PALMDALE WATER DISTRICT

Financial Planning, Revenue Requirements, Cost of Service, and Rate Setting Analysis

Final Report

October 8, 2019

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

PALMDALE WATER DISTRICT
FINANCIAL PLANNING, REVENUE REQUIREMENTS, COST OF SERVICE, AND RATE SETTING ANALYSIS

FINAL REPORT

Prepared for:

Palmdale Water District
2029 E Avenue Q
Palmdale, CA 93550

Prepared by:

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RDN Project Number 280

September 17, 2019
Dennis D. LaMoreaux
General Manager
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Subject: Water Rate Analysis, Water Rate Structure Modifications, Multi-Year Water Rate Plan and Proposition 218 Process Public Outreach Support Report

Dear Mr. LaMoreaux,

Robert D. Niehaus, Inc. (RDN) is pleased to provide this Financial Planning, Revenue Requirements, Cost of Service, and Rate Setting Analysis Report (Report) to the Palmdale Water District (PWD or District). This rate study includes a financial plan to determine the revenue requirements for the next five years and comprehensive review of the District's current rates based on cost of service principles. This Report outlines the approach, methodology, findings and recommendations of the study. The Report also includes an extensive customer billing impact study, rate comparison analysis, and drought surcharge setting analysis. Each of the components of this study have enhanced the accuracy and equitability of the rates we propose.

The proposed rates were developed utilizing the District's customer usage data, billing records, accounting, operating and management records, capital plan, and policies. Based on the District provided data, key assumptions were made for the study using appropriate resources and our econometric and finance expertise. We are confident that the rates proposed in this Report are cost-based and equitable and are fully compliant with Proposition (Prop) 218 and other legal requirements.

It has been an absolute pleasure and honor to work with your District. We thank you, Mr. Michael Williams, Mr. Adam LY, Ms. Judy Shay, and other District Staff and the Board of Directors for the support provided during this study.

Respectfully submitted,

Robert D. Niehaus, Ph.D.
Managing Director/Principal Economist

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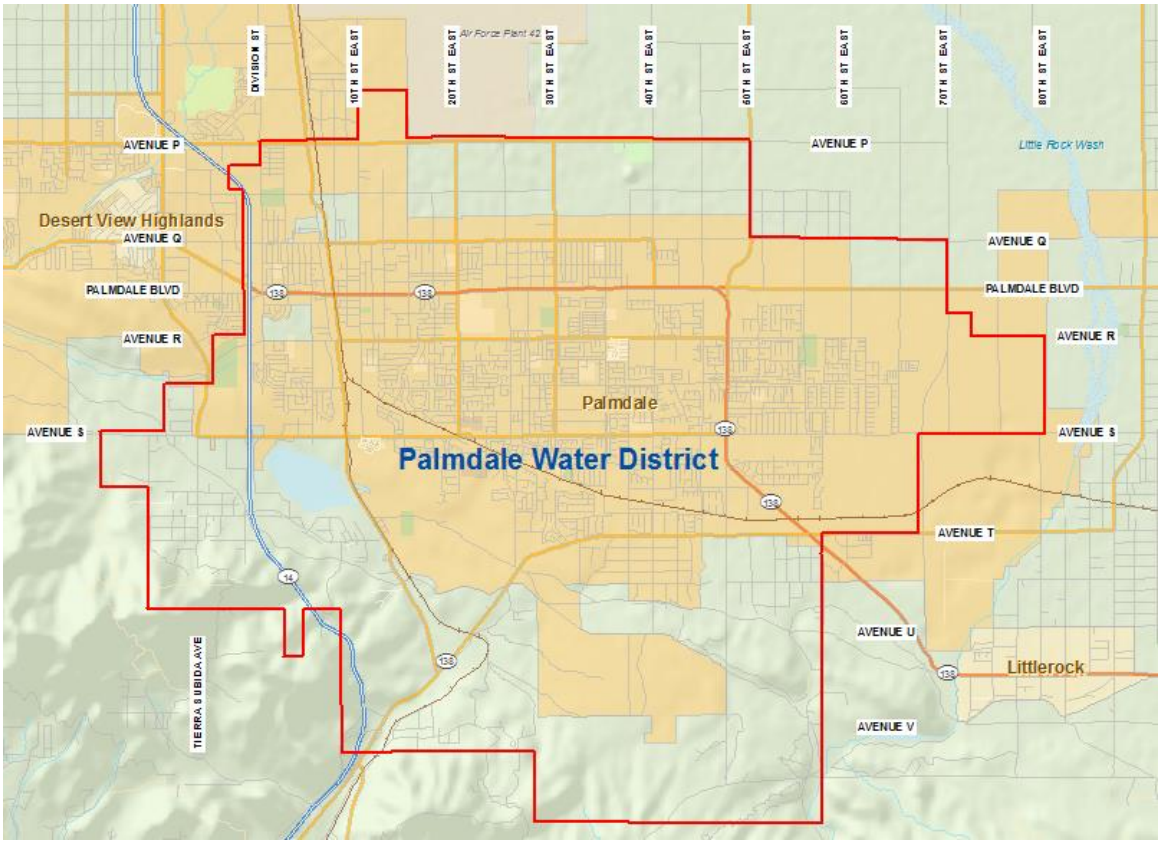
EXECUTIVE SUMMARY

District Overview

Palmdale Water District (District; PWD) is in the southern Antelope Valley in Los Angeles County and includes the central and southern portions of the City of Palmdale, as well as adjacent unincorporated areas of the County. The District was established in 1918 as the Palmdale Irrigation District to supply irrigation water to approximately 4,500 acres of agricultural customers. As the population grew in the Antelope Valley, the District experienced increased demand for domestic water, most notably in the 1950's with the activation of Air Force Plant 42 and increased use of Edwards Air Force Base. Today, the District serves approximately 115,000 people through 27,600 connections in a service area of approximately 187 square miles, supplying water to residential, irrigation, and commercial customers. Figure ES 1 shows PWD's current service area.

Figure ES 1. Palmdale Water District Service Area



PWD maintains over 400 miles of pipeline, multiple well sites, booster pumping stations, and water storage tanks, which combined have over 50 million gallons of capacity. The District's water supply consists of 60 percent surface water and 40 percent groundwater. Local surface water is stored in the Littlerock Reservoir (3,500-acre feet capacity). PWD's surface water supply includes an annual entitlement of 21,300-acre feet of water from the State Water Project (SWP), which is funded by property taxes and separate transportation costs. Surface water is stored at Lake Palmdale (4,100-acre feet capacity) and treated at the 35-mgd Leslie O. Carter Water Treatment Plant. The District's service area slopes upward from 2,600 feet to 3,800 feet above sea level toward the San Gabriel Mountains and is divided into seven elevation zones.

The District first implemented a water budget rate structure in 2009 to promote efficient water use. Under this rate structure, each customer receives a monthly water budget based on various parameters such as the number of people in the home, the property's irrigable acreage, and the weather. The District offers a variance program for customers to adjust their allocation, if necessary.

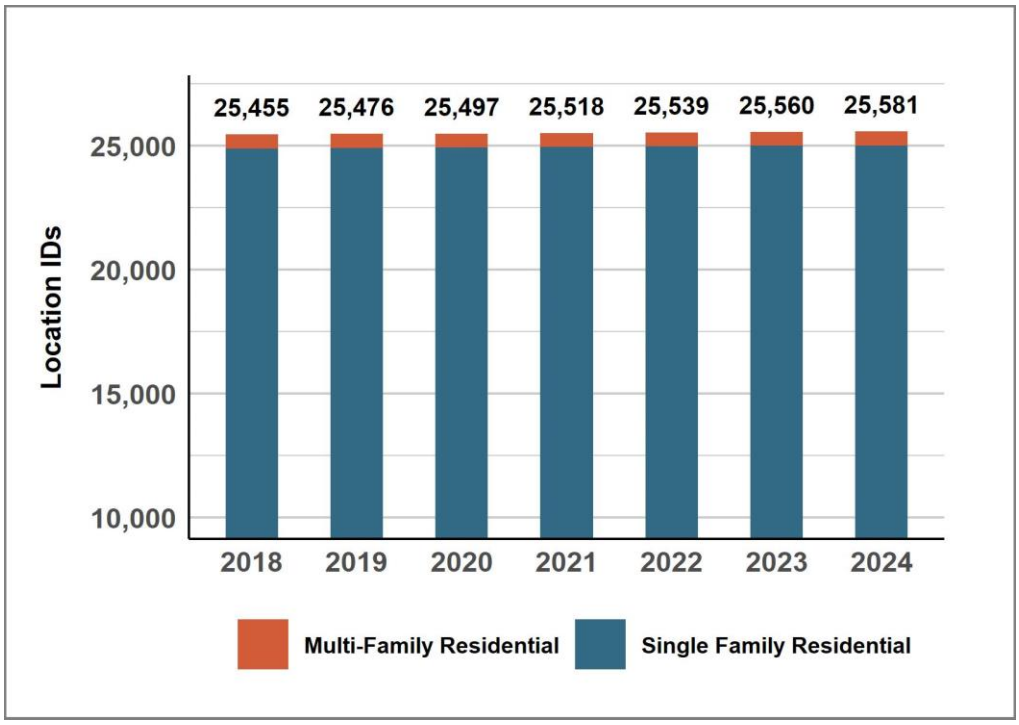
In April 2019, Palmdale Water District (PWD) retained Robert D. Niehaus, Inc. (RDN) to develop a comprehensive water rate study, which includes financial planning, revenue requirements, cost of service, and rate-setting analyses (Study). The overall goal of this Study is to develop a financial plan to identify necessary revenues to meet the District's financial needs and design rates which recover the costs from ratepayers commensurate with their service requirements. RDN amended the District's current rates to further improve equity, promote efficiency and conservation, and ensure compliance with Proposition 218 (Prop 218) requirements and other legal mandates.

Key Assumptions

For this rate study, a test year was selected for which costs are to be analyzed and rates to be established. The study period is set to include the test year plus four subsequent years, creating a five-year study period. CY 2020 was chosen to be the test year for the PWD rate study, thus the study period was defined as CY 2020 through CY 2024. The District's fiscal year starts on January 1 and ends on December 31.

All the analyses performed for this Study were based on an assumption of customer account growth (described in detail in the Demand Projections section). RDN projects a slight increase (0.1%) in Single Family Residential (SFR) customers, and a 0.2% increase in Multi-Family Residential (MFR) customers annually. Approximately 93% of the District's customers are SFR customers. Figure ES 2 displays the account growth for residential customers. The count for CY 2018 is derived from customers' billing records, and the numbers of accounts for the following six years including CY 2019 (Current Year) plus CY 2020 – CY 2024 (study period) were projected based on the historical data and input from the District.

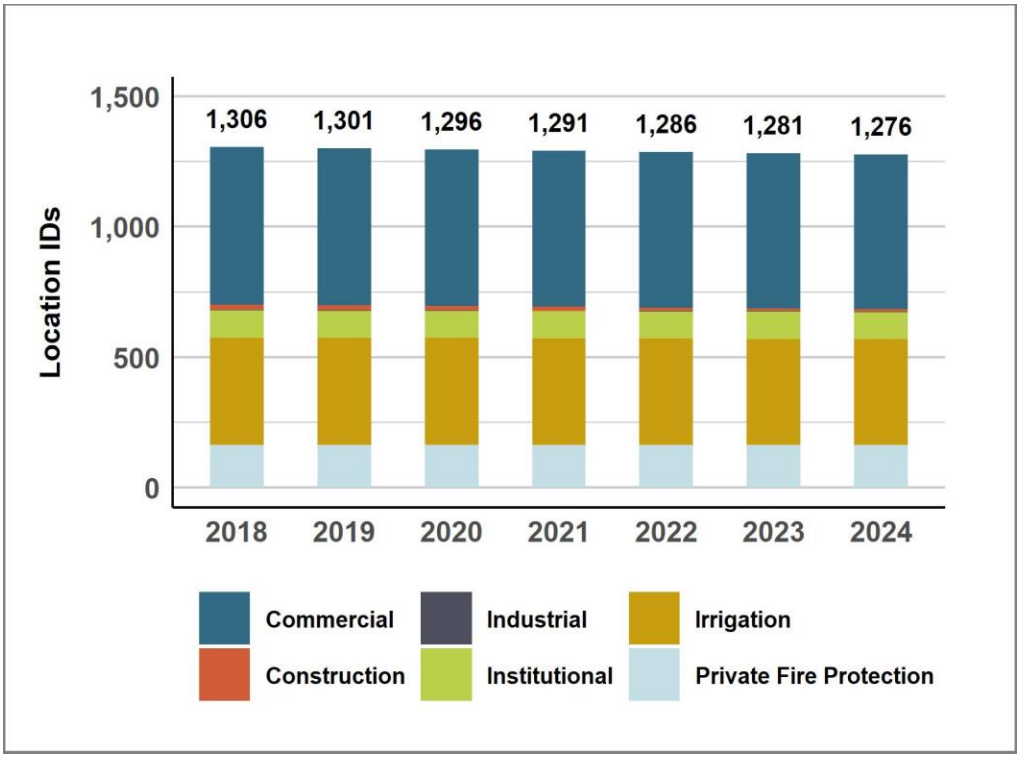
Figure ES 2. Residential Customers Account Growth, CY 2018 - 2024



RDN subcategorized commercial customers into three different groups, which include Industrial, Institutional, and Commercial, in order to project their account growth and future consumption more accurately.

Commercial and Irrigation accounts are expected to decrease slightly by one or two accounts a year, and Industrial and Institutional customers are projected to remain the same throughout the study period. Forecasted account growth for non-residential customers is displayed in Figure ES 3.

Figure ES 3. Non-Residential Customers Account Growth, CY 2018 - 2024



The current number of SFR customers based on the count of Location IDs is 24,914. This number is projected to increase by 21 annually resulting in a total of 25,014 by the end of CY 2024. The total number of all customers from all customer classes is projected to be 26,857 by the end of the study period, increasing by 80 accounts when compared to the current total of 26,777 customers.

This study also makes an assumption in the projected escalation of revenues and expenses associated with both operations and maintenance (O&M) and capital improvement project (CIP) expenditures. Escalation factors were calculated for eight independent variables using historical Consumer Price Index (CPI) data from Los Angeles-Riverside-Orange counties, CA, between 2000 and the most current calendar year, and projections by the California Department of Transportation (CADOT) and the California Department of Finance (CADOF). Projected construction costs were determined using data from the California Department of General Services Construction Cost Index (CDGS CCI). Additionally, property tax increases were charted using audited financial statements published by the County of Los Angeles. All escalation factors were developed by calculating an average growth rate and projecting that rate into future years. Due to local contingencies, the cost of water inflation rate is expected to rise at the highest rate, 7.3% per year. The employee expenses inflation rate, which includes salaries, insurance, and payroll taxes, is only expected to rise 2.6% per year during the study period. Non-recurring expense (one-time expense) and some contracted service expenses are not escalated based on District input. Table ES 1 and Table ES 2 display escalation factors estimated for PWD for the study period.

Table ES 1. Revenue Escalation Factors Estimated for PWD, CY 2019 - CY 2024

Revenue Escalation Factors	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Utility/Treatment:	*0.0%*	*4.1%*	*4.1%*	*4.1%*	*4.1%*	*4.1%*
Water Sales:	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
General - Revenue:	*0.0%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*
Property Tax:	*0.0%*	*2.0%*	*2.0%*	*2.0%*	*1.9%*	*1.9%*
Investment Returns:	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
Connection Fees:	*0.0%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*
Water Quality Fees	*0.0%*	*0.0%*	*0.0%*	*9.1%*	*9.1%*	*9.1%*
No Escalation:	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Table ES 2. Expense Escalation Factors Estimated for PWD, CY 2019 – CY 2024

Expense Escalation Factors	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Overall Inflation Rate:	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*
Utility/Chemical Inflation Rate:	*4.1%*	*4.1%*	*4.1%*	*4.1%*	*4.1%*	*4.1%*
Treatment Inflation Rate:	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*
Purchased Water Inflation Rate	*7.3%*	*7.3%*	*7.3%*	*7.3%*	*7.3%*	*7.3%*
Employee Expenses Inflation Rate:	*2.6%*	*2.6%*	*2.6%*	*2.6%*	*2.6%*	*2.6%*
Equipment Inflation Rate:	*0.8%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*
Fuels and Automobile Inflation Rate:	*3.6%*	*3.6%*	*3.6%*	*3.6%*	*3.6%*	*3.6%*
Construction Inflation Rate:	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*
No Escalation:	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

This study calculates equivalent meter counts using the American Water Works Association (AWWA) standards shown in Table ES 3. The majority of District customers have ¾-inch meters, thus ratios established based on the ¾-inch meter as 1.00 unit were used for this study. These ratios were used when the service requirements of system capacity for each meter size was measured.

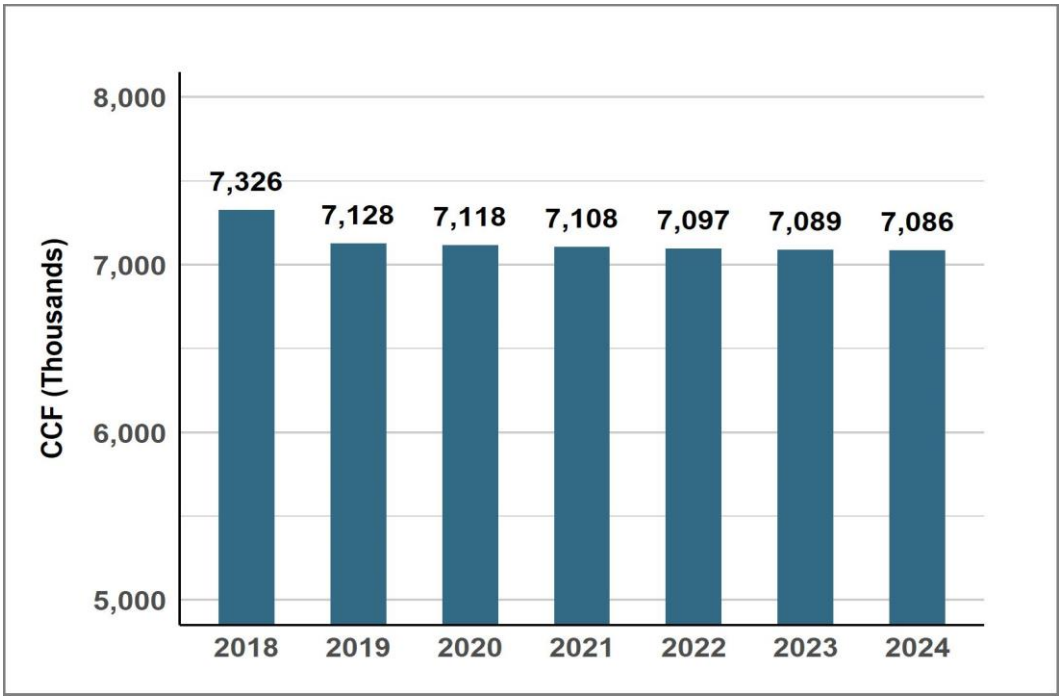
Table ES 3. AWWA Equivalent Meter Ratios

Equivalent Meter Ratios	AWWA
5/8-in	0.67
3/4-in	1.00
1-in	1.67
1 1/2-in	3.33
2-in	5.33
3-in	10.00
4-in	16.67
6-in	33.33
8-in	53.33
10-in	76.67

Financial Plan

Aggregate water consumption was calculated by multiplying the constant per-account water usage with the number of accounts each year. The District's water demand final forecasts for the study period are displayed in Figure ES 4.

Figure ES 4. Annual Demand Projections for CY 2018 – CY 2024



Revenues

Based on the account growth and water demand projections, RDN forecasted rate revenues for the current year and the study period using current rates, which totaled approximately $23.0 to $23.1 million annually. Other operating revenues and non-operating revenue are estimated to provide supplemental revenue of $4.1 to $4.3 million a year. Thus, the District's total revenues for the study period are estimated to be approximately $27.2 to $27.3 million annually. Table ES 4 shows projected revenue flow for the current year (CY 2019) plus the study period (CY 2020 – CY 2024).

Table ES 4. Revenue Forecast for CY 2019 – CY 2024

Revenue Type	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Revenues from Rates	$23,132,036	$23,113,310	$23,088,296	$23,063,174	$23,046,436	$23,032,091
Other Operating Revenues	$1,170,000	$1,172,625	$1,175,258	$1,177,899	$1,180,547	$1,183,204
Non-Operating Revenues	$2,850,000	$2,896,525	$2,943,971	$2,992,357	$3,039,261	$3,087,047
Total	**$27,152,036**	**$27,182,460**	**$27,207,525**	**$27,233,430**	**$27,266,244**	**$27,302,342**

Operating and Maintenance (O&M) Expense

Table ES 5 displays the total O&M expense and annual percentage increase of overall cost for the current year (CY 2019) plus the study period (CY 2020 – CY 2024).

Table ES 5. Projected Operating and Maintenance Expense and Percentage Increase for CY 2019 – CY 2024

	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Total O&M Expense	$21,834,755	$23,104,573	$23,816,843	$24,555,534	$25,323,517	$26,124,472
% Annual Increase		5.8%	3.1%	3.1%	3.1%	3.2%

Capital Improvement Expense

The District plans to execute a total of $30.0 million Capital Improvement Projects (CIPs) throughout the study period, CY 2020 - CY 2024. Some of the major projects include the recharge project design, well and booster rehabilitation, sedimentation basin cleaning, and Stanridge water main replacement, among others. The District plans to pay for the CIPs using cash revenue generated from customers' rates (PAYGO) as well as proceeds from a 2021 Revenue Bond for the amount of $20.0 million. Table ES 6 displays PWD's scheduled CIPs by type for the study period.

Table ES 6. Scheduled Capital Improvement Projects for CY 2020 – CY 2024

	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Replacement/New Equipment	$440,217	$608,922	$375,113	$373,115	$483,704
Studies and Planning	$604,985	$125,000	$200,000	$125,000	$125,000
Water Supply	$512,177	$786,976	$806,143	$1,101,034	-
Replacement Capital Projects	$3,056,808	$3,985,035	$4,469,925	$5,758,578	$2,554,233
New Capital Projects	$578,810	-	$529,664	-	$3,120,913
Total CIP Expense	**$5,192,998**	**$5,505,934**	**$6,380,845**	**$7,357,728**	**$6,283,850**

Debt Service

The District's current debt service obligations are listed below in bullet points. The payments shown below (Table ES 7) include interest and principal payments for the study period.

- 2012 Private Placement (annual payment of $1.4 million)
- 2013A Series Water Revenue Bonds (annual payment of $2.3 million until CY 2024, which increase to $3.9 million thereafter)
- 2018A Series Water Revenue Bond (annual payment of $0.6 million until CY 2021, which increase to $0.8 million thereafter)
- Capital Leases Payable – 2017 ($0.2 million until CY 2021, which decrease to $90,000 in CY 2022 and is the final payment for this loan)

PWD plans to issue another bond in CY 2021 to mitigate rate impacts on its customers. The 2021 Revenue Bonds will increase the District's total debt service obligation by $1.2 million annually beginning in CY 2022.

Table ES 7. Debt Service Payments for CY 2019 – CY 2024

	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Principal	$1,870,195	$1,927,762	$1,998,889	$2,728,646	$2,602,628	$2,810,000
Interest	$2,596,719	$2,539,462	$2,469,762	$3,072,379	$3,107,865	$3,031,569
Debt Service Total	**$4,466,913**	**$4,467,225**	**$4,468,651**	**$5,801,025**	**$5,710,493**	**$5,841,569**

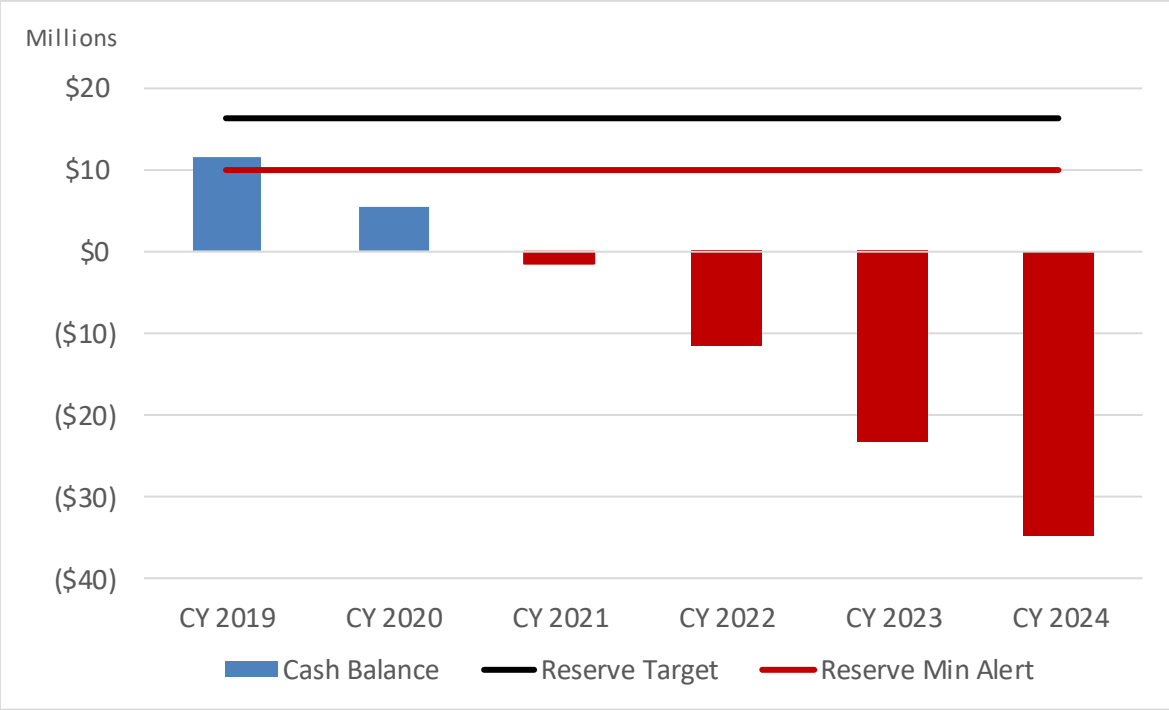
Reserves

Prudent fiscal management requires that the District maintain reserve balances to meet working capital requirements, meet unexpected increases in costs, and provide for emergencies. Currently, the District maintains two types of reserve funds: legally restricted funds and Board-designated funds. The detailed description and purpose of each reserve fund can be found in the District's reserve policy Resolution No, 18-10 (APPENDIX). The legally restricted funds include the Capital Improvement Fund, Bond Proceed Fund, Debt Service Reserve Fund, and Rate Stabilization Fund. The Board-designated funds include Dam Self Insurance, O&M Operating Reserve, O&M Emergency Reserve, and Unrestricted Reserves. The target total reserve for the Board-designated funds is set at $16.2 million. The District estimates a reserve balance at the end of CY 2019 to be $11.6 million ($11.1 million in the Board-designated funds, and $0.5 million in the restricted funds). RDN recommends annual cash contributions of $100,000 to the Rate Stabilization Fund, and $850,000 to the District's O&M Emergency Reserve to reach the target reserve level of $16.2 million by the end of the study period.

Financial Outlook without Rate Adjustments

Based on the projected total revenue and necessary costs to be covered for the study period, the District's cash reserves will be completely spent during CY 2021 if no rate adjustments are made. By the end of the study period, the revenue shortfall will accumulate to $34.8 million, which represents a 44.4% cumulative deficit. Figure ES 5 shows the change in the District cash balance if no actions are taken for the study period.

Figure ES 5. Cash Balance without Rate Adjustments for CY 2020 – CY 2024



Recommended Rate Adjustments

RDN recommends the District adjust rates by 8.1% upward annually in order to eliminate the cumulative deficit and meet the reserve target by the end of the study period, CY 2024.

