflects the cost relationships for producing and delivering water services to the utility's customers. A cost of service analysis is composed of three analytical steps:

1. Costs are ***functionalized*** or grouped into the various cost categories related to providing service (e.g., supply, treatment, transmission, distribution, pumping, etc.). This step is largely accomplished by the utility's accounting system.

2. The functionalized costs are then ***allocated*** to specific cost components. Allocation refers to the arrangement of the functionalized data into cost components. For example, a water utility's costs – such as for the District's in this study - are typically allocated as commodity (average day), customer (peak day), customer, or fire protection-related.

3. Once the costs are allocated into components, they are proportionally ***distributed*** to the customer classes of service (residential, commercial, industrial, etc.). The distribution is based on each customer class' relative contribution to the cost component (i.e., benefits received from and burdens placed on the system and its resources). For example, customer-related costs are proportionally distributed to each class of service based on the total number of customers in that class of service, relative to all other customer classes of service. Once the total costs (i.e., revenue requirement) are equitably distributed, the revenues from each customer class of service required to achieve cost-based rates can be determined.

The District developed a cost of service analysis as a part of this study. This aspect of the study is discussed in more detail in Section 4.

2.6 Designing Water Rates

Rates that meet the utility's cost-based and equitable objectives are designed based upon the results and findings from the revenue requirement and cost of service analyses. Using the cost information from these two analyses results in rates that are strictly cost-based, equitable and proportional. The average unit costs (i.e., cost-based rates) from the cost of service does not consider or take into account any other non-cost based goals and objectives (e.g., conservation, economic development, ability to pay, revenue stability). In designing the final proposed rates, factors such as ability to pay, continuity of past rate philosophy, economic development, ease of administration, and customer understanding may typically be taken into consideration. However, the proposed rates must take into consideration each customer class's proportional share of costs allocated through the cost of service analysis to meet the legal requirements of establishing the proposed rates. The development of the District's proposed water rate designs are discussed in more detail in Section 5.

2.7 Economic Theory and Rate Setting

One of the major justifications for a comprehensive rate study is founded in economic theory. Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained. This statement's implications on utility rate designs are significant. For example, a water utility usually incurs capacity-related costs to meet summer outdoor or non-domestic watering needs. It is presumed, then, that the customers who create excessive peak demands on the system - and create the need for upsized water system infrastructure - should pay their proportional share of the costs related to the over-sizing of facilities to meet peak use requirements. When costing and pricing techniques are refined, customers have a more accurate

> ***"Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained."***

understanding of what the commodity costs to produce and deliver. This basis pricing technique has been incorporated and used within this study.

2.8 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set water rates. These principles and techniques provide the theoretical and technical basis for the analyses used within the District's water rate study.

3 Development of the Revenue Requirement

3.1 Introduction

The development of a revenue requirement analysis is the first analytical step in the three-step comprehensive rate study process. This section of the report discusses the development of the District's water revenue requirement. The District's revenue requirement analysis was developed using the District's revenue, expense and customer data for their water system.

The revenue requirement analysis developed herein determines the adequacy of the District's overall water rates at current rate levels. From this analysis, a determination can be made as to the overall level of rate revenue adjustment needed to provide adequate and prudent funding for both operating and capital expenses. HDR developed an independent analysis based on information provided by the District as part of the review.

3.2 Determining the Revenue Requirement

In developing the District's water revenue requirement, the water utility must financially "stand on its own" and be properly funded. That is, no transfers from other District funds occur to subsidize the District's water utility. As a result, the revenue requirement analysis, as developed herein, assumes the full and proper funding needed to operate and maintain the District's water system on a financially sound and prudent basis.

"In developing the District's water revenue requirement, the water utility must financially "stand on its own" and be properly funded."

3.3 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement for the District's water utility was to establish a time period or time frame for the revenue requirement analysis. For this study, the revenue requirement was developed for a 10-year time period (FY 2021 – FY 2030). This time frame was composed of the FY 2020 and FY 2021 budgets which were projected through FY 2030. While revenues and expenses were projected for a ten-year period, the focus for rate setting purposes was the immediate five-year period of FY 2021 – FY 2025. Reviewing a multi-year time period is recommended in order to attempt to identify any major financial impacts that may be on the horizon. By anticipating future financial requirements sooner, the District can begin planning for these changes, thereby minimizing short-term rate impacts and likely overall long-term rate levels.

The second step in determining the revenue requirement was to decide on the basis of accumulating costs. In this particular case, for the revenue requirement analysis a cash basis methodology or approach was utilized. As noted in Section 2, the cash basis methodology is the most common methodology used by public/municipal utilities to establish their revenue requirement. This is also the methodology that the District has used in prior rate studies to determine its water revenue requirement. Table 3 - 1 provides a summary of the cash basis

approach and details the cost components used to develop the District's water revenue requirement.

Table 3 – 1
Overview of the District's "Cash Basis" Revenue Requirements

+	Water Operation and Maintenance Expenses
+	Rate Funded Capital
+	Debt Service (Principal + Interest) – Existing and Future
±	Change in Working Capital
=	**Total Water Revenue Requirement**
–	Miscellaneous Revenues
=	**Net Revenue Requirement** *(Balance Required from Water Rate Revenues)*

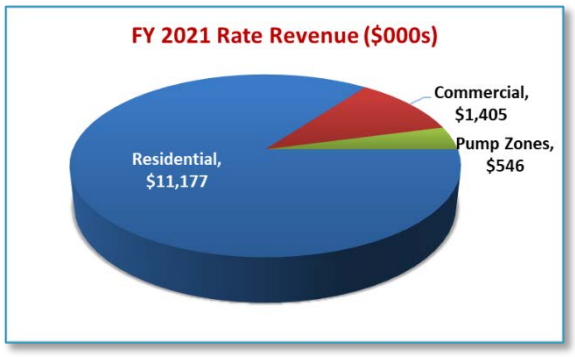
Given a time period around which to develop the revenue requirement and a method to accumulate the costs, the focus shifts to the development and projection of the District's revenues and expenses.

The primary financial inputs in the development of the revenue requirement were the District's FY 2020 and FY 2021 budget documents, recent billed customer and consumption data, and the current Water Infrastructure Capital Improvement Plan Development conducted by Farr West Engineering. Presented below is a detailed discussion of the steps and key assumptions contained in the development of the of the District's water revenue requirement analysis.

3.4 Projecting Rate and Other Miscellaneous Revenues

Once the method and time period for developing the revenue requirement was established, the next step is to develop a projection of the water rate revenues, at present rate levels. In general, this process involved developing projected billing units (i.e., meter size, billed consumption) for each customer group or rate schedule (i.e., residential and commercial). The billing units for each customer group were then multiplied by the current adopted water rates. This method of independently calculating revenues links the projected revenues used within the analysis to the projected billing units. It also helps to confirm that the billing units used within the study are reasonable for purposes of projecting future revenues, equitably and proportionally distributing costs and, ultimately, establishing proposed rates.

The District currently has separate rate schedules for its residential and commercial customers. All customers have a fixed charge by service meter size and a variable consumption charge. The consumption charge for residential customers is a two-block increasing rate structure. The commercial consumption charge is a uniform rate. In addition, customers may be charged a pump zone charge which reflects the cost of pumping water to higher pressure zones. The majority of the District's water rate revenues are derived from the residential customer class. In total, the District is projected to receive approximately $13.1 million in rate revenue in FY 2021. The rate study has assumed a conservative level of customer growth that at 1.0% / year for the review period. By FY 2025 the rate revenues, given assumed growth and assuming no rate adjustments, are projected to be approximately $13.6 million.



In addition to the rate revenues described above, the District also receives miscellaneous water revenues. These are revenues related to interest earnings, other miscellaneous revenues, standby revenues, and rents. In total, the District is projected to receive approximately $650,000 in miscellaneous revenues in FY 2021. This amount of miscellaneous revenues is anticipated to remain relatively stable over the projected five-year time period.

On a combined basis, taking into account the water rate revenues and the miscellaneous revenues, the District's water utility has total projected revenues of approximately $13.8 million in FY 2021 which is projected to increase to approximately $14.2 million by FY 2025.

3.5 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the District to provide water service (supply, treatment, transmission and distribution services). This includes the daily operation and maintenance of the existing infrastructure. The District provided detailed budgeted O&M expenses and projections of known changes to budgeted O&M expenses as a part of this study. Using the FY 2020 and FY 2021 O&M budget, O&M expenses were projected over the review period using projected escalation factors. The escalation factors were developed based on assumed annual inflation and the recent experience of the District and the general economy. The total O&M expenses for the District are approximately $10.4 million based on the FY 2021 budget. Over the planning horizon, the total O&M expenses for the District are projected to increase to approximately $12.2 million by FY 2025 based on assumed inflationary impacts.

3.6 Projecting Capital Funding Needs and Transfer Payments

A key component in the development of the water revenue requirement was properly and adequately funding capital improvement needs for the infrastructure of the system. One of the major issues facing utilities across the U.S. is the amount of renewal and replacement (R&R) capital improvement needs. In addition, utilities often face funding pressure from growth/expansion-related improvements and meeting unfunded regulatory requirements and

mandates. The proper and adequate funding of capital projects is an important issue for all water utilities and is not just a local issue or concern of the District.

In general, there are three general types of capital projects that a utility may need to fund. These include the following types:

- **Renewal and Replacement** - Renewal and replacement projects are essentially projects required for maintain the existing facilities and system that is in place today. As the existing plant or pipelines become worn out, obsolete, etc., the utility should be making continuous (annual) investments to maintain the integrity of the facilities.
- **Growth / Capacity Expansion** - A utility may need to make capital investments to add or expand the capacity of facilities needed to accommodate future capacity needs (customers).
- **Regulatory-Related** - The last type of capital project may be a function of a regulatory requirement in which the Federal or State government mandates the need for an improvement to the system to meet a regulatory standard. These regulatory-related projects are often unfunded mandates.

Understanding these different types of capital projects is important because it aids in explaining and helps to understand why capital improvement costs are increasing and driving necessary revenue adjustments. In addition, and more importantly, the way in which projects are funded may vary by the type of capital project. For example, renewal and replacement projects may be paid for via rates and funded on a "pay-as-you-go" basis. In contrast to this, growth or capacity expansion projects may be funded via the collection of development or water connection fees (i.e., growth-related charges) in which new development pays a proportional and equitable share of the cost of facilities necessary to serve their respective development (impact). Finally, regulatory projects may be funded by a variety of different means, which may include rates, long-term debt, grants, etc.

While the above discussion appears to precisely divide capital projects into three clearly defined categories, the reality of working with specific capital projects may be more complex. For example, a pump may be replaced, but while being replaced, it is up-sized to accommodate greater capacity to serve increasing demands or new development. There are many projects that share these "joint" characteristics.

For purposes of developing the capital projects funding plan, the District provided its long-term capital improvement plan (CIP). In addition, the District recently completed the Water Infrastructure Capital Improvement Plan Development which provided a listing of long-term capital projects that address deficiencies and improvements to the water system. A review and discussion of the capital funding needs was held with the District's Board to review and develop a rate transition plan to adequately fund annual capital improvement needs.

Provided below in Table 3 - 2 is a summary of the capital funding plan based on discussion with the District Board and identified in the Water Capital Improvement Plan. As noted, the focus of the District's water rate study was on the five-year period of FY 2021 – FY 2025 for rate setting purposes. The capital plan detail shown in Table 3-2 has been simplified for summary purposes. Exhibit 4 in the Technical Appendix details the individual capital projects and identified funding sources through FY 2030.

Table 3 – 2 Summary of the Annual Rate Funded Capital ($000)					
	FY 2021	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Total Capital Projects	$3,270	$5,300	$6,500	$7,600	$8,100
Plus: Funds Held in Reserve for Future Projects	0	1,100	0	1,100	0
Less: Debt Issues	0	2,200	0	2,200	0
Less: Other Funding	270	200	1,300	200	1,300
Total Capital Projects	**$3,000**	**$4,000**	**$5,200**	**$6,300**	**$6,800**

As can be seen in Table 3 - 2, the overall level of capital improvements varies from year-to-year, increasing to meet the overall capital replacement needs as outlined in the capital improvement plan (Farr West). The capital improvements are primarily related to renewal and replacement needs. While the total amount required to fund projects may vary from year-to-year, the rate study has attempted to provide a consistent annual funding source for capital improvements (i.e., rate revenues). In this case, rates will annually fund $3.0 - $6.8 million annually (as highlighted in Table 3 - 2). To fund the remaining capital needs, vehicle reserves, along with intermittent long-term borrowing will fund the remaining amount.

A desirable and recommended minimum funding target for rate funded capital is an amount equal to or greater than annual depreciation expense. The District's annual depreciation expense in 2019 was approximately $4.5 million. This financial plan will move the District to funding which is approximately 1.5 times depreciation expense. It is important to note and understand that annual depreciation expense is not the same as replacement cost. Thus, funding an amount which exceeds annual depreciation expense is both prudent and appropriate. In developing this financial plan, HDR and the District have attempted to minimize rate impacts while providing adequate funding for the planned capital improvement projects of the water utility.

"A desirable and recommended minimum funding target for rate funded capital is an amount equal to or greater than annual depreciation expense."

3.7 Projection of Debt Service

The District currently has several outstanding long-term debt issues. These include the pipeline COP, DWR-SRF, and DWR Prop 55. The debt service payments associated with the pipeline COP is incurred throughout the projected time period and is funded, in part, through annual rate revenues, facility fees, and assessment revenues. The DWR-SRF is funded through assessment revenues and is fully paid in FY 2025. The DWR Prop 55 loan is fully paid in FY 2021. In total, these issues have an annual debt service payment of approximately $2.6 million in FY 2021, reducing to $2.1 million in FY 2025 as the DWR Prop 55 is fully paid. As noted, facility fees and assessment revenues are used to fund portions of the existing debt which reduces the impact to rates. Net debt service in FY 2021 is $1.4 million reducing to $575,000 in FY 2025 when only

reviewing water rate revenue funded debt service (debt less facility fee and assessment revenues).

As shown in Table 3 - 2, The District is planning to issue additional (new) long-term debt over the FY 2021 – FY 2025 period. This is estimated to occur every other year starting in FY 2022 with a total of $2.2 million per issuance. As noted, this level of debt issuance is being planned to meet the overall capital funding needs. This additional debt adds approximately $150,000 per issuance or about $450,000 of additional annual debt service costs by FY 2025.

As a point of reference, HDR is not providing municipal advice as it relates to bonds, terms, or structures of debt issuances. Rather, this rate study has identified projections of future funding needs and utilized conservative long-term debt terms for financial modeling/planning purposes, based on discussions with District staff.

3.8 Transfers

The final component of the revenue requirement are transfers into the water fund, or out of the water fund. Transfers in reflect the facility fees and assessment revenues to offset annual debt service payments. The transfers out are the annual transfer to the vehicle reserve and transfer of funds to the capital fund for future years capital funding needs.

3.9 Summary of the Revenue Requirement

Given the above projections of revenue and expense components, a summary of the District's water revenue requirement analysis can be developed. In developing the revenue requirement analysis, consideration was given to the financial planning considerations of the District. In particular, emphasis was placed on minimizing rates while adequately funding the operational activities and capital improvement needs throughout the review period. Presented below in Table 3 - 3 is a summary of the District's water revenue requirement based on projected expenses and current rates. Detailed exhibits of this analysis can be found in the Technical Appendices in Exhibits 1 - 7.

Table 3 - 3
Summary of the Revenue Requirement Analysis ($000)

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Revenues					
Rate Revenues	$13,128	$13,242	$13,357	$13,473	$13,590
Misc. Revenues	655	609	613	616	617
Total Revenues	**$13,784**	**$13,852**	**$13,970**	**$14,088**	**$14,207**
Expenses					
O & M	$10,386	$11,189	$11,508	$11,837	$12,176
Rate Funded Capital	3,000	4,000	5,200	6,300	6,800
Annual Debt Service	2,659	1,983	1,982	2,129	2,132
Transfers/Reserve Funding	(1,080)	(829)	(939)	(980)	(340)
Total Expenses	**$14,965**	**$16,343**	**$17,752**	**$19,286**	**$20,768**
Bal./(Def.) of Funds	**($1,182)**	**($2,491)**	**($3,782)**	**($5,198)**	**($6,561)**
Bal. as a % of Rate Rev.	*-9.0%*	*-18.8%*	*-28.3%*	*-38.6%*	*-48.3%*
Proposed Rate Adjustment	**9.0%**	**9.0%**	**8.0%**	**8.0%**	**7.0%**
Add'l Rev. from Rate Adj.	**$1,182**	**$2,491**	**$3,782**	**$5,198**	**$6,561**
Total Bal./(Def.) of Funds	$0	$0	$0	$0	$0

As can be seen, the revenue requirement has summed the O&M, rate funded capital, net debt service, and transfer/reserve funding. The total revenue requirements (i.e., expenses) are then compared to the total revenues which include the rate revenues - at present rate levels - and other miscellaneous revenues. From this comparison, a balance or deficiency of funds in each year can be determined. This balance or deficiency of funds is then compared to the rate revenues to determine the level of rate adjustment needed to meet the revenue requirement. It is important to note the "Bal. / (Def.) of Funds" row is cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years.

Based on the revenue requirement analysis developed for the District's water utility, HDR has concluded that the overall level of rate revenues will need to be adjusted over the next five years (FY 2021 – FY 2025) to maintain prudent funding of capital replacement needs and fund annual operating and maintenance expenses. As a part of the analysis, a rate transition plan has been developed. As can be seen above in Table 3 – 3, the proposed annual rate adjustments (blue shaded line) have been developed to adjust rates over the five-year period and meet the operating and capital needs of the District's water utility. These adjustments will also maintain strong financial indicators/metrics as additional long-term borrowing is issued to fund a portion of the District's capital improvement needs.

3.10 Reserve Levels

Another key element of determining the financial health and sustainability of the District's water utility is a review of the level of available reserve levels after the proposed rate adjustments. Utilities generally have different reserves, each with a different and specific purpose. Typically,

a utility will maintain an operating reserve, capital reserve, connection fee reserve and, in some cases, an emergency or rate stabilization reserve. Each of these funds can have a minimum ending balance that, if reached or falls below, is a signal that the District should review the revenue sources associated with each fund. The minimum ending balances will vary depending on the purpose or objective of the fund and the expected revenue sources.

For the District, there are five separate funds. These are the operating cash fund, operating reserve fund, vehicle reserve fund, deferred liability reserve, and facility fee reserve. Each of these funds was reviewed during the development of the rate study process with the focus being on the operating cash fund given that this reserve is the primary funding source for operating and capital needs. The target minimum balance for this fund is based on 180 days of O&M. Over the course of the time period, the operating cash fund is increasing to meet target levels. Based on the proposed revenue adjustments, the operating cash fund will reach the target minimum in FY 2028.

3.11 Debt Service Coverage Ratios

When long-term debt is issued, and specifically for municipal revenue bonds, the District enters into legal agreements that require a specific level of revenue be generated each year in excess of O&M expenses and annual debt service payments. As noted previously, the District has several outstanding debt issuances. Generally, the financial markets require a minimum coverage ratio of 1.25 times. In other words, the revenue available for debt service, after O&M is at least 1.25 times the amount of the annual debt service payment.

Given this legal minimum, utilities often target for financial planning purposes a coverage ratio greater than the required minimum. Typically, this maybe 1.30 times to 1.50 times to account for potential fluctuations in revenues and expenses. Provided in below Table 3 - 4 is a summary of the debt service coverage calculations for the District's water utility before and after the proposed rate adjustments shown in Table 3-3.

Table 3 - 4
Summary of the Debt Service Coverage Ratios

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Before Rate Revenues Adjustment	1.28xx	1.34xx	1.24xx	1.06xx	0.95xx
After Rate Revenue Adjustment	1.72xx	2.60xx	3.15xx	3.50xx	4.03xx

As can be seen in Table 3 - 4, with the proposed rate adjustments, the District is meeting minimum target debt service coverage ratios with the proposed revenue adjustments.

3.12 Consultant's Conclusions

The revenue requirement developed above for the District's water utility has indicated the need for annual rate revenue increases to adequately fund the District's water utility operating and

capital needs. To meet the overall revenue needs of the five year rate period, annual rate adjustments of 9.0% in FY 2021 and FY 2022, followed by 8.0% annually in FY 2023 and FY 2024, and 7.0% in FY 2025 are proposed.

The above rate adjustments, on a cumulative basis, meet the overall need for a 48% rate adjustment over the five-year time period reviewed. Based on the revenue requirement analysis developed, HDR has concluded that the District will need to adjust the level of water rate revenues as noted above to maintain cost-based rates. HDR has reached this conclusion for the following reasons:

- Rate adjustments are necessary to fully fund the District's capital improvement plan
  - The CIP was based on the Farr West Water Infrastructure Capital Improvement Plan Development
- The proposed rate adjustments maintain the District's financial health and provide long-term, sustainable funding levels
- Prior to the implementation of the fifth, and final, proposed rate adjustment in FY 2025, the District should complete a review/update of the water rates

In reaching these conclusions, HDR would recommend that the District adopt the proposed annual rate adjustments through FY 2025 in order to provide sufficient funding for the annual operating expenses and capital improvement program.

4 Development of the Cost of Service Analysis

4.1 Introduction

In the previous section, the revenue requirement analysis focused on the total revenues and expenses required to adequately fund the District's water utility. This section of the report will provide an overview of the development of the District's water utility cost of service analysis, which is the second analytical step in the comprehensive water rate study.

A cost of service analysis determines the equitable and proportional allocation of the total revenue requirement between the various customer classes of service (e.g., residential, commercial). The previously developed revenue requirement for FY 2021 was utilized in the development of the District's cost of service analysis.

4.2 Objectives of a Cost of Service Study

There are two primary objectives in conducting a cost of service analysis:

- Equitably and proportionally allocate the District's water revenue requirement between the customer classes of service, and
- Derive average unit costs (i.e., cost-based rates) for subsequent rate designs

The objectives of the cost of service analysis are different from determining a revenue requirement. As noted in the previous section, a revenue requirement analysis determines the utility's overall financial needs, while the cost of service analysis determines the equitable and proportional manner to collect the calculated revenue requirement.

The results of the cost of service analysis determine the average unit costs which are used in the development of the final step of the rate study process, the design of proposed rates. The cost of service analysis provides a per unit cost of water consumption based on each customer class's equitable and proportional share of costs. Additionally, the cost of service also proportionally assigns customer-related costs and converts them to a per equivalent meter cost.

As noted above, the cost of service is designed to equitably and proportionally allocate costs. For example, a water utility incurs costs related to meeting average day, peak day, fire protection, and customer-related cost components. A water utility must build sufficient capacity[2] to meet peak capacity needs. Therefore, those customers contributing to those peak demands on the system should pay their proportional share of the costs to provide the capacity in the system. The unit costs provide the relationship between these components which are then used to set cost-based rates.

[2] System capacity is the system's ability to supply water to all delivery points at the time when demanded. Coincident peaking factors are calculated for each customer class at the time of greatest system demand. The time of greatest demand is known as peak demand. Both the operating costs and capital assets related costs incurred to accommodate the peak demands are generally allocated to each customer class based upon the class's contribution to the particular peak use event (e.g., peak-day, peak-hour, etc.).

4.3 Determining the Customer Classes of Service

The first step in a cost of service analysis is to determine the customer classes of service. Based on discussions with District staff, the classes of service used within the District's cost of service analysis were:

- Residential
- Commercial
- Pump Zones

In determining classes of service for cost of service purposes, the objective is to group customers together into similar or homogeneous groups based upon similar facility requirements and/or demand characteristics. Pump zones are separated out to provide a method to allocate the specific costs associated with providing water at different (i.e., higher) pressure zones to residential and commercial customers in those zones.

4.4 General Cost of Service Procedures

In order to determine the cost to serve each customer class of service on the District's water system, a cost of service analysis is conducted. A cost of service analysis utilizes a three-step approach to review costs. These steps take the form of functionalization, allocation, and distribution. Provided below is a detailed discussion of the water cost of service study conducted for the District, and the specific steps taken within the analysis. The approach used for the District's study conforms to generally accepted and industry standard cost of service methodologies which are outlined in the AWWA M1 Manual.

4.4.1 Functionalization of Costs

The first analytical step in the cost of service analysis is called *functionalization*. Functionalization is the arrangement of expense and plant asset (e.g., wells, pipes, pumps) data by major operating functions (e.g., supply, treatment, transmission, storage, distribution). Within this study, there was a limited amount of functionalization of the cost data required since this was largely accomplished within the District's system of accounts.

4.4.2 Allocation of Costs

The second analytical task performed in a water cost of service study is the allocation of the costs. The allocation of the costs included within the revenue requirement examines why/how each cost was incurred or what type of need is being met by incurring those expenses. The following cost allocators were used to develop the cost of service analysis:

- **Commodity-Related Costs:** Commodity costs are those costs which tend to vary with the total quantity of water consumed by a customer. Commodity costs are those incurred under average load (demand) conditions and are generally specified for a period of time such as a month or year. Chemicals or utilities (electricity) are examples of commodity-related cost as these costs tend to vary based upon the total volume (amount) of water consumed.
- **Capacity-Related Costs:** Capacity costs are those which vary with peak demand, or the maximum rates of flow to customers. System capacity is required when there are large

demands for water placed upon the system (e.g., summer lawn watering). For water utilities, capacity-related costs are generally related to the sizing of facilities needed to meet a customer's maximum water demand at any point in time. For example, portions of distribution storage reservoirs and distribution mains (pipes) must be adequately sized to meet peak demand requirements (capacity).

- **Customer Related Costs:** Customer costs are those costs which vary with the number of customers on the water system. They do not vary with system output or consumption levels. These costs are also sometimes referred to as "readiness to serve" or "availability" costs. Customer costs may also sometimes be further allocated as either *actual* or *weighted*. Actual customer costs vary proportionally, from customer to customer, with the addition or deletion of a customer regardless of the size of the customer. An example of an actual customer cost is postage for mailing bills. This cost does not vary from customer to customer, regardless of the size or consumption characteristics of the customer. In contrast, a weighted customer cost reflects a disproportionate cost, from customer to customer, with the addition or deletion of a customer. Examples of weighted customer costs are items such as meter maintenance expenses, where a large commercial customer requires a significantly more expensive meter than a typical residential customer.
- **Fire Protection Related Costs:** Fire protection costs are those costs related to the public fire protection functions. Usually, such costs are those related to public fire hydrants and the over-sizing of mains and distribution storage reservoirs for fire protection purposes
- **Revenue Related Costs:** Some costs associated with the utility may vary with the amount of revenue received by the utility. An example of a revenue related cost would be a utility tax which is based on the gross utility revenue.

Water Cost of Service Analysis Terminology

Functionalization – The arrangement of the cost data by functional category (e.g., source of supply, treatment, etc.).

Allocation – The assignment of functionalized costs to cost components (e.g., commodity, capacity, customer, and fire protection related).

Distribution – Distributing the allocated costs to each class of service based upon each class's proportional contribution to that specific cost component.

Commodity Costs – Costs that are classified as commodity-related vary with the total consumptive use of water (e.g., chemical use at a treatment plant).

Capacity Costs – Costs allocated as capacity-related vary with peak day or peak hour usage. Facilities are often designed and sized around meeting peak demands.

Fire Protection Costs – Costs that are related to fire protection services (e.g., hydrants, oversizing of storage and distribution mains).

Customer Costs – Costs allocated as customer-related vary with the number of customers on the system (e.g., metering and customer billing costs).

4.4.3 Development of Distribution Factors

Once the allocation process is complete, the various allocated costs are proportionally distributed to each customer class of service. The District's allocated revenue requirement are distributed to the previously identified customer groups using the following distribution factors.

- **Commodity Distribution Factor:** As noted previously, commodity-related costs vary with total water consumption. Therefore, the commodity distribution factor was based on the projected total metered water consumption, plus water losses, for each class of service for the projected test period.
- **Capacity Distribution Factor:** The capacity distribution factor was developed based on the estimated contribution to the water system peak day use of each customer class. Peak day use by customer class of service was estimated by developing peaking factors for each tier for residential customers and total consumption for commercial customers. In this particular case, the peaking factor was defined as the relationship between peak day contribution and average day use and estimated based on a review of the average month to peak month usage. Given an estimated peaking factor, the peak day contribution for each tier of residential customers and the commercial class of service was developed.
- **Customer Distribution Factor:** Customer costs vary with the number of customers on the system. Two basic types of customer distribution factors were identified; actual and weighted. The distribution factors for actual customers was based on the projection of the number of customers for each customer class as developed within the revenue requirement. The weighted customer distribution factors is also broken down further into two factors which attempt to reflect the disproportionate costs associated with serving different types of customers. The first weighted customer distribution factor is for customer service and accounting. This weighted customer distribution factor takes into account any differences in providing customer service and billings to different customer classes. In the District's study, the customer service and accounting distribution factor was held constant based on the total number of actual customer accounts. The second weighted customer distribution factor is for meters and services. This factor reflects the different costs associated with providing larger sized meters based on the number of equivalent meters for each customer class of service.
- **Public Fire Protection Distribution Factor:** The development of the distribution factor for public fire protection expenses involved an analysis of each class of service and their corresponding fire flow requirements. This distribution factor took into account each classes gallon per minute (gpm) fire flow requirements in the event of a fire, along with the duration of the required flow (e.g., 1,000 gpm for 120 minutes). The fire flow rates used within the public fire protection distribution factor were based on industry standards and the fire flow estimates for the District. The minimum fire flow requirements are then multiplied by the number of customers in each class of service, and the assumed duration of the fire, to determine the class' prorated fire flow requirements.

- **Revenue Related Distribution Factor:** The revenue related distribution factor was developed from the projected rate revenues for FY 2021 for each customer class of service. These same revenues were used within the revenue requirement analysis discussed previously.

As mentioned before, in a cost of service analysis, the distribution factors represent a group of similar or homogenous customers such as residential or commercial customers. For this analysis, however, additional cost detail was needed when distributing costs. This meant that the commodity and capacity allocation factors had the classes further broken down given that the residential customer class has two tiers and commercial has a single tier for the development of the cost basis for the rates (i.e., cost basis under Proposition 218). Further discussion related to the distribution of costs is discussed in more detail in the rate design analysis provided in Section 5 of this report.

4.5 Functionalization and Allocation of Plant in Service

As noted, one of the first steps of the cost of service is the functionalization and allocation of plant in service. In performing the functionalization of plant in service, HDR utilized the District's historical plant (asset) records. Once the plant assets were functionalized, the analysis shifted to the allocation of the asset. The allocation process included reviewing each group of assets and determining which cost allocators the assets were related to. For example, the District's assets were allocated as: commodity-related, capacity-related, customer-related, revenue-related, public fire protection-related, or a direct assignment. Provided below is a summary of the allocation process. The following approach is based on generally accepted cost of service methodologies, as described in the American Water Works Association (AWWA) M1 Manual, Principles of Water Rates, Fees and Charges.

Source of Supply

Source of supply was allocated on the basis of the relationship between average day (commodity) and peak day (capacity). Based on the operation of the system, the source of supply assets were 38% to commodity-related and 62% capacity-related. This allocation reflects the District's system specific peak demand (capacity needs) in relation to the system's average day use (commodity needs).

Water Treatment

Water treatment was allocated in the same manner as source of supply; 38% to commodity and 62% capacity. Treatment is generally considered an extension or component of supply. This allocation reflects the operation of the treatment facilities either as meeting average day and peak day needs on the system.

Land and Buildings

Land and buildings were allocated the same as supply and water treatment which is 38% to commodity and 62% capacity. This reflects the operation of the treatment facilities either as meeting average day and peak day needs on the system.

Storage

Storage reservoirs are typically designed to meet at least two types of needs –peak use demands and fire protection. The total storage capacity of the District's reservoirs was examined and

consideration given to the capacity required for fire protection under a fire event scenario. This amount of capacity, in relation to the total storage capacity, is considered fire protection related. The balance of storage capacity is considered to be in place to meet peak use demands. This resulted in 92% of the storage reservoir costs being assigned to peak day capacity and the remaining 8% to be assigned to the public fire protection component.

Transmission & Distribution

Transmission and distribution lines (mains) are typically assumed to serve three functions. First, a distribution system must be in place to meet a customer's minimum use requirements for water. This portion of the distribution main plant investment is considered to be a function of the number of customers served. This can be allocated as a customer related cost or as the number of equivalent meters on the system. Next, a portion of the distribution system mains is considered a function of meeting peak flow capacity requirements on the system. Distribution mains must be sized to adequately meet the maximum (peak) flows demanded by customers. This portion of the distribution main plant investment is considered capacity-related and is based on the proportion of mains sized to meet this peak use. Finally, even with sizing of mains to meet peak use demands, distribution mains must also be sized for public fire flow demands. In other words, on the day with the peak use demand on the system, there must still be sufficient over-sizing of mains to meet this additional fire flow requirement. This final portion of over-sizing for distribution plant investment is classified as public fire protection-related. Based on an analysis of the District's mains, the assignment of the distribution mains was determined to be 33% capacity-related, 62% weighted customer meter and services-related, and 5% fire protection related.

Pumping equipment was allocated 100% to pumping zones. These assets provide the ability of the District to pump water to the various pressure zones within the District's system.

Meters and Valves

This category includes services, meters, GIS equipment, etc. These assets have been allocated as 100% as weighted customer meters and services. Also included in this category are fire hydrants. These assets have been allocated as 100% public fire protection related.

General Plant

General plant is proportionally allocated as all other assets as outlined in the above categories. The exception to this category is laboratory equipment. Laboratory equipment is allocated as 100% commodity related.

Table 4 - 1 provides a summary of the basic functionalization and allocation of the major water asset infrastructure. A more detailed exhibit of the District's functionalization and allocation of plant investment can be found in the Technical Appendix Exhibit 11.

Table 4-1
Summary of the Classification of Water Utility Plant in Service

Plant Component	Commodity	Capacity		Customer			Revenue Related	Fire Protection	Direct Assignment	Pump Zones
		CAP-1	CAP-2	Actual Customer	Weighted Customer	Weighted Meters & Svc				
Source of Supply	38%	62%	0%	0%	0%	0%	0%	0%	0%	0%
Water Treatment	38%	62%	0%	0%	0%	0%	0%	0%	0%	0%
Land and Buildings	38%	62%	0%	0%	0%	0%	0%	0%	0%	0%
Storage	0%	92%	0%	0%	0%	0%	0%	8%	0%	0%
Transmission/Distribution	0%	31%	0%	0%	0%	59%	0%	5%	0%	5%
Meters and Valves	0%	0%	0%	0%	0%	87%	0%	13%	0%	0%
General Plant	4%	29%	0%	0%	0%	60%	0%	7%	0%	0%

4.6 Functionalization and Allocation of Operating Expenses

As noted in the AWWA M1 Manual, operating expenses (revenue requirement) are generally functionalized and allocated in a manner similar to the corresponding plant account. For example, maintenance of distribution mains is allocated in the same manner (allocation percentages) as the plant account for distribution mains. This approach to allocation of the District's water utility revenue requirement was used for this analysis.

For the District's water rate study, the revenue requirement for FY 2021 was functionalized, allocated, and distributed. As noted in Section 3, the District utilized a cash basis revenue requirement, which was comprised of operation and maintenance expenses, rate funded capital, net debt service, and reserve funding. A more detailed review of the functionalization and allocation of the revenue requirement can be found in the Technical Appendix in Exhibits 13 - 15.

4.7 Major Assumptions of the Cost of Service Study

A number of key assumptions were used within the District's water rate study. Below is a brief discussion of the major assumptions used.

- The test period used for the water cost of service analysis was FY 2021. The revenue and expense data was previously developed within the revenue requirement analysis.
- A cash basis methodology was utilized which conforms to generally accepted water cost of service approaches and methodologies.
- The allocation of plant in service was developed based upon generally accepted cost allocation techniques. Furthermore, they were developed using the District's water utility specific data.

- Consumption by class of service and pricing tier were developed for each class of service from historical usage information provided by the District.
- Peak day capacity allocation factors were estimated based upon each customer group's average to peak month relationship.