Table ES 8. Recommended Rate Adjustments, CY 2020 – CY 2024

	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Overall Rate Adjustment	*8.1%*	*8.1%*	*8.1%*	*8.1%*	*8.1%*

Revenue Requirements

Table ES 9 displays PWD's revenue requirements for CY 2020 – CY 2024. The total expense of each year is offset by other operating revenues and non-operating revenues to compute a pure portion of revenue requirements which need to be collected from customers' water rates. Other obligations include CIP expense, contributions to reserves ($950,000), and other miscellaneous expenses amounting to $0.5 million. Under the recommended financial plan, revenue requirements are computed based on an annual rate adjustment of 8.1%. The negative net balance indicates that cash reserves are used to supplement the shortfall for the year (CY 2020 and CY 2024), and a positive net balance (CY 2021 – CY 2023) indicates that the amount is contributed to the cash reserves in addition to the annual cash contribution scheduled to be put aside for the reserves.

Table ES 9. Revenue Requirements for CY 2020 – CY 2024

Description	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
	Test Year				
Other Operating Revenues	($1,172,625)	($1,175,258)	($1,177,899)	($1,180,547)	($1,183,204)
O&M Expenses	$23,104,573	$23,816,843	$24,555,534	$25,323,517	$26,124,472
Non-operating Revenues	($2,896,525)	($2,943,971)	($2,992,357)	($3,039,261)	($3,087,047)
Other Obligations	$11,146,722	$5,955,151	$7,287,525	$7,196,993	$12,856,425
Net Balance	($5,196,656)	$1,327,317	$1,460,933	$3,170,009	($711,984)
Revenue Requirements	**$24,985,489**	**$26,980,083**	**$29,133,735**	**$31,470,711**	**$33,998,662**

Rate Design

This study evaluated the current rates and financial condition of PWD and determined necessary rate adjustments for the study period, CY 2020 - 2024. RND, in consultation with District staff, performed multi-level analysis to find the most effective and equitable way to recover necessary revenues from customers' rates. RDN proposes seven adjustments to PWD's water rate structure and water budget allocation methodologies.

RDN recommends that PWD:

- Adjust rates by 8.1% upward per year for each year throughout the study period to recover necessary revenues to sustain the system,
- reduce the amount of water allocated as essential water from 66 Gallons per Capita per Day (GCPD) to 55 GCPD to align with the new State legislation,
- allocate a water budget to MFR customers using the same methodology as SFR customers to create consistency among residential customers,
- remove the sixth usage tier from the rate structure and retain only five tiers to establish clear connections between the costs and the pricing of tiered rates,
- base residential customer Tier 2 allocations on actual irrigable area as defined by parcel data provided by Eagle Aerial (EA), rather than basing an arbitrary percentage (50%) of the total parcel size,
- create an Exempt Irrigation customer class for which the Landscape Factor (LF) is set at 1.0 to reflect their specific water needs, and
- establish drought surcharges based on actual customer usage reductions (drought factors applied to individual customers) rather than applying reductions to the aggregate tiered water demand.

All of the proposed changes are summarized in Table ES 10.

Table ES 10. Rate Study Summary of Recommended Changes

Rate Study Executive Summary		
Category	**Current**	**Proposed**
Indoor Allocation	66 GCPD	55 GCPD
MFR Water Budget	3-year Moving Average by Month	Based on SFR Water Budget Allocation Formula
Number of Tiers	6	5
Tier 2 Allocation	50 percent of Parcel	Actual Irrigable Area
Irrigation Customers	All Irrigation at Landscape Factor 0.7	Exempt Irrigation at Landscape Factor 1.0
Rate Adjustment	NA	8.1% per Year
Drought Surcharges	Based on Aggregate Demand Reductions	Based on per Customer Demand Reductions

Recommended Rates

Under the proposed plan, rates will be adjusted upward by 8.1% annually. The current and proposed fixed charges and commodity rates are shown in Table ES 11 and Table ES 12 respectively.

Table ES 11. Current and Proposed Fixed Charges

Fixed Charge Monthly						
Meter Size	**CY 2019**	**CY 2020**	**CY 2021**	**CY 2022**	**CY 2023**	**CY 2024**
5/8-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
3/4-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
1-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
1 1/2-in	$113.30	$92.99	$101.49	$111.51	$122.47	$134.37
2-in	$173.74	$140.84	$153.81	$169.16	$185.96	$204.21
3-in	$314.78	$252.48	$275.89	$303.69	$334.10	$367.16
4-in	$516.26	$412.05	$450.38	$495.96	$545.84	$600.07
6-in	$1,019.96	$810.62	$886.21	$976.21	$1,074.72	$1,181.81
8-in	$1,624.40	$1,289.09	$1,409.41	$1,552.74	$1,709.62	$1,880.17
10-in	$2,329.60	$1,847.47	$2,019.99	$2,225.56	$2,450.56	$2,695.17

Table ES 12. Current and Proposed Volumetric Charges

Volumetric Charges per HCF						
Proposed Rates	**CY 2019**	**CY 2020**	**CY 2021**	**CY 2022**	**CY 2023**	**CY 2024**
Tier 1	$0.88	$0.88	$0.93	$0.98	$1.03	$1.08
Tier 2	$1.01	$1.52	$1.63	$1.74	$1.86	$1.98
Tier 3	$2.86	$2.03	$2.15	$2.27	$2.40	$2.54
Tier 4	$4.31	$3.29	$3.51	$3.74	$3.98	$4.23
Tier 5	$5.57	$4.64	$5.01	$5.39	$5.79	$6.23
Tier 6	$7.16					

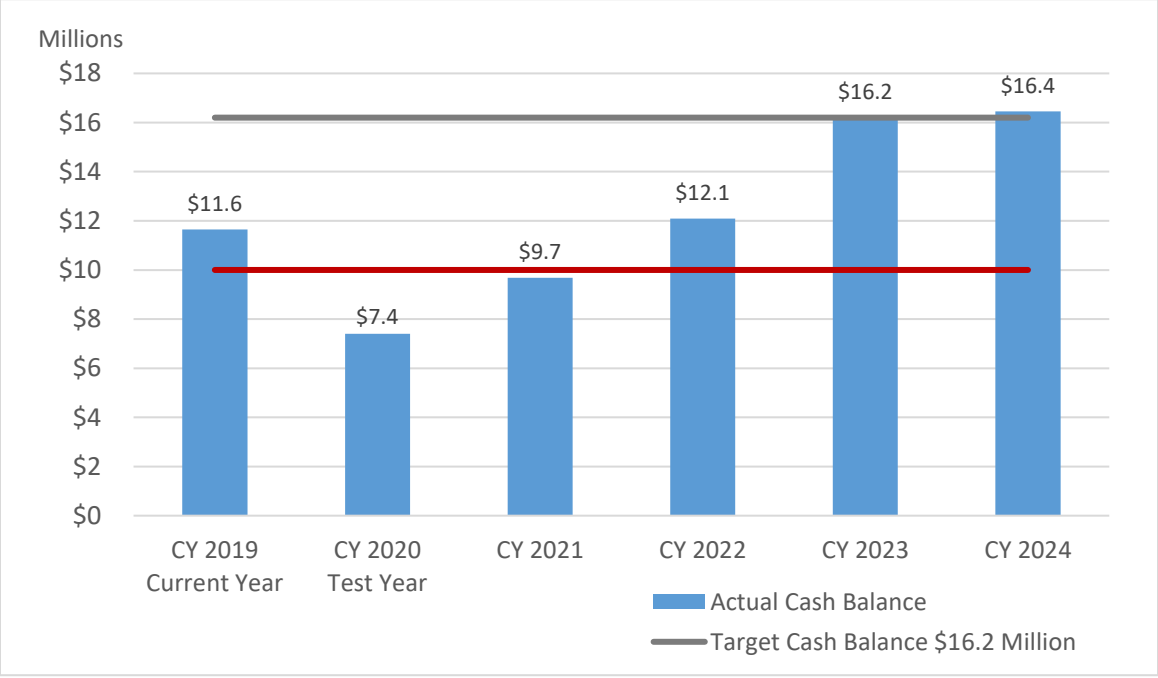
Table ES 13 shows the proposed drought surcharges for the different stages of drought conditions during the study period.

Table ES 13. Proposed Drought Surcharges

Drought Mandate	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
20% Surcharge	$0.35	$0.38	$0.40	$0.42	$0.45
30% Surcharge	$0.54	$0.58	$0.61	$0.65	$0.69
40% Surcharge	$0.79	$0.84	$0.89	$0.94	$1.00

It is integral to the District to maintain the current high quality of service to its customers as well as cementing the future stability of the system. To that end, the District is interested in maintaining a reserve balance, which ensures that there is funding in the case of any disaster and any day-to-day operation of the system and repairs and replacements of aging infrastructure emergency needs. The proposals outlined in this report will allow the District to accomplish both goals without undue impact on ratepayers. Figure ES 6 shows the reserve balance through the study period under the proposed rate plan. By adopting RDN's plan, the District will reach its target cash balance by the end of CY 2023 and maintain the target level for the remaining study period.

Figure ES 6. Changes in Reserve Balance under Proposed Rates



1. INTRODUCTION

Purpose of Study

The District last adopted rate changes in 2014, updating a 2009 water budget rate structure that established a level of "efficient use" for individual customers defined by each customer's class. Since the 2014 rates were established, costs have escalated, long-term water supply source stability issues have continued, and new State efficiency regulations have multiplied. RDN collaborated with PWD to evaluate the utility's sustainability given the District's current and future financial conditions.

The objectives of the Study include:

1. Project water demands by customer class for the study period based on the historical data and the District's input.
2. Develop financial plans to ensure financial sufficiency to fund day-to-day operations and maintenance, capital improvement and capital replacement projects, and debt service obligations, while building healthy reserves up to the District's target level,
3. Conduct a Cost of Service (COS) analysis to find the most optimal way to equitably allocate the costs of providing service to customers in accordance with Prop 218,
4. Design rates based on the results of COS analysis by establishing a strong nexus between costs and pricing of rates,
5. Perform a bill impact study to minimize impacts on customers while ensuring sufficient revenue recovery,
6. Conduct a water rate comparison study to find where the District positions itself in terms of the rates when compared to neighboring agencies, and
7. Develop an administrative record, which effectively summarizes the findings of the Study.

Legal Framework

The primary goal of this study is to help PWD establish a rate structure that achieves the District's objectives of revenue stability, equitable cost recovery, and ratepayer affordability. This section of the report describes the legal framework that was considered in the development of the rates to ensure that the calculated cost of service rates provide a fair and equitable allocation of costs to the different customer classes.

Article XIII C (Proposition 26), Article XIII D, Section 6 (Proposition 218) and Article X, Section 2 of the California Constitution govern the principles applicable to this rate study. This rate study also relies on AB 2882, which governs Allocation-Based Conservation Water Pricing (commonly referred to as "Water Budget Rate Structure"). Additionally, this rate study addresses statutes laid out in bills AB-1668 and SB-606 concerning water-use efficiency at the District level.

California Constitution - Article XIII C (Proposition 26)

The application of Proposition 26 in the structuring of water rates is presently undetermined. The San Juan decision briefly touched upon one aspect of the Article XIII C provisions enacted by Proposition 26, finding that

tiered water charges would not appropriately be characterized as penalties. Other aspects of the application of Proposition 26 to tiered rate structures may be addressed in future judicial decisions and legislative enactments.

The voters in the State approved Proposition 26 on November 2, 2010. Proposition 26 amended Article XIII C of the State Constitution to expand the definition of "tax" to include "any levy, charge, or exaction of any kind imposed by a local government" with listed exceptions. By means of these exceptions, Article XIII C classifies several types of charges, in addition to property-related charges, that are not taxes, such as charges for specific services or benefits, regulatory charges and penalties.

Article XIII C's definition of "tax" lists the following exceptions: (1) a charge imposed for a specific benefit conferred or privilege granted directly to the payer that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege; (2) a charge imposed for a specific government service or product provided directly to the payer that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of providing the service or product; (3) a charge imposed for the reasonable regulatory costs to a local government for issuing licenses and permits, performing investigations, inspections, and audits, enforcing agricultural marketing orders, and the administrative enforcement and adjudication thereof; (4) a charge imposed for entrance to or use of local government property, or the purchase, rental, or lease of local government property; (5) a fine, penalty, or other monetary charge imposed by the judicial branch of government or a local government, as a result of a violation of law; (6) a charge imposed as a condition of property development; and (7) assessments and property-related fees imposed in accordance with the provisions of Article XIII D.

Proposition 26 also provides that the local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payer bear a fair or reasonable relationship to the payer's burdens on, or benefits received from, the governmental activity. Like the proportionality requirements of Article XIII D, assessment of rates under these requirements, if applicable, would be supported by the cost of service approach.

California Constitution - Article XIII D, Section 6 (Proposition 218)

In November 1996, California voters passed Proposition 218, the "Right to Vote on Taxes Act." This constitutional amendment protects taxpayers by limiting the methods by which local governments can create or increase taxes, fees and charges without taxpayer consent. Between 2002 and 2017, California courts have ruled that fees associated with providing water services are "property-related" and thus under the jurisdiction of Prop 218. The principal requirements for fairness of the fees, as they relate to public water service, are as follows:

1. Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
2. Revenues derived by the fee or charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the fee or charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. Reliance by an agency on any parcel map, including, but not limited to, an assessor's parcel map, may be considered a significant factor in determining whether a fee or charge is imposed as an incident of property ownership for purposes of this article.

The rates developed in this Report use a methodology to establish an equitable system of charges that recover the cost of providing service and fairly apportion costs to each customer as required by Proposition 218.

California Constitution - Article X, Section 2

Article X, Section 2 of the California Constitution (established in 1976) provides as follows:

"It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."

As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage efficiency which this Study achieves.

Assembly Bill-AB 2882

In 2008, the California Legislature adopted AB 2882, establishing a body of law entitled "Allocation-Based Conservation Water Pricing." AB 2882 is consistent with the above referenced constitutional provisions.

Water Code Section 370 provides in part as follows:

"The Legislature hereby finds and declares all of the following:

a. *The use of allocation-based conservation water pricing by public entities that sell and distribute water is one effective means by which waste or unreasonable use of water can be prevented and water can be saved in the interest of the people and for the public welfare, within the contemplation of Section 2 of Article X of the California Constitution.*

b. *It is in the best interest of the people of California to encourage public entities to voluntarily use allocation-based conservation water pricing, tailored to local needs and conditions, as a means of increasing efficient uses of water, and further discouraging wasteful or unreasonable use of water under both normal and dry-year hydrologic conditions."*

Water Code Section 372 provides as follows:

a. *"A public entity may employ allocation-based conservation water pricing that meets all of the following criteria.*

   (1) Billing is based on metered water use.

   (2) A basic use allocation is established for each customer account that provides a reasonable amount of water for the customer's needs and property characteristics. Factors used to determine the basic use allocation may include, but are not limited to the number of occupants, the type or classification of use, the size of lot or irrigated area, and the local climate data for the billing period. Nothing in this chapter prohibits a customer of the public entity from challenging whether the basic use allocation established for that customer's account is reasonable under the circumstances. Nothing in this chapter is intended to permit public entities to limit the use of property through the establishment of a basic use allocation.

   (3) A basic charge is imposed for all water used within the customer's basic use allocation, except that at the option of the public entity, a lower rate may be applied to any portion of the basic use

allocation that the public entity has determined to represent superior or more than reasonable conservation efforts.

(4) A conservation charge shall be imposed on all increments of water use in excess of the basic use allocation. The increments may be fixed or may be determined on a percentage or any other basis, without limitation on the number of increments, or any requirement that the increments or conservation charges be sized, or ascend uniformly, or in a specified relationship. The volumetric prices for the lowest through the highest priced increments shall be established in an ascending relationship that is economically structured to encourage conservation and reduce the inefficient use of water, consistent with Section 2 of Article X of the California Constitution.

b.

(1) Except as specified in subdivision

(a) The design of an allocation-based conservation pricing rate structure shall be determined in the discretion of the public entity.

(2) The public entity may impose meter charges or other fixed charges to recover fixed costs of water service in addition to the allocation-based conservation pricing rate structure.

c. A public entity may use one or more allocation-based conservation water pricing structures for any class of municipal or other service that the public entity provides."

Assembly Bill-AB 1668 and Senate Bill-SB 606

In 2018, the California Legislature adopted AB 1668 and SB 606, establishing a standard for indoor water use, long-term standards for efficient water use of commercial, industrial, and institutional customers, and penalties for customers who don't comply with use restrictions. The bill establishes *"55 gallons per capita daily as the standard for indoor residential water use"* until January 1, 2025, *"52.5 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use"* until January 1, 2030, and establishes *"the greater of 50 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use"* thereafter. The bill also establishes principals for determining efficient outdoor water use. *"'Principles of the model water efficient landscape ordinance' means those provisions of the model water efficient landscape ordinance applicable to the establishment or determination of the amount of water necessary to efficiently irrigate both new and existing landscapes.*

These provisions include, but are not limited to, all of the following:

(a) Evapotranspiration adjustment factors, as applicable.

(b) Landscape area.

(c) Maximum applied water allowance.

(d) Reference evapotranspiration.

(e) Special landscape areas, including provisions governing evapotranspiration adjustment factors for different types of water used for irrigating the landscape."

"For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use

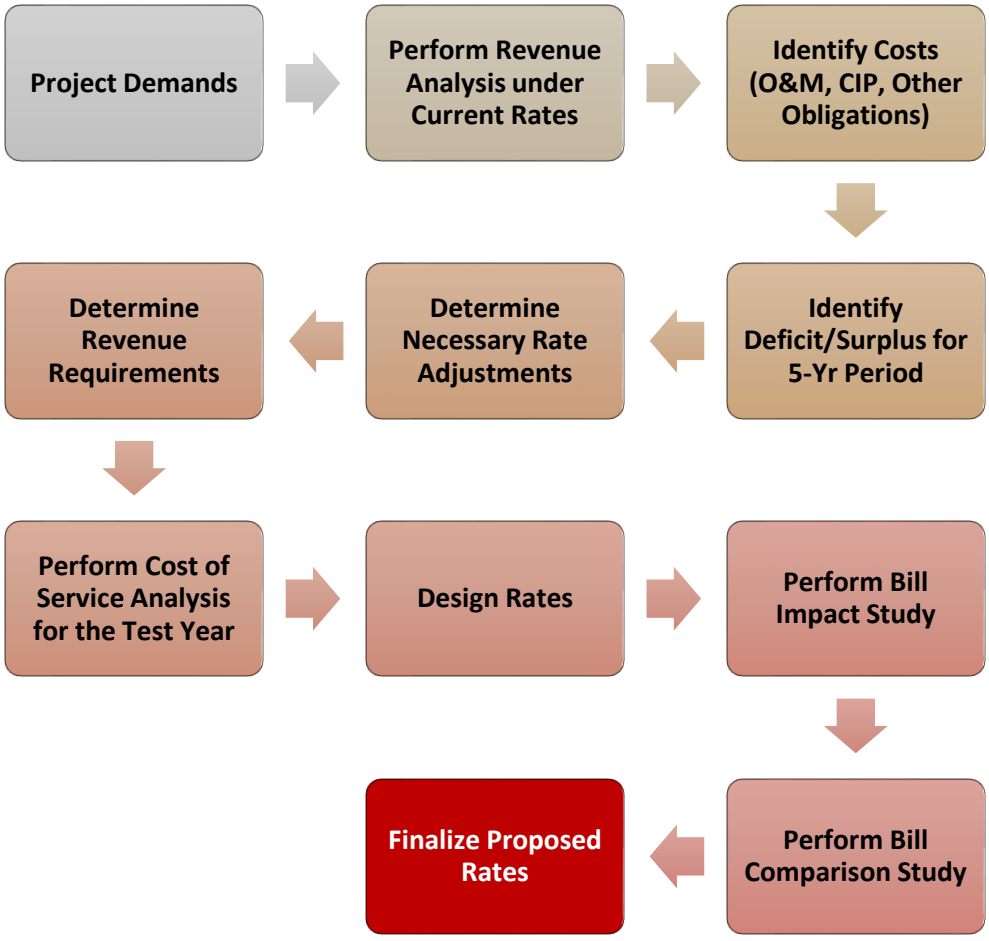
satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas."

As noted in the referenced statutes, an "Allocation-Based Conservation Water Pricing Rate Structure" is a form of an increasing block rate structure where the amount of water within the first block or blocks is based on the estimated, efficient water needs of the individual customer, currently 55 gallons per day per person. This Study, in conjunction with the District's findings and determinations for individual customers, establishes a water budget for each customer. Each water budget defines how much water is considered efficient. Customers who use water in excess of their water budget pay a higher rate for their "inefficient or wasteful" usage due to the fact that water use in excess of budgeted amounts requires the District to purchase more expensive imported water.

Methodology

Water rates were developed using cost of service principles set forth by the American Water Works Association (AWWA) Principles of Water Rates, Fees, and Charges - Manual of Water Supply Practices (M1). Cost of service principles endeavor to distribute costs to customers commensurate with the service requirements placed on the water system. This Study uses the base-extra capacity method, described in the AWWA M1. This method conforms to Prop 218 requirements and industry standards while meeting other emerging goals and objectives of the utility. Figure 1-1 presents a typical process of multi-level analyses in order to complete a rate study.

Figure 1-1. Road Map of Rate Study



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2. FINANCIAL PLAN

RDN forecasted the District's revenues and expenses for the study period, CY 2020 – CY 2024. The base model uses a cash-needs approach for operating and maintenance (O&M) expenses, debt service payments, contributions to reserves, and capital expenditures funded from rate revenues (PAYGO). This approach mirrors the accounting and reporting practices of most public water utilities. Costs were based on recent financial data and operating budgets. Projections were developed using escalation factors specific to each type of cost incurred. Particular attention was paid to those costs which vary with the volume of water sold – such as purchased water, power, chemicals, and related consumables (variable costs) – and those costs which, over the five-year forecast period, do not vary with the volume of sales – such as capital costs, debt service, general administrative overhead, or fixed contractual purchase obligations (fixed costs). District policies regarding reserves and debt service coverage ratio targets also have an impact on its revenue requirements and, therefore, cost of service (COS) analysis and rates.

Demand Projections

Demand projection is the first and one of the most critical steps in the rate study process. The purpose of this analysis is to project customers' water demand for the study period and forecast revenues generated from customers' volumetric charges. RDN linked three different data sources provided by PWD using Location IDs since they are the only common identifier in the all data sources. The data we used to forecast demand for the study period include:

- CY 2010 – CY 2016 annual consumption reports
- January 2017 - July 2017 monthly consumption reports, and
- Customer billing record data for CY 2018

Data

Due to differences in data sources provided by PWD it was necessary to produce a multi-level statistical program in R (a software environment for statistical computing) to make a coherent data set. Before beginning the analysis, RDN removed data years that were wholly inconsistent with the format which would be used for the use projections. PWD changed billing software in 2012, which led to a spurious jump in the number of Location IDs from 2012 to 2013; therefore, we omitted data from 2010 to 2012 and proceeded with the annual data set from 2013 to 2018. Other data problems in the remaining data set were dealt with in a granular manner to reduce potential errors. The following is a detailed explanation of the elutriation process used by RDN.

In order to get an annual observation for 2017, we reconciled the monthly consumption reports for January-July of 2017 with the monthly meter read data available for the rest of the year. Monthly consumption reports did not have customer class information, so we matched customer class data from a Meter Location Inventory file provided by PWD with the monthly consumption reports by Location ID. Approximately 1% of Locations in the Meter Location Inventory data set are missing customer class. Because roughly 95% of PWD customers are Single Family Residential, we assumed that the locations missing customer class were Single Family Residential accounts.

To calculate usage for 2017, we simply added up usage by customer class for the two data series. However, when calculating the number of locations for the reconciled data set, the number of locations by customer class were

much higher than all other years. Because of the remarkable consistency of location numbers across the rest of the series, it is likely that this inconsistency is an artifact of the monthly consumption report data utilized to calculate number of locations. Therefore, we estimated the number of locations for 2017 based on the number of locations from the reliable meter read data available for the latter part of the year.

To estimate the number of locations for 2017, we first calculated the number of locations in the meter reading data, which was the number of locations from August-December of 2017. Then, we estimated how far below the annual number of locations this value was based on 2018 meter reading data by calculating the ratio of location numbers from August-December 2018 to location numbers in 2018 annually. The ratio of location numbers annually to location numbers in August-December of 2018 was approximately 1.05. Therefore, we multiplied the number of locations in August-December 2017 by the escalation factor (1.05) to estimate the annual number of locations by customer class for 2017. Figure 2-1 and Figure 2-2 present SFR and non-SFR customers' historical account growth CY 2013 through CY 2018, respectively.

Figure 2-1. Single Family Residential Historical Customer Growth, CY 2013 – CY 2018

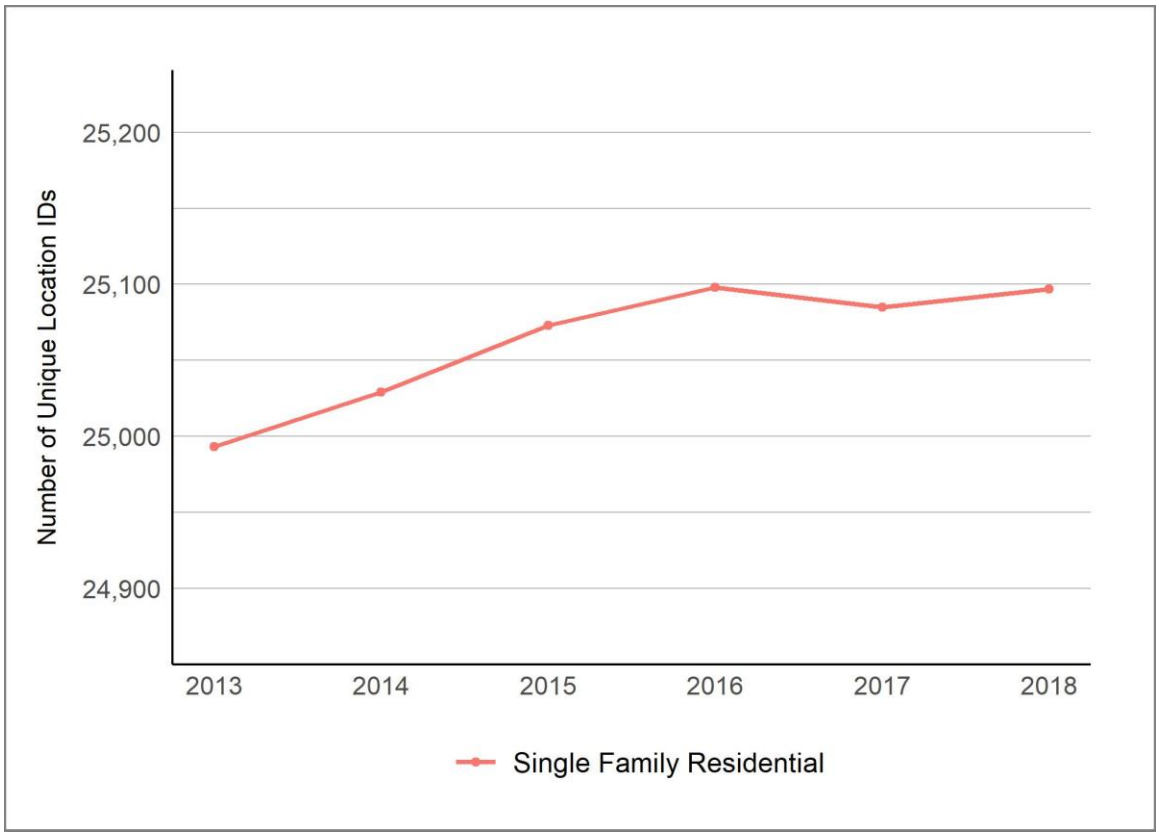
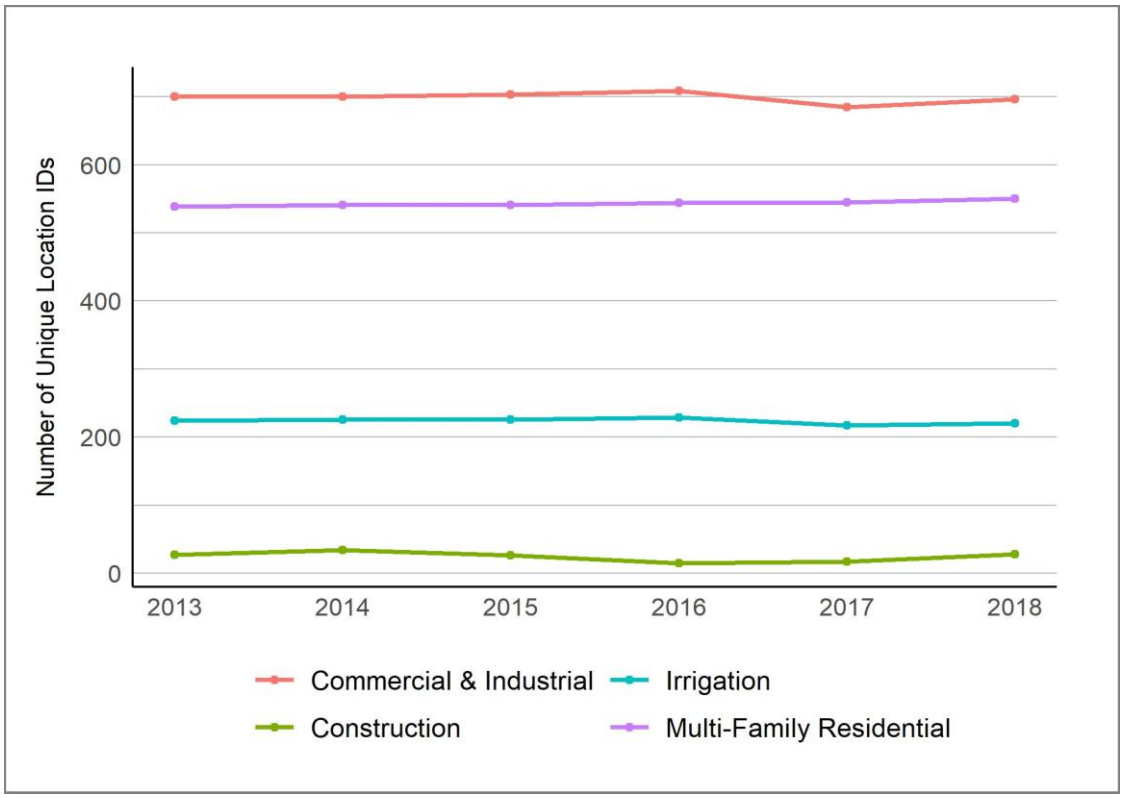


Figure 2-2. Non-Single Family Residential Historical Customer Growth, CY 20136 – CY 2018



Finally, we analyzed the remainder of the monthly meter reading data available through 2018, calculating usage and number of locations by customer class. Prior to aggregating the meter reading data, we followed instructions from PWD and dropped all recycled water accounts as these accounts are pass-through accounts to the Palmdale Recycled Water Authority, which is an entity separate from PWD. Additionally, we moved all accounts defined by the customer class "Other" to the "Commercial & Industrial" customer class. The above cleaning process ultimately yielded a cohesive annual demand dataset. Figure 2-3 and Figure 2-4 show the historical demand for SFR and non-SFR customers, respectively.

Figure 2-3. Single Family Residential Historical Annual Usage

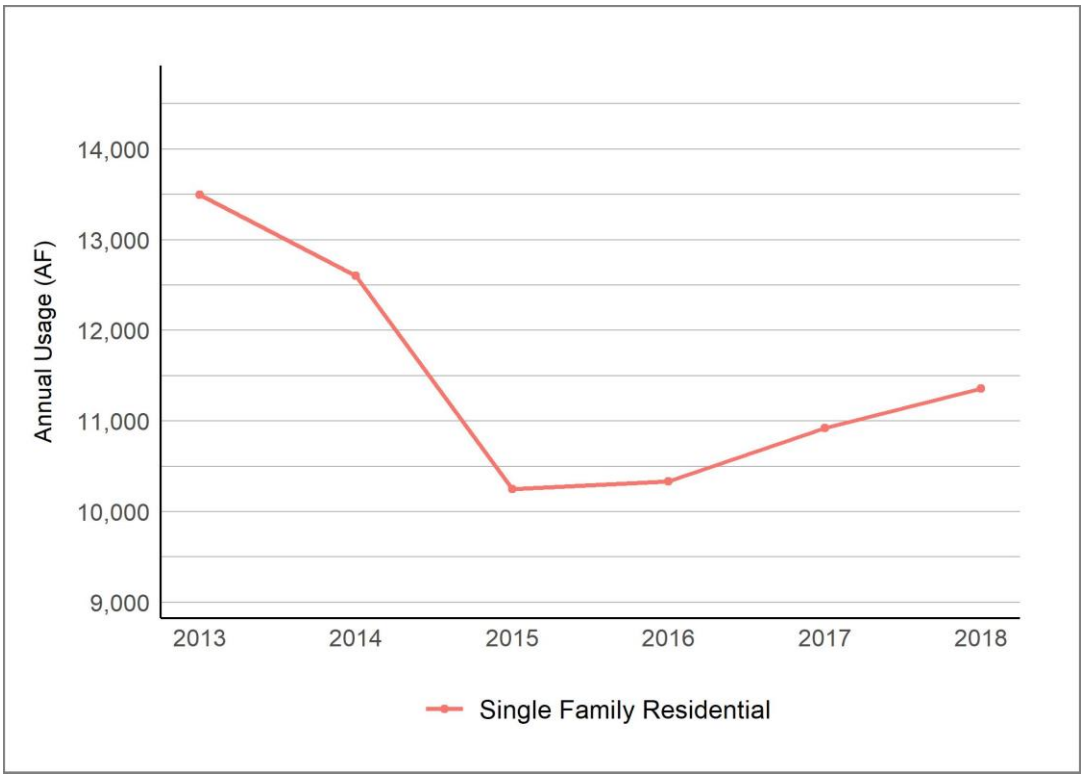
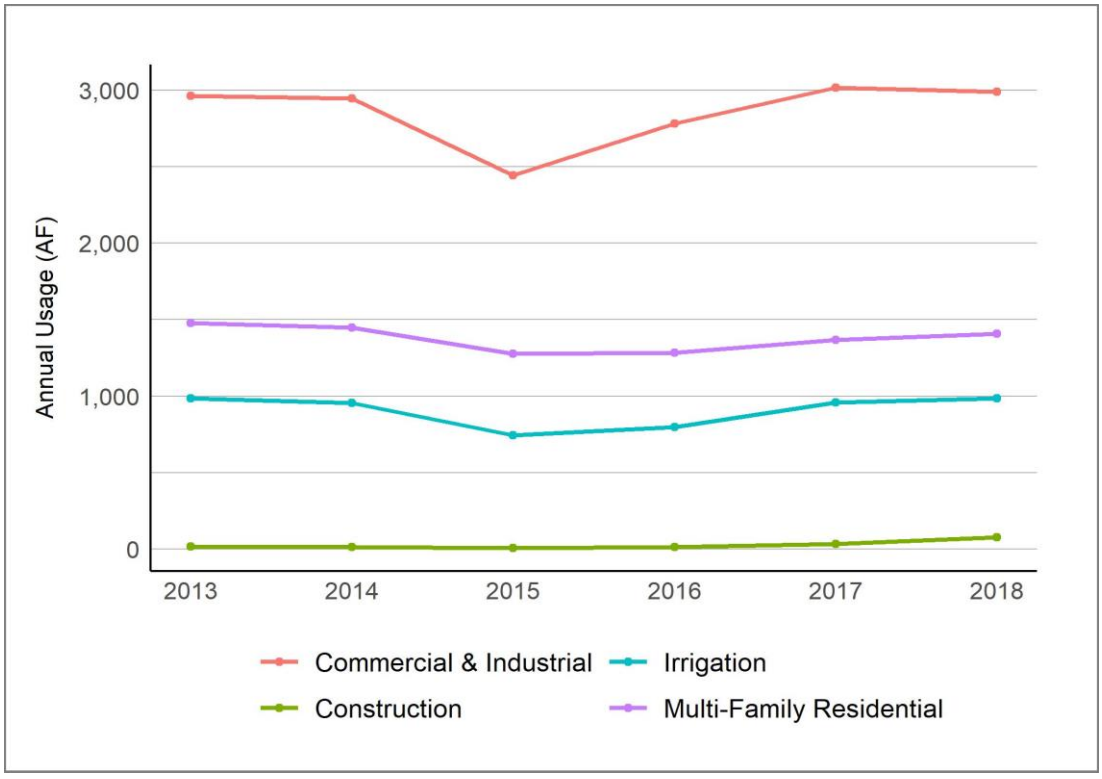


Figure 2-4. Non- Single Family Residential Historical Annual Usage



Historical Meter Counts

First, we estimated Location ID growth by customer class from 2013-2018. Customers pay fixed charges for each meter they have. It follows that, from a revenue forecasting standpoint, we are more interested in the growth of the number of meters than of Location IDs. However, Location ID is the only identifier variable present in all data sets, so we forecast Location ID growth and adjust accordingly to estimate meter growth. The technical steps are outlined in this section.

First, we regressed the number of unique Location IDs based on time for each customer class and stored the time coefficient. This coefficient represents the annual change in Location ID by customer class.

Next, we scaled up this coefficient to account for the fact that there are more meters than locations. We multiplied the coefficient by the ratio of unique meter IDs to unique Location IDs, or $\frac{26{,}416}{26{,}216} \approx 1.008$. This time trend coefficient now represents the number of meters added or lost for PWD each year.

Next, we collected current meter counts by customer class from December 2018 customer billing data, relying on this data set because meter reading data does not account for customers with zero usage. It follows that utilizing meter reading data would underestimate the true number of meters paying fixed charges to PWD.

PWD customers are charged monthly service charges according to their meter size. These charges appear in the billing data with a column that contains a line item description which details the size of the meter, a column with the monthly service charge corresponding to the meter size, and a quantity column that displays the proportion of the month that a monthly service charge was applied to. For example, if a customer switched from a 1-in meter to a 2-in meter halfway through the month, they would be charged the sum of 50% of the 1-in meter monthly service charge and 50% of the 2-in meter monthly service charge. Approximately 98.6% of customers were charged a monthly service charge with a quantity of 1.0 for December 2018 billing data, which is intuitive as most customers are not switching meters in a given month.

In addition to being charged a monthly service charge quantity of less than one for switching meters, some accounts were also charged a reduced monthly service charge if the account switched. In this case, the last two digits of the account number would be one higher than prior to the switch. It is important for the meter count to drop the first observation of a meter in the above scenarios, so as not to double count a meter that has been replaced or moved to another account. We extracted meter size from the monthly service charge description in the billing data.

The above process generated the final meter count, to which we allocated estimated meter growth across meter sizes according to their overall size and their distribution within each customer class. For example, roughly 16% of Single Family Residential meters are 1-in meters, so 16% of annual growth of Single Family Residential growth was allocated to 1-in meters within this customer class.

Because monthly fire protection charges do not include the meter size, RDN matched meter sizes from the Meter Location Inventory dataset provided by PWD. Some locations in this data set had multiple meter sizes. RDN assumed the fire protection charges were for the largest meter at the location. The Fire Protection Class includes both Private Fire Protection and Fire Service Accounts in Commercial & Industrial.

Historical Usage

As we are interested in aggregate usage, we use per location usage as Location ID is the constant customer identifier present throughout the series. By implementing per location usage, we do not need to make any

unnecessary assumptions to adjust from per location usage to per-meter usage when projecting aggregate usage. Figure 2-5 through Figure 2 9 display the historical trend in per location usage by customer class.

Figure 2-5. Historical Per-Location Single Family Residential Usage (HCF)

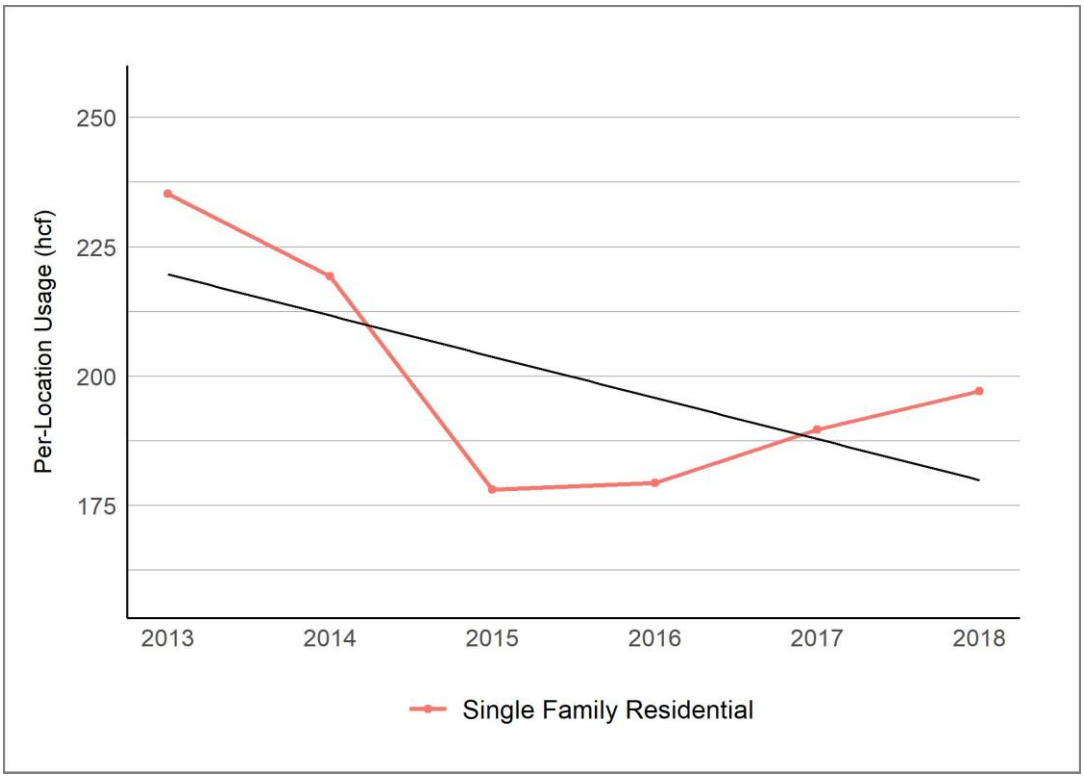


Figure 2-6. Historical Per-Location Multi-Family Residential Usage (HCF)

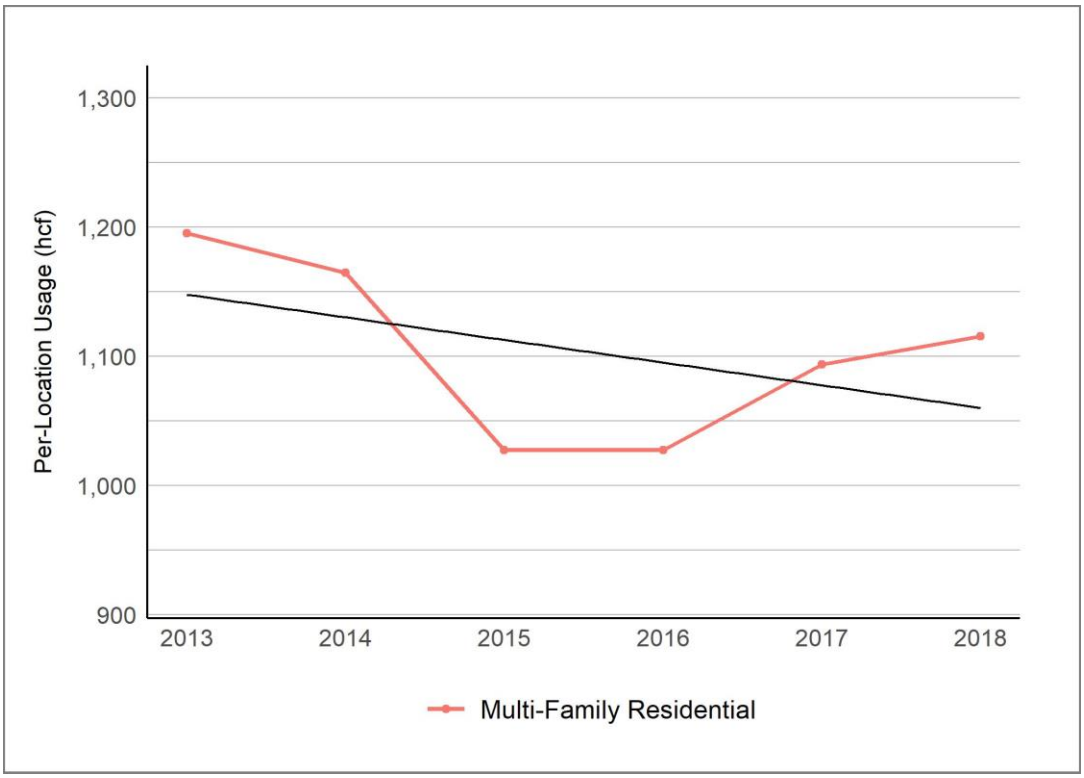


Figure 2-7. Historical Per-Location Commercial and Industrial Usage (HCF)

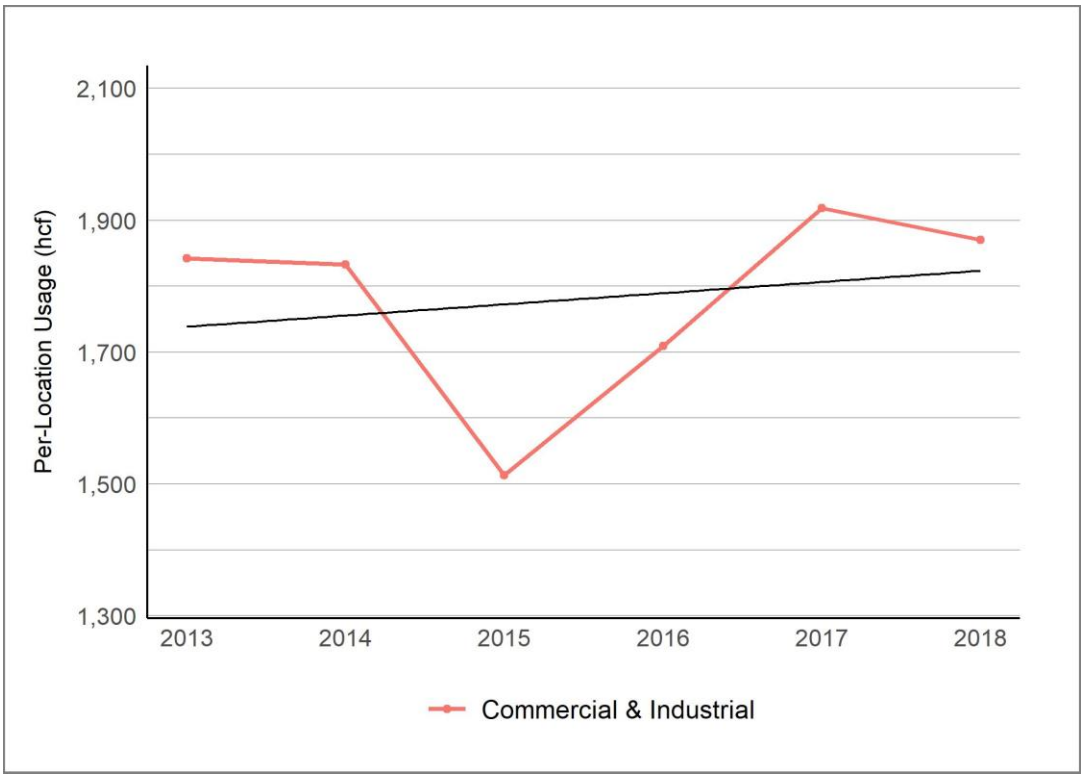


Figure 2-8. Historical Per-Location Irrigation Usage (HCF)

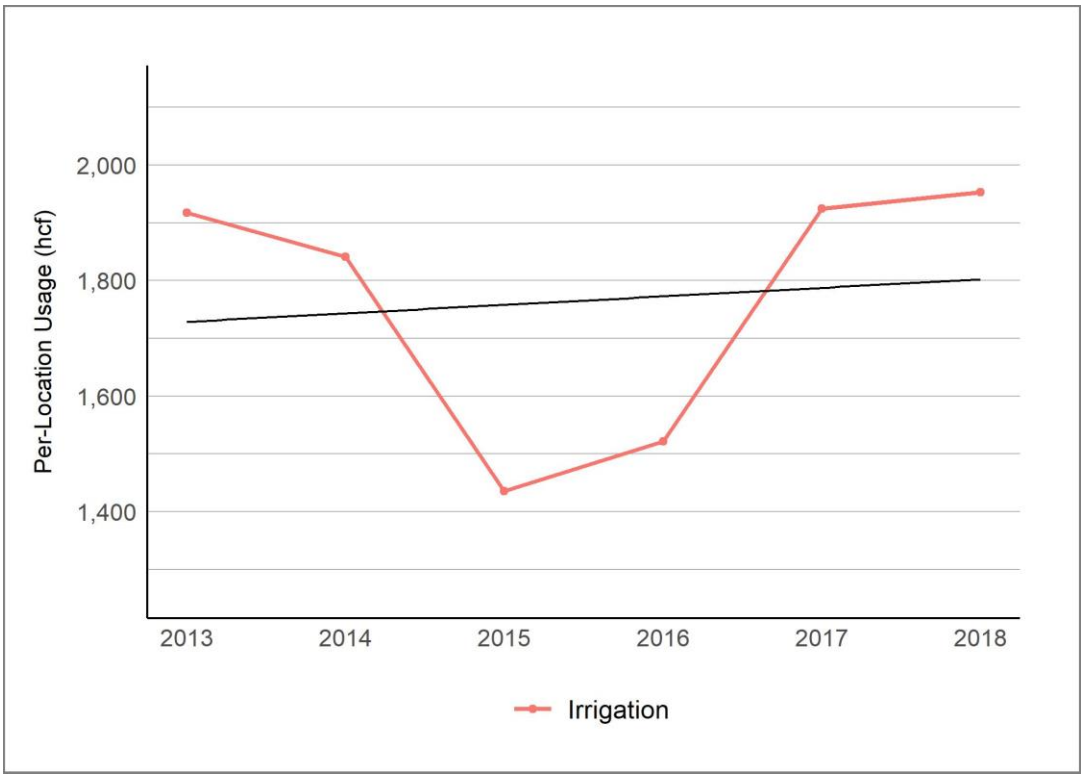
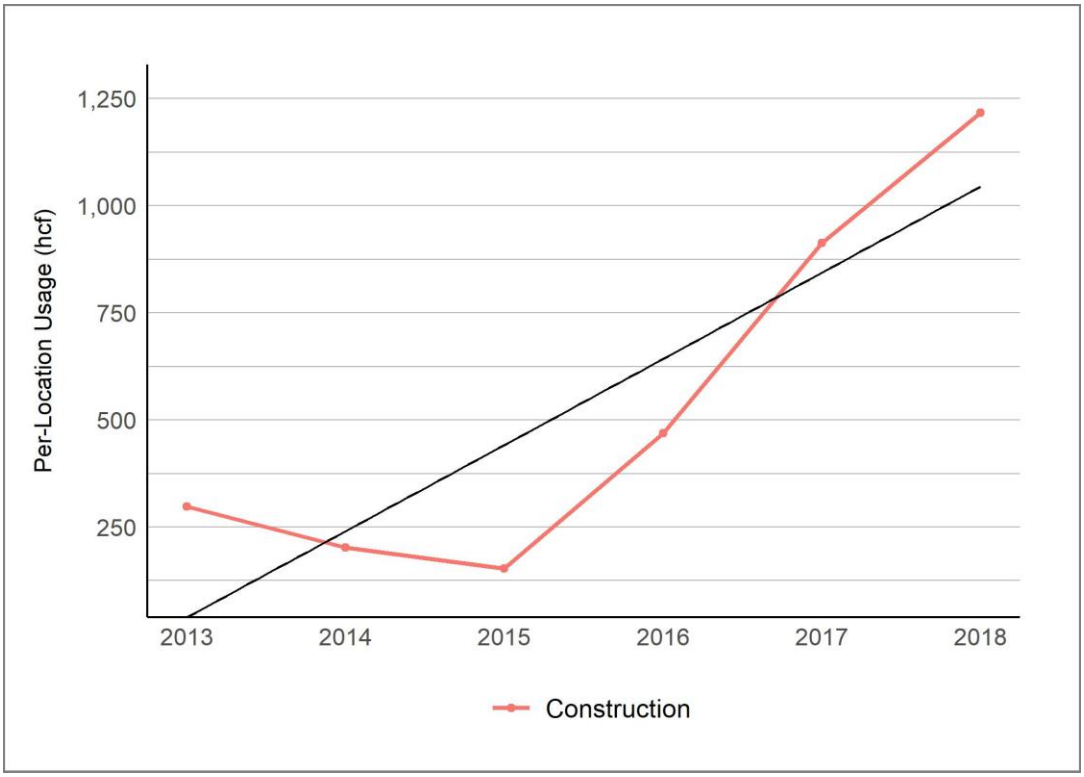


Figure 2-9. Historical Per Location Construction Usage (HCF)



Per location consumption in three customer classes (Commercial & Industrial, Construction, and Irrigation) increases throughout the series. Alternatively, there is a general decline in the consumption of residential classes. For residential customers, there was a large decrease in per account consumption going into 2015, which coincided with severe drought and mandatory water reductions imposed by the state of California.

We regressed per location usage based on time to estimate the time trend (shown by the black lines in the figures). Based on a recommendation from PWD, per-location usage for Construction accounts has been held constant.

Forecasts

The next step is to forecast aggregate usage. Unlike monthly service charges that vary by meter size, volumetric rates are constant across various meter sizes. Therefore, we forecast usage by customer class as a whole. In order to do so, we utilized trends in both customer growth and per location usage. To forecast aggregate usage, we will:

(1) forecast per location usage by customer class according to historical trends,

(2) forecast the number of locations by customer class according to historical trends, and

(3) multiply forecasted per location usage by projected number of locations by customer class.

To forecast per location consumption, we assume these linear trends will continue with the following caveats:

(1) per location consumption in the first four customer classes will no longer continue to increase in the second half of the forecast period, as it is unlikely these increases are sustainable, and

(2) per location consumption for the residential classes will never drop below 2015 levels because drought conditions and mandatory reductions in 2015 make this a reasonable baseline consumption level.

Applying these linear trends and restrictions provides the per location consumption forecasts shown in Figure 2-10 and Figure 2-11.