4.8 Development of Cost-Based Water Rates

Cost-based and equitable rates are of paramount importance in developing proposed water rates. While always a key consideration in developing water rates, meeting the legal requirements, and documenting the steps taken to meet the requirements, has been in the forefront with the recent legal challenges in the State of California on water rates. Given this, the District's proposed water rates have been developed to meet the legal requirements of California constitution article XIII D, section 6 (Article XIII D). A key component of Article XIII D is the development of rates which reflect the cost of providing service and are proportionally distributed among the various customer classes of service. HDR would point out that there is no single prescribed methodology for equitably assigning costs to the various customer groups. The American Water Works Association (AWWA) M1 Manual clearly delineates various methodologies which may be used to establish cost-based rates. In addition, Article XIII D does not prescribe a particular methodology for establishing cost-based rates. Consequently, HDR developed the District's proposed water rates based on the methodologies provided in the AWWA M1 Manual to meet the requirements of Article XIII D and recent legal decisions to provide an administrative record of the steps taken to establish the District's water rates.

HDR is of the opinion that the proposed rates comply with legal requirements of Article XIII D. HDR reaches this conclusion based upon the following:

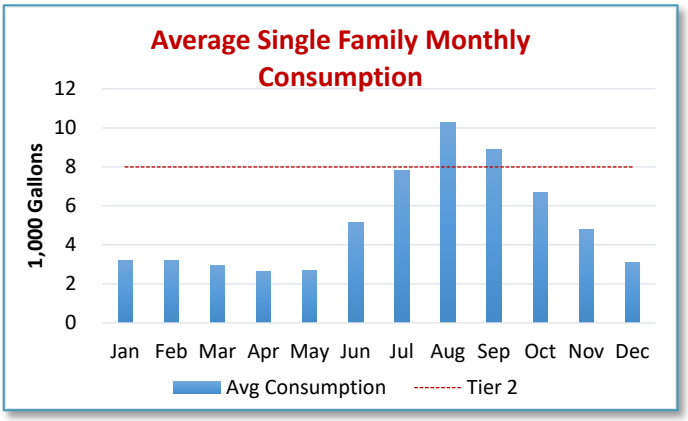
- **The revenue derived from water rates does not exceed the funds required to provide the property related service (i.e., water service).** The proposed rates are designed to collect the overall revenue requirement of the District's water utility.
- **The revenues derived from water rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the District's water rates are used exclusively to operate and maintain the District's water system.
- **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** This study has focused almost exclusively on the issue of proportional assignment of costs to customer classes of service. The proposed rates have appropriately grouped customers into customer classes of service (residential, commercial) that reflect the varying consumption patterns and system requirements of each customer class of service. The grouping of customers and rates into these classes of service creates the equity and proportionality expected under Article XIII D by having differing rates by customer classes of service which reflect both the level of revenue to be collected by the utility, but also the manner in which these costs are incurred and equitably assigned to customer classes of service based upon their proportional impacts and burdens on District's the water system.

The current rate structure includes a fixed charge that is the same for all customers as well as a consumption (usage) charge. The consumption charge structure for residential customers is a two tiered increasing tier structure and commercial is a uniform consumption charge. Given the prior discussion on the California legal requirements of setting rates, the development of the District's cost of service analysis and subsequent average unit costs (i.e., cost-based rate components), provides the basis for the development of the proposed water rates for the District.

As a part of this study, HDR developed the cost of service and water rate design discussion to clearly demonstrate and support the proposed water rates and tiered pricing. The following discussion provides a more detailed analysis of the costing techniques and methodologies used to support the District's proposed rate design.

4.8.1 Determination of Sizing and Number of Tiers

For the District's study, the single family residential rate structure is a two-tiered consumption charge. As part of this study, recent consumption data was reviewed to evaluate if any adjustments to the size or number of tiers should be recommended. After reviewing the consumption data, it was determined that the current tire sizes were appropriate given the District's residential consumption data. The goal in establishing tier sizes for residential customers is to establish the first block at a typical or average level of usage. All consumption above the first tier is the second block. In reviewing the individual customer consumption data, it was determined that the current tiers reasonably reflected those targeted consumption levels. Shown in the chart is the average consumption by month for single family residential customers. As can be seen in the chart, the current block sizes correspond to customers' average monthly use up to the summer average use (tier one) and the additional use in the summer period (tier two).



The current rate structure for the commercial customers is a uniform rate structure. A tiered rate structure is typically not used for commercial customers as total consumption levels for commercial customers can vary significantly and greater use is not indicative of inefficient use. For that reason, establishing a tiered rate structure for commercial customers is difficult, unless the rate structure tier sizes are individually established for each individual commercial customer. An individually tailored rate structure is a complex and administratively difficult rate structure and is not suggested or recommended for the District. While the consumption levels for commercial customers can vary significantly, the overall customer characteristics (peak use characteristics, timing of consumption, etc.) are similar. For the above reasons, HDR has recommended that the District maintain their uniform rate structure for their commercial customers.

After the number and size of tiers and the seasonal periods have been identified, the pricing of the tiers and seasons is the next analytical step.

4.8.2 Establishing the Cost-Basis for Pricing Tiers

While there remains much discussion in the legal and rate community as to the impacts and stricter technical (legal) requirements as a result of the *San Juan Capistrano* decision, HDR has concluded that utilities have available to them at least three technical approaches to be able to demonstrate (i.e., cost-justify) the individual pricing of the tiers. These technical approaches encompass the following areas:

1. Cost differences in water supply (i.e., stacking of water supply resources to tiers).
2. Cost differences from high peak use consumers (relationship of average use to peak use).
3. Direct assignment of costs to specific tiers (e.g., conservation program costs, etc.).

In certain cases, the cost differences within tiered pricing may be related to the cost of water supply when a utility has more than one source of water supply. Additionally, this water supply approach may also include the cost of alternative water supplies (i.e., recycled or reuse water). For example, reuse water may be assigned to higher tiers to reflect outdoor use or the need for additional/alternative water supply to meet the demands of the high use customers.

The second possible justification for cost differences in tiered pricing is related to high-peak use (peak demand) customers. Customers that use more water may create greater demands (i.e., capacity requirements) and costs on the system. A water supply and distribution system must be sized to meet these peak use requirements. In other words, on the hottest day of the year when everyone is watering their lawn, the supply and distribution system must be sized to meet those peak use demands. Economic theory clearly states that equity is achieved when those that create the demand event, pay for the demand event. In this particular case, this has implications upon the equitable allocation of capacity-related costs to the different usage tiers (low use/low peak use vs. high use/high peak use).

Finally, certain costs may be directly assigned to specific tiers. For example, a conservation program which focuses on outdoor water use may be directly assigned to the water tiers, or seasons, which are most directly related to outdoor use. The direct assignment to a specific price tier will create a price differential for that tier.

For the District's water study, the focus of the analysis was on the second method of determining the cost impacts and cost differences associated with high peak use customers. The pricing of the tiers was developed to provide the cost-basis (cost-justification) and meet the requirements of Proposition 218.

4.9 Development of the Unit Costs for Rate Designs

To begin the assignment of costs related to specific tiers, the results of the cost of service analysis is utilized. The cost of service analysis allocates the revenue requirement between the various cost components of average use (commodity), peak use (capacity), and customer (actual and

weighted). Provided in Table 4 – 2 is a summary of the allocation of the FY 2021 revenue requirement from the cost of service analysis.

Table 4 - 2
Summary of the Allocation of the FY 2021 Revenue Requirement ($000)

	Total	Commodity	Capacity	Customer	Equivalent Meters	Revenue Related	Fire Protection	Direct Assignment	Pump Zones
Net Revenue Requirement	$14,310	$605	$585	$12,244	$0	$0	$188	$0	$688

There are approximately $14.3 million in total costs which are allocated between the various cost components. The $14.3 million is the total revenue requirement for FY 2021. The total allocated to each cost component (e.g., commodity, capacity) is proportionally distributed to the various customer classes of service to calculate the monthly meter charge and consumption charge levels. To provide the cost-basis for tiered pricing, the allocated costs are further distributed between the various rate structure components based on the appropriate distribution factors. Provided below is a discussion of the approach used to distribute the revenue requirement between the various customer classes of service and to the various rate components.

4.9.1 Commodity Distribution Factor

The commodity distribution factor is based on the average annual use for each of the customer classes of service, and more importantly by tier or seasons. For the development of the pricing of the proposed rates the following customer class components were used:

- Residential – Tier 1
- Residential – Tier 2
- Commercial
- Pump Zones

To develop the commodity distribution factor for each customer class, the usage for each class was divided by the total usage of the system. This produces the percent of the system that each class is responsible for and, therefore, each class' contribution to commodity related costs. After the responsibility of commodity related costs has been identified, the total commodity related costs can be distributed to each customer class and tier based on the distribution factor. The final step in developing the unit costs is to divide the costs for each customer class and tier by the total amount of consumption used in determining each class' proportional share of commodity related costs. This calculation provides a value on a $ per 1,000 gallon basis. Which becomes a component of proposed consumption rate.

Provided in Table 4 – 3 is a summary of the commodity distribution factor and unit cost development.

Table 4 - 3
Summary of the Commodity Distribution Factor

Reference Calculation	A	B	C	D D = C / A
	FY 2021 Consumption (1,000 gal)	% of Total	Distributed Commodity Costs	Unit Cost ($ /1,000 gal)
Residential				
Tier 1	434,892	44.14%	$266,932	$0.61
Tier 2	258,250	26.21%	158,511	0.61
Single Family Total	693,142	70.35%	$425,442	$0.61
Commercial	292,118	29.65%	$179,299	$0.61
Total	985,260	100.00%	$604,741	$0.61

As can be seen, the development of the commodity distribution factor is fairly straightforward. As an example, Tier 1 consumption of the single family class of service represents 44.14% of the total consumption on the system. As a result, 44.14% of the commodity related costs ($604,741 in total) are allocated to Tier 1 of the single family customers which is approximately $267,000. The total costs in Column C are taken from Table 4 – 2. This approach is then used for each of the customer classes of service for each rate component, for the residential tiers and the commercial customer class. Next, to develop the unit costs, the dollars in column C are divided by the consumption in column A. This results in the cost-based commodity component of the proposed rate.

4.9.2 Capacity Distribution Factor

The capacity distribution factor utilizes the same customer classes as in the development of the commodity distribution factor. Whereas commodity costs are related to the total volume of water used by each class of service and tier, capacity is related to how each tier or class consumes water. Customers use water in different ways and at different times, thus creating different usage patterns and resulting in different peaking factors. These usage patterns drive how the District must size the system to meet the demands of customers regardless of when they occur. To determine the distribution by tier or class, peaking factors need to be developed for each customer class of service and tier. The peaking factors for a class of service must be estimated due to a lack of specific metered data related to peak day usage for each customer class and tier.

The method used to estimate customer class and tier peaking factors is to review the average monthly volume of water consumed and compare it to the maximum monthly usage of water (i.e., relationship of average month to peak month). By dividing the maximum month by the

average month, a reasonable surrogate for the peak-day factor is determined. This factor provides the difference between the average use and peak day use in each tier or class. For example, if a customer used 10.0 CCF per month on average and in the peak month 15.0 CCF was used, the peaking factor would be 1.50 (15.0 / 10.0 = 1.50). In this example, the peaking factor is stating that the maximum usage in a month is 1.50 time higher than the average usage per month. Using this same calculation for each customer class tier or season, the allocation factors for capacity can be developed. Shown below in Table 4 – 4 is a summary of the capacity allocation factor for each customer class.

Table 4 - 4
Summary of the Capacity Distribution Factor

Reference Calculation	A	B	C C = A * B	D	E	F	G G = E / F
	Average Use (MGD)	Peaking Factors	Peak Day Use (MGD)	% of Total	Distributed Capacity Costs	FY 2021 Consumption (1,000 gal)	Unit Cost ($/1,000 gallons)
Residential							
Tier 1	1.49	1.66	2.47	27.8%	$162,442	434,892	$0.37
Tier 2	0.88	3.50	3.10	34.7%	203,384	258,250	0.79
Residential Total	2.37	2.35	5.57	62.5%	$365,826	693,142	$0.53
Commercial	1.00	3.34	3.34	37.5%	$219,540	292,118	0.75
Total	3.37	2.64	8.91	100.0%	$585,367	985,260	$0.59

Table 4 – 4 above shows the development of the capacity distribution factor. Similar to that of the commodity cost distribution to the residential tiers and commercial class of service, the capacity-related costs are distributed in the same proportional manner. For example, 27.8% of the capacity costs are distributed to Tier 1 of the single family customers based on the relationship of the Tier 1 peak use to the total system peak use. That proportional distribution to Residential Tier 1 results in a distribution of $162,422. The distributed costs are then divided through by the FY 2021 consumption to develop the unit cost for each tier or class (e.g., $162,422 ÷ 434,892 1,000 gallons = $0.37/1,000 gallons). Again, this becomes the capacity component of the proposed rates for FY 2021.

Combining the unit costs from the commodity and capacity unit costs result in the basis of the tiered or uniform rate. The summary of this calculation is provided in Table 4 – 5 This sums the costs from Table 4 – 3 column D and Table 4 – 4 column G to calculate the equitable and proportional consumption charge for the residential tiers and the commercial uniform rate.

Table 4 - 5 Summary of the Tier / Season Cost Basis					
Reference	**A**	**B**	**C**	**D**	**E**
	Commodity Costs ($/1,000 gal)	**Capacity Costs ($/1,000 gal)**	**Other Costs ($/1,000 gal)**	**Total Unit Cost ($/1,000 gal)**	**Differential ($/1,000 gal)**
Residential					
Tier 1	$0.61	$0.37	$0.00	$0.99	
Tier 2	$0.61	$0.79	$0.00	$1.40	$0.41
Total Residential	$0.61	$0.53	$0.00	$1.14	
Commercial	$0.61	$0.75	$0.00	$1.37	NA
Total	$0.61	$0.59	$0.00	$1.21	NA

The results shown in Table 4 – 5 above are the basis for the District's consumption pricing for the proposed residential tiers and the commercial uniform rate structures as described previously. The analysis and costs shown above have been developed to comply the recent legal decisions related to developing cost-based water rates.

The final unit cost development is the customer related costs which are used to establish the monthly fixed meter charge which varies by meter size. A similar exercise as the consumption components was completed and as a result, the total customer related costs plus fire protection related costs were divided by the number of equivalent meters on the system. An equivalent meter uses the capacity ratio of a 1-inch meter to the larger meter sizes to determine the pricing for each meter size. In this way the meter charge reflects the equitable proportion of fixed costs on the system based on the capacity demands the customer can place on the system based on the size of the meter. Provided in Table 4 – 6 is a summary of the fixed meter charge unit cost development

Table 4 - 6 Summary of the Fixed Meter Charge Cost Basis	
Components	**Units**
Total Customer Costs	$12,431,676
# of Equiv. Meters	13,679
Unit Cost ($ / equivalent meter)	**$75.74** *(3/4" Meter)*

4.10 Summary Results of the Cost of Service Analysis

In summary form, the cost of service analysis began by functionalizing the District's revenue requirement. The functionalized revenue requirement was then allocated into the various cost

components. The individual allocated totals were then distributed proportionally to the various customer classes of service based on the appropriate distribution factors. The distributed expenses for each customer class were then aggregated to determine each customer class's overall revenue responsibility (i.e., cost to provide service). Provided below in Table 4 - 7 is the summarized results of the District's water cost of service analysis.

Table 4 - 7
Summary of the Water Cost of Service Analysis ($000)

Class of Service	Present Rate Revenues	Allocated Costs	$ Difference	% Difference
Residential	$11,177	$12,288	($1,112)	9.9%
Commercial	1,405	1,333	72	-5.1%
Pump Zones	546	688	(142)	25.9%
Total	$13,128	$14,310	($1,182)	9.0%

The results of the analysis indicate that some cost differences exist between the various customer classes of service. It is important to understand that a cost of service analysis is based on one year's O&M expense data and projected customer usage information. The cost to serve customers is a dynamic function and a cost of service analysis can be impacted by a number of variables such as budget structure change or a change in consumption characteristics due to weather or the current pandemic. Given this, the results of the cost of service analysis may change from year to year. As the District continues to monitor water rates and cost of service results through future studies, future cost of service adjustments will likely be necessary to reflect system and customer characteristics at that time.

4.11 Consultant's Conclusions and Recommendations

The cost of service study equitably and proportionally distributed the revenue requirement to each customer class with their respective benefit received from and burdens placed on the water system (proportional distribution) based on the service requirements. While some cost differences exist, the overall allocation of costs between customers appears to be reasonable and reflect the impacts each customer class of service places on the system. Given the legal requirements and limitations imposed by Article XIII D, section 6, the results of the cost of service will be used to establish the proposed rate designs for each of the District's water customer classes of service. More specifically, the unit costs derived from the cost of service results are utilized as the basis for the rate design for each water customer class in Section 5.

4.12 Summary of the Cost of Service Analysis

This section of the report has provided the recommendations resulting from the cost of service analysis developed for the District's water utility. This analysis was prepared using generally accepted cost of service techniques as discussed and shown in the AWWA M1 Manual. The following section of the report will provide a summary of the present and proposed rates for the

District's water utility. The Technical Appendix provides the detail of the cost of service analysis in Exhibits 7 – 15.

5 Development of the Rate Designs

5.1 Introduction

The final step of the District's water rate study is the design of rates to collect the target levels of revenues, based on the results of both the revenue requirement and the cost of service analyses. In reviewing District's water rates, consideration is given to the level of the rates as well as the structure of the rates. The level of rates reflects the amount of revenues that should be collected while the structure of the rates is how it is collected (charged) from the customers.

The overall revenue level for the District has been established in the revenue requirement analysis (Section 3) while the proportional distribution of costs between the various customer classes has been developed in the cost of service analysis (Section 4). These two analyses provide the basis for the overall revenue needs of the District's water utility and also provides the revenue levels to be collected from each class of service based on cost causation and the unit costs for each rate component.