Figure 2-10. Forecast of Per Location Annual Consumption, Single Family Residential, 2020-2028

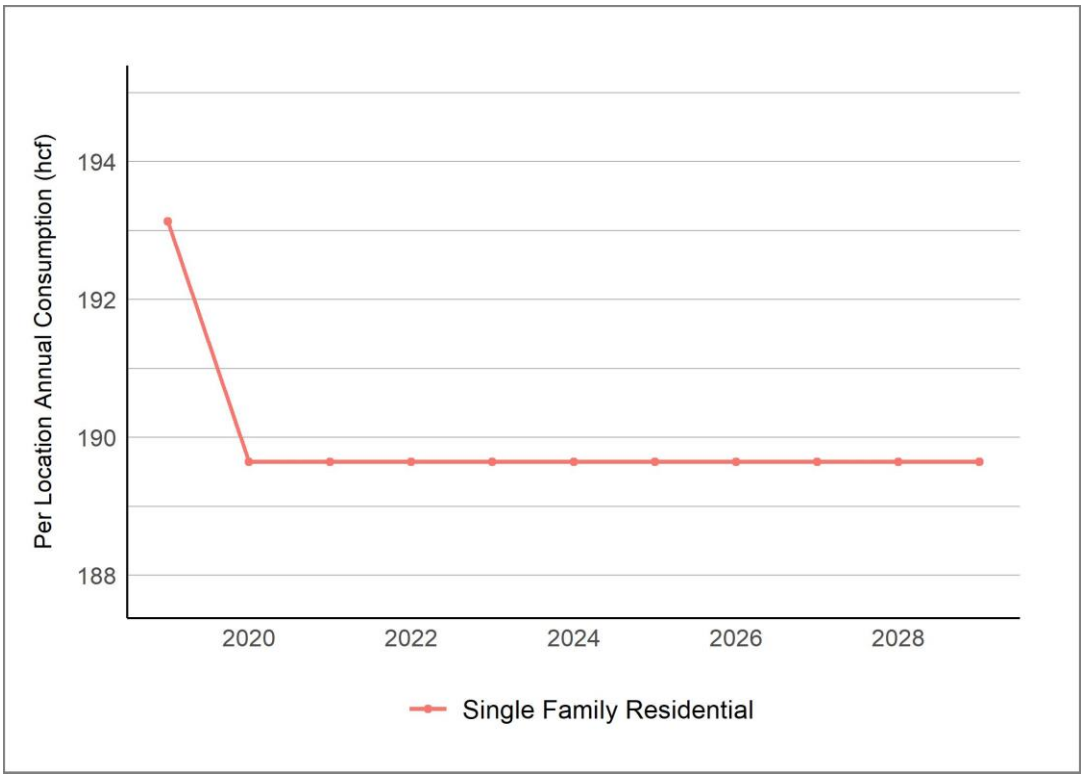


Figure 2-11. Forecast of Per Location Annual Consumption, Non-Single Family Residential, 2020-2028

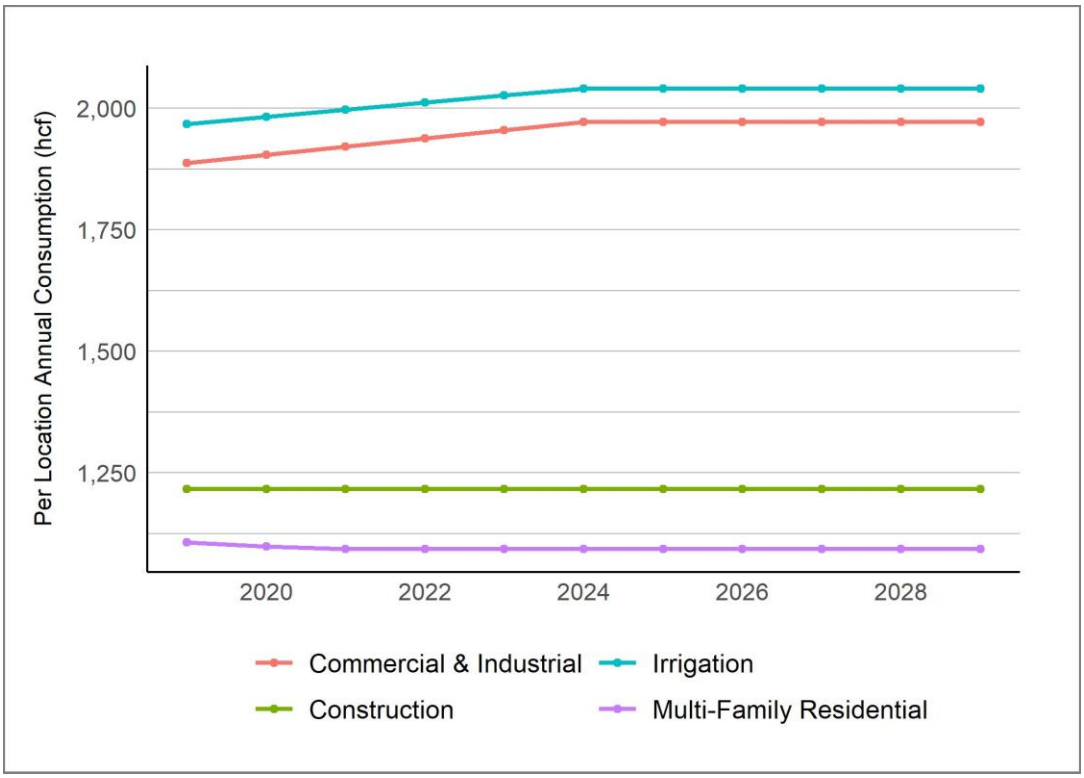


Table 2-1 displays an annual change in number of customers by customer class. Applying the location growth factor generates the projected number of locations by customer class throughout the forecasting period, displayed in Figure 2-12 and Figure 2-13.

Table 2-1. Annual Change in Number of Location IDs by Customer Class

Class	Annual Change
Commericial & Industrial	-2
Construction	-2
Irrigation	-1
Multi-Family Residential	2
Single Family Residential	21

Figure 2-12. Projected Single Family Residential Location ID Growth, 2020-2028

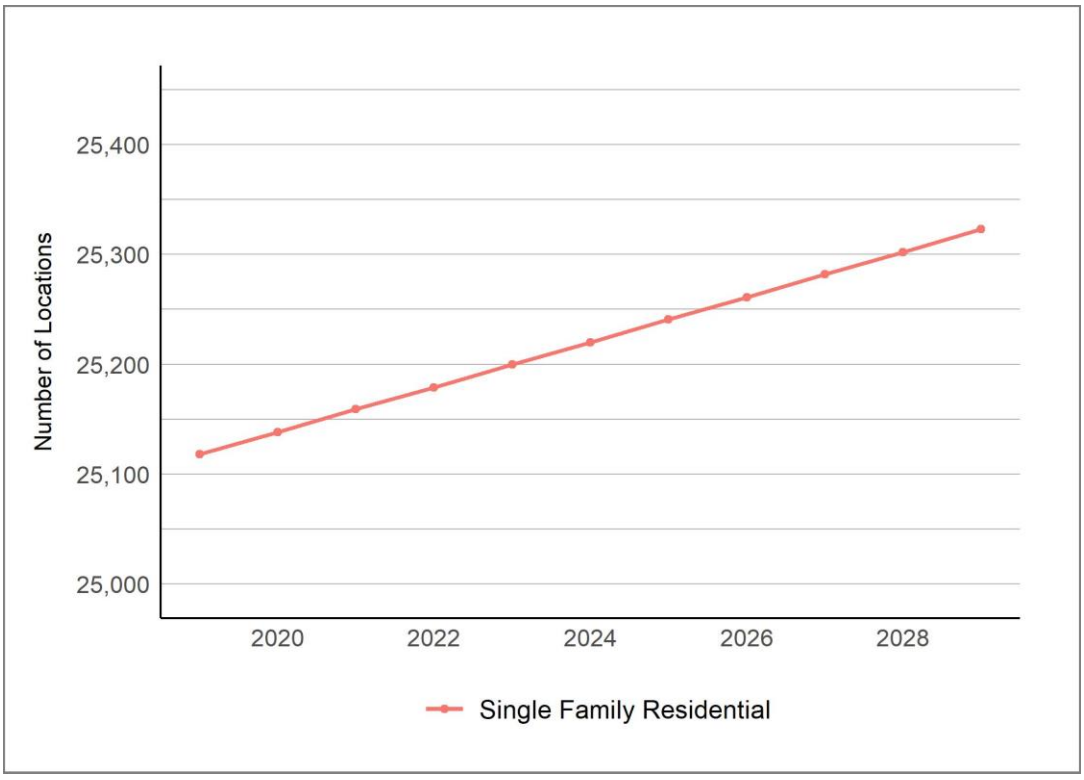
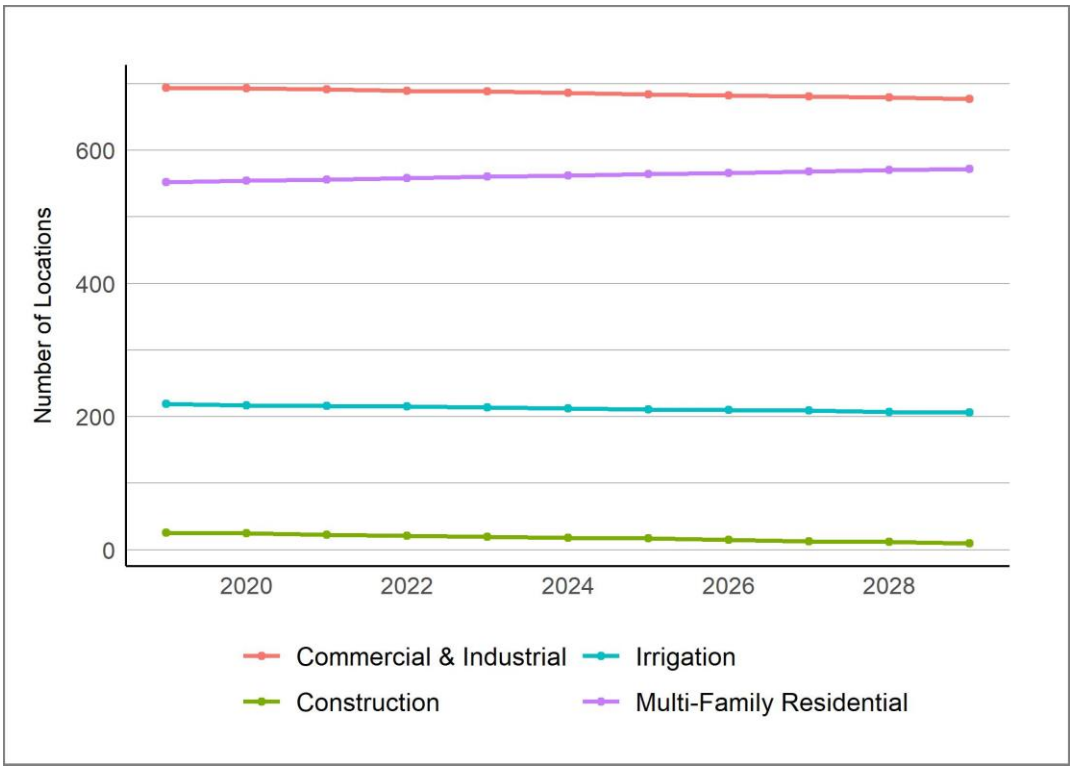


Figure 2-13. Projected Non-Single Family Residential Location Growth, 2020-2028



In the next step, we multiplied per location usage by the number of locations, which provides aggregate usage by year and customer class. Figure 2-14 and Figure 2-15 display the historical and forecasted aggregate usage by customer class.

Figure 2-14. Aggregate Yearly Single Family Residential Usage, 2014 (Actual) to 2028 (Projected)

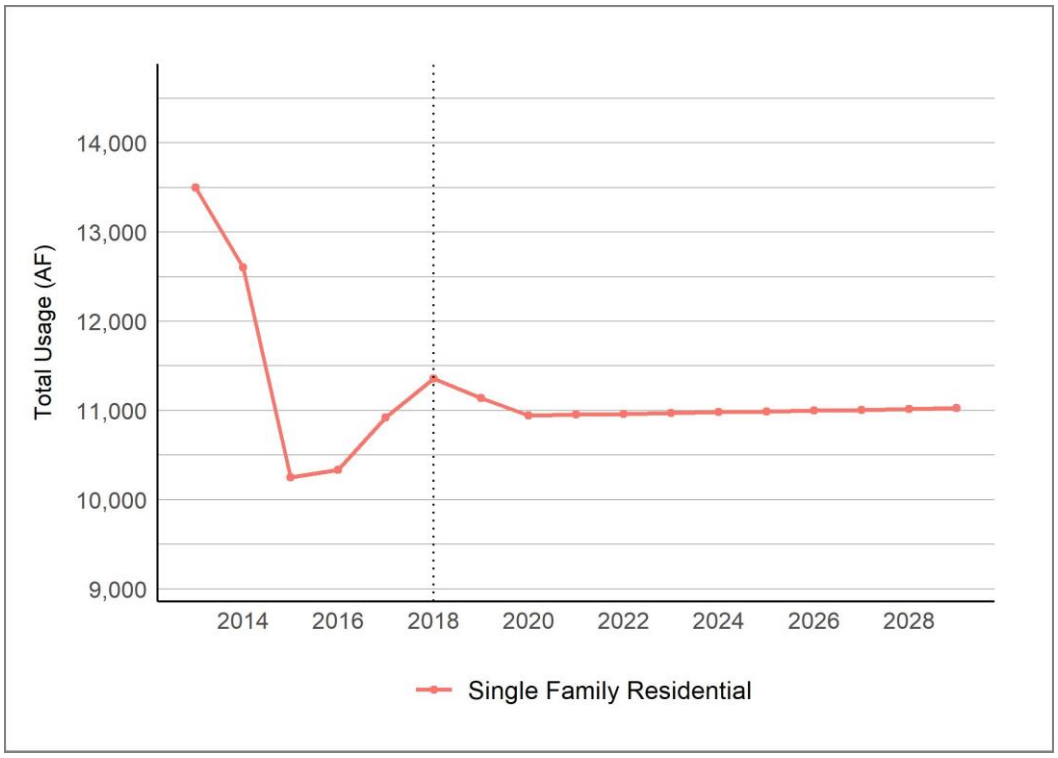
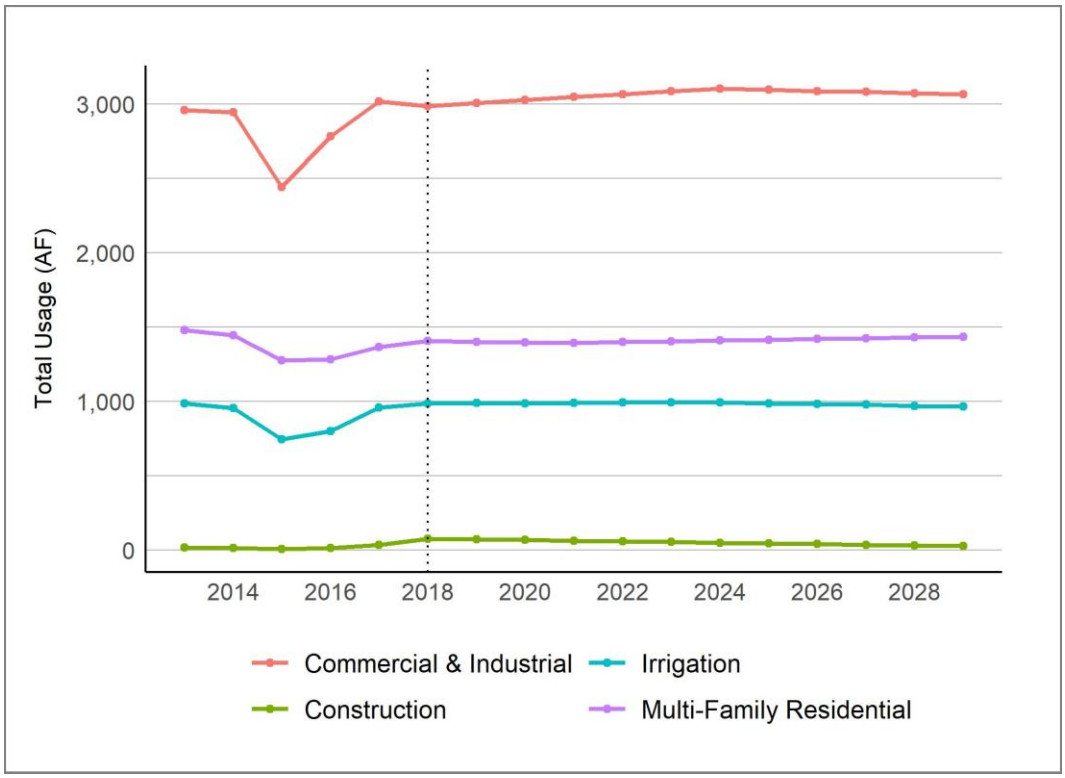
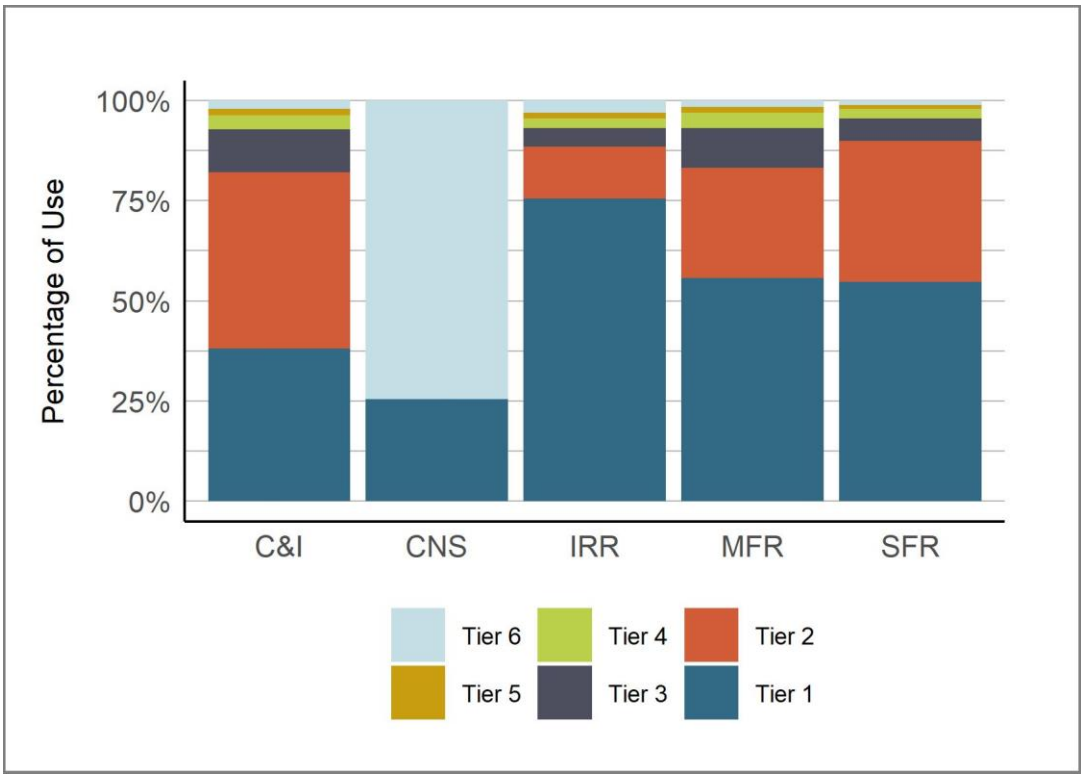


Figure 2-15. Aggregate Yearly Non-Single Family Residential Usage, 2014 (Actual) to 2028 (Projected)



The final step completed in this analysis was to calculate tiered usage. Palmdale Water District has a six-tier rate structure. We identified the distribution of tiered consumption from billing data from 2018 (analyzed previously). The distribution of tier consumption across customer classes is displayed in Figure 2-16. We multiplied the above tier percentages by the aggregate water consumption estimated in previous steps. Palmdale Water District has a leak variance program, where the District reimburses customers who were billed for excessive usage because of a leak. The District estimated that 30% of Tier 6 usage for Single Family Residential accounts were retroactively billed as Tier 2 usage. Therefore, we shifted 30% of Tier 6 usage to Tier 2 for Single Family Residential Customers.

Figure 2-16. Percentage of Tiered Usage by Customer Class, 2018



Note: Customer Classes are abbreviated Single-Family Residential (SFR), Multi-Family Residential (MFR), Irrigation (IRR), Construction (CNS), and Commercial and Industrial (C&I)

Based on the historical data, the average yearly usage per customer was computed to project future demand within the District.

Revenue Analysis (Under current rates)

Based on the demand projections, RDN conducted a revenue analysis using the current rates. The District currently collects revenues from fixed charges, volumetric charges, and other operating revenues such as wholesale water and turn-on and -off fees. The revenue analysis also includes non-operating revenues such as property taxes, DWR fixed charge recovery, interest income and grants, and others. Note that the District additionally charges a treatment fee to all customers and elevation fees to some customers, which vary depending on the location of their residence. These are pass-through charges and will be calculated and updated by the District annually. These charges are not included in this Summary Report; however, the information can be found on the District's website at www.palmdalewater.org.

Based on the projected water demands, RDN forecasted revenues for the study period under current rates to total approximately $23.0 to $23.1 million annually. Other operating revenues are estimated to be approximately $1.2 million per year, and non-operating revenues are estimated to provide supplemental revenue of $2.9 to $3.1 million a year. Thus, the District's total revenues for the study period are estimated to be approximately $27.2 to $27.3 million annually. Table 2-2 shows forecasted revenues for the current year (2019) plus the study period (CY 2020 – CY 2024).

Table 2-2. Revenue Forecast for CY 2019 – CY 2024

	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Revenues from Rates						
Volumetric Charges	$9,296,660	$9,277,330	$9,251,713	$9,225,987	$9,208,646	$9,193,696
Fixed Charges	$13,835,376	$13,835,980	$13,836,584	$13,837,187	$13,837,791	$13,838,394
Revenues from Rates Total	**$23,132,036**	**$23,113,310**	**$23,088,296**	**$23,063,174**	**$23,046,436**	**$23,032,091**
Other Operating Revenues						
Wholesale Water	$295,000	$295,000	$295,000	$295,000	$295,000	$295,000
Other	$875,000	$877,625	$880,258	$882,899	$885,547	$888,204
Other Operating Revenues Total	**$1,170,000**	**$1,172,625**	**$1,175,258**	**$1,177,899**	**$1,180,547**	**$1,183,204**
Non-Operating Revenues						
Assessments (1%)	$1,750,000	$1,785,000	$1,820,700	$1,857,114	$1,892,399	$1,928,355
Successor Agency Component (Prop Ta	$550,000	$561,000	$572,220	$583,664	$594,754	$606,054
DWR Fixed Charge Recovery	$175,000	$175,000	$175,000	$175,000	$175,000	$175,000
Interest	$150,000	$150,150	$150,300	$150,450	$150,601	$150,752
Capital Improvement Fees	$75,000	$75,225	$75,451	$75,677	$75,904	$76,132
Grants - State & Federal	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Other	$50,000	$50,150	$50,300	$50,451	$50,603	$50,755
Non-Operating Revenues Total	**$2,850,000**	**$2,896,525**	**$2,943,971**	**$2,992,357**	**$3,039,261**	**$3,087,047**
Total	**$27,152,036**	**$27,182,460**	**$27,207,525**	**$27,233,430**	**$27,266,244**	**$27,302,342**

Reserves

Prudent fiscal management requires that the District maintain reserve balances to meet working capital requirements, meet unexpected increases in costs and provide for emergencies. Currently, the District maintains two types of reserve funds: legally restricted funds and Board designated funds. The detailed description and purpose of each reserve fund can be found in the District's reserve policy Resolution No, 18-10. The legally restricted funds include Capital Improvement Fund, Bond Proceed Fund, Debt Service Reserve Fund, and Rate Stabilization Fund. The Board designated funds include Dam Self Insurance, O&M Operating Reserve, O&M Emergency Reserve, and Unrestricted Reserves. A brief description of each fund follows:

1. **Capital Improvement Fund:**

PWD maintains a capital improvement fund with fees collected from developers to pay for the new facilities necessary to deliver water service to newly developed property and to pay for the additional water supplies necessitated to meet the demand for water created by such newly developed property. These fees are for offsite improvements, such as the development's fair share cost of wells, reservoirs, transmission mains, treatment plant capacity, and other necessary facilities, as well as to pay for water supply acquisitions and projects associated with new water supplies necessitated by new development. The fees are collected at rates established by the Board of Directors based upon specific engineering studies. The rates charged are based on a project's equivalent capacity unit (ECU) basis. These funds are restricted to the design and construction of capital facilities for water delivery, and as otherwise provided in Resolution No. 13-12 and in Appendix H to the District's Rules and Regulations.

2. **Bond Proceeds Fund(s):**

Bond proceeds fund(s) are monies derived from the proceeds of a bond issue or similar indebtedness like a private placement loan, certificate of participation or other indebtedness instrument. Typically, they consist of construction fund monies and a debt service reserve fund. The use of these proceeds is restricted by conditions set forth in the respective legal bond documents. These funds are usually held by the Trustee in favor of the bond holders. These funds should be tracked and accounted for in accordance with the bond documents and to ensure, if applicable, the tax-exempt nature of the applicable bonds. These funds shall also be invested as provided in the bond documents.

3. **Debt Service Reserve Fund:**

This fund is governed by legal bond covenants for the District's revenue bonds. Bond covenants may require that this fund be maintained at a level sufficient to fund maximum annual debt service payments or such other requirement of the Internal Revenue Code. These funds are held by the bond trustee during the term of the bonds and are to be used in the event the District is unable to meet its required semi-annual debt service obligation. Annual interest earnings on bond reserve funds shall be applied to each year's debt service payments or as otherwise required by the bond documents.

4. **Rate Stabilization Fund:**

This fund is governed by legal bond covenants for the District's revenue bonds. The District may withdraw all or any portion of the amounts on deposit in the Rate Stabilization Fund and transfer such amounts to the Water Revenue Fund for application in accordance with an Installment Purchase Agreement for each of the 2013A Bonds and the 2018A Bonds.

Board Designated Funds:

Board designated funds are set to accomplish systematic and strategic goals or provide for prudent management of operations. The Board of Directors has complete discretion in the management and designation of self-adopted funds. Such funds can be modified, transferred, or altered by Board action.

1. **Dam Self-Insurance:**

The District shall make available $5 million for self-insurance of the Littlerock Dam as seed money for reconstruction under the terms of the agreement between Palmdale Water District, Littlerock Creek Irrigation District and Palmdale Water District Public Facilities Corporation. The money will be used to begin the reconstruction following an event while applications for FEMA reimbursement are in process.

2. **O&M Operating Reserve:**

The O&M Operating Reserve will vary over time with a goal of maintaining three (3) months average cash operating expenses of $5.7 million. This reserve is considered a working cash requirement. It bridges the gap between the time expenses are paid and the time revenues from the same service are collected from customers.

3. **O&M Emergency Reserve:**

The O&M Emergency Reserve will vary over time with a goal of maintaining three (3) months average cash operating expenses of $5.7 million. This reserve is considered a working cash requirement for use in an emergency situation.

4. **Unrestricted Reserves:**

Unrestricted reserves represent a remainder balance of cash that is not yet designated for some use by the Board of Directors.

The target total reserve amount for the Board designated funds is set at $16.2 million. The District estimates a reserve balance at the end of CY 2019 to be $11.6 million ($11.1 million in the Board designated funds, and an additional $0.5 million). RDN recommends annual cash contributions of $100,000 to the Rate Stabilization Fund, and $850,000 to the District's O&M Emergency Reserve to reach the target reserve level of $16.2 million by the end of the study period.

Operating and Maintenance (O&M) Expense

The itemized O&M expenses were carefully reviewed by the District and forecasted for the study period using escalation factors discussed in the Key Assumptions section (Table ES 2). Table 2-3 shows PWD's O&M Expenses by type for the current year (CY 2019) and the study period, CY 2020 – CY 2024. O&M Expenses are expected to increase by 5.8% during the test year (CY 2020) and 3.1% to 3.2% annually thereafter (CY 2021 – CY 2024).

Table 2-3. O&M Expenses by Type, CY 2019 – CY 2024

	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Directors	$140,500	$144,153	$147,901	$151,746	$155,692	$159,740
Admin	$4,369,200	$4,482,552	$4,598,942	$4,718,458	$4,841,192	$4,967,237
Engeneer	$1,596,550	$1,636,974	$1,678,423	$1,720,935	$1,764,578	$1,809,434
Facilities	$6,095,343	$6,266,820	$6,443,335	$6,625,155	$6,812,893	$7,007,338
Operations	$3,102,000	$3,199,632	$3,300,410	$3,404,524	$3,512,424	$3,624,696
Finance	$1,289,750	$1,322,621	$1,356,333	$1,390,906	$1,426,363	$1,462,726
Water Conservation	$374,150	$383,527	$393,142	$402,999	$413,106	$423,469
HR	$438,600	$449,365	$460,403	$471,721	$483,326	$495,225
IT	$948,050	$969,407	$991,277	$1,013,673	$1,036,609	$1,060,097
Customer Care	$1,347,700	$1,382,568	$1,418,340	$1,455,040	$1,492,692	$1,531,321
Water Supply	$1,920,911	$2,054,954	$2,198,267	$2,351,689	$2,516,779	$2,695,572
Plant	$212,000	$812,000	$830,071	$848,687	$867,863	$887,617
Total	**$21,834,755**	**$23,104,573**	**$23,816,843**	**$24,555,534**	**$25,323,517**	**$26,124,472**

All operating expenses were allocated to the system functions by PWD staff, which include: source of supply, pumping, treatment, transmission and distribution, customer accounts, administrative and general, and conservation functions. The functionalized costs were later used in the Cost of Service (COS) analysis to further allocate expenses into cost causative components (peaking and non-peaking costs). The methodology used for the analysis is discussed in detail in the COS analysis section of this Report.

Capital Improvement Expense

One of the PWD's goals is to increase resource reliability to meet their customers' water needs and sustain the growth of the community at reasonable costs. The projects scheduled to be executed during the study period which will increase resource reliability, include:

- Palmdale Recycled Water Recharge Project – water diversification
- Well Rehabilitation – maintain groundwater capacity
- Future well – well as end of useful life

- Lake and Ditch Maintenance – moving and storing water for future use

The District also plans to execute the following projects to increase operational efficiency:

- Pipeline replacement: 23 projects to improve flow and pressure, and reduce leaks
- Booster rehabilitation – restore 3 to 5 boosters per year
- Chlorine generators replacement – 21 projects to replace end-of-life equipment
- Replacement of large meter with vault -- replace 75 meters to increase accuracy of meter reads
- Communication system replacement – replace radios and SCADA communication
- Engine replacement – swap out engines for energy saving
- Stairs and reservoir safety retrofit -- improve access at these facilities
- Replacement of equipment ¬ replace and update various equipment to meet today's needs
- Pump replacement -- replace end-of-life process pump at treatment plant
- Sedimentation basin coating -- extend the life of the treatment plant
- Meter Replacement Program -- complete the program by replacing up to 5,500 meters
- 22 vehicle replacements – replace vehicles older than 2008 with newer ones with new safety standards to meet today's need
- Vacuum excavator -- efficiently and safely excavate around existing utilities
- Peterbilt Cat C-7 Motor Rebuilds -- extend operational life of existing equipment
- Forklift -- replace inefficient, underpowered and outdated forklift

These project costs will total approximately $30.0 million over the five-year period, which will be funded by cash revenue generated from customers' rates (PAYGO) as well as proceeds from the 2021 Revenue Bond for the amount of $20.0 million.

Debt Service

The District's current debt service obligations are listed in the bullet points below. The payments shown below (Table 2-4) include interest and principal payments.

- 2012 Private Placement (annual payment of $1.4 million)
- 2013A Series Water Revenue Bonds (annual payment of $2.3 million until CY 2024 and goes up to $3.9 million thereafter)
- 2018A Series Water Revenue Bond (annual payment of $0.6 million until CY 2021 and goes up to $0.8 million thereafter)
- Capital Leases Payable – 2017 ($0.2 million until CY 2021, and goes down to $90,000 in CY 2022, which is the final payment for this loan)

PWD plans to issue another bond in CY 2021 to mitigate rate impacts on their customers. 2021 Revenue Bonds will increase the District's debt service obligations by $1.2 million annually starting in CY 2022.

Table 2-4. Debt Service Payments for CY 2019 – CY 2024

District Debt	2019	2020	2021	2022	2023	2024
2012 Refunding COPs (Private Placement)	$1,373,241	$1,374,152	$1,372,329	$1,372,329	$1,373,924	
2013A Series Water Revenue Bonds	$2,345,825	$2,345,225	$2,348,475	$2,350,225	$2,345,475	$3,851,375
Capital Leases Payable - 2017	$178,953	$178,953	$178,953	$89,477		
2018A Series Water Revenue Bonds	$568,894	$568,894	$568,894	$818,894	$821,394	$820,794
2021 Water Revenue Bond (Proposed)				$1,170,100	$1,169,700	$1,169,400
Total	**$4,466,913**	**$4,467,225**	**$4,468,651**	**$5,801,025**	**$5,710,493**	**$5,841,569**

Revenue Requirements

Table 2-5 shows a summary of the financial plan for the current year (CY 2019) plus the study period with an annual rate adjustment of 8.1%. The District's cash reserves will fall under $7.5 million during the first year; however, the steady annual rate adjustment of 8.1% for the subsequent years will bring the reserves up to the target level of $16.2 million by CY 2023, and will be maintained for the remaining the study period.

Table 2-5. Financial Plan with an 8.1% Annual Rate Adjustment, CY 2020 – CY 2024

Description	CY 2019 Current Year	CY 2020 Test Year	CY 2021	CY 2022	CY 2023	CY 2024
Operating Revenues	**$24,302,036**	**$26,158,114**	**$28,155,340**	**$30,311,634**	**$32,651,258**	**$35,181,866**
Water Sales - Proposed	$23,132,036	$24,985,489	$26,980,083	$29,133,735	$31,470,711	$33,998,662
Other Operating Revenues	$1,170,000	$1,172,625	$1,175,258	$1,177,899	$1,180,547	$1,183,204
O&M Expenses	**($21,834,755)**	**($23,104,573)**	**($23,816,843)**	**($24,555,534)**	**($25,323,517)**	**($26,124,472)**
Net Operating Revenues	$2,467,282	$3,053,541	$4,338,497	$5,756,100	$7,327,741	$9,057,395
Non-operating Revenues	$2,850,000	$2,896,525	$2,943,971	$2,992,357	$3,039,261	$3,087,047
Other Obligations	**($7,967,239)**	**($11,146,722)**	**($5,955,151)**	**($7,287,525)**	**($7,196,993)**	**($12,856,425)**
Debt Service Principal	($1,870,195)	($1,927,762)	($1,998,889)	($2,728,646)	($2,602,628)	($2,810,000)
Debt Service Interest	($2,596,719)	($2,539,462)	($2,469,762)	($3,072,379)	($3,107,865)	($3,031,569)
Change in Investment in PRWA	($300,000)	($300,000)	($300,000)	($300,000)	($300,000)	($300,000)
Water Rebate Program	($236,500)	($236,500)	($236,500)	($236,500)	($236,500)	($236,500)
Contribution to Reserves	$522,151	($950,000)	($950,000)	($950,000)	($950,000)	($950,000)
Capital PAYGO	($3,485,977)	($5,192,998)	-	-	-	($5,528,357)
Net Balance	($2,649,957)	($5,196,656)	$1,327,317	$1,460,933	$3,170,009	($711,984)
Beginning of the Year Balance		$11,649,020	$7,402,364	$9,679,681	$12,090,613	$16,210,622
Ending Balance	**$11,649,020**	**$7,402,364**	**$9,679,681**	**$12,090,613**	**$16,210,622**	**$16,448,639**

Note: There is no rate adjustment made for the current year, CY 2019.

Table 2-6 displays PWD's revenue requirements for CY 2020 – CY 2024. Other obligations include CIP expense, contributions to reserves ($950,000), and other miscellaneous expenses of $0.5 million. The total expense of each year is offset by other operating revenues and non-operating revenues to compute the pure portion of revenue requirements, which need to be collected from water rates. Under the recommended financial plan, the revenues are adjusted by 8.1% annually to compute necessary revenue requirements. The negative net balance indicates that cash reserves are used to supplement the shortfall for the year (CY 2020 and CY 2024), and positive net balance (CY 2021 – CY 2023) indicates that the amount is contributed to the cash reserves in addition to the annual cash contribution scheduled to be put aside in the amount of $950,000. The revenue requirement of $25.0 million for the test year was used to compute cost distribution among distinctive cost components and then allocated to customers equitably in the COS analysis.

Table 2-6. Revenue Requirements for CY 2020 – CY 2024

Description	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
	Test Year				
Other Operating Revenues	($1,172,625)	($1,175,258)	($1,177,899)	($1,180,547)	($1,183,204)
O&M Expenses	$23,104,573	$23,816,843	$24,555,534	$25,323,517	$26,124,472
Non-operating Revenues	($2,896,525)	($2,943,971)	($2,992,357)	($3,039,261)	($3,087,047)
Other Obligations	$11,146,722	$5,955,151	$7,287,525	$7,196,993	$12,856,425
Net Balance	($5,196,656)	$1,327,317	$1,460,933	$3,170,009	($711,984)
Revenue Requirements	**$24,985,489**	**$26,980,083**	**$29,133,735**	**$31,470,711**	**$33,998,662**

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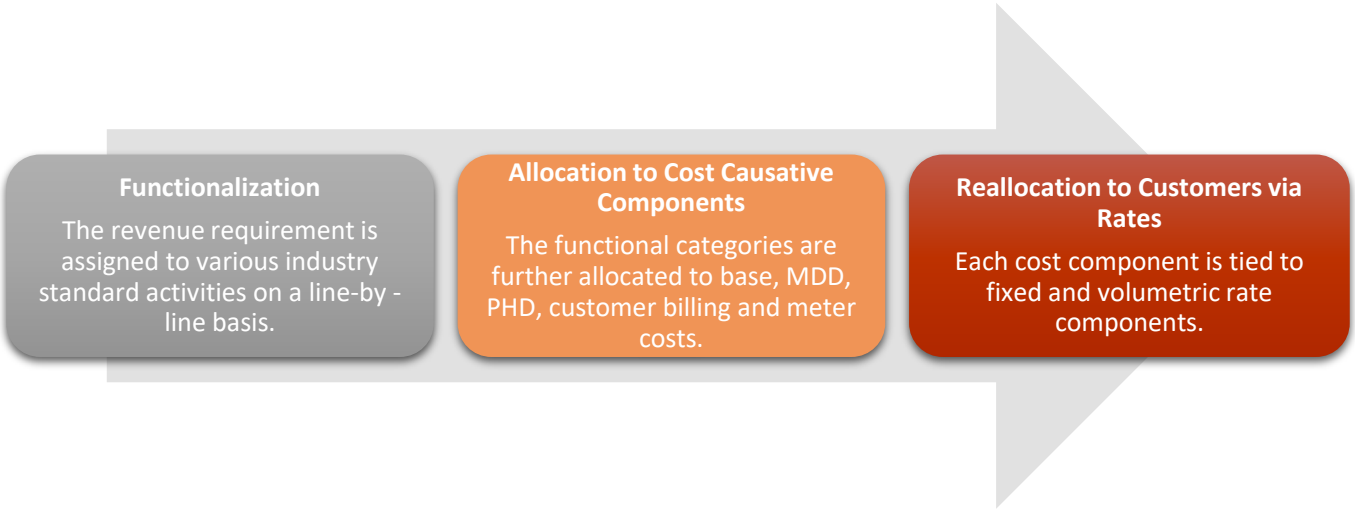
3. COST OF SERVICE ANALYSIS

The purpose of a Cost of Service (COS) analysis is to allocate costs among customers commensurate with their service requirements. RDN employed the "base-extra capacity" cost-of-service method promulgated in AWWA's M1, whereby costs are first allocated to individual functions, which are typical industry standard activities, then the costs of each functions are distributed to appropriate cost causative components, which are defined by the cost driving elements. The results of the COS form a reasonable, equitable, basis for designing rates. Figure 3-1 displays a typical flow of a process for the COS analysis.

Figure 3-1. A typical Flow for Cost of Service Analysis Process



Operating costs are functionalized based on input from District staff with expertise on the system and utility industry knowledge. Total capital expense for the study period (CY 2020 – CY 2024) was utilized in the analysis as opposed to capital project expense for the test year (CY 2020) since a single year of capital spending may not capture accurate distribution of the necessary CIP costs to repair/rehabilitate system assets. The functions of the water system for both operating and capital expenses include:

- Water Supply – costs associated with source of water supply
- Pumping – costs associated with general pumping and energy use
- Water Treatment – costs associated with treatment of water
- Transmission and Distribution – costs associated with transmitting and distributing water to customers
- Customer Accounts – costs associated with billing and customer services
- Administrative and General – costs associated with administrative and general functions
- Water Conservation – costs associated with the conservation program
- Fire – costs associated with water service for fire protection provided to property and structures

For the system to provide adequate service to its customers at all times, it must be capable of meeting not only the annual volume requirements, but also the peak demand - the maximum rate at which water is consumed. Therefore, the capacities of the various facilities must meet the maximum coincidental demand of all customers.

Each water service facility within the system has an underlying average demand, exerted by the customers for whom the base cost component applies. For those facilities designed solely to meet average daily demand, 100% of the cost should go to the base cost component. Extra capacity requirements associated with demand in excess of average use consist of Max Day Demand (MDD) and Peak Hourly Demand (PHD). The MDD factor was computed using average month and maximum month usage (September) reported during CY 2018. Based on the MDD factor, RDN estimated the average hourly flow during MDD and multiplied it by a peaking factor of 1.5 (the lowest factor recommended by the State Board's Division of Drinking Water) to compute a PHD factor. Accordingly, the costs associated with the functions which require extra capacity service requirements were distributed to the base, MDD, and PHD cost components for 44.1%, 22.5%, and 33.3%, respectively. The number of bills in one year (the number of accounts multiplied by 12) serves as the basis for distributing billing and customer service costs associated with meter reading, customer billing and collection, and other customer services costs. The number of equivalent meters is used to measure meter related service costs.

The cost causative components therefore include:

- Water Supply – water purchase costs, chemicals, pumping costs, etc.
- Base – delivering water to customers under average demand conditions
- Maximum Day Demand (MDD) – the costs of delivering water to customers on the day with the highest demand
- Peaking Hourly Demand (PHD) – the costs of delivering water to customers on the hour with the highest demand on highest day
- Meters – the costs of servicing meters
- Customer Service – billing and other customer service related costs
- Direct Fire Protection Service – the costs of providing water service for public and private fire protection services
- Water Conservation – the costs of servicing meters and customers

The result of the COS analysis determines how the total revenue requirements should be allocated to the each of the cost components, which are categorized and grouped based on the similar cost driving elements. Table 3-1 displays the functionalized O&M cost allocation to cost causative components.

Table 3-1. O&M Cost Allocation

O&M Cost Allocation	Total Cost	Water Supply	Base	MDD	PHD	Meters	Customer Service	Direct Fire Protection Service	Water Conservation
Source of Supply	**$3,861,070**	**$3,861,070**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Pumping	**$2,700,039**	**-**	**$1,804,794**	**$360,990**	**$534,256**	**-**	**-**	**-**	**-**
Purchased Power	$1,097,273	-	$1,097,273	-	-	-	-	-	-
Other	$1,602,767	-	$707,521	$360,990	$534,256	-	-	-	-
Water Treatment	**$3,087,647**	**-**	**$2,348,635**	**$739,013**	**-**	**-**	**-**	**-**	**-**
Chemicals	$900,211	-	$900,211	-	-	-	-	-	-
Other	$2,187,436	-	$1,448,423	$739,013	-	-	-	-	-
Transmission and Distribution	**$4,768,917**	**-**	**$2,089,716**	**$1,003,415**	**$997,186**	**$470,889**	**-**	**$207,711**	**-**
Storage	$418,616	-	$184,793	$94,285	$139,539	-	-	-	-
Transmission Mains	$1,098,758	-	$769,131	$329,627	-	-	-	-	-
Distribution Mains	$1,060,569	-	$468,174	$238,871	$353,523	-	-	-	-
Meter and Services	$470,889	-	-	-	-	$470,889	-	-	-
Hydrants	$207,711	-	-	-	-	-	-	$207,711	-
Other	$1,512,373	-	$667,618	$340,631	$504,124	-	-	-	-
Customer Accounts	**$2,647,031**	**-**	**-**	**-**	**-**	**-**	**$2,647,031**	**-**	**-**
Meter Reading/Bill Collections	$2,118,915	-	-	-	-	-	$2,118,915	-	-
Others	$528,116	-	-	-	-	-	$528,116	-	-
Administrative and General	**$5,644,061**	**-**	**$2,138,358**	**$1,059,402**	**$771,322**	**$237,167**	**$1,333,197**	**$104,615**	**-**
Water Conservation	**$395,807**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**$395,807**
Total	**$23,104,573**	**$3,861,070**	**$8,381,502**	**$3,162,820**	**$2,302,764**	**$708,055**	**$3,980,228**	**$312,327**	**$395,807**
Percentage	100%	17%	36%	14%	10%	3%	17%	1%	2%

Table 3-2 displays functionalized capital expenditures for the study period (CY 2020 – CY 2024). The percentages represented in the cost distribution are derived from the total CIP spending over the five year period to better represent the District's needs for repairs and replacements on its system assets.

Table 3-2. Five-Year Capital Expenditures Cost Allocation

Asset Cost Allocation	Total Cost	Water Supply	Base	Max Data	Max Hour	Meters	Customer Service	Direct Fire Protection Service	Water Conservation
Source of Supply	$8,094,053	-	$5,359,524	$2,734,529	-	-	-	-	-
Pumping	$2,734,262	-	$1,810,508	$923,755	-	-	-	-	-
Treatment Plant	$3,814,887	-	$2,526,050	$1,288,838	-	-	-	-	-
Storage	$219,473	-	$96,883	$49,432	$73,158	-	-	-	-
Distribution	$8,741,875	-	$3,858,989	$1,968,928	$2,913,958	-	-	-	-
Transmission	$1,069,455	-	$472,097	$240,873	$356,485	-	-	-	-
Fire	$1,936,350	-	-	-	-	-	-	$1,936,350	-
Water Conservation	$6,000	-	-	-	-	-	-	-	$6,000
Customer Accounts	$380,175	-	-	-	-	-	$380,175	-	-
Meters	$1,994,759	-	-	-	-	$1,994,759	-	-	-
Administration	$1,730,065	-	$655,467	$324,737	$236,432	$72,698	$408,663	$32,068	-
Total	**$30,721,354**	**-**	**$14,779,518**	**$7,531,091**	**$3,580,033**	**$2,067,458**	**$788,837**	**$1,968,418**	**$6,000**
Percentage	100%	0%	48%	25%	12%	7%	3%	6%	0%

Table 3-3 shows the revenue requirements by cost causative components under the proposed financial plan. The test year capital expense, debt service payments, and other obligations (change in investments in PRWA and contribution to reserves) are allocated to each cost causative component using the percentages derived from the five-year capital expenditures cost allocation.

Table 3-3. Rate Revenue Requirements for Test Year, CY 2020

Cost Allocation Summary	Total Cost	Water Supply	Base	Max Day	Max Hour	Meters	Customer Service	Fire Protection Service	Water Conservation
O&M Cost Allocated	$23,104,573	$3,861,070	$8,381,502	$3,162,820	$2,302,764	$708,055	$3,980,228	$312,327	$395,807
O&M Cost Distribution		17%	36%	14%	10%	3%	17%	1%	2%
CIP/Other Obligations Allocated	$10,910,222	-	$5,248,721	$2,674,553	$1,271,394	$734,226	$280,144	$699,054	$2,131
CIP/Other Obligations Distribution		0%	48%	25%	12%	7%	3%	6%	0.02%
CIP Cost Allocation	$5,192,998	-	$2,498,262	$1,273,021	$605,152	$349,474	$133,341	$332,732	$1,014
Debt Service Principal	$1,927,762	-	$927,413	$472,575	$224,647	$129,733	$49,499	$123,518	$376
Debt Service Interest	$2,539,462	-	$1,221,692	$622,529	$295,930	$170,898	$65,206	$162,712	$496
Change in Investments in PRWA	$300,000	-	$144,325	$73,543	$34,960	$20,189	$7,703	$19,222	$59
Contribution to Reserves	$950,000	-	$457,029	$232,885	$110,706	$63,932	$24,393	$60,870	$186
Water Conservation Rebate Program	$236,500								$236,500
Total Expense	**$34,251,295**	**$3,861,070**	**$13,630,223**	**$5,837,372**	**$3,574,158**	**$1,442,281**	**$4,260,372**	**$1,011,381**	**$634,438**
		11%	40%	17%	10%	4%	12%	3%	2%
Cash Reserve Used	($5,196,656)								
Non-rate Revenues	($4,069,150)								
Other Operating Revenues	($1,172,625)								
Non-operating Revenues	($2,896,525)								
Rate Revenue Requirements	**$24,985,489**	**$2,816,557**	**$9,942,917**	**$4,258,221**	**$2,607,261**	**$1,052,109**	**$3,107,838**	**$737,778**	**$462,807**

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4. WATER SUPPLY

The cost to produce water is directly related to the source from which it is extracted. PWD has three main water sources: groundwater, surface water from the Littlerock Reservoir, and State Water Project (SWP) imports. When costs are allocated to customers, it is industry practice to assume that the least expensive water source is used for integral customer uses, while more expensive sources are used for excessive customer use. As previously discussed, for PWD customers, integral water is included in their water budget (Tier 1 and Tier 2 use). Table 4-1 shows the total projected water use by tier for the study period. As previously discussed in the Demand Projections section, it is forecasted to be a slight decline in water use through the study period.

Table 4-1. Projected Water Use by Tier, CY 2020 – CY 2024

Usage by Tier	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Tier 1	3,319,824	3,316,771	3,313,665	3,310,997	3,310,658
Tier 2	2,252,894	2,249,723	2,246,535	2,243,837	2,243,420
Tier 3	644,921	644,033	643,140	642,369	642,325
Tier 4	357,966	357,491	357,012	356,592	356,602
Tier 5	542,716	539,802	536,883	535,174	532,917
Total	**7,118,322**	**7,107,821**	**7,097,235**	**7,088,969**	**7,085,921**

There is a finite supply of groundwater and surface water that is available to the District each year. Additionally, a certain amount (estimated at 9.0%) of water from each water source is lost due to evaporation, leaks, main flushing, and firefighting, among other things. Table 4-2 shows the projected water source demand through the study period. The District plans to primarily use SWP water (the most expensive source) to fill its water needs during this period, though the amount will decline as total usage declines. Groundwater and surface water use will remain steady through the study period at 1.7 million and 1.6 million ccf of use, respectively.

Table 4-2. Projected Water Supply by Source, CY 2020 – CY 2024

Water Supply	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Water Supply from Groundwater+Federal Surplus	1,916,640	1,916,640	1,916,640	1,916,640	1,916,640
Water Supply from Local Surface Water (Littlerock Reservoir)	1,742,400	1,742,400	1,742,400	1,742,400	1,742,400
Water Supply from SWP	4,163,292	4,151,752	4,140,119	4,131,036	4,127,686
Water Loss %	9%	9%	9%	9%	9%
After Water Loss					
Water Supply from Groundwater+Federal Surplus	1,744,142	1,744,142	1,744,142	1,744,142	1,744,142
Water Supply from Local Surface Water (Littlerock Reservoir)	1,585,584	1,585,584	1,585,584	1,585,584	1,585,584
Water Supply from SWP	3,788,596	3,778,095	3,767,509	3,759,243	3,756,195

As costs are allocated to each tier of water use during rate design, it is important to understand how the availability of each water source compares to the usage in each tier. Table 4-3 shows the allocation of each water source to the respective tier for the test year. The Tier 1 allocation is made up wholly of groundwater and surface water supplies, making it the lowest cost tier to produce by volume. Tier 2 is supplied by the remaining surface water and supplemented by SWP water, making it the second lowest cost tier to produce. Tiers 3 through 5 are supplied by only SWP water. Since SWP water is the most expensive source of water used by the District, the top three

tiers' unit costs are higher than for the bottom two. Even though there are more tiers supplied by SWP water, PWD customers are projected to primarily use water within their water budgets (Tier 1 and Tier 2). The total costs borne by these customers will remain lower than if they use water excessively.

Table 4-3. Water Source by Tier Allocation, CY 2020, in millions

Water Supply	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Water Supply from Groundwater+Federal Surplus	1,916,640	-	-	-	-
Water Supply from Local Surface Water (Littlerock Reservoir)	1,403,184	339,216	-	-	-
Water Supply from SWP	-	1,913,679	644,921	357,966	542,716

If water unit costs were the only factors determining water rates, the District could use only three tiers based on its three water sources; however, differential water rates are also contingent on capacity use-patterns (peaking factors) and conservation measures.

5. RATE DESIGN

The last step of a rate study is designing rates. Rates must be designed to equitably recover the rate revenue requirements from each customer given the projected customer demand identified as a result of the COS analysis. In reviewing the District's water rates and finances, RDN used the following criteria in developing our recommendations:

1) Revenue sufficiency: rates should recover the annual cost of service and provide revenue stability.
2) Rate impacts: while rates are calculated to generate sufficient revenue to cover all costs, they should be designed to minimize, as much as possible, the impacts on ratepayers.
3) Equitability: rates should be fairly allocated among all customers based on their estimated demand characteristics.
4) Practicality: rates should be simple in form and, therefore, adaptable to changing conditions, easy to administer, and easy to understand.

Recommended Changes on the Current Rate Structure

The District currently uses an allocation based water budget rate (WBR) structure for all customers. "Water Budget" is defined as the quantity of water required for an efficient level of water use by that customer in the AWWA M1. Under the WBR structure, each customer gets his/her own allocation of water, which is determined by different parameters. For example, Single-Family Residential (SFR) customers currently receive 66 gallons of water per capita per day (GPCD) for essential use. RDN recommends reducing this amount to 55 GPCD to be more closely aligned with the parameter expected to be used in the new State legislation (AB 1668 and SB 606). RDN also recommends the District change the allocation method for Multi-Family Residential (MFR) customers. The District currently uses historical usage to compute their allocation. We recommend that MFR customers' water budget be computed using the same methodology as that of SFR customers since both classes are defined as residential customers. Lastly, RDN recommends eliminating Tier 6 from the proposed rate structure. The tiered pricing should be linked to the actual costs such as water supply cost and peaking cost. RDN determined that there are no costs that can be allocated to the Tier 6 rate in the proposed rate structure.

Water Budget Rate Structure

The following formula displays a typical indoor water budget calculation for residential customers. RDN recommends that Gallons per Capita per Day (GPCD) should be reduced from 66 GPCD to 55 GPCD under the proposed rate structure to be consistent with the State new requirements under AB 1668 and SB 606.

Indoor Water Budget (Residential Customers)

$$= \frac{GPCD}{748\ gallons/hcf} \times Household\ Size \times \#\ of\ Dwelling\ Units \times Days\ of\ Service$$

Where:

- GPCD – Gallons per Capita per Day, currently set at 66. RDN recommends setting GPCD at 55 under the proposed rates.

- Household Size – Number of residents per dwelling unit, set at 4 for SFR customers unless a customer variance has been requested. The default household size for the proposed rates is set at 4 for SFR customers and 2 for MFR customers.
- Dwelling Units – The number of dwelling units served by the meter. For example, a SFR customer's number of dwelling unit is one.
- Days of Service – Number of days of service varies with each billing cycle for each customer. The actual number of days of service will be applied to calculate the indoor water budget for each billing cycle.
- 748 is the conversion unit from gallons to a billing unit of one hundred cubic feet (ccf) currently used by the District.

When using these default numbers to calculate a hypothetical SFR customer's indoor water budget under the current rates in a hypothetical month (30 billing days), the water budget for this customer is 10.6 hcf a month.

Example for a SFR Indoor Water Budget (Current)

$$= \frac{66\ GPCD}{748\ gallons/hcf} \times\ 4\ persons\ \times 1\ unit\ \times 30\ days = 10.6\ hcf$$

RDN recommends reducing GPCD from 66 to 55 for the proposed rate structure. The following equation shows the proposed indoor allocation.