5.2 Rate Design Criteria and Considerations

Prudent rate administration dictates that several criteria must be considered when setting utility rates. Some of these rate design criteria are listed below:

- Rates which are easy to understand from the customer's perspective
- Rates which are easy for the District to administer
- Consideration of the customer's ability to pay
- Continuity, over time, of the rate making philosophy
- Policy considerations (encourage efficient use, economic development, etc.)
- Provide revenue stability from month to month and year to year
- Promote efficient allocation of the resource
- Equitable and non-discriminatory (cost-based)
- Legally Defensible

It is important that the District provide its water customers with a proper and accurate price signal as to what their consumption and peaking (demand) requirements are costing. This goal may be approached through rate level and structure. When developing the proposed rate designs, all the above listed criteria may be taken into consideration. However, it should be noted that it is difficult - if not impossible - to design a rate that meets all the goals and objectives listed above. A good example of this is that it may be difficult to design a rate that takes into consideration the customer's ability to pay while at the same time being completely cost-based in nature. In designing rates, there are always trade-offs between these various goals and objectives. A key element in the development of the District's study is meeting the requirements imposed by Proposition 218 while reflecting the District's goals and objectives. This is accomplished through the review of customer and system characteristics, District rate design

goals and objectives, and proposed rates based on the average unit costs as developed in the cost of service analysis.

5.3 Overview of the Proposed Rate Structures

In discussion with District staff, it was determined that the current residential and commercial rate structures would be maintained. At this time, these rate structures reflect the District's rate design goals and objectives. Key to this is the revenue stability of the current rate structure. Given the demographics and seasonality of the District's customers and service area, the fixed and variable revenue was maintained as described and developed in the cost of service analysis (Section 4).

5.4 Summary of the Present and Proposed Water Rates

The proposed rates for the District's water utility were designed to meet the total system revenue needs discussed in Section 3 and reflect the cost of service results – including unit cost development - provided in Section 4. The proposed water rates have been developed for each customer class of service based on the development of the pricing through the cost of service analysis.

5.4.1 Review of the Present and Proposed Single Family Residential Water Rates

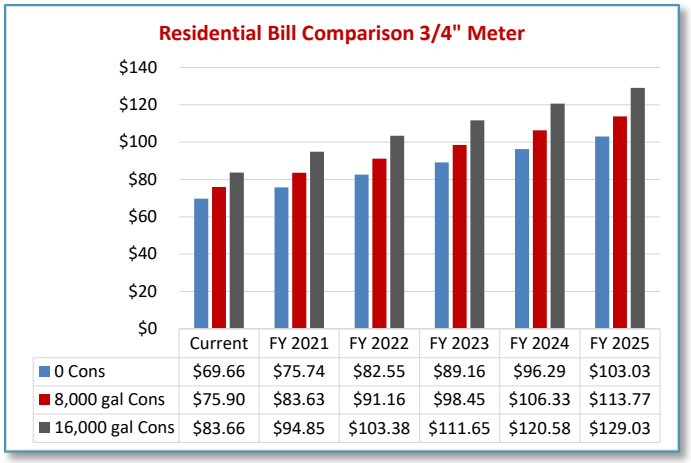
The District's proposed single family residential rate structure maintains the current rate structure. This structure consists of a monthly fixed charge by meter size and a two-tier increasing consumption charge. Provided below in Table 5 - 1 is a summary of the present and proposed rates for the District's single family residential water customers.

Table 5 - 1
Summary of the Monthly Residential Water Rates

Rate Component	Present Rate	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Fixed Charge	***$/Month***					
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
Commodity Charge - $/1,000 gal.						
0 - 8,000 gal (block 1)	$0.78	$0.99	$1.08	$1.16	$1.26	$1.34
8,000 + gal (block 2)	0.97	1.40	1.53	1.65	1.78	1.91

The proposed rates in Table 5 – 1 show the fixed meter charge are based on the results of the unit costs developed in the cost of service and summarized in Table 4 - 6. The subsequent meter sizes are adjusted by the AWWA 1" meter equivalencies. The AWWA meter equivalencies reflect the relationships of capacity to the larger meter sizes, and the fixed costs associated with

providing that level of capacity. Also shown in the table are the proposed tiered commodity charges (i.e., consumption rates) for FY 2021, which is taken directly from column D in Table 4–5. The proposed rates for FY 2022 through FY 2025 are adjusted "across the board" or by the overall revenue requirement results to collect the target level of revenues. This approach to establishing the fixed meter charges and tiered commodity charges meet the equitable and proportional requirements of Proposition 218. If implemented, rate adjustments after FY 2025 would again need to be supported by a comprehensive water rate study that would provide the cost-basis for any proposed rates.



5.6.2 Review of the Present and Proposed Commercial Water Rates

For commercial customers, the same monthly fixed charge by meter size as with residential customers that varies by meter size. However, the commercial consumption charge is a uniform rate. As mentioned previously, a uniform rate is a generally accepted rate structure for commercial customers given the various end uses of the consumption. Based on the results of the cost of service unit costs, the proposed rates for the commercial customer class were developed. Table 5 – 2 provides a summary of the present and proposed multi-family rates.

Table 5 - 2
Summary of the Monthly Commercial Water Rates

Rate Components	Present Rate	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Fixed Charge	***$/Month***					
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
1 1/2"	116.80	126.99	138.42	149.49	161.45	172.75
2"	160.58	174.59	190.30	205.52	221.97	237.50
3"	268.81	292.26	318.56	344.05	371.57	397.58
4"	384.62	418.17	455.80	492.27	531.65	568.87
6"	576.93	627.25	683.71	738.40	797.48	853.30
8"	721.16	784.07	854.63	923.00	996.84	1,066.62
Commodity Charge $/1,000 gal	$1.91	$1.37	$1.49	$1.61	$1.74	$1.86

As noted, the commercial fixed meter charge and commodity charges (i.e., consumption rates) are based on the unit costs developed in the cost of service analysis. These unit costs are shown on Table 4 – 5 and Table 4 – 6. A primary change to this rate is a reduction in the commodity charge. This change is reflective of the commercial customer's usage characteristics as outlined in the cost of service analysis. While the proposed rates for commercial customers in FY 2021 brought the rate to cost-based levels, based solely on the results of the cost of service, it is important to note that the adjustments for FY 2022 through FY 2025 continues the District's overall rate adjustments.

5.6.3 Review of the Present and Proposed Pump Zone Rates

The pump zone rates are based on the costs associated with pumping water to higher pressure zones to provide service. The pump zone rates are in addition to the proposed residential and commercial rates for those customers in each zone. The pump zone rates are based on the costs allocated in the cost of service analysis, total pumped consumption, to calculate the average pumping cost. Provided in Table 5 - 3 is a summary of the present and proposed pump zone water rates.

Table 5 - 3
Summary of the Pump Zone Rates

Rate Component	Present Rate	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
$/ 1,000 gal						
Zone 1	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Zone 2	0.60	0.75	0.82	0.89	0.96	1.03
Zone 3	1.20	1.50	1.64	1.77	1.91	2.04
Zone 4	1.80	2.25	2.45	2.65	2.86	3.06
Zone 5	2.40	3.00	3.27	3.53	3.81	4.08
Zone 6	3.00	3.75	4.09	4.42	4.77	5.10
Zone 7	3.60	4.50	4.91	5.30	5.72	6.12

5.7 Summary of the Proposed Rate Revenues

The rates for each customer class of service meet the results of the revenue requirement and cost of service results. Provided in Table 5 - 5 is a summary of the revenue targets based on the revenue requirement and cost of service analyses for the FY 2021 proposed rate adjustments.

Table 5 - 5 Comparison of the FY 2021 Proposed Revenues and Allocated Costs ($000's)					
Class of Service	**Present Revenues**	**Cost of Service Adjustment**	**Target Revenues**	**Proposed Revenues**	**$ Difference**
Residential	$11,177	$12,288	$12,288	$12,303	$15
Commercial	1,405	1,333	1,333	1,320	(13)
Pump Zone	546	688	688	683	(5)
Water System Total	$13,128	$14,310	$14,310	$14,306	($4)

The above table is provided to further demonstrate the District's rates are cost-based and equity and meet the requirements of Proposition 218. As can be seen, the proposed revenues closely reflect the proportional allocation of costs to the various customer classes of service. A more detailed analysis of the projection of the proposed revenues is included within the Technical Appendix of this report.

This concludes the discussion of the proposed water rates. Detailed exhibits for the various rate designs are included within the Technical Appendices.

5.9 Water Rate Study Recommendations

Based on the results of the District's water rate study, HDR recommends the following:

- Rate revenues for the District's water utility should be adjusted annually in FY 2021 through FY 2025
- The proposed rates should be implemented to reflect each customer class' proportional allocation of costs as outlined in the cost of service analysis.
- The rates are proposed to be implemented and effective each year on January 1 of each year.
- When funds are available, increase the level of annual replacement funding to transition towards meeting annual renewal and replacement funding needs.
- Prior to the implementation of the fifth, and final, proposed rate adjustment the District should complete a review of the water rates.

5.10 Presentation of the Water Rate Study

The results of the water rate study were presented to the District Board for review and discussion at several public Board meetings. This included the following meetings:

- September 2, 2020 – presentation of the preliminary revenue requirement and overview of the cost of service and rate design analyses
- October 7, 2020 – presentation of the study results and recommendations, including the proposed rates and setting the public hearing

- December 2, 2020 – public hearing and presentation of the study results and recommendations

At the December 2, 2020 public hearing, the Board received public comment and reviewed the number of protests received. At the conclusion of the public hearing, given there was not a majority protest, the Board adopted the proposed rates as outlined in this report.

5.11 Summary of the Water Rate Study

This completes the analysis for the Truckee Donner Public Utility District's water utility. This study has provided a comprehensive review and development of proposed water rates for the District. Adoption of the proposed water rates will allow the District to meet their current and projected water system financial obligations for the time period reviewed based on the assumed customer growth, capital improvement plan, and projected increases in operating costs. Should these assumptions change, the proposed rate adjustments may also need to be revised to reflect current conditions.

Technical Appendix A – Water Technical Analysis

Truckee Donner PUD
Water Utility
Revenue Requirment Summary
Scenario 5 - Updated Mid Hi Cap Funding

(Values in $1,000s)	Budget		Projected								
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**
Revenue											
Rate Revenue at Current Rates	$13,020	$13,128	$13,242	$13,357	$13,473	$13,590	$13,709	$13,829	$13,950	$14,071	$14,195
Miscellaneous Revenue	644	655	609	613	616	617	632	647	671	702	744
Total Revenue	$13,664	$13,784	$13,852	$13,970	$14,088	$14,207	$14,341	$14,476	$14,621	$14,773	$14,939
Expenditures											
Board of Directors	$276	$166	$171	$176	$182	$187	$193	$198	$204	$210	$217
General Manger	688	812	836	862	888	915	943	971	1,001	1,031	1,062
Adminsitrative Services	1,463	1,446	1,499	1,554	1,611	1,670	1,732	1,796	1,862	1,931	2,003
Conservation	103	107	110	113	117	120	124	128	131	135	139
Water Operations	5,809	6,543	6,713	6,888	7,067	7,252	7,442	7,637	7,838	8,044	8,257
IT/GIS	757	775	799	823	848	873	899	926	954	983	1,012
Interdepartmental Rent	507	537	568	585	603	621	639	658	678	699	719
Additional Expenditures	0	0	493	507	522	538	554	571	588	606	624
Total Expenditures	$9,602	$10,386	$11,189	$11,508	$11,837	$12,176	$12,525	$12,885	$13,256	$13,639	$14,034
Rate Funded Capital	$2,093	$3,000	$4,000	$5,200	$6,300	$6,800	$7,100	$7,100	$7,100	$7,100	$7,100
Debt Service	$2,829	$2,659	$1,983	$1,982	$2,129	$2,132	$1,476	$1,476	$1,623	$1,623	$1,772
Transfers	($1,105)	($1,092)	($978)	($1,057)	($1,010)	($1,060)	($256)	($248)	($243)	($239)	($229)
Total Revenue Requirement	**$13,419**	**$14,954**	**$16,194**	**$17,633**	**$19,256**	**$20,048**	**$20,844**	**$21,213**	**$21,737**	**$22,122**	**$22,677**
Balance/(Deficiency) of Funds	$246	($1,170)	($2,342)	($3,663)	($5,167)	($5,841)	($6,504)	($6,737)	($7,116)	($7,349)	($7,737)
Rate Adj. as a % of Rate Rev	-1.9%	8.9%	17.7%	27.4%	38.4%	43.0%	47.4%	48.7%	51.0%	52.2%	54.5%
Proposed Rate Adjustment	**0.0%**	**9.0%**	**9.0%**	**8.0%**	**8.0%**	**7.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Rate Revenue After Adjustment	$13,020	$14,310	$15,733	$17,139	$18,670	$20,151	$20,938	$21,754	$22,603	$23,483	$24,401
Debt Service Coverage Ratio											
Before Rate Asjustment	1.44	1.28	1.34	1.24	1.06	0.95	1.23	1.08	0.84	0.70	0.51
After Rate Adjustment	1.44	1.72	2.60	3.15	3.50	4.03	6.13	6.45	6.17	6.50	6.27
Average Monthly Residential Bill	$73.56	$80.18	$87.40	$94.39	$101.94	$109.08	$112.35	$115.72	$119.19	$122.77	$126.45
$ Change Per Month	0.00	6.62	7.22	6.99	7.55	7.14	3.27	3.37	3.47	3.58	3.68
Cumulative $ Change per Month	0.00	6.62	13.84	20.83	28.38	35.52	38.79	42.16	45.63	49.21	52.89
Ending Reserve Balance	$6,375	$6,413	$7,683	$6,712	$7,903	$7,532	$9,388	$9,531	$12,249	$13,316	$17,015
Low Interest Loan	$0	$0	$2,200	$0	$2,200	$0	$2,200	$0	$2,200	$0	$2,200
Funding Available for Capital	$2,253	$3,270	$5,300	$6,500	$7,600	$8,100	$8,400	$8,400	$8,400	$8,400	$8,400

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 1 - Escalation Factors

	Budget	*Budget*	*Projected*									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Revenues												
Customer Growth	Calculated	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Consumer Price Index	Calculated	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	
Standby Fees	Calculated	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	
Misc. Revenue	Calculated	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Consumption Growth	Calculated	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Flat	Calculated	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Expenses												
Salaries	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Retirement	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Benefits	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Dental & Vision Benefits	Budget	Budget	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Repairs & Maintenance	Budget	Budget	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	
Worker's Compensation	Budget	Budget	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	
OPEB	Budget	Budget	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Materials & Supplies	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Equipment	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Miscellaneous	Budget	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Operations & Maintenance	Budget	Budget	5.1%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Professional Services	Budget	Budget	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
Rent	Budget	Budget	5.9%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Purchased Power	Budget	Budget	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Flat	Budget	Budget	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
One-time	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	
Flat	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Capital O&M	Budget	Budget	-39.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Investment Interest	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
New Long-Term Debt Assumptions												
Revenue Bond												
Rate	4.8%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Term	20	20	20	20	20	20	20	20	20	20	20	
Low Interest Loan												
Rate	2.8%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Term	20	20	20	20	20	20	20	20	20	20	20	

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 2 - Revenues & Expenses

	Budget		Projected									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Revenues												
Rate Revenues												
Residential	$11,075,144	$11,176,645	$11,282,807	$11,389,805	$11,497,638	$11,606,308	$11,716,649	$11,827,827	$11,939,840	$12,052,689	$12,168,046	*Calc'd in Cust Data Tab*
Commercial	1,399,030	1,405,305	1,413,135	1,420,965	1,428,796	1,437,462	1,446,129	1,454,795	1,463,462	1,472,128	1,480,794	*Calc'd in Cust Data Tab*
Zone Charges	546,274	546,275	546,275	546,275	546,275	546,275	546,275	546,275	546,275	546,275	546,275	*Calc'd in Cust Data Tab*
Total Rate Revenues	**$13,020,448**	**$13,128,225**	**$13,242,217**	**$13,357,046**	**$13,472,710**	**$13,590,046**	**$13,709,054**	**$13,828,897**	**$13,949,577**	**$14,071,093**	**$14,195,116**	
Other Revenues												
Misc Operating Revenue	$241,738	$252,578	$252,578	$252,578	$252,578	$252,578	$252,578	$252,578	$252,578	$252,578	$252,578	As Flat
Non-Potable	103,485	103,485	103,485	103,485	103,485	103,485	103,485	103,485	103,485	103,485	103,485	*Calc'd in Cust Data Tab*
Misc Rents	75,518	76,651	78,184	79,748	81,343	82,970	84,629	86,321	88,048	89,809	91,605	As Misc. Revenue
Standby Revenue	123,280	119,582	118,386	117,202	116,030	114,870	113,721	112,584	111,458	110,344	109,240	As Standby Fees
Interest Income	100,000	103,000	56,802	59,775	62,149	62,759	77,160	91,659	115,420	146,149	187,416	
Total Other Revenues	**$644,021**	**$655,296**	**$609,435**	**$612,788**	**$615,585**	**$616,661**	**$631,573**	**$646,627**	**$670,989**	**$702,365**	**$744,324**	
Total Revenues	**$13,664,469**	**$13,783,521**	**$13,851,652**	**$13,969,834**	**$14,088,295**	**$14,206,707**	**$14,340,627**	**$14,475,524**	**$14,620,566**	**$14,773,457**	**$14,939,440**	