*Example for a **SFR Indoor Water Budget (Proposed)***

$$= \frac{55\ GPCD}{748\ gallons/hcf} \times 4\ persons\ \times 1\ unit\ \times 30\ days = 8.8\ hcf$$

The data on the number of dwelling units for all MFR customers were collected from the Los Angeles County website and used in the same equation. The household size for MFR customers is set at 2. The indoor allocation for a hypothetical MFR customer with an apartment complex with 20 units is computed as follows:

*Example for a **MFR Indoor Water Budget (Proposed)***

$$= \frac{55\ GPCD}{748\ gallons/hcf} \times 2\ persons\ \times 20\ units\ \times 30\ days = 88.2\ hcf$$

Under the current and proposed rate structure, residential customers' outdoor water (Tier 2) budgets are calculated in the formula below. Irrigation customer's allocations are also computed using this formula.

Outdoor Water Budget for Residential Customers and Irrigation Customers

$$= \frac{\boldsymbol{Landscape\ Area\ (Irrigable)}^{1} \times \frac{\boldsymbol{ETO}^{2}}{\boldsymbol{12\ in/ft}}}{\boldsymbol{100\ sf/hcf}} \times \boldsymbol{LF} \times \boldsymbol{DF}$$

[1] *Landscape Area (or Irrigable Area in square feet) is the measured irrigable landscape area served by a customer's meter*

[2] *Evapotranspiration (ET0) is measured in inches of water during the billing period based on a ten-year rolling average ET from CIMIS weather station # 197.*

Where:

- SFR customers' irrigable area is currently set at 50% of the total parcel size. Under the proposed rates the District utilized aerial imagery data to measure actual irrigable area of each residential customer's parcel.
- Irrigation customers' irrigable area is set at 100% of the total parcel size.
- Landscape Factor (LF) is set to 70% to the amount of water needed for irrigation to encourage conservation, which was the metric set by the District in 2009. This is consistent with the State of California Code of Regulations Title 23, Section 491 and an expected parameter to be used for LF under Assembly Bill No. 1668 (AB 1668) and Senate Bill No. 606 (SB 606), approved in May, 2018.
- Note that Irrigation customers Tier 1 allocation is calculated using the same formula, but the Landscape Factor (LF) is set at 0.42 for their essential water use.
- Landscape Factor (LF) for the efficient use (Tier 1 + Tier 2) for the exempt irrigation customers is set at 100%. The exempt irrigation customers include schools, government offices, and parks.
- Drought Factor (DF) is currently set at 1. The District may apply this additional parameter to the equation if the State mandates reduction of water usage due to drought.

PWD contracted Eagle Arial Solutions (EA) to provide the District's parcel by parcel aerial imagery data within the service area and measure irrigable area for each of those parcels. SFR customer's landscape area (irrigable area) is currently set at 50% of their total property. EA's imagery includes spatial data for 27,169 parcels and breaks down the total square footage of a parcel into irrigable (pools, irrigated vegetation, horse corrals, and irrigable vegetation but not currently irrigated) and non-irrigable area (impervious, non-irrigable vegetation, undeveloped lands, open water, and artificial turf). PWD incorporated EA's data to set new allocations for all residential customers.

*Example of **Outdoor Water Budget** for a **SFR Customer (Current)** with 7,000 sf. Parcel when ETO @ 10 inch*

$$= \frac{3{,}500 \times \frac{ETO}{12\ in/ft}}{100\ sf/hcf} \times 0.7 \times 1.0 = 20.4\ hcf$$

*Example for **Outdoor Water Budget** for a **Residential Customer (Proposed)** with 2,135 sf. Irrigable Landscape Area when ETO @ 10 inch*

$$= \frac{2{,}135 \times \frac{10}{12\ in/ft}}{100\ sf/hcf} \times 0.7 \times 1.0 = 12.5\ hcf$$

*Example for **Essential Water Budget** (Tier 1) for an **Irrigation Customer (Current and Proposed)** with 10,000 sf. Parcel Size when ETO @ 10 inch*

$$= \frac{10{,}000 \times \frac{10}{12\ in/ft}}{100\ sf/hcf} \times 0.42 \times 1.0 = 35.0\ hcf$$

*Example for **Efficient Water Budget** (Tier 1+Tier 2) for an **Irrigation Customer (Current and Proposed)** with 10,000 sf. Parcel Size with ETO @ 10 inch*

$$= \frac{10{,}000 \times \frac{10}{12\ in/ft}}{100\ sf/hcf} \times 0.7 \times 1.0 = 58.3\ hcf$$

Landscape Factor (LF) for the efficient use (Tier 1 + Tier 2) for exempt irrigation customers is set at 100%. The exempt irrigation customers include schools, government offices, and parks.

*Example for **Efficient Water Budget** (Tier 1+Tier 2) for an **Exempt Irrigation Customer (Proposed)** with 10,000 sf. Parcel Size with ETO @ 10 inch*

$$= \frac{10{,}000 \times \frac{10}{12\ in/ft}}{100\ sf/hcf} \times 1.0 \times 1.0 = 83.3\ hcf$$

Note that Irrigation customers' Tier 2 width is computed by subtracting Essential Water Budget from Efficient Water Budget. Thus this hypothetical customer's Tier 1 width is 35 hcf and Tier 2 width is 23.3 hcf (58.3 – 35.0 hcf). The Tier 1 and Tier 2 rates are applied to these widths accordingly when the monthly bill is computed.

Commercial/Industrial/Institutional Tier 1 (essential use) is based on a 3-year average of minimum monthly usage to reflect the lowest winter month. The average is based on the minimum usage month of the past 3 full calendar years (January to December). Tier 2 (efficient usage) is based on a 3-year rolling 3-month average based on an average of the current month and surrounding two months of the past three full calendar years (January to December). For this customer group, efficient water use Tier 2 allocation is computed by subtracting Tier 1.

Commercial/Industrial/Institutional Customers Tier 1 (Essential Usage)

$$= 3\ yr\ average\ minimum\ monthly\ usage$$

Commercial/Industrial/Institutional Customers Tier 2 (Efficient Usage)

$$= 3\ yr\ moving\ average\ by\ month\ -\ 3\ yr\ average\ minimum\ monthly\ usage$$

Table 5-1 displays definitions for each of the five tiers by customer type.

Table 5-1. Definition of Water Budget Tier Widths

	Water Budget		up to 130 % over Budget	up to 160 % over Budget	160 % + over Budget
	Tier 1	**Tier 2**	**Tier 3**	**Tier 4**	**Tier 5**
Residential	**Indoor Water Use**: GPCD (55) /(748 gallons/hcf) × Household Size (4) × # of Dwelling Units × Days of Service	**Outdoor Water Use**: Landscape Area (Irrigable) × ETO /(12 in/ft.))/(100 sf/hcf) × LF (0.7) × DF (1.0)	up to **130 %** of (Tier 1 + Tier 2)	131 % - **160 %** of (Tier 1 + Tier 2)	**over 161 %** of (Tier 1 + Tier 2)
Irrigation	**Essential Water Use**: Landscape Area (Irrigable) × ETO /(12 in/ft.))/(100 sf/hcf) × LF (0.42) × DF (1.0)	[**Efficient Water Use**: Landscape Area (Irrigable) × ETO /(12 in/ft.))/(100 sf/hcf) × LF (0.7) × DF (1.0)] **-** [**Essential Water Use**]	up to **130 %** of Efficient Water Use	131 % - **160 %** of Efficient Water Use	over **161 %** of Efficient Water Use
Commercial	**Essential Water Use**: 3 yr. average minimum monthly usage	[**Efficient Water Use**: 3 yr. moving average by month] **-** [**Essential Water Use**]	up to **130 %** of Efficient Water Use	131 % - **160 %** of Efficient Water Use	over **161 %** of Efficient Water Use

Note: Landscape Factor (LF) in the Efficient Water Use formula for Exempt Irrigation customers is set at 100%

Eagle Aerial

PWD contracted Eagle Arial Solutions (EA) to provide the District's parcel-by-parcel aerial imagery data within the service area and measure irrigable area for each of those parcels. SFR customer's landscape area (irrigable area) is currently set at 50% of their total property. The ultimate purpose of incorporating Eagle Aerial data is to categorize customer's land as either Irrigable or Non-Irrigable. Prior to classifying land as belonging to one of these two categories, we will use the following terms as they are defined here:

- Irrigated - Land that is currently irrigated (living lawn, living trees).
- Irrigable - Land this is not currently irrigated, but has the potential to be irrigated (dead lawn, dormant trees).
- Non-Irrigable - Land that is not capable of being irrigated (artificial lawn, driveways).

Overview

EA's data includes spatial data for 27,169 parcels located within PWD's service area. The EA data breaks down the total square footage of a parcel into the nine distinct land use categories shown in Table 5-2. EA also provided recommendations as to which larger irrigation category each land use classification should be grouped.

Table 5-2. Eagle Aerial Land Categories

Code	Definition	Category
CI1	Impervious	Non-Irrigable
CI5	Non-Irrigable Vegetation	Non-Irrigable
CI6	Undeveloped Lands	Non-Irrigable
CI8	Open Water	Non-Irrigable
CI9	Artificial Turf	Non-Irrigable
CI2	Pools	Irrigated
CI3	Irrigated Vegetation	Irrigated
CI7	Horse Corrals	Irrigated
CI4	Irrigable Vegetation - Not Currently Irrigated	Irrigable

First, RDN converted the area and category variables from square meters to square feet to be readily used in the PWD rate study. Next, we calculated the percentage of the total area of the parcel that each category covers. Figure 5-1 displays overlaid density functions for the three most common land types -- Impervious, Irrigable Vegetation, and Irrigated Vegetation. This plot displays the frequency of impervious land use in the District's service area.

Figure 5-1. Density Function of Land Use

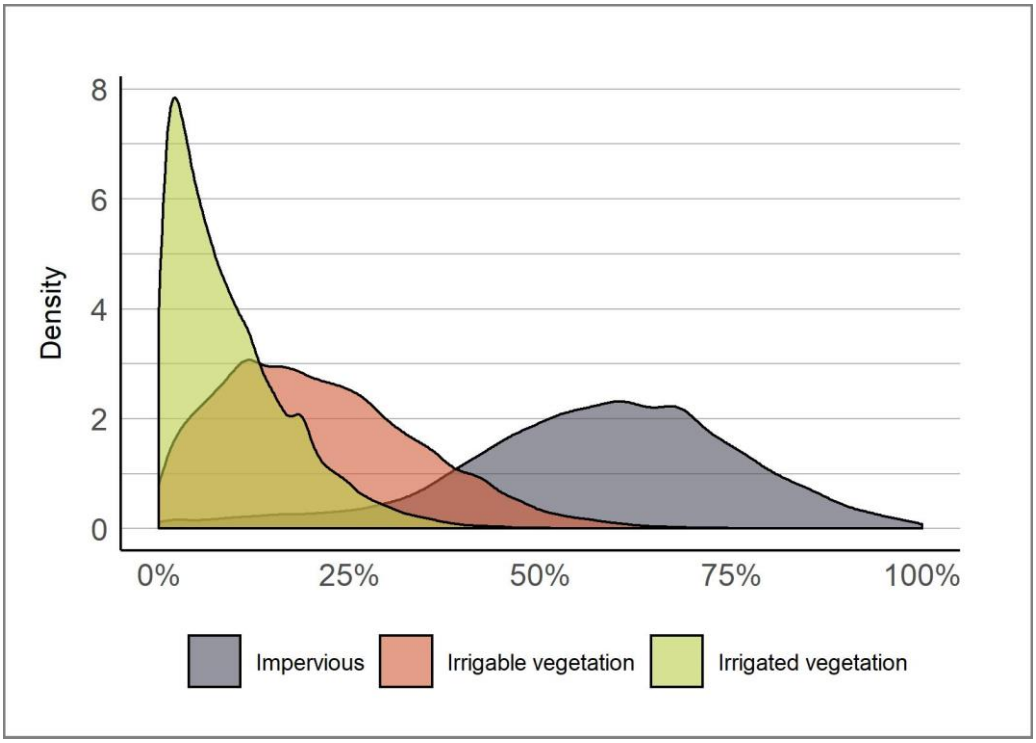
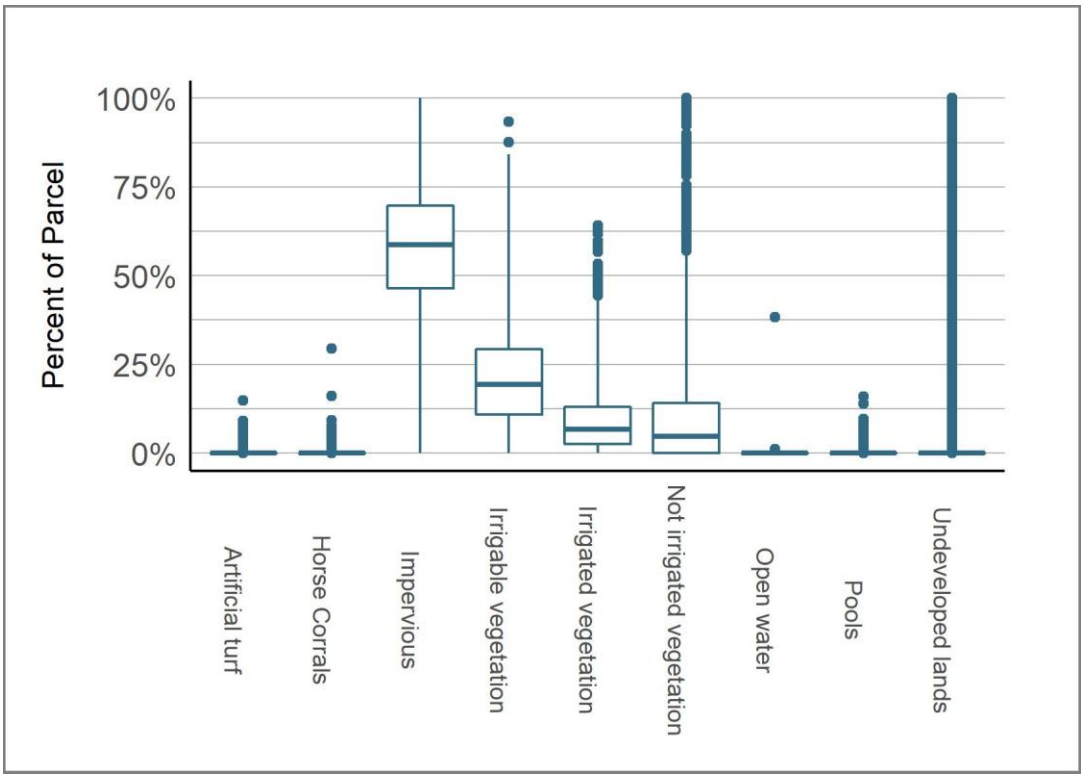


Figure 5-2 displays a box and whisker plot for the percentage of parcel by land use category. For each category, the dark line in the middle of the plot represents the median value. The wider box represents 50% of the distribution. For example, the plot suggests that 50% of parcels are comprised of 46-70% impervious surfaces. This plot demonstrates that artificial turf, horse corrals, open water, pools, and undeveloped land are not prevalent within PWD's service area.

Figure 5-2. Percentage of Land Use by Category



Accuracy

EA has provided PWD with an interim data set that is not as accurate as the final deliverable, informing RDN that the current data set is 95% accurate at the aggregate level but not as accurate at the parcel level. Accompanying the broader dataset, EA provided a statistical analysis of the accuracy of land use classification. In so doing, EA hand-digitized 50 parcels to establish a set of "true" values for which to compare modeled land use category values. (The parcels were selected on the basis of having common characteristics found within PWD's service area.)

EA was able to estimate the accuracy of its model by comparing the hand-digitized data to the correct and incorrect classifications of the current dataset. A confusion matrix, displayed in Table 5-3, is a common way to display results of testing the accuracy of classifications. Each column represents the actual surface of an area and each row represents the surface predicted by the model. It follows that each value on the diagonal from top left to bottom right represents an accurate classification, or a true positive. All other values represent a misclassification. For example, the table suggests that the model predicted the surface was CI2 when it was actually CI1 (column 1, row 2). Exploring the relationships in this confusion matrix allows us to determine the level of accuracy of EA's data.

To summarize, the model selected the correct surface roughly 87.6% of the time and has a Cohen's kappa coefficient of roughly 0.80 (which is relatively large). Although the overall percentages indicate that EA's classification model is generally accurate, distribution of area to some classifications contain approximately 35% of error. Table 5-3 demonstrates that the model has difficulty distinguishing between Irrigated Vegetation and Irrigable Vegetation, a potentially confounding issue if PWD wants to distinguish between "Irrigated" and "Irrigable" area. It is imperative that EA's classification model is accurate at distinguishing between areas that will ultimately be categorized as irrigable by PWD and less important for distinguishing between categories that end

up in the same final irrigable land category. For example, it would not be problematic if the model is not accurate at detecting the difference between pools and irrigated vegetation if both of these surfaces will ultimately be included in the irrigable area allotment using the suggested approach.

Table 5-3. Confusion Matrix for Surface Classifications

	Actual Surface								
Predicted Surface	CI1	CI2	CI3	CI4	CI5	CI6	CI7	CI8	CI9
CI1	371,750	0	5,710	15,788	11,779	0	0	0	0
CI2	861	2,068	0	0	0	0	0	0	0
CI3	7,608	0	45,236	43,494	3,259	0	0	0	0
CI4	45,169	0	17,893	126,817	30,439	0	0	0	0
CI5	379	0	36	6,975	808,243	0	0	0	0
CI6	0	0	0	0	0	0	0	0	0
CI7	0	0	0	0	0	0	0	0	0
CI8	0	0	0	0	0	0	0	0	0
CI9	569	0	245	1,060	0	0	0	0	0

Aware of the potential inaccuracies of the EA classification model, we first collapsed land use categories into "Irrigated," "Irrigable," and "Non-Irrigable" classifications. Table 5-4 displays the corresponding confusion matrix. The columns on the right display the sensitivity of the model, or the number of true predictions divided by the total number of observations for each actual land use. This table highlights the weakness of EA's current modeling of "Irrigable" versus "Irrigated" area. Only about two-thirds of the time is the EA model able to accurately predict both "Irrigable" and "Irrigated" area under these classifications.

Table 5-4. Confusion Matrix for EA Recommended Irrigable Classifications

	Surface Area			Surface Percent		
Predicted Surface	Irrigable	Irrigated	Non-Irrigable	Irrigable %	Irrigated %	Non-Irrigable %
Irrigable	126,817	17,893	75,608	63.5%	25.1%	5.9%
Irrigated	43,494	47,304	11,728	22.4%	66.4%	0.9%
Non-Irrigable	23,823	5,991	1,192,720	12.3%	8.4%	93.2%

Because of EA's lack of precision in classifying "Irrigated" versus "Irrigable" area, RDN included Irrigable Vegetation in the definition of "Irrigable" area. RDN concluded that differentiating "Irrigated" and "Irrigable" area using this dataset is not optimal, thus, collapsing the nine land use classifications into two simple categories. "Irrigable Area" and "Non-Irrigable Area" are the best approach to establishing water budget allocations for the purpose of this study. Table 5-5 displays the confusion matrix and corresponding sensitivity statistics under RDN's proposed "Irrigable Area" and "Non-Irrigable Area." Both categories marked roughly a 90% sensitivity rate.

Table 5-5. Confusion Matrix for RDN Recommended Irrigable Classifications

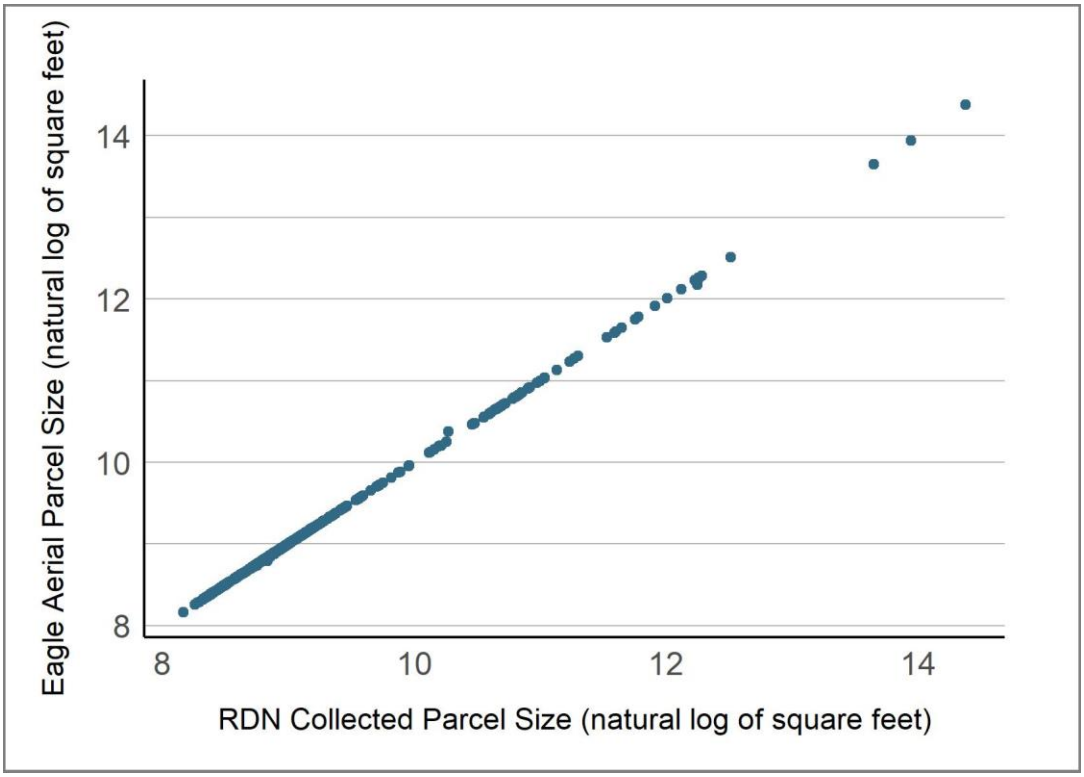
	Actual Surface			
Predicted Surface	Irrigable	Non-Irrigable	Irrigable %	Non-Irrigable %
Irrigable	235,508	87,336	88.8%	6.8%
Non-Irrigable	29,814	1,192,720	11.2%	93.2%

RDN Spot Check

RDN conducted a spot check of Eagle Aerial's data to verify accuracy. RDN randomly sampled the parcel list and collected parcel square footage for 856 parcels using the Los Angeles County Assessor's Portal. This amounts to roughly 3% of the sample. In addition, RDN estimated the proportion of irrigable and non-irrigable surface on each parcel using the photo on the parcel page. Although it is not a trivial exercise to estimate irrigable area from a photo, the estimates should be somewhat similar to EA's data, particularly because most parcels are comprised of mostly obvious impervious surfaces (houses or driveways).

The first step is simply verifying the parcel sizes. These numbers should be very accurate as parcels are unique, which is supported by the results in Figure 5-3. We used the natural logarithm of parcel size to make the data easier to visualize.

Figure 5-3. Parcel Size Verification

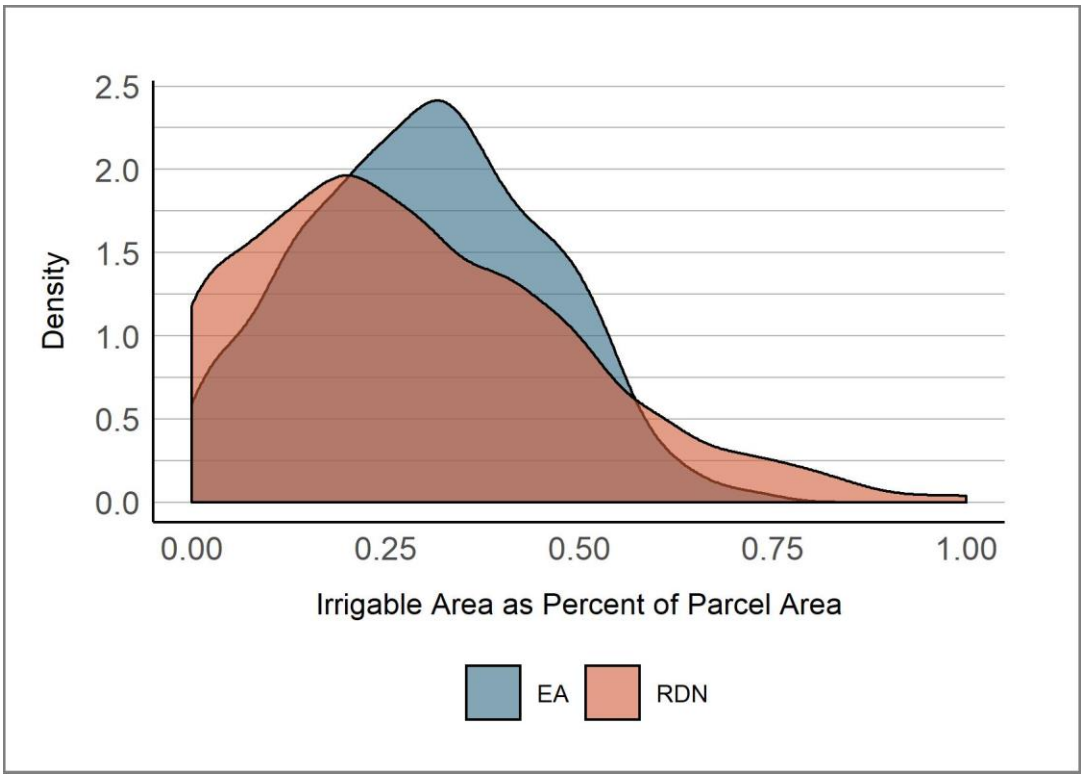


Next, RDN attempted to verify that there were no systematic abnormalities in the irrigable area allocations in EA's data. Due to the subjective nature of the classification task from RDN's side and the error present in EA's data it is highly unlikely that both series will match up perfectly. Therefore, we overlay density functions of RDN estimated irrigable area as a percent of parcel size and EA estimations of the same variable, shown in Figure 5-4. Broadly speaking, there is a large degree of overlap between the two classifications, suggesting that the area (when including not currently irrigated area) is reasonably accurate. RDN's estimates are more likely to be at the extremes - more estimates of 0% and 100% irrigable area than EA's data. This is intuitive because small photos do not provide the degree of nuance that EA's classification process can. This provides further support for the claim that Eagle Aerial's data is reasonably accurate.

RDN concludes that EA's data, when including "Irrigable" area in the "Irrigable Area" category along with "Irrigated" area, is reasonably accurate. RDN recommends that the District implements a simple method in which

the areas are categorized by “Irrigable Area” and “Non-Irrigable Area” only and still use the data on individual customer basis, not the aggregate level, provided by EA.

Figure 5-4. Irrigable Area Verification



Effect on Allocations

In the next step we explore the effect of the proposed surface classifications on customer allocations. Figure 5-5 displays the distribution of proposed irrigable area as a percentage of parcel area. The yellow vertical line is the current allocation for irrigable area for all customers, which is defined as 50% of the parcel area. This implies that all customers to the left of the yellow line will receive a reduced outdoor allocation relative to the current rate structure, and all customers to the right of the yellow line will receive an increase in outdoor allocation. Most customers will receive a reduced allocation. The data, in addition to anecdotal evidence from staff that reviewed parcel imagery, strongly support an overall reduction in irrigable area. All else equal, a reduction in irrigable area will result in increased revenue for the District and more stringent price signals to promote conservation for the customers.

Figure 5-5. Proposed Irrigable Area as Percentage of Parcel Area

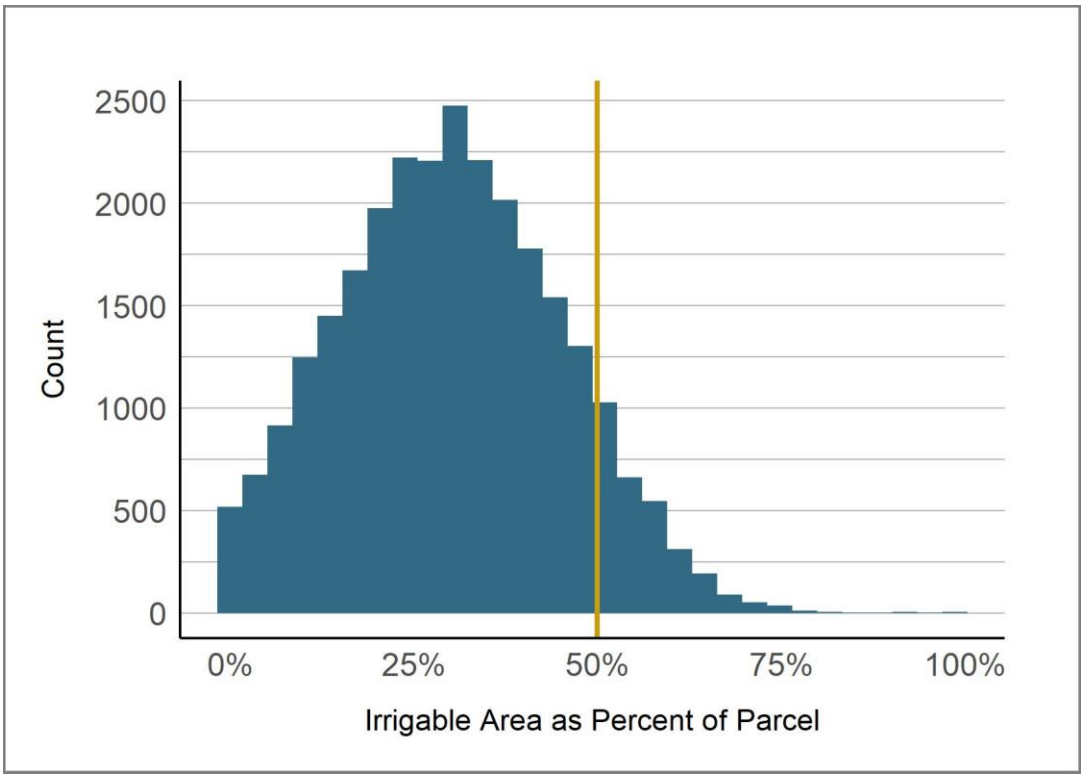
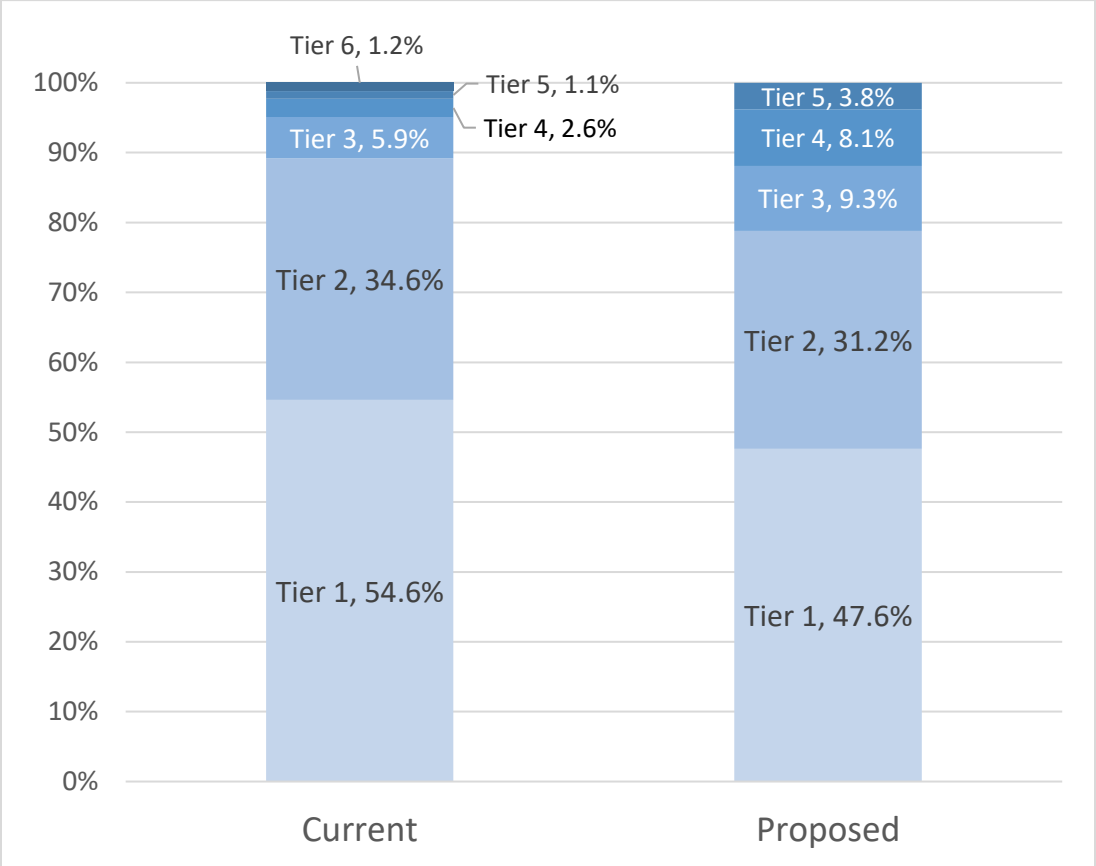


Figure 5-6 presents District customers' actual usage distribution by tier. Under the proposed rate structure, the Tier 1 usage will reduce by 7% while the Tier 2 usage will only reduce by 3%. This indicates that the majority of District customers are not using all of their water allocation for outdoor use currently. Incorporating EA data, which provides District customers' actual landscaped area that is defined as "Irrigable" for each residential parcel will help align the District's residential customers' water needs and water budgets.

Figure 5-6. Usage Distribution by Tier Current vs. Proposed



Irrigation Customers' Tier 1 (essential usage) is based on the same outdoor usage formula used for residential customers with a Landscape Factor (LF) of 0.42 based on low water use plants. Tier 2 (Efficient usage) uses a LF factor of 0.7, which is consistent with that of residential customers. Irrigation customers are given 100% of their parcel as a Landscape (Irrigable) area.

Recommended Rates

It is estimated that approximately 82% of the District's O&M costs are fixed while 18% are variable. In order to maintain an incentive for water conservation, there should be a reasonable balance between cost recovered under the fixed base charges and volumetric charges; therefore, not all fixed costs will be recovered from the fixed monthly service charges. Under the proposed rates, the revenues recovered from fixed charges represent 55% of the total revenue.

Table 5-6 shows the CY 2020 revenue requirements ($25.0 million) allocated to each cost causative component. Most of other operating revenues and non-operating revenues are used to offset the cost allocated to the base. Approximately $ 1.3 million from property tax revenue was used to offset the Tier 1 rate to mitigate rate impacts on small users.

Table 5-6. Fixed and Variable Cost Components, CY 2020

		Fixed						
Description	Unit	Base	Max Day	Max Hour	Meter	Customer/Billing	Fire Protection	
Total	$24,985,489	$148,027	$5,269,809	$2,074,993	$1,441,810	$4,257,724	$450,173	
		1%	21%	8%	6%	17%	2%	
		Volumetric						Offset
		Water Supply	Energy	Delivery	Max Day	Max Hour	Water Conservation	Offset - Tier 1
		$2,996,048	$1,097,273	$6,025,887	$996,528	$887,778	$634,438	($1,295,000)
		12%	4%	24%	4%	4%	3%	-5%

Base, peaking, meter, and fire protection service costs in the fixed charge components are distributed among various meter sizes using the AWWA ratio discussed in the Key Assumptions section (Table ES 3). Customer service and billing costs are simply divided by the number of accounts since the service requirements of this type are the same regardless of the meter size installed on a property. The monthly service charge per equivalent meter per month is $37.17. However, the District wishes to maintain the same charge for the meter size 1-inch and below since all new meters being installed in the District's service area are 1-inch meters. The fixed service charge for 1-inch meter and below is therefore computed by taking the revenue requirements that need to be collected from these meters divided by the number of accounts, resulting in $38.22 per month. Table 5-7 shows the cost distribution of each cost causative component to different customer classes based on their service requirements. The total of $13.6 million is the revenue requirements that need to be collected from customers' fixed charges.

Table 5-7. Cost Allocation by Customer Class and Cost Component

	Equivalent Meter Counts	Base	Peaking (Max Day, Max Hour)	Meters	Fire Protection	Customer Billing Number of Bills	Customer/Billing
Residential Customers	27,268	$126,247	$6,120,990	$1,196,928	$383,938	305,964	$4,051,774
Commercial Customers	3,464	$16,037	$777,538	$152,044	$48,771	8,472	$112,192
Irrigation Customers	1,064	$4,925	$238,770	$46,690	$14,977	4,908	$64,995
Construction	177	$818	$11,161	$7,755	$2,488	204	$2,702
Private Fire Protection	875	$0	$196,343	$38,394	$0	1,968	$26,062
Total Fixed Charge Revenue Reuquirements	**32,846**	**$148,027**	**$7,344,802**	**$1,441,810**	**$450,173**	**321,516**	**$4,257,724**
							$13,642,536

Volumetric charges are established based on variable costs such as water purchases, treatment, and energy costs. The peaking and delivery costs on the volumetric side are the remaining fixed costs intended to be recovered from volumetric charges. Additionally, water conservation related costs must be recovered from tiers greater than customers' water budgets. Examples of the District's programs include conservation outreach such as contests, landscape workshops, trainings, and education programs.

Table 5-8 displays detailed cost allocations to Tier 1 through Tier 5 based on their characteristics.

Table 5-8. Distribution of Costs to Tiers (Test Year, CY 2020)

Variable Costs	CY 2020	Tier Components	CY 2020
Salaries	$112,075	all tiers	$0.02
Natural Gas - Wells & Boosters	$218,350	Tier 1	$0.07
Electricity - Wells & Boosters	$827,487	Tier 1	$0.25
Maint. & Rep. Operations - Wells	$82,297	Tier 1	$0.02
Maint. & Rep. Operations - Boosters	$51,435	all tiers	$0.01
Chemicals Tier 1	$238,410	Tier 1	$0.07
Chemicals Tier 2-5	$645,388	Tier 2	$0.17
		Tier 3	$0.17
		Tier 4	$0.17
		Tier 5	$0.17
Water Purchases Tier 1		Tier 1	$0.00
Water Purchases Tier 2	$1,113,893	Tier 2	$0.49
Water Purchases Tier 3-5	$899,647	Tier 3	$0.58
		Tier 4	$0.58
		Tier 5	$0.58
Water Quality (GAC Media) Tier 1	$4,428	Tier 1	$0.001
Water Quality (GAC Media) Tier 2-5	$11,986	Tier 2	$0.003
		Tier 3	$0.003
		Tier 4	$0.003
		Tier 5	$0.003
Total Variable Costs	**$4,205,396**		
Water Conservation Facilities Tier 3	$5,124	Tier 3	$0.01
Water Conservation Facilities Tier 4	$2,844	Tier 4	$0.01
Water Conservation Facilities Tier 5	$4,312	Tier 5	$0.01
Water Conservaion Other Tier 3	$97,887	Tier 3	$0.15
Water Conservaion Other Tier 4	$54,333	Tier 4	$0.15
Water Conservaion Other Tier 5	$82,375	Tier 5	$0.15
Water Conservaion Other Tier 4	$133,678	Tier 4	$0.37
Water Conservaion Other Tier 5	$15,254	Tier 5	$0.03
Water Conservation CIP related Tier 5	$2,131	Tier 5	$0.004
Water Conservation Rebate Program Tier3	$165,550	Tier 3	$0.26
Water Conservation Rebate Program Tier4	$35,475	Tier 4	$0.10
Water Conservation Rebate Program Tier5	$35,475	Tier 5	$0.07
Total Water Conservation Costs	**$634,438**		
Base Cost	$5,913,812	all tiers	$0.83
Peaking Tier 4 (Peaking)	$376,861	Tier 4	$1.05
Peaking Tier 5 (Peaking)	$1,507,445	Tier 5	$2.78
Total Delivery/Peaking Costs	**$7,798,118**		
Tier 1 Offset	-$1,295,000	Tier 1	-0.39
		Proposed Rates	**CY 2020**
Total Revenue Collected from Volumetric Charges	**$11,342,952**	Tier 1	$0.88
		Tier 2	$1.52
		Tier 3	$2.03
		Tier 4	$3.29
		Tier 5	$4.64

Based on the results from the financial planning and COS analysis, RDN developed water budget rates as shown in Table 5-9.

Table 5-9. Recommended Rates for CY 2020 (Test Year)

Fixed Charge		
	Meter Size	Per Month
Residential,	5/8 in	$38.22
Commercial,	3/4 in	$38.22
Irrigation	1 in	$38.22
	1 1/2 in	$92.99
	2 in	$140.84
	3 in	$252.48
	4 in	$412.05
	6 in	$810.62
	8 in	$1,289.09
	10 in	$1,847.47
Volumetric Charge		
	Tier Width	Per HCF
Tier 1	100% of Essential (Water Budget)	$0.88
Tier 2	100% of Efficient (Water Budget)	$1.52
Tier 3	100-130% of Total Water Budget (Tier 1 + Tier 2)	$2.03
Tier 4	130-160% of Total Water Budget (Tier 1 + Tier 2)	$3.29
Tier 5	160% and above of Total Water Budget (Tier 1 + Tier 2)	$4.64

Fixed Charges for Study Period

Table 5-10 presents the recommended rate adjustments for fixed charges for SFR, MFR, Irrigation, and Commercial customers through the study period.

Table 5-10. Current (CY 2019) and Recommended Fixed Charges, CY 2020 - CY 2024

Fixed Charge Monthly						
Meter Size	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
5/8-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
3/4-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
1-in	$37.77	$38.22	$41.60	$45.52	$49.79	$54.43
1 1/2-in	$113.30	$92.99	$101.49	$111.51	$122.47	$134.37
2-in	$173.74	$140.84	$153.81	$169.16	$185.96	$204.21
3-in	$314.78	$252.48	$275.89	$303.69	$334.10	$367.16
4-in	$516.26	$412.05	$450.38	$495.96	$545.84	$600.07
6-in	$1,019.96	$810.62	$886.21	$976.21	$1,074.72	$1,181.81
8-in	$1,624.40	$1,289.09	$1,409.41	$1,552.74	$1,709.62	$1,880.17
10-in	$2,329.60	$1,847.47	$2,019.99	$2,225.56	$2,450.56	$2,695.17

Volumetric Charges for Study Period

Table 5-11 presents recommended volumetric charges for the study period. Tier 6 was eliminated under the proposed rates because no costs can be associated with an additional usage tier. This also simplifies the tiered rate structure, which helps promote better customer understanding.

Table 5-11. Current (CY 2019) and Recommend Volumetric Charges, CY 2020 - CY 2024

Volumetric Charges per HCF						
Proposed Rates	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Tier 1	$0.88	$0.88	$0.93	$0.98	$1.03	$1.08
Tier 2	$1.01	$1.52	$1.63	$1.74	$1.86	$1.98
Tier 3	$2.86	$2.03	$2.15	$2.27	$2.40	$2.54
Tier 4	$4.31	$3.29	$3.51	$3.74	$3.98	$4.23
Tier 5	$5.57	$4.64	$5.01	$5.39	$5.79	$6.23
Tier 6	$7.16					

Fire Protection Service/Construction Meters

Private Fire Protection service accounts are normally charged a fixed monthly charge only. The costs allocated to these accounts include costs associated with peaking and customer/billing. Construction meters are excluded from the computation of peaking cost allocation because the service does not use the system's distribution. Private Fire Protection and Construction meter charges for the study period are shown in Table 5-12.

Table 5-12. Construction and Private Fire Protection Service Recommended Rates for the Study Period

Customer	Meter Size	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Construction	3-in	$118.06	$143.61	$178.87	$227.62	$298.20
	4-in	$187.97	$229.87	$287.89	$368.33	$485.11
Private Fire Protection	All	$132.52	$144.79	$159.31	$175.19	$192.47

Financial Planning with Proposed Rate Adjustments

Table 5-13 shows the financial plan under the proposed rates with an 8.1% annual rate adjustment. The cash balance of the District slips below the $10.0 million minimum cash reserve alert level during CY 2020 and CY 2021. However, the cash balance will reach the reserve target of $16.2 million by the end of CY 2023, and will be maintained through the remaining study period.

Table 5-13. Financial Plan, CY 2019 (Current Year) plus CY 2020 – CY 2024

Description	CY 2019 Current Year	CY 2020 Test Year	CY 2021	CY 2022	CY 2023	CY 2024
Operating Revenues	**$24,302,036**	**$26,158,114**	**$28,155,340**	**$30,311,634**	**$32,651,258**	**$35,181,866**
Water Sales - Proposed	$23,132,036	$24,985,489	$26,980,083	$29,133,735	$31,470,711	$33,998,662
Other Operating Revenues	$1,170,000	$1,172,625	$1,175,258	$1,177,899	$1,180,547	$1,183,204
O&M Expenses	**($21,834,755)**	**($23,104,573)**	**($23,816,843)**	**($24,555,534)**	**($25,323,517)**	**($26,124,472)**
Net Operating Revenues	$2,467,282	$3,053,541	$4,338,497	$5,756,100	$7,327,741	$9,057,395
Non-operating Revenues	$2,850,000	$2,896,525	$2,943,971	$2,992,357	$3,039,261	$3,087,047
Other Obligations	**($7,967,239)**	**($11,146,722)**	**($5,955,151)**	**($7,287,525)**	**($7,196,993)**	**($12,856,425)**
Debt Service Principal	($1,870,195)	($1,927,762)	($1,998,889)	($2,728,646)	($2,602,628)	($2,810,000)
Debt Service Interest	($2,596,719)	($2,539,462)	($2,469,762)	($3,072,379)	($3,107,865)	($3,031,569)
Change in Investment in PRWA	($300,000)	($300,000)	($300,000)	($300,000)	($300,000)	($300,000)
Water Rebate Program	($236,500)	($236,500)	($236,500)	($236,500)	($236,500)	($236,500)
Contribution to Reserves	$522,151	($950,000)	($950,000)	($950,000)	($950,000)	($950,000)
Capital PAYGO	($3,485,977)	($5,192,998)	-	-	-	($5,528,357)
Net Balance	($2,649,957)	($5,196,656)	$1,327,317	$1,460,933	$3,170,009	($711,984)
Beginning of the Year Balance		$11,649,020	$7,402,364	$9,679,681	$12,090,613	$16,210,622
Ending Balance	**$11,649,020**	**$7,402,364**	**$9,679,681**	**$12,090,613**	**$16,210,622**	**$16,448,639**

6. BILL IMPACTS

RDN performed a bill impact analysis to find the least impact on the customer bills among all customers. Note that the bill impacts shown below only reflect the test year rates.

Bill Impact on a Hypothetical Customer with a Median Parcel Size Lot

This analysis compares a hypothetical customer's bill under current and proposed rates. Under the current rates, a customer, whose parcel is defined as a median, receives indoor water allocation of 11 hcf, assuming the customer's household size is 4, and outdoor water allocation of 13 hcf, which totals 24 hcf of water budget. Under the proposed rates, the same customer receives 9 hcf of water for the indoor allocation and 8 hcf of outdoor water, which totals 17 hcf of budgeted water. Figure 6-1 shows the hypothetical effect on a customer with a median parcel across all ranges of use. Figure 6-2 shows the hypothetical effect on a customer with a large parcel (8,364 sq. ft. of irrigable area) across all ranges of use.

Figure 6-1. Bill Impact on SFR Customers with Median Parcel Size

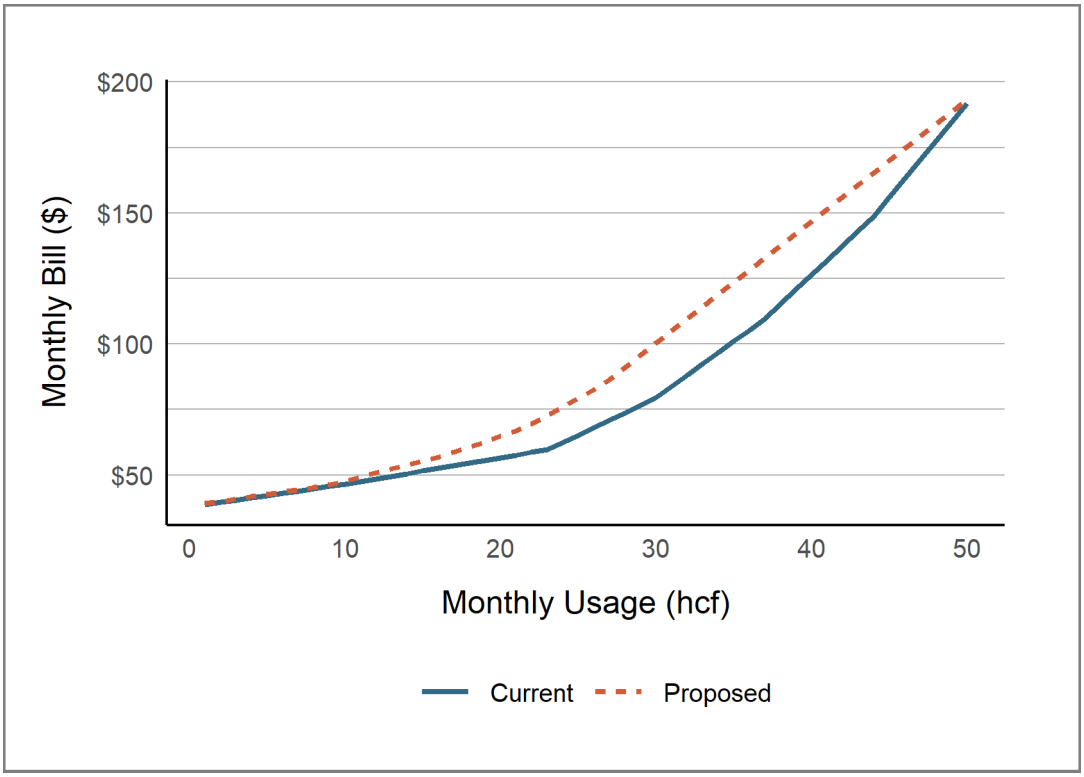
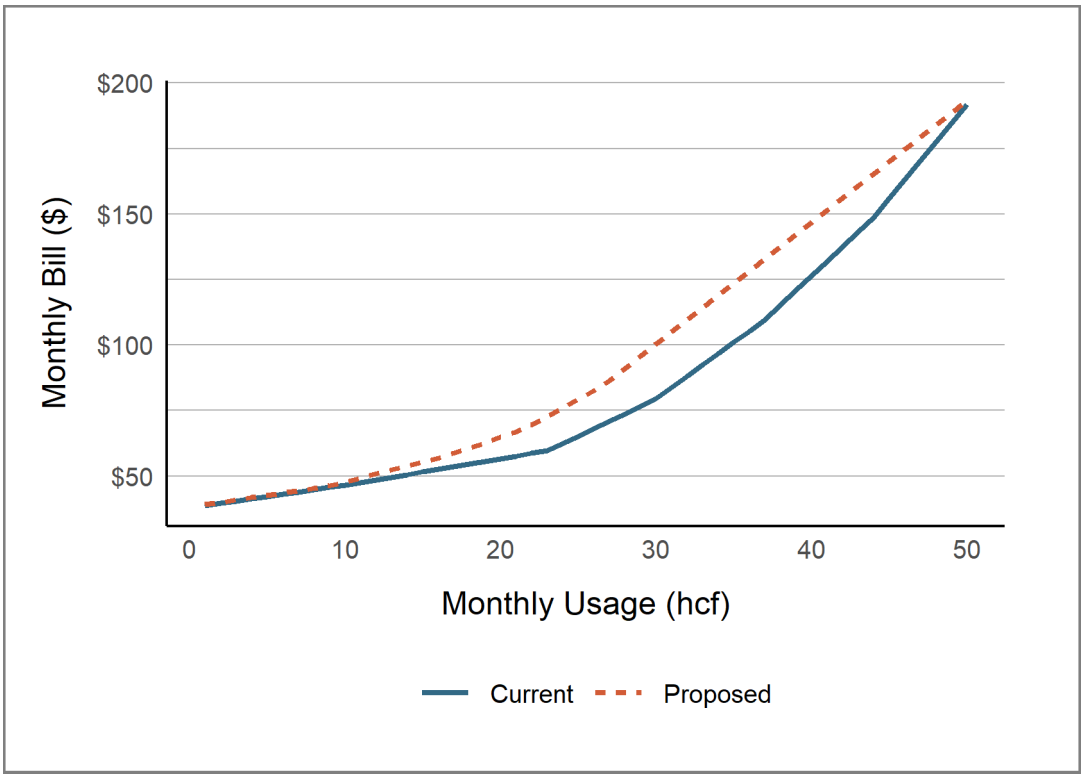


Figure 6-2. Bill Impact on SFR Customers with a Large Parcel

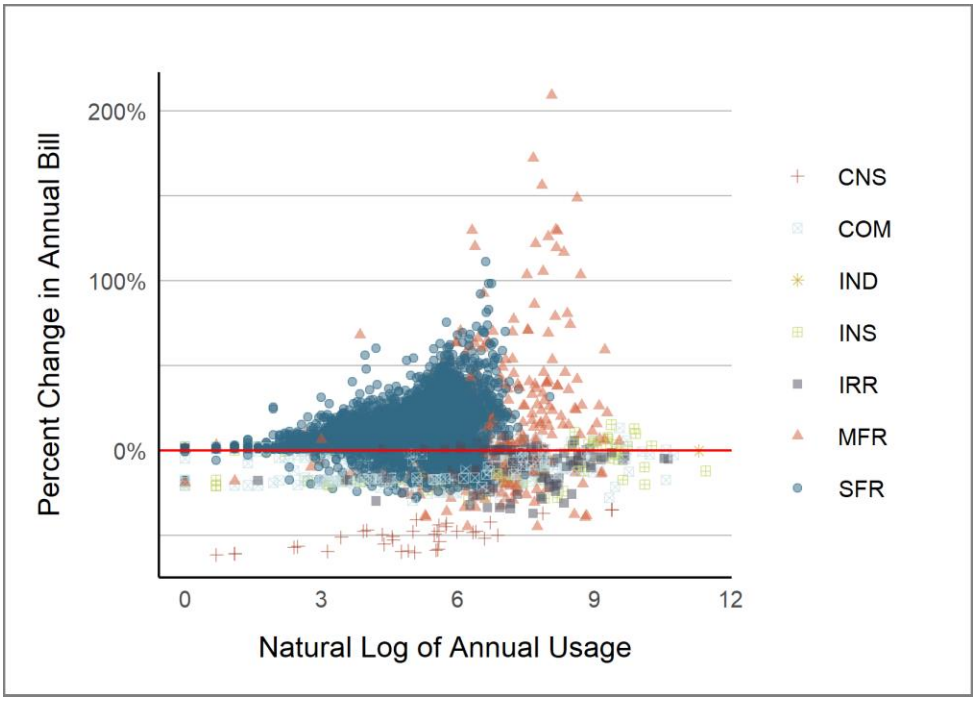


Bill Impacts on Actual Customers

The previous section provides insight into the effects of the rate changes on hypothetical customers. However, in order to fully understand the impacts of the proposed rates it is necessary to take into account the distribution of customers across customer classes.