	Budget		Projected									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Expenses												
Board of Directors	$275,812	$166,111	$171,094	$176,227	$181,514	$186,959	$192,568	$198,345	$204,296	$210,424	$216,737	As Miscellaneous
General Manger												
Admin & Ops General Exp	$283,146	$421,314	$433,953	$446,972	$460,381	$474,193	$488,418	$503,071	$518,163	$533,708	$549,719	As Salaries
Public Information	104,849	92,889	95,675	98,546	101,502	104,547	107,683	110,914	114,241	117,669	121,199	As Salaries
Legislature & Regulations	45,809	47,380	48,801	50,265	51,773	53,327	54,926	56,574	58,271	60,020	61,820	As Salaries
Office Supplies & Expenses	50,505	77,020	79,331	81,711	84,162	86,687	89,287	91,966	94,725	97,567	100,494	As Materials & Supplies
Outside Service Employed	115,050	60,049	62,151	64,326	66,577	68,908	71,319	73,816	76,399	79,073	81,841	As Professional Services
Injuries & Damages	1,564	2,305	2,374	2,445	2,519	2,594	2,672	2,752	2,835	2,920	3,008	As Miscellaneous
General Advertising	42,774	64,772	66,715	68,717	70,778	72,901	75,089	77,341	79,661	82,051	84,513	As Miscellaneous
Misc General Expense	44,301	45,817	47,192	48,607	50,065	51,567	53,114	54,708	56,349	58,040	59,781	As Miscellaneous
Total General Manager	$687,998	$811,546	$836,192	$861,589	$887,758	$914,724	$942,510	$971,142	$1,000,645	$1,031,047	$1,062,373	
Adminsitrative Services												
Customer Accounts Supervision	$151,206	$159,569	$164,356	$169,286	$174,365	$179,596	$184,984	$190,533	$196,249	$202,137	$208,201	As Salaries
Meter Reading Expenses	962	990	1,020	1,051	1,082	1,115	1,148	1,183	1,218	1,255	1,292	As Salaries
Customer Records & Collections	589,591	565,273	582,231	599,698	617,689	636,220	655,307	674,966	695,215	716,071	737,553	As Salaries
Cust Rec&Coll Meter Reader	0	0	0	0	0	0	0	0	0	0	0	As Salaries
Provision for Bad Debts	5,249	5,249	5,406	5,569	5,736	5,908	6,085	6,268	6,456	6,649	6,849	As Miscellaneous
Admin and General Expenses	470,287	462,481	485,605	509,885	535,380	562,149	590,256	619,769	650,757	683,295	717,460	As OPEB
Office Supplies & Expenses	69,043	71,114	73,247	75,445	77,708	80,039	82,441	84,914	87,461	90,085	92,788	As Materials & Supplies
Outside Services Employed	26,398	27,189	28,141	29,126	30,145	31,200	32,292	33,422	34,592	35,803	37,056	As Professional Services
Insurance Expense	136,191	140,277	144,485	148,820	153,284	157,883	162,619	167,498	172,523	177,699	183,030	As Miscellaneous
Injuries & Damages	13,613	14,211	14,637	15,076	15,529	15,995	16,474	16,969	17,478	18,002	18,542	As Miscellaneous
Total Adminstrative Services	$1,462,540	$1,446,353	$1,499,129	$1,553,956	$1,610,918	$1,670,104	$1,731,606	$1,795,521	$1,861,949	$1,930,996	$2,002,770	
Conservation												
Water Conservation	$76,057	$79,160	$81,535	$83,981	$86,500	$89,095	$91,768	$94,521	$97,357	$100,277	$103,286	As Salaries
Admin & Ops General	9,073	9,623	9,912	10,209	10,516	10,831	11,156	11,491	11,835	12,191	12,556	As Salaries
Office Supplies & Expenses	6,764	6,967	7,176	7,391	7,613	7,841	8,077	8,319	8,569	8,826	9,090	As Materials & Supplies
IT/GIS	0	0	0	0	0	0	0	0	0	0	0	As Salaries
Injuries & Damages	0	0	0	0	0	0	0	0	0	0	0	As Miscellaneous
General Advertising	7,784	8,018	8,259	8,506	8,761	9,024	9,295	9,574	9,861	10,157	10,462	As Miscellaneous
Misc General Expense	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914	4,032	As Miscellaneous

	Budget		Projected									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Water Operations												
Ops Supervision & Engineering	$290,389	$309,267	$318,545	$328,102	$337,945	$348,083	$358,525	$369,281	$380,360	$391,770	$403,523	As Salaries
Construction Engineering	69,679	74,209	76,435	78,728	81,090	83,523	86,028	88,609	91,268	94,006	96,826	As Salaries
Facilites Operations	839,605	911,382	938,724	966,885	995,892	1,025,769	1,056,542	1,088,238	1,120,885	1,154,512	1,189,147	As Salaries
Power Supply	1,319,957	1,333,468	1,347,118	1,360,589	1,374,195	1,387,937	1,401,816	1,415,834	1,429,993	1,444,292	1,458,735	As Purchased Power
Pumping Operations	573,252	577,594	594,921	612,769	631,152	650,087	669,589	689,677	710,367	731,678	753,629	As Salaries
Meters/Services Operations	497,992	453,563	467,170	481,185	495,621	510,489	525,804	541,578	557,825	574,560	591,797	As Salaries
Misc. General Expense	419,486	508,956	524,225	539,951	556,150	572,834	590,019	607,720	625,952	644,730	664,072	As Miscellaneous
Maint Supervision & Engineering	205,383	226,734	233,536	240,542	247,758	255,191	262,847	270,732	278,854	287,220	295,836	As Salaries
Maint of Sources	821,218	844,156	869,481	895,565	922,432	950,105	978,608	1,007,966	1,038,205	1,069,352	1,101,432	As Miscellaneous
Maint of Distribution	689,858	718,575	740,132	762,336	785,206	808,762	833,025	858,016	883,757	910,269	937,577	As Miscellaneous
Meter Reader Expense	0	0	0	0	0	0	0	0	0	0	0	As Miscellaneous
Injuries & Damages	82,397	85,537	88,103	90,746	93,469	96,273	99,161	102,136	105,200	108,356	111,606	As Miscellaneous
Annual Paving Maintenance	0	250,000	257,500	265,225	273,182	281,377	289,819	298,513	307,468	316,693	326,193	As Miscellaneous
Water Meter Maintenance & MTU Replacement	0	175,000	180,250	185,658	191,227	196,964	202,873	208,959	215,228	221,685	228,335	As Miscellaneous
Fire Hydrant Maintenance	0	75,000	77,250	79,568	81,955	84,413	86,946	89,554	92,241	95,008	97,858	As Miscellaneous
Total Water Operations	$5,809,217	$6,543,441	$6,713,390	$6,887,849	$7,067,273	$7,251,807	$7,441,602	$7,636,814	$7,837,602	$8,044,130	$8,256,568	
IT/GIS												
Engineering/SCADA Ops	$115,063	$120,685	$124,306	$128,035	$131,876	$135,832	$139,907	$144,104	$148,427	$152,880	$157,467	As Salaries
GIS/Engineering Ops	91,414	95,185	98,041	100,982	104,011	107,132	110,346	113,656	117,066	120,578	124,195	As Salaries
Meter Reading	38,385	39,819	41,014	42,244	43,511	44,817	46,161	47,546	48,972	50,442	51,955	As Miscellaneous
Customer Records	112,155	103,324	106,424	109,617	112,905	116,292	119,781	123,375	127,076	130,888	134,815	As Salaries
Administrative & General IT Ops	364,690	380,188	391,594	403,341	415,442	427,905	440,742	453,964	467,583	481,611	496,059	As Miscellaneous
Office Supplies & Expenses	8,908	9,175	9,450	9,734	10,026	10,327	10,636	10,955	11,284	11,623	11,971	As Materials & Supplies
Outside Services Employed	10,000	10,300	10,661	11,034	11,420	11,819	12,233	12,661	13,104	13,563	14,038	As Professional Services
Safety	15,991	16,796	17,300	17,819	18,353	18,904	19,471	20,055	20,657	21,277	21,915	As Miscellaneous
Total IT/GIS	$756,605	$775,472	$798,788	$822,805	$847,544	$873,028	$899,278	$926,317	$954,170	$982,861	$1,012,414	
Interdepartmental Rent	$506,843	$536,537	$567,969	$585,008	$602,558	$620,635	$639,254	$658,432	$678,185	$698,530	$719,486	As Rent
Total Expenses	**$9,601,694**	**$10,386,318**	**$10,696,627**	**$11,000,800**	**$11,314,333**	**$11,637,527**	**$11,970,697**	**$12,314,166**	**$12,668,269**	**$13,033,353**	**$13,409,775**	
Additional Expenditures	$0	$0	$492,500	$507,275	$522,493	$538,168	$554,313	$570,942	$588,071	$605,713	$623,884	
Total Operations & Maintenance Expense	**$9,601,694**	**$10,386,318**	**$11,189,127**	**$11,508,075**	**$11,836,826**	**$12,175,695**	**$12,525,010**	**$12,885,108**	**$13,256,340**	**$13,639,066**	**$14,033,659**	
		8.2%	*7.7%*	*2.9%*	*2.9%*	*2.9%*	*2.9%*	*2.9%*	*2.9%*	*2.9%*	*2.9%*	
Rate Funded Capital	**$2,092,867**	**$3,000,000**	**$4,000,000**	**$5,200,000**	**$6,300,000**	**$6,800,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	FY 2019 Dep. Exp. = $4,533,109
		43.3%	*33.3%*	*30.0%*	*21.2%*	*7.9%*	*4.4%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	
Debt Service												
Pipeline COP Rates	$1,265,881	$1,252,412	$576,869	$577,228	$573,008	$576,529	$573,196	$575,581	$574,322	$570,555	$575,893	Financial Plan
Pipeline COP FF	357,617	356,179	358,008	358,672	359,233	360,884	359,005	359,806	358,474	360,101	359,147	Financial Plan
Pipeline COP Assmt	97,973	96,216	99,060	97,837	100,297	97,925	99,736	97,150	99,142	100,444	97,360	Financial Plan
DWR-SRF Donner Lake Assmt	800,852	800,852	800,852	800,852	800,852	800,852	0	0	0	0	0	Financial Plan
DWR PROP 55 Rates	306,481	153,241	0	0	0	0	0	0	0	0	0	
2020 Balance (diff between Opt budget and debt schedules)	0	0	0	0	0	0	0	0	0	0	0	
New Low Interest Loan	0	0	147,875	147,875	295,749	295,749	443,624	443,624	591,498	591,498	739,373	Calculated @ 2.98% for 20 yrs
New Revenue Bond	0	0	0	0	0	0	0	0	0	0	0	Calculated @ 4.98% for 20 yrs
Total Debt Service	**$2,828,804**	**$2,658,900**	**$1,982,664**	**$1,982,464**	**$2,129,139**	**$2,131,939**	**$1,475,561**	**$1,476,161**	**$1,623,436**	**$1,622,598**	**$1,771,773**	
		-6.0%	*-25.4%*	*0.0%*	*7.4%*	*0.1%*	*-30.8%*	*0.0%*	*10.0%*	*-0.1%*	*9.2%*	

	Budget		Projected									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Transfers												
In												
Transfer from DLAD for SRF debt pmt	($800,852)	($800,852)	($800,852)	($800,852)	($800,852)	($800,852)	$0	$0	$0	$0	$0	
Transfer in from DLAD Surcharge for 2006 COP debt pmt	(97,973)	(96,216)	(99,060)	(97,837)	(100,297)	(97,925)	(99,736)	(97,150)	(99,142)	(100,444)	(97,360)	
Transfer in from employee and overhead for sidefund debt	(22,838)	(13,022)	0	0	0	0	0	0	0	0	0	
Transfer in from Vehicle Reserve (on CIP Calculation)	0	0	0	0	0	0	0	0	0	0	0	
Xfr in from FF Reserve	(357,617)	(356,179)	(358,008)	(358,672)	(359,233)	(360,884)	(359,005)	(359,806)	(358,474)	(360,101)	(359,147)	
Transfer from Operating Reserve Fund	0	0	0	0	0	0	0	0	0	0	0	
Out												
Debt Service Payments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Transfer to Vehicle Reserve	174,709	174,709	279,950	200,000	250,000	200,000	202,536	208,612	214,870	221,316	227,956	
Transfer to Operating Reserve Fund	0	0	0	0	0	0	0	0	0	0	0	
Total Transfers	**($1,104,571)**	**($1,091,560)**	**($977,970)**	**($1,057,361)**	**($1,010,382)**	**($1,059,661)**	**($256,205)**	**($248,344)**	**($242,746)**	**($239,229)**	**($228,551)**	
Total Revenue Requirements	**$13,418,793**	**$14,953,658**	**$16,193,820**	**$17,633,178**	**$19,255,583**	**$20,047,973**	**$20,844,365**	**$21,212,924**	**$21,737,030**	**$22,122,435**	**$22,676,881**	
			20.7%	*8.9%*	*9.2%*	*4.1%*	*4.0%*	*1.8%*	*2.5%*	*1.8%*	*2.5%*	
Balance / (Deficiency) of Funds	$245,676	($1,170,137)	($2,342,168)	($3,663,344)	($5,167,288)	($5,841,266)	($6,503,738)	($6,737,400)	($7,116,465)	($7,348,978)	($7,737,441)	
Cumulative Rate Adjust. as a % of Rate Rev	-1.9%	8.9%	17.7%	27.4%	38.4%	43.0%	47.4%	48.7%	51.0%	52.2%	54.5%	
Proposed Rate Adjustment	**0.0%**	**9.0%**	**9.0%**	**8.0%**	**8.0%**	**7.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	
Addt'l Rev from Proposed Adj.	$0	$1,181,540	$2,490,861	$3,782,021	$5,197,769	$6,561,353	$7,228,647	$7,925,461	$8,652,950	$9,412,309	$10,205,981	
Net Bal/(Def) of Funds After Rate Adj.	$245,676	$11,403	$148,693	$118,677	$30,481	$720,087	$724,909	$1,188,061	$1,536,485	$2,063,331	$2,468,540	
Additional Rate Increase Needed	**-1.9%**	**-0.1%**	**-1.1%**	**-0.9%**	**-0.2%**	**-5.3%**	**-5.3%**	**-8.6%**	**-11.0%**	**-14.7%**	**-17.4%**	
Debt Service Coverage Ratio												
Before Rate Adjustment	1.44	1.28	1.34	1.24	1.06	0.95	1.23	1.08	0.84	0.70	0.51	
After Rate Adjustment	1.44	1.72	2.60	3.15	3.50	4.03	6.13	6.45	6.17	6.50	6.27	
Average Monthly Residential Bill (3/4" meter + 5,000 gal)	$73.56	$80.18	$87.40	$94.39	$101.94	$109.08	$112.35	$115.72	$119.19	$122.77	$126.45	
$ Change Per Month		6.62	7.22	6.99	7.55	7.14	3.27	3.37	3.47	3.58	3.68	
Cumulative $ Change per Month		6.62	13.84	20.83	28.38	35.52	38.79	42.16	45.63	49.21	52.89	

	Budget		Projected									
	FY 2020	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	***Notes***
Cash Reserves												
Operating Cash Fund												
Beginning Balance	**$2,583,000**	**$2,828,676**	**$2,840,079**	**$2,988,772**	**$3,107,449**	**$3,137,930**	**$3,858,017**	**$4,582,925**	**$5,770,987**	**$7,307,472**	**$9,370,803**	
Plus: Additions	245,676	11,403	148,693	118,677	30,481	720,087	724,909	1,188,061	1,536,485	2,063,331	2,468,540	
Less: Uses of Funds	0	0	0	0	0	0	0	0	0	0	0	
Ending Balance	**$2,828,676**	**$2,840,079**	**$2,988,772**	**$3,107,449**	**$3,137,930**	**$3,858,017**	**$4,582,925**	**$5,770,987**	**$7,307,472**	**$9,370,803**	**$11,839,343**	
Target Balance (60 Days O&M + DS Payments)	*$4,407,165*	*$4,366,240*	*$3,821,972*	*$3,874,202*	*$4,074,919*	*$4,133,423*	*$3,534,466*	*$3,594,261*	*$3,802,561*	*$3,864,636*	*$4,078,676*	"equal to twice the highest month b
Or 180 Days of O&M	*$4,800,847*	*$5,193,159*	*$5,594,563*	*$5,754,038*	*$5,918,413*	*$6,087,847*	*$6,262,505*	*$6,442,554*	*$6,628,170*	*$6,819,533*	*$7,016,830*	
Operating Reserve Fund												
Beginning Balance	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	
Plus: Additions	0	0	0	0	0	0	0	0	0	0	0	
Less: Uses of Funds	0	0	0	0	0	0	0	0	0	0	0	
Ending Balance	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	**$1,632,000**	
Capital Improvement Reserve												
Beginning Balance	**$0**	**$0**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	
Plus: Additions	0	0	1,100,000	0	1,100,000	0	1,100,000	0	1,100,000	0	1,100,000	
Plus: Loan Proceeds	0	0	0	0	0	0	0	0	0	0	0	
Plus: Bond Proceeds	0	0	0	0	0	0	0	0	0	0	0	
Less: Uses of Funds	0	0	0	(1,100,000)	0	(1,100,000)	0	(1,100,000)	0	(1,100,000)	0	
Ending Balance	**$0**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	**$0**	**$1,100,000**	
Target Balance: Average Annual Capital Improv.	*$6,662,287*	*$6,842,000*	*$7,027,000*	*$7,217,000*	*$7,412,000*	*$7,612,000*	*$7,818,000*	*$8,029,000*	*$8,246,000*	*$8,469,000*	*$8,698,000*	*2.7% / Yr. Growth*
Vehicle Reserve Fund												
Beginning Balance	**$15,000**	**$30,303**	**$45,912**	**$56,980**	**$58,119**	**$110,282**	**$112,487**	**$117,324**	**$128,454**	**$146,191**	**$170,858**	
Plus: Additions	174,709	174,709	279,950	200,000	250,000	200,000	202,536	208,612	214,870	221,316	227,956	
Plus: Interest	594	900	1,117	1,140	2,162	2,206	2,300	2,519	2,866	3,350	3,976	
Less: Uses of Funds	(160,000)	(160,000)	(270,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	
Ending Balance	**$30,303**	**$45,912**	**$56,980**	**$58,119**	**$110,282**	**$112,487**	**$117,324**	**$128,454**	**$146,191**	**$170,858**	**$202,790**	
Target Balance: (?)												
Deferred Liability Reserve												
Beginning Balance	**$107,000**	**$109,140**	**$111,323**	**$113,549**	**$115,820**	**$118,137**	**$120,499**	**$122,909**	**$125,368**	**$127,875**	**$130,432**	
Plus: Additions	0	0	0	0	0	0	0	0	0	0	0	
Plus: Interest	2,140	2,183	2,226	2,271	2,316	2,363	2,410	2,458	2,507	2,557	2,609	
Less: Uses of Funds	0	0	0	0	0	0	0	0	0	0	0	
Ending Balance	**$109,140**	**$111,323**	**$113,549**	**$115,820**	**$118,137**	**$120,499**	**$122,909**	**$125,368**	**$127,875**	**$130,432**	**$133,041**	
	$824,000	**$848,720**	**$874,182**	**$900,407**	**$927,419**	**$955,242**	**$983,899**	**$1,013,416**	**$1,043,819**	**$1,075,133**	**$1,107,387**	
Facility Fee Reserve												
Beginning Balance	**$1,598,000**	**$1,775,191**	**$1,784,143**	**$1,791,410**	**$1,798,145**	**$1,804,444**	**$1,809,184**	**$1,832,773**	**$1,873,696**	**$1,935,361**	**$2,012,192**	
Plus: Additions	500,000	330,148	330,149	330,150	330,150	330,150	346,658	363,990	382,190	397,477	413,377	
Plus: Interest	34,808	34,983	35,126	35,258	35,381	35,474	35,937	36,739	37,948	39,455	41,328	
Less: Uses of Funds	(357,617)	(356,179)	(358,008)	(358,672)	(359,233)	(360,884)	(359,005)	(359,806)	(358,474)	(360,101)	(359,147)	
Ending Balance	**$1,775,191**	**$1,784,143**	**$1,791,410**	**$1,798,145**	**$1,804,444**	**$1,809,184**	**$1,832,773**	**$1,873,696**	**$1,935,361**	**$2,012,192**	**$2,107,750**	
Total Reserve Funds												
Beginning	*$4,303,000*	*$4,743,310*	*$4,781,457*	*$6,050,710*	*$5,079,533*	*$6,270,791*	*$5,900,187*	*$7,755,931*	*$7,898,505*	*$10,616,899*	*$11,684,285*	
Ending	*$4,743,310*	*$4,781,457*	*$6,050,710*	*$5,079,533*	*$6,270,791*	*$5,900,187*	*$7,755,931*	*$7,898,505*	*$10,616,899*	*$11,684,285*	*$15,382,924*	

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 3 - Capital Improvement Plan

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	Notes
Annual CIP												
Emergency Generator		$153,615	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Generator		1,786,785	0	0	0	0	0	0	0	0	0	
New Pipeline		0	1,884,911	1,465,526	1,817,022	1,734,361	1,707,086	618,449	1,195,103	0	1,242,508	
New PRV Station		0	63,357	181,803	0	0	0	0	0	0	0	
Pipe Modification		0	0	0	32,013	0	0	76,112	0	0	0	
Pipeline Replacement		2,315,505	2,408,125	2,504,450	2,604,628	2,708,813	2,817,166	2,929,853	3,047,047	3,168,928	3,295,686	
PRV Rehabilitation		90,000	93,600	97,344	101,238	78,965	82,124	85,409	88,825	92,378	96,074	
Pump Station Rehabilitation		1,293,600	1,345,344	1,259,242	1,309,612	1,361,996	1,416,476	1,473,135	1,149,045	0	1,242,807	
Pump Station Replacement		1,237,005	0	0	0	383,015	0	0	0	2,182,880	0	
Service Modification		0	0	0	92,737	0	0	167,671	0	0	0	
Tank Rehabilitation		813,600	846,144	879,990	915,189	951,797	989,869	1,029,464	1,070,642	876,979	912,058	
Well Rehabilitation		0	327,473	169,671	117,638	122,344	127,238	579,357	80,278	83,490	86,829	
Well Replacement		0	0	433,301	0	0	0	0	0	0	0	
Vehicles	160,000	270,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	
Additional Capital Project	0	(4,690,110)	(1,868,954)	(691,326)	409,923	558,708	1,060,042	1,240,551	1,569,059	1,795,345	1,324,038	
Total Annual CIP	**$2,252,867**	**$3,270,000**	**$5,300,000**	**$6,500,000**	**$7,600,000**	**$8,100,000**	**$8,400,000**	**$8,400,000**	**$8,400,000**	**$8,400,000**	**$8,400,000**	
Transfer to Capital Reserve	0	0	1,100,000	0	1,100,000	0	1,100,000	0	1,100,000	0	1,100,000	
Total Capital Improvement Projects	**$2,252,867**	**$3,270,000**	**$6,400,000**	**$6,500,000**	**$8,700,000**	**$8,100,000**	**$9,500,000**	**$8,400,000**	**$9,500,000**	**$8,400,000**	**$9,500,000**	
Less: Outside Funding Sources												
Operating Cash Fund	0	0	0	0	0	0	0	0	0	0	0	
Operating Reserve Fund	0	0	0	0	0	0	0	0	0	0	0	
Capital Improvement Reserve	0	0	0	1,100,000	0	1,100,000	0	1,100,000	0	1,100,000	0	
Connection Fees	0	0	0	0	0	0	0	0	0	0	0	
Vehicle Fund	160,000	270,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	
Assumed Debt Issuance / Proceeds	0	0	0	0	0	0	0	0	0	0	0	
Low Interest Loans	0	0	2,200,000	0	2,200,000	0	2,200,000	0	2,200,000	0	2,200,000	
Revenue Bonds	0	0	0	0	0	0	0	0	0	0	0	
Total Funding Sources	**$160,000**	**$270,000**	**$2,400,000**	**$1,300,000**	**$2,400,000**	**$1,300,000**	**$2,400,000**	**$1,300,000**	**$2,400,000**	**$1,300,000**	**$2,400,000**	
Rate Funded Capital	**$2,092,867**	**$3,000,000**	**$4,000,000**	**$5,200,000**	**$6,300,000**	**$6,800,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	**$7,100,000**	

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 4 - Debt Service

Payment Date	Fiscal Year	*Pipeline COP Rates* P&I	*Pipeline COP FF* P&I	*Pipeline COP Assmt* P&I	*DWR-SRF Donner Lake Assmt* P&I	*DWR PROP 55 Rates* P&I	Total Total P&I
	2020	$1,265,881	$357,617	$97,973	$800,852	$306,481	$2,828,804
	2021	1,252,412	356,179	96,216	800,852	153,241	2,658,900
	2022	576,869	358,008	99,060	800,852		1,834,789
	2023	577,228	358,672	97,837	800,852		1,834,589
	2024	573,008	359,233	100,297	800,852		1,833,390
	2025	576,529	360,884	97,925	800,852		1,836,190
	2026	573,196	359,005	99,736			1,031,937
	2027	575,581	359,806	97,150			1,032,537
	2028	574,322	358,474	99,142			1,031,938
	2029	570,555	360,101	100,444			1,031,100
	2030	575,893	359,147	97,360			1,032,400
	2031	574,705	359,524	98,421			1,032,650
	2032	573,333	357,313	100,104			1,030,750
	2033	575,711	359,424	101,490			1,036,625
	2034	574,484	359,309	97,207			1,031,000
	2035		306,800				306,800
Total		**$9,989,707**	**$5,689,496**	**$1,480,362**	**$4,805,112**	**$459,722**	**$22,424,399**

Notes

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 5 - Revenue at Present Rates

		Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total
Residential														
Growth Factor	1.00%													
Meter Charge	*As of 1/1/2020*													
5/8" x 3/4"	$69.66	11,548	11,549	11,550	11,554	11,556	11,562	11,582	11,586	11,587	11,593	11,598	11,599	11,572
3/4"	69.66	847	846	846	845	849	855	861	873	881	886	887	891	864
1"	83.09	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Metered Customers		12,395	12,395	12,396	12,399	12,405	12,417	12,443	12,459	12,468	12,479	12,485	12,490	12,436
Total Metered Monthly Charges		$863,416	$863,416	$863,487	$863,698	$864,120	$864,964	$866,793	$867,919	$868,552	$869,256	$869,678	$870,030	$10,395,328
Metered Consumption ($/1,000 gal)	*As of 1/1/2020*													
0 - 8,000 gal (block 1)	$0.78	30,990	30,587	27,646	28,567	23,439	33,494	49,300	53,279	47,382	41,255	33,568	27,514	427,022
8,000 + gal (block 2)	0.97	4,226	5,398	5,266	0	4,136	12,388	43,719	70,626	57,911	36,585	10,600	2,721	253,576
Total Consumption		35,216	35,985	32,911	28,567	27,575	45,883	93,019	123,905	105,292	77,840	44,169	30,236	680,598
Total Consumption Charges		$28,271	$29,094	$26,671	$22,283	$22,294	$38,142	$80,861	$110,065	$93,131	$67,666	$36,466	$24,101	$579,046
Additional Zone Charge ($/1,000 gal)	*As of 1/1/2020*													
Zone 1	$0.00	11,725	15,089	12,784	11,748	11,703	20,774	41,379	59,214	51,429	39,940	22,835	12,617	311,235
Zone 2	0.60	7,529	7,636	6,575	5,833	5,889	11,042	22,502	29,048	24,482	17,880	11,323	6,571	156,311
Zone 3	1.20	4,958	4,167	4,031	3,238	2,816	4,388	9,175	11,633	9,811	6,766	2,968	3,354	67,304
Zone 4	1.80	6,240	5,264	5,249	4,135	4,451	5,973	12,077	14,624	12,030	8,088	4,684	4,533	87,349
Zone 5	2.40	3,615	2,927	3,392	2,828	2,049	2,808	6,073	6,740	5,463	3,829	1,733	2,595	44,052
Zone 6	3.00	630	506	554	386	326	438	822	1,183	898	617	337	311	7,009
Zone 7	3.60	518	395	327	399	341	460	991	1,463	1,180	722	288	254	7,338
Total Zone Charge Volume		35,216	35,985	32,911	28,567	27,575	45,883	93,019	123,905	105,292	77,840	44,169	30,236	680,598
Total Zone Charges		$34,132	$29,025	$29,210	$24,210	$22,048	$32,351	$66,858	$82,704	$68,170	$47,043	$24,994	$24,203	$484,947
Un-metered Residential	*As of 1/1/2020*													
Zone 1	$79.05	75	75	75	74	74	74	74	74	74	74	74	74	74
Zone 2	82.09	16	16	16	16	16	16	16	16	16	16	16	16	16
Zone 3	86.35	0	0	0	0	13	12	0	12	0	0	0	0	3
Zone 4	90.61	0	0	0	0	0	0	0	0	0	0	0	0	0
Zone 5	94.84	12	12	12	12	0	12	12	0	12	12	12	12	10
Zone 6	98.88	0	0	0	0	0	0	0	0	0	0	0	0	0
Zone 7	103.38	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Un-metered Residential Customers		103	103	103	102	103	114	102	102	102	102	102	102	103
Total Un-metered Charges		$8,380	$8,380	$8,380	$8,301	$8,286	$9,337	$8,301	$8,199	$8,301	$8,301	$8,301	$8,301	$100,770
Total Residential Revenue		**934,200**	**929,915**	**927,748**	**918,491**	**916,748**	**944,794**	**1,022,814**	**1,068,887**	**1,038,154**	**992,266**	**939,439**	**926,634**	**11,560,092**

Truckee Donner PUD
Water Utility
Revenue Requirement
Exhibit 5 - Revenue at Present Rates

		Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total
Commercial														
Meter Charge														
5/8" x 3/4"	$69.66	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4"	69.66	343	343	343	343	343	345	348	348	350	355	356	257	340
1"	83.09	183	183	183	183	183	183	183	183	183	184	184	185	183
1 1/2"	116.80	88	88	88	88	88	88	88	88	88	88	88	88	88
2"	160.58	76	76	76	76	78	78	80	80	81	81	81	81	78
3"	268.81	5	5	5	5	5	5	5	5	5	5	5	5	5
4"	384.62	12	12	12	12	12	12	12	12	12	12	12	12	12
6"	576.93	4	4	4	4	4	4	4	4	4	4	4	4	4
8"	721.16	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Number of Customers		711	711	711	711	713	715	720	720	723	728	729	631	710
Total Monthly Charges		$69,888	$69,888	$69,888	$69,888	$70,212	$70,353	$70,888	$70,888	$71,191	$71,557	$71,627	$64,816	$841,085
Commercial Consumption														
$/1,000 gal	$1.91	15,356	14,814	13,932	13,418	15,169	21,828	39,939	53,564	42,657	27,406	19,844	14,190	292,118
Total Consumption		15,356	14,814	13,932	13,418	15,169	21,828	39,939	53,564	42,657	27,406	19,844	14,190	292,116
Total Consumption Charges		$29,331	$28,295	$26,610	$25,628	$28,972	$41,692	$76,284	$102,307	$81,475	$52,345	$37,901	$27,103	$557,941
Additional Zone Charge ($/1,000 gal)														
Zone 1	$0.00	11,693	12,502	11,997	11,560	13,408	19,281	32,198	42,310	35,847	24,775	17,711	11,502	244,785
Zone 2	0.60	1,373	1,419	1,317	1,272	1,228	1,753	2,770	3,559	2,678	1,181	1,579	1,142	21,271
Zone 3	1.20	122	111	116	103	155	268	319	471	477	327	70	43	2,582
Zone 4	1.80	704	604	337	340	289	443	4,388	6,673	3,164	762	384	276	18,364
Zone 5	2.40	1,456	175	161	139	85	80	246	525	477	353	94	1,223	5,015
Zone 6	3.00	7	3	3	3	0	1	6	12	4	1	0	2	47
Zone 7	3.60	1	1	1	1	3	3	12	14	11	5	5	3	65
Additional Zone Charge Volume		15,356	14,814	13,932	13,418	15,169	21,828	39,939	53,564	42,657	27,406	19,844	14,190	292,116
Total Zone Charge Revenue		5,758	2,504	1,934	1,846	1,661	2,376	10,594	16,057	9,070	3,344	1,966	4,184	61,294
Total Commercial Revenue		**$104,976**	**$100,687**	**$98,431**	**$97,362**	**$100,846**	**$114,421**	**$157,767**	**$189,253**	**$161,736**	**$127,245**	**$111,495**	**$96,102**	**$1,460,320**
Total Revenue		$1,039,176	$1,030,602	$1,026,180	$1,015,853	$1,017,594	$1,059,215	$1,180,580	$1,258,140	$1,199,890	$1,119,511	$1,050,933	$1,022,737	$13,020,412

Truckee Donner PUD
Customer Data Projection
Revenue Requirement
Exhibit 6 - Customer Data

		Input	Projected										
	As of 1/1/2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	Notes
Residential													
Meter Charge													
5/8" x 3/4"	$69.66	11,572	11,688	11,805	11,923	12,042	12,162	12,284	12,407	12,531	12,656	12,783	As Customer Growth
3/4"	$69.66	864	977	987	997	1,007	1,017	1,027	1,037	1,047	1,057	1,068	As Customer Growth
1"	$83.09	0	0	0	0	0	0	0	0	0	0	0	As Customer Growth
Total Residential Cust.		12,436	12,665	12,792	12,920	13,049	13,179	13,311	13,444	13,578	13,713	13,851	
Monthly Charge Revenue		$10,395,328	$10,586,927	$10,693,089	$10,800,086	$10,907,920	$11,016,590	$11,126,931	$11,238,108	$11,350,122	$11,462,971	$11,578,328	
Metered Consumption ($/1,000 gal)													
0 - 8,000 gal (block 1)	$0.78	427,022	434,892	434,892	434,892	434,892	434,892	434,892	434,892	434,892	434,892	434,892	As Consumption Growth
8,000 + gal (block 2)	$0.97	253,576	258,250	258,250	258,250	258,250	258,250	258,250	258,250	258,250	258,250	258,250	As Consumption Growth
Total Consumption		680,598	693,142	693,142	693,142	693,142	693,142	693,142	693,142	693,142	693,142	693,142	
Consumption Charge Revenue		$579,046	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	
Additional Zone Charge ($/1,000 gal)													
Zone 1	$0.00	311,235	311,235	311,235	311,235	311,235	311,235	311,235	311,235	311,235	311,235	311,235	As Consumption Growth
Zone 2	$0.60	156,311	156,311	156,311	156,311	156,311	156,311	156,311	156,311	156,311	156,311	156,311	As Consumption Growth
Zone 3	$1.20	67,304	67,304	67,304	67,304	67,304	67,304	67,304	67,304	67,304	67,304	67,304	As Consumption Growth
Zone 4	$1.80	87,349	87,349	87,349	87,349	87,349	87,349	87,349	87,349	87,349	87,349	87,349	As Consumption Growth
Zone 5	$2.40	44,052	44,052	44,052	44,052	44,052	44,052	44,052	44,052	44,052	44,052	44,052	As Consumption Growth
Zone 6	$3.00	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	As Consumption Growth
Zone 7	$3.60	7,338	7,338	7,338	7,338	7,338	7,338	7,338	7,338	7,338	7,338	7,338	As Consumption Growth
Total Zone Charge Volume		680,598	680,598	680,598	680,598	680,598	680,598	680,598	680,598	680,598	680,598	680,598	
Zone Charge Revenue		484,947	484,948	484,948	484,948	484,948	484,948	484,948	484,948	484,948	484,948	484,948	
Un-metered Residential													
Zone 1	$79.05	74	0	0	0	0	0	0	0	0	0	0	
Zone 2	$82.09	16	0	0	0	0	0	0	0	0	0	0	
Zone 3	$86.35	3	0	0	0	0	0	0	0	0	0	0	
Zone 4	$90.61	0	0	0	0	0	0	0	0	0	0	0	
Zone 5	$94.84	10	0	0	0	0	0	0	0	0	0	0	
Zone 6	$98.88	0	0	0	0	0	0	0	0	0	0	0	
Zone 7	$103.38	0	0	0	0	0	0	0	0	0	0	0	
Un-metered Residential Customers		103	0	0	0	0	0	0	0	0	0	0	
Un-metered Revenue		$100,770	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Total Consumption Revenue		$11,560,092	$11,661,593	$11,767,755	$11,874,753	$11,982,587	$12,091,256	$12,201,598	$12,312,775	$12,424,788	$12,537,637	$12,652,994	

Truckee Donner PUD
Customer Data Projection
Revenue Requirement
Exhibit 6 - Customer Data

		Input	*Projected*										
	As of 1/1/2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	*Notes*
Commercial													
Meter Charge													
5/8" x 3/4"	$69.66	0	0	0	0	0	0	0	0	0	0	0	As Customer Growth
3/4"	$69.66	340	343	346	349	352	356	360	364	368	372	376	As Customer Growth
1"	$83.09	183	185	187	189	191	193	195	197	199	201	203	As Customer Growth
1 1/2"	$116.80	88	89	90	91	92	93	94	95	96	97	98	As Customer Growth
2"	$160.58	78	79	80	81	82	83	84	85	86	87	88	As Customer Growth
3"	$268.81	5	5	5	5	5	5	5	5	5	5	5	As Customer Growth
4"	$384.62	12	12	12	12	12	12	12	12	12	12	12	As Customer Growth
6"	$576.93	4	4	4	4	4	4	4	4	4	4	4	As Customer Growth
8"	$721.16	0	0	0	0	0	0	0	0	0	0	0	As Customer Growth
Total Commercial Cust.		**710**	**717**	**724**	**731**	**738**	**746**	**754**	**762**	**770**	**778**	**786**	
Meter Charge Revenue		$841,085	$847,359	$855,190	$863,020	$870,851	$879,517	$888,183	$896,850	$905,516	$914,183	$922,849	
Commercial Consumption													
$/1,000 gal	1.91	292,118	292,118	292,118	292,118	292,118	292,118	292,118	292,118	292,118	292,118	292,118	As Consumption Growth
Total Consumption		**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	**292,118**	
Commodity Charge Revenue		$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	$557,945	
Additional Zone Charge ($/1,000 gal)													
Zone 1	$0.00	244,785	244,785	244,785	244,785	244,785	244,785	244,785	244,785	244,785	244,785	244,785	As Consumption Growth
Zone 2	$0.60	21,271	21,271	21,271	21,271	21,271	21,271	21,271	21,271	21,271	21,271	21,271	As Consumption Growth
Zone 3	$1.20	2,582	2,582	2,582	2,582	2,582	2,582	2,582	2,582	2,582	2,582	2,582	As Consumption Growth
Zone 4	$1.80	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	18,364	As Consumption Growth
Zone 5	$2.40	5,015	5,015	5,015	5,015	5,015	5,015	5,015	5,015	5,015	5,015	5,015	As Consumption Growth
Zone 6	$3.00	47	47	47	47	47	47	47	47	47	47	47	As Consumption Growth
Zone 7	$3.60	65	65	65	65	65	65	65	65	65	65	65	As Consumption Growth
Additional Zone Charge Volume		292,128	292,129	292,129	292,129	292,129	292,129	292,129	292,129	292,129	292,129	292,129	
Additional Zone Charge Revenue		61,326	61,327	61,327	61,327	61,327	61,327	61,327	61,327	61,327	61,327	61,327	
Total Commercial Revenue		$1,460,357	$1,466,632	$1,474,462	$1,482,293	$1,490,123	$1,498,790	$1,507,456	$1,516,122	$1,524,789	$1,533,455	$1,542,122	

Truckee Donner PUD
Customer Data Projection
Revenue Requirement
Exhibit 6 - Customer Data

As of 1/1/2020	Input FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	Notes
		Projected										
Calculated Water Rate Revenue												
Fixed												
Residential	$10,496,098	$10,586,927	$10,693,089	$10,800,086	$10,907,920	$11,016,590	$11,126,931	$11,238,108	$11,350,122	$11,462,971	$11,578,328	
Commercial	841,085	847,359	855,190	863,020	870,851	879,517	888,183	896,850	905,516	914,183	922,849	
	$11,337,184	**$11,434,286**	**$11,548,278**	**$11,663,106**	**$11,778,771**	**$11,896,107**	**$12,015,114**	**$12,134,958**	**$12,255,638**	**$12,377,154**	**$12,501,177**	
Consumption Charge												
Residential	$579,046	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	$589,718	
Commercial	557,945	557,945	557,945	557,945	557,945	557,945	557,945	557,945	557,945	557,945	557,945	
	$1,136,991	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	**$1,147,664**	
		0.9%	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	
Total Revenue Less Zone Charges												
Residential	$11,075,144	$11,176,645	$11,282,807	$11,389,805	$11,497,638	$11,606,308	$11,716,649	$11,827,827	$11,939,840	$12,052,689	$12,168,046	
Commercial	1,399,030	1,405,305	1,413,135	1,420,965	1,428,796	1,437,462	1,446,129	1,454,795	1,463,462	1,472,128	1,480,794	
	$12,474,174	**$12,581,949**	**$12,695,942**	**$12,810,770**	**$12,926,434**	**$13,043,770**	**$13,162,778**	**$13,282,622**	**$13,403,302**	**$13,524,817**	**$13,648,841**	
Total Zone Charge Revenue	$546,274	$546,275	$546,275	$546,275	$546,275	$546,275	$546,275	$546,275	$546,275	$546,275	$546,275	

Truckee Donner PUD
Water Utility
Development of Allocation Factors
Exhibit 7 - Commodity & Capacity

	Commodity				*Capacity*				*Capacity - Equiv. Meters*	
	Water (kgal)	**25.0% Losses [1]**	**Water Flow (MGD)**	**% of Total**	**Peaking Factor**	**Peak Day [2] Use (MGD)**	**Average Daily Use (MGD)**	**% of Total**	**Equiv. Meters**	**% of Total**
Residential										
Tier 1	434,892	108,723	1.49	44.1%	1.66	2.47	1.49	27.8%	12,665	92.6%
Tier 2	258,250	64,562	0.88	26.2%	3.50	3.10	0.88	34.7%	0.00	0.0%
Commercial	292,118	73,030	1.00	29.6%	3.34	3.34	1.00	37.5%	1,014	7.4%
Total	**985,260**	**246,315**	**3.37**	**100.0%**	**2.64**	**8.91**	**3.37**	**100.0%**	**13,679**	**100.0%**
		Actual Production [3]	**3.57**		**Actual Peak [4]**	**9.30**				
Allocation Factor			***(COM)***				***(CAP-1)***			***(CAP-2)***

Notes

[1]
[2]
[3] 2019 TDPUD potable Production (W18 Water Production 2019.xlsx)
[4]

	Actual Customer		*Customer Service & Accounting*			*Meters & Services*	
	Number of Billing Units	**% of Total**	**Weighting Factor**	**Weighted Customer**	**% of Total**	**Equiv. Meters**	**% of Total**
Residential	12,665	94.6%	1.00	12,665	94.6%	12,665	92.6%
Commercial	717	5.4%	1.00	717	5.4%	1,014	7.4%
Total	**13,382**	**100.0%**		**13,382**	**100.0%**	**13,679**	**100.0%**
Allocation Factor		***(AC)***			***(WCA)***		***(WCMS)***

	Fire Protection					*Revenue Related*	
	Number of Accounts	**Fire Prot. Requirmt's (gals/min) [1]**	**Duration (minutes) [1]**	**Total PFP Requirements (1,000 g/min)**	**% of Total**	**FY 2021 Revenue at Present Rates**	**% of Total**
Residential	12,665	1,000	120	1,519,800	85.5%	$11,176,645	88.8%
Commercial	717	2,000	180	258,120	14.5%	$1,405,305	11.2%
	13,382			**1,777,920**	**100.0%**	**$12,581,949**	**100.0%**
Allocation Factor					***(FP)***		***(RR)***

Truckee Donner PUD
Water Utility
Development of Allocation Factors
Exhibit 10 - Distribution Main Analysis

Distribution Storage

	hrs	gpm	Total	
Fire Flow Requirements	3	2,000	720,000	(a)
Storage Capacity [1]			9,545,000	(b)
Public Fire Protection			7.5%	***(FP)***
(a) / (b) = FP%				
Capacity			92.5%	***(CAP)***
1 - FP% = CAP				

Source of Supply

Capacity / Commodity			
Average Day	3.37 (c)	38.0%	***(COM)***
(c) / (d) = COM%			
Peak Day	8.91 (d)	62.0%	***(CAP)***
1-((c) / (d)) = CAP%			

Distribution Main Analysis

Main Size	Length (ft)[2]	Installed Replcmt $ [3]	Total	
0.75"-2"	12,251	$529.17	$6,483,104	
2.5"-3"	2,355	551.63	1,298,956	
4"	40,712	564.87	22,997,038	
6"	368,855	632.79	233,407,996	
8"	476,009	648.75	308,810,990	
10"	67,114	734.66	49,305,937	
12"	115,209	738.51	85,082,829	
14"	32,189	798.66	25,707,776	
16"	49,553	843.58	41,802,094	
18"	3,026	888.49	2,688,504	
20"	4,456	933.41	4,159,218	
24"	30,330	1,023.24	31,034,912	
30"	0	0.00	0	
36"	0	0.00	0	
42"	0	0.00	0	
2" - 12" Total	**1,082,506**		**$707,386,850**	(e)

Customer%			
(f) Total @ 2" Equivalent Cost		572,830,586	
(f) / (e) = Cust.%		**81.0%**	***(AC)***
Capacity			
(g) Cost for 2" - 6"		$264,187,094	
(h) 8" - 12" @ Equivalent 6" Cost		416,585,879	
(g + h - f) / (e) = CAP%		**15.3%**	***(CAP)***
Fire Protection			
1 - CUST.% - CAP% = FP%		**3.7%**	***(FP)***

Notes

[1] - W11 Water Tank Inventory.xlsx
[2] - W12 Pipe Inventory GIS Total - MC Edits 06-09-2020.xlsx
[3] - Table 13 - 14 Page 20 of TDPUD Water Infrastructure CIP Development Final from Farr West Engineering

Truckee Donner PUD
Water Utility
Functionalization and Classification
Exhibit 11 - Plant In Service

	Total Plant 2017 Rplmt	Commodity (COM)	Capacity (CAP-1)	Capacity - Equiv. Meters (CAP-2)	Customer Related: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Customer Related: Weighted for: Meters & Svcs (WCMS)	Revenue Related (RR)	Fire Protection (FP)	Direct Assign. (DA)	Pump Zones (PZ)	Basis of Classification
Plant In Service												
Land and Buildings												
Land & Land Rights	$609,266	$231,521	$377,745	$0	$0	$0	$0	$0	$0	$0	$0	38% (COM)/ 62% (CAP-1)
Intangible Assets Easment Land	600,592	228,225	372,367	0	0	0	0	0	0	0	0	38% (COM)/ 62% (CAP-1)
Land & Land Rights	7,631	2,900	4,731	0	0	0	0	0	0	0	0	38% (COM)/ 62% (CAP-1)
Structures & Improvements	4,573,322	1,737,862	2,835,459	0	0	0	0	0	0	0	0	38% (COM)/ 62% (CAP-1)
Total Land and Buildings	5,790,811	2,200,508	3,590,303	0	0	0	0	0	0	0	0	
Source of Supply												
Wells & Springs	$5,625,416	$2,137,658	$3,487,758	$0	$0	$0	$0	$0	$0	$0	$0	38% (COM)/ 62% (CAP-1)
Total Source of Supply	$5,625,416	$2,137,658	$3,487,758	$0	$0	$0	$0	$0	$0	$0	$0	
Water Treatment												
Water Treatment Equipment	$611,120	$232,226	$378,894	$0	$0	$0	$0	$0	$0	$0	$0	38% (COM)/ 62% (CAP-1)
Total Water Treatment	$611,120	$232,226	$378,894	$0	$0	$0	$0	$0	$0	$0	$0	
Transmission & Distribution												
Pumping Equipment	$3,670,847	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,670,847	100% (PZ)
Water Transmission & Distribution Lines	67,179,350	0	21,967,647	0	0	0	41,651,197	0	3,560,506	0	0	33% (CAP-1)/ 62% (WCMS)/ 5% (FP)
Total Transmission & Distribution	$70,850,197	$0	$21,967,647	$0	$0	$0	$41,651,197	$0	$3,560,506	$0	$3,670,847	
Storage												
Resevoirs & Tanks	$4,107,405	$0	$3,797,575	$0	$0	$0	$0	$0	$309,830	$0	$0	92% (CAP-1)/ 8% (FP)
Total Storage	$4,107,405	$0	$3,797,575	$0	$0	$0	$0	$0	$309,830	$0	$0	
Meters, Valves and Misc.												
Water Services	$13,459,995	$0	$0	$0	$0	$0	$13,459,995	$0	$0	$0	$0	100% (WCMS)
Water Meters	6,563,720	0	0	0	0	0	6,563,720	0	0	0	0	100% (WCMS)
Backflow Devices	1,476	0	0	0	0	0	1,476	0	0	0	0	100% (WCMS)
Tfr WO at YE	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Fire Hydrants	3,700,020	0	0	0	0	0	0	0	3,700,020	0	0	100% (FP)
Telemetry System	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Scada System Water	5,138,951	0	0	0	0	0	5,138,951	0	0	0	0	100% (WCMS)
GIS Mapping Hardware	32,967	0	0	0	0	0	32,967	0	0	0	0	100% (WCMS)
GIS Mapping Software	113,930	0	0	0	0	0	113,930	0	0	0	0	100% (WCMS)
GIS Mapping Data	324,711	0	0	0	0	0	324,711	0	0	0	0	100% (WCMS)
Hirshdale Deferred Plant Payments	57,876	0	0	0	0	0	57,876	0	0	0	0	100% (WCMS)
Total Meters, Valves and Misc.	$29,393,644	$0	$0	$0	$0	$0	$25,693,624	$0	$3,700,020	$0	$0	

Truckee Donner PUD
Water Utility
Functionalization and Classification
Exhibit 11 - Plant In Service

	Total Plant 2017 Rplmt	Commodity (COM)	Capacity (CAP-1)	Capacity - Equiv. Meters (CAP-2)	Customer Related: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Customer Related: Weighted for: Meters & Svcs (WCMS)	Revenue Related (RR)	Fire Protection (FP)	Direct Assign. (DA)	Pump Zones (PZ)	Basis of Classification
Plant Before General	$116,378,593	$4,570,392	$33,222,177	$0	$0	$0	$67,344,821	$0	$7,570,356	$0	$3,670,847	
Percent Plant Before General	100.0%	3.9%	28.5%	0.0%	0.0%	0.0%	57.9%	0.0%	6.5%	0.0%	3.2%	
Percent Plant Before General w/o PZ DA	100.0%	4.1%	29.5%	0.0%	0.0%	0.0%	59.8%	0.0%	6.7%	0.0%	0.0%	
G&A Equipment												
Structures & Improvements Hq bld	$868,050	$35,200	$255,870	$0	$0	$0	$518,675	$0	$58,305	$0	$0	as Plant Before General Plant - PZ
Office Furniture & Equipment	10,648	432	3,139	0	0	0	6,362	0	715	0	0	as Plant Before General Plant - PZ
Transportation Equipment	2,103,648	85,305	620,079	0	0	0	1,256,966	0	141,298	0	0	as Plant Before General Plant - PZ
Tools, Shop & Garage Equipment	112,284	4,553	33,097	0	0	0	67,092	0	7,542	0	0	as Plant Before General Plant - PZ
Laboratory Equipment	9,862	9,862	0	0	0	0	0	0	0	0	0	100% (COM)
Water Power Operated Equipment	5,862	238	1,728	0	0	0	3,503	0	394	0	0	as Plant Before General Plant - PZ
Communication Equipment	898,379	36,430	264,810	0	0	0	536,797	0	60,342	0	0	as Plant Before General Plant - PZ
Misc Equipment	386,859	15,687	114,032	0	0	0	231,155	0	25,985	0	0	as Plant Before General Plant - PZ
Water Computer Equipment	100,199	4,063	29,535	0	0	0	59,871	0	6,730	0	0	as Plant Before General Plant - PZ
	$4,495,791	$191,770	$1,322,290	$0	$0	$0	$2,680,420	$0	$301,311	$0	$0	
Total Plant	120,874,384	4,762,162	34,544,467	0	0	0	70,025,241	0	7,871,666	0	3,670,847	
Plus: Capital Works in Progresss												
CWIP - Water	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	as Plant in Service
CWIP Year End Accrued Inventory	0	0	0	0	0	0	0	0	0	0	0	as Plant in Service
RWIP - Water	0	0	0	0	0	0	0	0	0	0	0	as Plant in Service
WO Tfr at YE	0	0	0	0	0	0	0	0	0	0	0	as Plant in Service
Total Capital Works in Progress	0	0	0	0	0	0	0	0	0	0	0	
Depreciation	$50,689,490	$1,997,045	$14,486,456	$0	$0	$0	$29,365,558	$0	$3,301,037	$0	$1,539,395	as Plant in Service
Net Plant in Service	**$70,184,894**	**2,765,117**	**20,058,011**	**0**	**0**	**0**	**40,659,683**	**0**	**4,570,630**	**0**	**2,131,453**	

Truckee Donner PUD
Water Utility
Functionalization and Classification
Exhibit 12 - Revenue Requirement

	Total Expenses FY 2021	Commodity (COM)	Capacity (CAP-1)	Capacity - Equiv. Meters (CAP-2)	Customer Related: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Customer Related: Weighted for: Meters & Svcs (WCMS)	Revenue Related (RR)	Fire Protection (FP)	Direct Assign. (DA)	Pump Zones (PZ)	Basis of Classification
Expenses												
Board of Directors	$166,111	$0	$0	$0	$0	$0	$166,111	$0	$0	$0	$0	100% (WCMS)
General Manger												
Admin & Ops General Exp	$421,314	$0	$0	$0	$0	$0	$421,314	$0	$0	$0	$0	100% (WCMS)
Public Information	92,889	0	0	0	0	0	92,889	0	0	0	0	100% (WCMS)
Legislature & Regulations	47,380	0	0	0	0	0	47,380	0	0	0	0	100% (WCMS)
Office Supplies & Expenses	77,020	0	0	0	0	0	77,020	0	0	0	0	100% (WCMS)
Outside Service Employed	60,049	0	0	0	0	0	60,049	0	0	0	0	100% (WCMS)
Injuries & Damages	2,305	0	0	0	0	0	2,305	0	0	0	0	100% (WCMS)
General Advertising	64,772	0	0	0	0	0	64,772	0	0	0	0	100% (WCMS)
Misc General Expense	45,817	0	0	0	0	0	45,817	0	0	0	0	100% (WCMS)
Total General Manager	$811,546	$0	$0	$0	$0	$0	$811,546	$0	$0	$0	$0	
Adminsitrative Services												
Customer Accounts Supervision	$159,569	$0	$0	$0	$0	$0	$159,569	$0	$0	$0	$0	100% (WCMS)
Meter Reading Expenses	990	0	0	0	0	0	990	0	0	0	0	100% (WCMS)
Customer Records & Collections	565,273	0	0	0	0	0	565,273	0	0	0	0	100% (WCMS)
Cust Rec&Coll Meter Reader	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Provision for Bad Debts	5,249	0	0	0	0	0	5,249	0	0	0	0	100% (WCMS)
Admin and General Expenses	462,481	0	0	0	0	0	462,481	0	0	0	0	100% (WCMS)
Office Supplies & Expenses	71,114	0	0	0	0	0	71,114	0	0	0	0	100% (WCMS)
Outside Services Employed	27,189	0	0	0	0	0	27,189	0	0	0	0	100% (WCMS)
Insurance Expense	140,277	0	0	0	0	0	140,277	0	0	0	0	100% (WCMS)
Injuries & Damages	14,211	0	0	0	0	0	14,211	0	0	0	0	100% (WCMS)
Total Adminstrative Services	$1,446,353	$0	$0	$0	$0	$0	$1,446,353	$0	$0	$0	$0	
Conservation												
Water Conservation	79,160	0	0	0	0	0	79,160	0	0	0	0	100% (WCMS)
Admin & Ops General	9,623	0	0	0	0	0	9,623	0	0	0	0	100% (WCMS)
Office Supplies & Expenses	6,967	0	0	0	0	0	6,967	0	0	0	0	100% (WCMS)
IT/GIS	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Injuries & Damages	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
General Advertising	8,018	0	0	0	0	0	8,018	0	0	0	0	100% (WCMS)
Misc General Expense	3,090	0	0	0	0	0	3,090	0	0	0	0	100% (WCMS)

Truckee Donner PUD
Water Utility
Functionalization and Classification
Exhibit 12 - Revenue Requirement

	Total Expenses FY 2021	Commodity (COM)	Capacity (CAP-1)	Capacity - Equiv. Meters (CAP-2)	Customer Related: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Customer Related: Weighted for: Meters & Svcs (WCMS)	Revenue Related (RR)	Fire Protection (FP)	Direct Assign. (DA)	Pump Zones (PZ)	Basis of Classification
Water Operations												
Ops Supervision & Engineering	$309,267	$0	$0	$0	$0	$0	$309,267	$0	$0	$0	$0	100% (WCMS)
Construction Engineering	74,209	0	0	0	0	0	74,209	0	0	0	0	100% (WCMS)
Facilites Operations	911,382	36,957	268,643	0	0	0	544,567	0	61,216	0	0	as Plant Before General Plant - PZ
Power Supply	1,333,468	853,420	0	0	0	0	0	0	0	0	480,048	64% (COM)/ 36% (PZ)
Pumping Operations	577,594	369,660	0	0	0	0	0	0	0	0	207,934	64% (COM)/ 36% (PZ)
Meters/Services Operations	453,563	0	0	0	0	0	453,563	0	0	0	0	as Meters
Misc. General Expense	508,956	0	0	0	0	0	508,956	0	0	0	0	100% (WCMS)
Maint Supervision & Engineering	226,734	0	0	0	0	0	226,734	0	0	0	0	100% (WCMS)
Maint of Sources	844,156	0	0	0	0	0	844,156	0	0	0	0	100% (WCMS)
Maint of Distribution	718,575	0	234,974	0	0	0	445,517	0	38,084	0	0	33% (CAP-1)/ 62% (WCMS)/ 5% (FP)
Meter Reader Expense	0	0	0	0	0	0	0	0	0	0	0	as Meters
Injuries & Damages	85,537	0	0	0	0	0	85,537	0	0	0	0	100% (WCMS)
Annual Paving Maintenance	250,000	0	81,750	0	0	0	155,000	0	13,250	0	0	33% (CAP-1)/ 62% (WCMS)/ 5% (FP)
Water Meter Maintenance & MTU Replacement	175,000	0	0	0	0	0	175,000	0	0	0	0	100% (WCMS)
Fire Hydrant Maintenance	75,000	0	0	0	0	0	0	0	75,000	0	0	100% (FP)
Total Water Operations	$6,543,441	$1,260,037	$585,367	$0	$0	$0	$3,822,505	$0	$187,550	$0	$687,982	
IT/GIS												
Engineering/SCADA Ops	$120,685	$0	$0	$0	$0	$0	$120,685	$0	$0	$0	$0	100% (WCMS)
GIS/Engineering Ops	95,185	0	0	0	0	0	95,185	0	0	0	0	100% (WCMS)
Meter Reading	39,819	0	0	0	0	0	39,819	0	0	0	0	100% (WCMS)
Customer Records	103,324	0	0	0	0	0	103,324	0	0	0	0	100% (WCMS)
Administrative & General IT Ops	380,188	0	0	0	0	0	380,188	0	0	0	0	100% (WCMS)
Office Supplies & Expenses	9,175	0	0	0	0	0	9,175	0	0	0	0	100% (WCMS)
Outside Services Employed	10,300	0	0	0	0	0	10,300	0	0	0	0	100% (WCMS)
Safety	16,796	0	0	0	0	0	16,796	0	0	0	0	100% (WCMS)
Total IT/GIS	$775,472	$0	$0	$0	$0	$0	$775,472	$0	$0	$0	$0	
Interdepartmental Rent	536,537	0	0	0	0	0	536,537	0	0	0	0	100% (WCMS)
Total Expenses	**$10,386,318**	**$1,260,037**	**$585,367**	**$0**	**$0**	**$0**	**$7,665,382**	**$0**	**$187,550**	**$0**	**$687,982**	
Additional Expenditures	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Total Operations & Maintenance Expense	**$10,386,318**	**$1,260,037**	**$585,367**	**$0**	**$0**	**$0**	**$7,665,382**	**$0**	**$187,550**	**$0**	**$687,982**	
	$0											
Rate Funded Capital	3,000,000	0	0	0	0	0	3,000,000	0	0	0	0	100% (WCMS)

Truckee Donner PUD
Water Utility
Functionalization and Classification
Exhibit 12 - Revenue Requirement

	Total Expenses FY 2021	Commodity (COM)	Capacity (CAP-1)	Capacity - Equiv. Meters (CAP-2)	Customer Related: Actual Customer (AC)	Customer Related: Weighted for: Customer Acct/Svcs (WCA)	Customer Related: Weighted for: Meters & Svcs (WCMS)	Revenue Related (RR)	Fire Protection (FP)	Direct Assign. (DA)	Pump Zones (PZ)	Basis of Classification
Debt Service												
Pipeline COP Rates	$1,252,412	$0	$0	$0	$0	$0	$1,252,412	$0	$0	$0	$0	100% (WCMS)
Pipeline COP FF	356,179	0	0	0	0	0	356,179	0	0	0	0	100% (WCMS)
Pipeline COP Assmt	96,216	0	0	0	0	0	96,216	0	0	0	0	100% (WCMS)
DWR-SRF Donner Lake Assmt	800,852	0	0	0	0	0	800,852	0	0	0	0	100% (WCMS)
DWR PROP 55 Rates	153,241	0	0	0	0	0	153,241	0	0	0	0	100% (WCMS)
2020 Balance (diff between Opt budget and debt schedu	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
New Low Interest Loan	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
New Revenue Bond	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Total Debt Service	$2,658,900	$0	$0	$0	$0	$0	$2,658,900	$0	$0	$0	$0	
Transfers												
In												
Transfer from DLAD for SRF debt pmt	($800,852)	$0	$0	$0	$0	$0	($800,852)	$0	$0	$0	$0	100% (WCMS)
Transfer in from DLAD Surcharge for 2006 COP debt pr	(96,216)	0	0	0	0	0	(96,216)	0	0	0	0	100% (WCMS)
Transfer in from employee and overhead for sidefund	(13,022)	0	0	0	0	0	(13,022)	0	0	0	0	100% (WCMS)
Transfer in from Vehicle Reserve (on CIP Calculation)	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Xfr in from FF Reserve	(356,179)	0	0	0	0	0	(356,179)	0	0	0	0	100% (WCMS)
Transfer from Operating Reserve Fund	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Out												
Debt Service Payments	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Transfer to Vehicle Reserve	174,709	0	0	0	0	0	174,709	0	0	0	0	100% (WCMS)
Transfer to Operating Reserve Fund	0	0	0	0	0	0	0	0	0	0	0	100% (WCMS)
Transfer to Cash Reserves	11,403	0	0	0	0	0	11,403	0	0	0	0	100% (WCMS)
Total Transfers	**($1,080,157)**	**$0**	**$0**	**$0**	**$0**	**$0**	**($1,080,157)**	**$0**	**$0**	**$0**	**$0**	
Total Revenue Requirements	**$14,965,061**	**$1,260,037**	**$585,367**	**$0**	**$0**	**$0**	**$12,244,125**	**$0**	**$187,550**	**$0**	**$687,982**	
Less: Other Income												
Misc Operating Revenue	$252,578	$252,578	$0	$0	$0	$0	$0	$0	$0	$0	$0	100% (COM)
Non-Potable	103,485	103,485	0	0	0	0	0	0	0	0	0	100% (COM)
Misc Rents	76,651	76,651	0	0	0	0	0	0	0	0	0	100% (COM)
Standby Revenue	119,582	119,582	0	0	0	0	0	0	0	0	0	100% (COM)
Interest Income	103,000	103,000	0	0	0	0	0	0	0	0	0	100% (COM)
Total Other Income	**$655,296**	**$655,296**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
Net Revenue Requirements	**$14,309,765**	**$604,741**	**$585,367**	**$0**	**$0**	**$0**	**$12,244,125**	**$0**	**$187,550**	**$0**	**$687,982**	

Truckee Donner PUD
Water Utility
Cost of Service Summary
Exhibit 13 - Allocation by Component - COM, CAP & DA

		Residential				
Classification Components	FY 2021	**Tier 1**	**Tier 2**	**Commercial**	**Pump Zones**	
Commodity	$604,741	$266,932	$158,511	$179,299	$0	(COM)
Capacity	$585,367	$162,442	$203,384	$219,540	$0	(CAP-1)
Direct Assignment	$0	$0	$0	$0	$0	(DA)
Total	$1,190,107	$429,374	$361,895	$398,839	$0	

Truckee Donner PUD
Water Utility
Cost of Service Summary
Exhibit 14 - Allocation by Component - Cust. Fire, Rev.

Classification Components	FY 2021	Residential	Commercial	Pump Zones	*Allocation Factor*
Customer Related					
Actual Customer	$0	$0	$0	$0	(AC)
Customer Acct/Svcs	0	0	0	0	(WCA)
Meters & Svcs	12,244,125	11,336,752	907,374	0	(WCMS)
Total Customer Related	$12,244,125	$11,336,752	$907,374	$0	
Equiv. Meters	$0	$0	$0	$0	(CAP-2)
Revenue Related	$0	$0.00	$0.00	$0	(RR)
Fire Protection	$187,550	$160,322	$27,229	$0	(FP)
Pump Zones	$687,982	$0	$0	$687,982	
Net Revenue Requirment	**$13,119,658**	**$11,497,073**	**$934,602**	**$687,982**	

Truckee Donner PUD
Water Utility
Cost of Service Summary
Exhibit 15 - Summary of Cost Allocation

	FY 2021 Total	Residential	Commercial	Pump Zones	*Source*
Revenues at Present Rates	$13,128,225	$11,176,645	$1,405,305	$546,275	
Allocated Revenue Requirement	$14,309,765	$12,288,342	$1,333,441	$687,982	
Subtotal Balance/(Deficiency) of Funds	($1,181,540)	($1,111,697)	$71,863	($141,707)	
% Change Over Present Rates	**9.0%**	**9.9%**	**-5.1%**	**25.9%**	

Truckee Donner PUD
Water Utility
Cost of Service Summary
Exhibit 15 - Average Unit Cost

	FY 2021 Total	Residential Tier 1	Residential Tier 2	Residential Commercial
Commodity Costs - $/CCF	$0.61	$0.61	$0.61	$0.61
Capacity Costs - $/CCF	$0.59	$0.37	$0.79	$0.75
Direct Assign. Costs - $/CCF	$0.00	$0.00	$0.00	$0.00
Total Allocated Costs - $/CCF	$1.21	$0.99	$1.40	$1.37
Current Consumption Rates		$0.78	$0.97	$1.91
Customer - $ / Equiv. Mtrs / month	$74.59	$74.59		$74.59
Fire Protection - $ / Equiv. Mtrs / month	1.14	1.05		2.24
Total - $ / Month	$75.74	$75.65		$76.83
Current Fixed Charge (3/4")		$69.66		$69.66
Rate Rev $/CCF	$13.32	$25.70		$4.81
Allocated Rev Req $/CCF	$14.52	$28.26		$4.56
Basic Data				
Annualized Water Flows - CCF	985,260	434,892	258,250	292,118
No. of Customers	13,382	12,665		717
No. of Units	NA	NA	NA	NA
Equivalent Meters	13,679	12,665		1,014

Truckee Donner PUD
Water Utility
Rate Design
Exhibit 16 - Summary of Rate Design

	Current	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Residential						
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
Commodity Charge						
0 - 8,000 gal (block 1)	0.78	0.99	1.08	1.16	1.26	1.34
8,000 + gal (block 2)	0.97	1.40	1.53	1.65	1.78	1.91
Commercial						
5/8" x 3/4"	$69.66	$75.74	$82.55	$89.16	$96.29	$103.03
3/4"	69.66	75.74	82.55	89.16	96.29	103.03
1"	83.09	90.34	98.47	106.35	114.85	122.89
1 1/2"	116.80	126.99	138.42	149.49	161.45	172.75
2"	160.58	174.59	190.30	205.52	221.97	237.50
3"	268.81	292.26	318.56	344.05	371.57	397.58
4"	384.62	418.17	455.80	492.27	531.65	568.87
6"	576.93	627.25	683.71	738.40	797.48	853.30
8"	721.16	784.07	854.63	923.00	996.84	1,066.62
Commodity Charge/ 1,000 gal	$1.91	$1.37	$1.49	$1.61	$1.74	$1.86
Pump Zone Charges						
Zone 1	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Zone 2	0.60	0.75	0.82	0.89	0.96	1.03
Zone 3	1.20	1.50	1.64	1.77	1.91	2.04
Zone 4	1.80	2.25	2.45	2.65	2.86	3.06
Zone 5	2.40	3.00	3.27	3.53	3.81	4.08
Zone 6	3.00	3.75	4.09	4.42	4.77	5.10
Zone 7	3.60	4.50	4.91	5.30	5.72	6.12

Truckee Donner PUD
Water Utility
Rate Design
Exhibit 17 - Residential Bill Comparison

Consumption (Gallons)	Current Rate	Proposed Rate	$ Change	% Change
0	$69.66	$75.74	$6.08	8.7%
5,000	73.56	80.67	7.11	9.7%
8,000	75.90	83.63	7.73	10.2%
10,000	77.84	86.44	8.60	11.0%
15,000	82.69	93.44	10.75	13.0%
20,000	87.54	100.45	12.91	14.7%
25,000	92.39	107.46	15.07	16.3%
30,000	97.24	114.46	17.22	17.7%
35,000	102.09	121.47	19.38	19.0%
40,000	106.94	128.48	21.54	20.1%
45,000	111.79	135.48	23.69	21.2%
50,000	116.64	142.49	25.85	22.2%

Meter Size	Current	Proposed
1"	$69.66	$75.74
Commodity Charge ($/1,000 gal)		
0 - 8,000 gal	$0.78	$0.99
>8,000 gal	$0.97	$1.40

Truckee Donner PUD
Water Utility
Rate Design
Exhibit 18 - Non-Residential Bill Comparison

Consumption (Gallons)	Current Rate	Proposed Rate	$ Change	% Change
1" Meter				
0	$69.66	$75.74	$6.08	9%
20,000	107.86	103.04	(4.82)	-4%
40,000	146.06	130.35	(15.71)	-11%
60,000	184.26	157.66	(26.60)	-14%
80,000	222.46	184.96	(37.50)	-17%
100,000	260.66	212.27	(48.39)	-19%
120,000	298.86	239.58	(59.28)	-20%
140,000	337.06	266.88	(70.18)	-21%
160,000	375.26	294.19	(81.07)	-22%
2" Meter				
40,000	$159.49	$144.95	($14.54)	-9%
60,000	197.69	172.26	(25.43)	-13%
80,000	235.89	199.56	(36.33)	-15%
120,000	312.29	254.18	(58.11)	-19%
140,000	350.49	281.48	(69.01)	-20%
160,000	388.69	308.79	(79.90)	-21%
180,000	426.89	336.10	(90.79)	-21%

Meter Size	Current	Proposed
1"	$69.66	$75.74
1 1/2"	69.66	75.74
2"	83.09	90.34
3"	116.80	126.99
4"	160.58	174.59
6"	268.81	292.26
8"	384.62	418.17
10"	721.16	784.07
Commodity Charge		
All Consumption $/1,000 gal	$1.91	$1.37

Truckee Donner PUD
Water Utility
Rate Design
Exhibit 19 - Pump Zone Charge

Zone	Current Rate	Proposed Rate	$ Change	% Change
1	$0.00	$0.00	$0.00	0.0%
2	0.60	0.75	0.15	25.0%
3	1.20	1.50	0.30	25.0%
4	1.80	2.25	0.45	25.0%
5	2.40	3.00	0.60	25.0%
6	3.00	3.75	0.75	25.0%
7	3.60	4.50	0.90	25.0%

Truckee Donner PUD
Water Utility
Rate Design
Exhibit 20 - Rate Revenue Projection

	Current	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Residential						
Fixed	$10,586,927	$11,510,965	$12,672,149	$13,822,866	$15,077,751	$16,293,920
Consumption	$589,718	$792,093	$862,483	$931,482	$1,006,000	$1,076,420
Total	$11,176,645	$12,303,058	$13,534,632	$14,754,348	$16,083,752	$17,370,340
2021 COSA		$12,288,342				
Commercial						
Fixed	$847,359	$921,273	$1,013,467	$1,104,566	$1,203,755	$1,300,836
Consumption	$557,945	$398,839	$434,734	$469,513	$507,074	$542,569
Total	$1,405,305	$1,320,111	$1,448,201	$1,574,079	$1,710,829	$1,843,405
2021 COSA		$1,333,441				
Pump Zone						
Consumption	$546,274	$682,844	$744,884	$805,516	$869,248	$930,444
2021 COSA		$687,982				
System Total	$13,128,223	$14,306,014	$15,727,717	$17,133,943	$18,663,829	$20,144,190
System Target		$14,298,362	$15,733,078	$17,139,066	$18,670,479	$20,151,399
$ Difference		($7,652)	$5,361	$5,124	$6,650	$7,209
Fixed Rev	87.1%	86.9%	87.0%	87.1%	87.2%	87.3%
Variable Rev	12.9%	13.1%	13.0%	12.9%	12.8%	12.7%