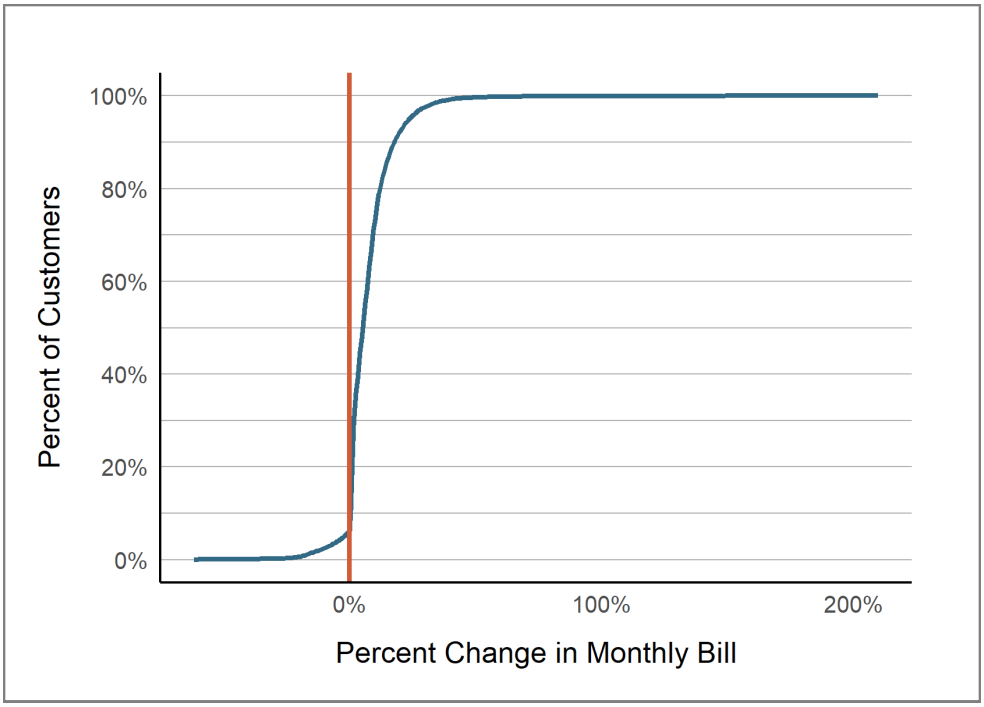
To begin the analysis, Figure 6-3 displays a scatterplot of the change in annual bill of all customers. The annual bill is the sum of all monthly bills and has been used to reduce the number of observations. In addition, using the annual bill ignores seasonal effects, implying that each point represents the total effect of the rate change for one customer. The natural logarithm of annual usage has been used for the x-axis for visualization purposes - small numbers of large users obfuscate patterns for the majority of users when plotting in levels. Figure 6-3 further demonstrates how many of the District's customers are comprised of SFR accounts.

Figure 6-3. Annual Customer Bills by Percent Change



We examined the effect of the proposed rates on the entire distribution of customers in the cumulative distribution function in Figure 6-4. The x-axis is the percentage change in monthly bill, and the y-axis is the percentage of customers that experience the corresponding percentage change in their monthly bills. Customers to the left of the red line will experience a bill decrease, and the customers to the right of the red line will experience a bill increase. This plot tells us that about half of customers will experience a maximum bill increase of less than 4%.

Figure 6-4. Customer Rate Change Distribution under Proposed Rates



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7. DROUGHT SURCHARGE

Revenue that is lost during mandatory cutbacks is revenue the District still requires to cover its costs whether or not water is available from the State or elsewhere. Not all fixed costs are recovered from the District's fixed charges, and the District relies upon estimated consumption to recover its fixed costs, which is reduced during times of drought. Additionally, there are additional costs to the District during drought and mandatory cutbacks, including, but not limited to, enforcement of State mandated restrictions on customers and additional reporting to the State.

A drought surcharge is recommended based on the Board Resolution No. 09-04, which calls for 3 stages of mandatory cutbacks of 20%, 30%, and 40% of water deliveries. RDN calculated estimated usage reductions per customer. Rather than a percentage reduction uniformly across each tier, it is more realistic for customers to reduce excessive use before essential use. Additionally, tier widths above Tier 1 contract due to the application of drought factors, which means that in a 20% cutback, Tier 3 use actually increases due to Tier 2 including less water. Table 7-1 shows the estimated overall use reductions based on individual customer responses to State drought mandates for 2020 if it is a drought year. Reductions were calculated for each year of the study period based on the total projected use for that year using the percentages calculated for 2020.

Table 7-1. Drought Reductions Based on Individual Customer Use Reduction, 2020

Tier	2020 Baseline	20% Reduction	% of Baseline	30% Reduction	% of Baseline	40% Reduction	% of Baseline
Tier 1	3,319,824	2,651,911	-20.1%	2,318,807	-30.2%	1,985,708	-40.2%
Tier 2	2,252,894	1,798,953	-20.1%	1,572,774	-30.2%	1,346,596	-40.2%
Tier 3	644,921	724,840	12.4%	633,706	-1.7%	542,574	-15.9%
Tier 4	357,966	265,272	-25.9%	231,919	-35.2%	198,567	-44.5%
Tier 5	542,716	253,681	-53.3%	225,619	-58.4%	197,548	-63.6%
Total	7,118,322	5,694,658	-20.0%	4,982,825	-30.0%	4,270,993	-40.0%

While revenues ultimately decrease overall due to drought mandates, some variable costs associated with water purchases also decrease, softening the impact on the District. Customer use reduction will spur a lower demand for SWP water purchases by the District, reducing the total cost of purchased water. A calculation of the necessary drought surcharges also includes a reduction in the cost for purchased water. Table 7-2 shows the reduction in SWP costs under various drought stages based on the usage estimates provided in Table 7-1. Those reductions are applied to the total revenues, which need to be recovered from water sales.

Table 7-2. Water Purchase Offset, CY 2020 to CY 2024

	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Estimated State Water Purchase Cost	$2,013,540	$2,156,336	$2,309,226	$2,473,760	$2,651,967
Estimated State Water Volume	3,788,596	3,778,095	3,767,509	3,759,243	3,756,195
Estimated Per Unit Cost	$0.53	$0.57	$0.61	$0.66	$0.71
State Water Purchase Offset 20 %	$756,641	$811,353	$870,024	$932,976	$1,000,567
State Water Purchase Offset 30 %	$1,134,961	$1,217,030	$1,305,036	$1,399,464	$1,500,851
State Water Purchase Offset 40 %	$1,513,281	$1,622,707	$1,740,049	$1,865,951	$2,001,135

Based on the differences between drought revenues and revenue requirements, unit costs were calculated as drought surcharges so that the District can maintain sufficient revenues during mandated reduction stages. Surcharge unit costs through the study period are shown in Table 7-3.

Table 7-3. Drought Surcharges in per HCF, CY 2020 to CY 2024

Drought Mandate	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
20% Surcharge	$0.35	$0.38	$0.40	$0.42	$0.45
30% Surcharge	$0.54	$0.58	$0.61	$0.65	$0.69
40% Surcharge	$0.79	$0.84	$0.89	$0.94	$1.00

8. BILL COMPARISON

There are significant differences in the rates and rate structures of water providers in the neighboring communities of Palmdale Water District (PWD). Some of the differences are because of administrative paradigms, which are unique to each agency. For example, investor-owned utilities are allowed to make a profit on their water service, whereas municipal ones are not. Furthermore, customer rates can be affected by outside funding sources such as property taxes and transfers. Additionally, the costs associated with different water sources may affect rates. Finally, the rate structure itself may influence which types of users pay a proportion of costs. Figure 8-1 and Figure 8-2 show projected water rates in July 2020 for 15 local providers at 17 and 45 ccf of use. The usage level at 17 ccf was chosen because it represents the average customer usage for PWD customers. Additionally, to ensure an equal comparison, all variables were controlled for when possible, i.e., lot size, meter size, and season. Also shown is the proposed rates for PWD. Predictably, when customers use more water, their rates increase. The rate structure of each agency dictates the price differences between usage levels. Individual water rates range between $38.56 and $111.68 at 17 ccf of usage and between $67.97 and $260.31 at 45 ccf of usage. The new rates proposed by PWD will fund O&M expenses, contribute to reserves, and allow significant CIP spending. Following is a list of the agencies compared in this study:

- Littlerock Creek Irrigation District (LCID)
- Los Angeles County Waterworks District Region 40, Lancaster (LACWWD-40)
- Quartz Hill Water District (QHWD)
- The City of Hesperia (Hesperia)
- Rosamond Community Services District (RCSD)
- Helendale Community Services District (HCSD)
- Victorville Water District (Victorville)
- PWD - Current Rates
- Palm Ranch Irrigation District (PRID)
- Los Angeles County Waterworks District Region 34, Desert View (LACWWD-34)
- Indian Wells Valley Water District (IWVWD)
- California City
- Santa Clarita Valley Water Agency (SCVWA)
- Golden State Water Company - Barstow/Apple Valley/Wrightwood (GSW)
- CalWater - Antelope Valley

For PWD customers using 17 ccf, their bill will remain significantly below the regional average of customer bills. The average customer who uses 17 ccf is staying within their water budget. For PWD customers using 45 ccf, their bill will be slightly above the regional average of customer bills. The average customer using 45 ccf is well above their water budget. The extra Tier 3 through Tier 5 use this customer is incurring is being billed at a higher level because it is deemed outside of both essential and efficient use. Customers with larger lots than the average customer will have more budgeted water and thus lower bills relatively. Even at the high level of usage incurred at 45 ccf, PWD customers will still have lower bills than approximately 40% of neighboring agency customers.

Figure 8-1. Rate Comparison for Customers Using 17 ccf, July 2020

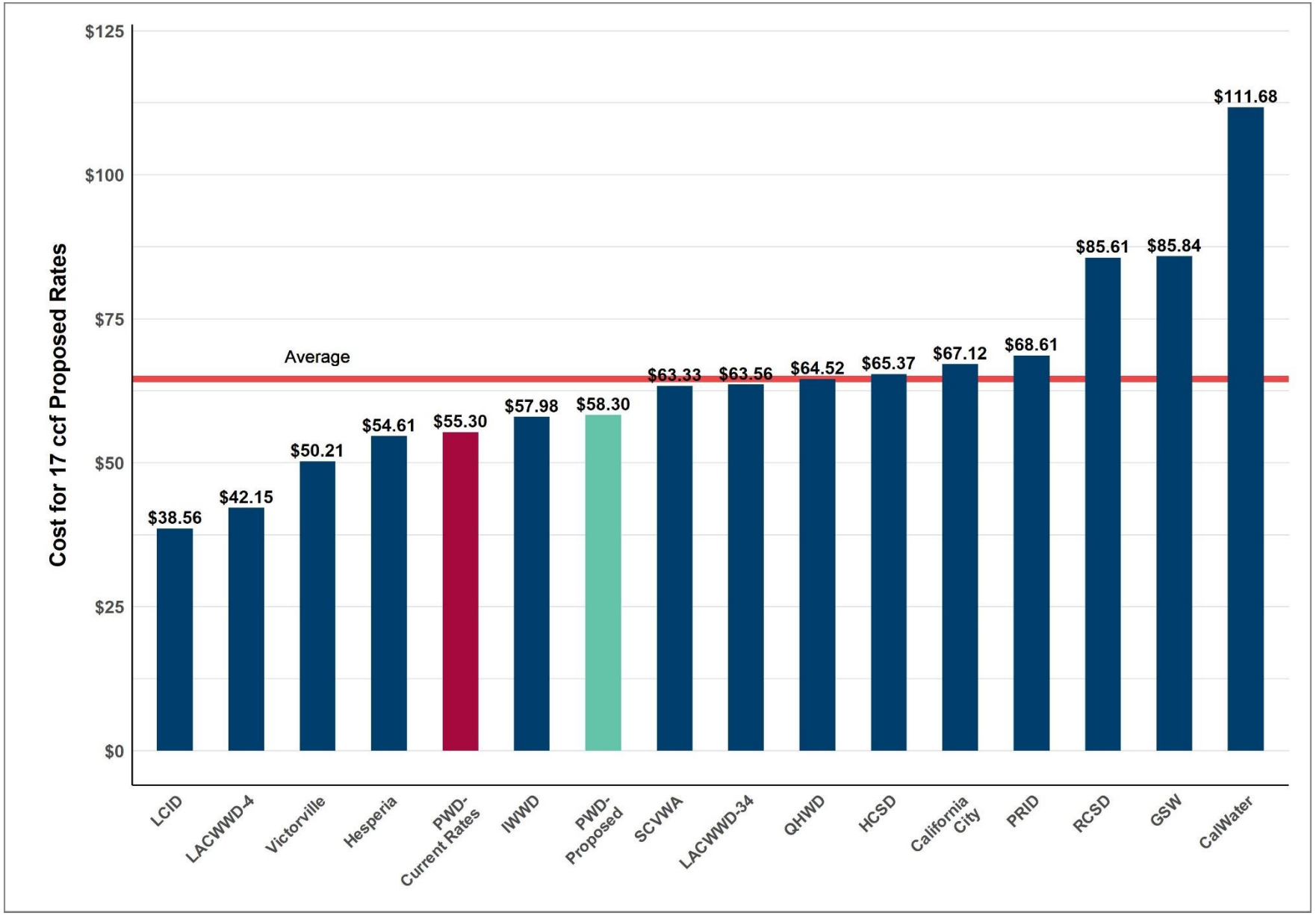
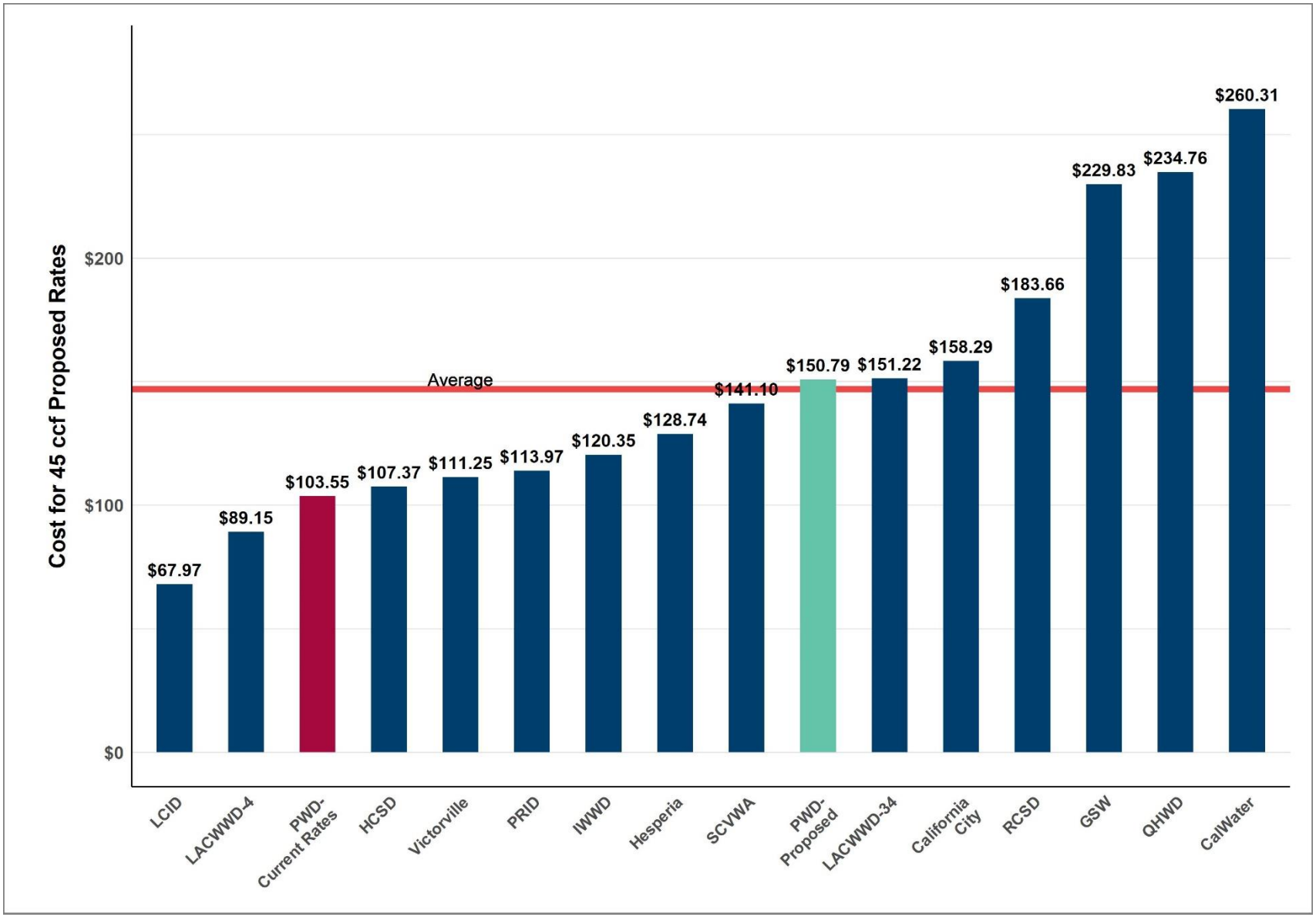


Figure 8-2. Rate Comparison for Customers Using 45 ccf, July 2020



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APPENDIX

Detailed O&M Expense Projection

Description	Escalated by	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025	CY 2026	CY 2027	CY 2028	CY 2029
Directors Fees	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payroll Taxes	Employee Expenses Inflation Rate:	$5,643	$5,790	$5,940	$6,095	$6,253	$6,416	$6,583	$6,754	$6,929	$7,109
Health Insurance	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Director's Travel, Seminars & Meetings	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Director's Expense Share - Alverado, Robert	Employee Expenses Inflation Rate:	$27,702	$28,422	$29,161	$29,919	$30,697	$31,495	$32,314	$33,155	$34,017	$34,901
Director's Expense Share - Mac Laren, Kathy	Employee Expenses Inflation Rate:	$27,702	$28,422	$29,161	$29,919	$30,697	$31,495	$32,314	$33,155	$34,017	$34,901
Director's Expense Share - Estes, Joe	Employee Expenses Inflation Rate:	$27,702	$28,422	$29,161	$29,919	$30,697	$31,495	$32,314	$33,155	$34,017	$34,901
Director's Expense Share - Dino, Vincent	Employee Expenses Inflation Rate:	$27,702	$28,422	$29,161	$29,919	$30,697	$31,495	$32,314	$33,155	$34,017	$34,901
Director's Expense Share - Henriquez, Marco	Employee Expenses Inflation Rate:	$27,702	$28,422	$29,161	$29,919	$30,697	$31,495	$32,314	$33,155	$34,017	$34,901
Salaries	Employee Expenses Inflation Rate:	$1,385,100	$1,421,113	$1,458,062	$1,495,971	$1,534,866	$1,574,773	$1,615,717	$1,657,726	$1,700,827	$1,745,048
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$14,364	$14,737	$15,121	$15,514	$15,917	$16,331	$16,756	$17,191	$17,638	$18,097
Payroll Taxes	Employee Expenses Inflation Rate:	$99,009	$101,583	$104,224	$106,934	$109,715	$112,567	$115,494	$118,497	$121,578	$124,739
Health Insurance	Employee Expenses Inflation Rate:	$199,044	$204,219	$209,529	$214,977	$220,566	$226,301	$232,185	$238,221	$244,415	$250,770
Pers	Employee Expenses Inflation Rate:	$123,120	$126,321	$129,605	$132,975	$136,433	$139,980	$143,619	$147,353	$151,185	$155,115
Salaries-On-Call/Stand By Time	Employee Expenses Inflation Rate:	$107,730	$110,531	$113,405	$116,353	$119,378	$122,482	$125,667	$128,934	$132,287	$135,726
Salaries-Public Relations Overtime	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
PERS-Unfunded Liability	Employee Expenses Inflation Rate:	$717,174	$735,821	$754,952	$774,581	$794,720	$815,382	$836,582	$858,333	$880,650	$903,547
Worker's Compensation	Employee Expenses Inflation Rate:	$384,750	$394,754	$405,017	$415,548	$426,352	$437,437	$448,810	$460,479	$472,452	$484,736
Vacation Benefit Expense	Employee Expenses Inflation Rate:	$25,650	$26,317	$27,001	$27,703	$28,423	$29,162	$29,921	$30,699	$31,497	$32,316
Life Insurance/EAP	Employee Expenses Inflation Rate:	$6,669	$6,842	$7,020	$7,203	$7,390	$7,582	$7,779	$7,982	$8,189	$8,402
Staff Travel	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
General Manager Travel	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Staff Conferences & Seminars	Overall Inflation Rate:	$6,146	$6,296	$6,449	$6,606	$6,767	$6,932	$7,101	$7,274	$7,451	$7,632
General Manager Conferences & Seminars	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Employee Expense	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Settlements	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Settlements - City of Palmdale	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Settlements - Mr. Hill's Contract	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Bank Charges	Overall Inflation Rate:	$153,653	$157,395	$161,229	$165,155	$169,177	$173,298	$177,518	$181,841	$186,270	$190,807
Legal Services - Consultants	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Accounting Services	Overall Inflation Rate:	$25,609	$26,233	$26,871	$27,526	$28,196	$28,883	$29,586	$30,307	$31,045	$31,801
Contracted Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Landscape Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Janatorial Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Elevator Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - GASB45 Actuarial	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Collection Related Fees	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Permits (Construction)	Overall Inflation Rate:	$17,926	$18,363	$18,810	$19,268	$19,737	$20,218	$20,710	$21,215	$21,732	$22,261
Postage	Overall Inflation Rate:	$25,609	$26,233	$26,871	$27,526	$28,196	$28,883	$29,586	$30,307	$31,045	$31,801
Public Relations	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Relations - Publications	Overall Inflation Rate:	$30,731	$31,479	$32,246	$33,031	$33,835	$34,660	$35,504	$36,368	$37,254	$38,161
Public Affairs - Marketing/Outreach	Overall Inflation Rate:	$25,609	$26,233	$26,871	$27,526	$28,196	$28,883	$29,586	$30,307	$31,045	$31,801
Public Affairs - Advertising	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Public Affairs - Equipment	Equipment Inflation Rate:	$2,521	$2,542	$2,564	$2,586	$2,608	$2,630	$2,652	$2,674	$2,697	$2,720
Public Affairs - Conference/Seminar/Travel	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Public Affairs - Consultants	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Public Affairs - Memberships	Overall Inflation Rate:	$717	$735	$752	$771	$789	$809	$828	$849	$869	$890
Public Relations - Other	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Advertising	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Office Supplies	Overall Inflation Rate:	$25,097	$25,708	$26,334	$26,975	$27,632	$28,305	$28,995	$29,701	$30,424	$31,165
Office Furniture	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Other Operating	Overall Inflation Rate:	$25,609	$26,233	$26,871	$27,526	$28,196	$28,883	$29,586	$30,307	$31,045	$31,801
Consultants	Overall Inflation Rate:	$239,699	$245,537	$251,517	$257,642	$263,917	$270,344	$276,928	$283,673	$290,581	$297,658
Insurance	Overall Inflation Rate:	$286,819	$293,805	$300,960	$308,290	$315,798	$323,489	$331,367	$339,437	$347,704	$356,172
Groundwater Adjudication - Legal	Overall Inflation Rate:	$40,974	$41,972	$42,994	$44,041	$45,114	$46,213	$47,338	$48,491	$49,672	$50,882
Legal Services	Overall Inflation Rate:	$128,044	$131,163	$134,357	$137,629	$140,981	$144,415	$147,932	$151,535	$155,225	$159,006
Memberships	Overall Inflation Rate:	$128,044	$131,163	$134,357	$137,629	$140,981	$144,415	$147,932	$151,535	$155,225	$159,006
Elections	Overall Inflation Rate:	$29,194	$29,905	$30,633	$31,379	$32,144	$32,927	$33,728	$34,550	$35,391	$36,253
Succession Planning	Overall Inflation Rate:	$138,288	$141,656	$145,106	$148,640	$152,260	$155,968	$159,766	$163,657	$167,643	$171,726
Groundwater Adjudication - Pumping Assessment	Purchased Water Inflation Rate	$46,118	$49,461	$53,047	$56,893	$61,018	$65,441	$70,186	$75,274	$80,732	$86,585
100th Anniversary	No Escalation:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Salaries	Employee Expenses Inflation Rate:	$1,120,752	$1,149,721	$1,179,439	$1,209,963	$1,241,369	$1,273,614	$1,306,696	$1,340,614	$1,375,401	$1,411,103
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$11,543	$11,843	$12,151	$12,466	$12,791	$13,123	$13,464	$13,814	$14,174	$14,542
Payroll Taxes	Employee Expenses Inflation Rate:	$84,132	$86,319	$88,564	$90,866	$93,229	$95,653	$98,140	$100,691	$103,309	$105,996
Health Insurance	Employee Expenses Inflation Rate:	$216,486	$222,115	$227,890	$233,815	$239,894	$246,131	$252,531	$259,096	$265,833	$272,745
PERS	Employee Expenses Inflation Rate:	$108,756	$111,584	$114,485	$117,461	$120,515	$123,649	$126,864	$130,162	$133,546	$137,019
Staff Travel	Overall Inflation Rate:	$4,610	$4,722	$4,837	$4,955	$5,075	$5,199	$5,326	$5,455	$5,588	$5,724
Staff Conferences & Seminars	Overall Inflation Rate:	$4,917	$5,037	$5,159	$5,285	$5,414	$5,546	$5,681	$5,819	$5,961	$6,106
Contracted Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Staff Training - Auto CAD Civil 3D	Overall Inflation Rate:	$13,317	$13,641	$13,973	$14,313	$14,662	$15,019	$15,385	$15,760	$16,143	$16,537
Contracted Services - GIS Services	Overall Inflation Rate:	$18,438	$18,887	$19,347	$19,819	$20,301	$20,796	$21,302	$21,821	$22,352	$22,897
Contracted Services - Reproduction	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Contracted Services - Prod./Demand Database	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Plotter/Scanner	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Backflow Software	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services -	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Memberships/Subscriptions	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
General Materials & Supplies	Equipment Inflation Rate:	$3,530	$3,559	$3,590	$3,620	$3,651	$3,681	$3,713	$3,744	$3,776	$3,808
Supplies - Plotter Paper/Toner	Equipment Inflation Rate:	$4,538	$4,576	$4,615	$4,654	$4,694	$4,733	$4,773	$4,814	$4,855	$4,896
Supplies - Surveying Total Station	Equipment Inflation Rate:	$2,521	$2,542	$2,564	$2,586	$2,608	$2,630	$2,652	$2,674	$2,697	$2,720
Supplies - Miscellaneous	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Inspection - Non Recovered	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance & Repair - Office Equipment	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Computer Software - Maint. & Support	Equipment Inflation Rate:	$31,262	$31,527	$31,794	$32,063	$32,334	$32,607	$32,883	$33,162	$33,442	$33,725
Computer Software - SCADAWatch	Equipment Inflation Rate:	$7,563	$7,627	$7,692	$7,757	$7,823	$7,889	$7,956	$8,023	$8,091	$8,159
Salaries	Employee Expenses Inflation Rate:	$2,310,039	$2,370,100	$2,431,723	$2,494,947	$2,559,816	$2,626,371	$2,694,657	$2,764,718	$2,836,601	$2,910,352
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$117,990	$121,058	$124,205	$127,435	$130,748	$134,147	$137,635	$141,214	$144,885	$148,652
Payroll Taxes	Employee Expenses Inflation Rate:	$185,706	$190,534	$195,488	$200,571	$205,786	$211,136	$216,626	$222,258	$228,037	$233,966
Health Insurance	Employee Expenses Inflation Rate:	$485,298	$497,916	$510,862	$524,144	$537,772	$551,754	$566,099	$580,818	$595,919	$611,413
PERS	Employee Expenses Inflation Rate:	$236,493	$242,642	$248,951	$255,423	$262,064	$268,878	$275,869	$283,041	$290,400	$297,951
Staff Travel	Overall Inflation Rate:	$6,146	$6,296	$6,449	$6,606	$6,767	$6,932	$7,101	$7,274	$7,451	$7,632
Staff Conferences & Seminars	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Contracted Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Landscape Svcs (All Sites)	Overall Inflation Rate:	$15,877	$16,264	$16,660	$17,066	$17,482	$17,907	$18,344	$18,790	$19,248	$19,717
Contracted Services - Landscape Svcs (Wells)	Overall Inflation Rate:	$38,925	$39,873	$40,845	$41,839	$42,858	$43,902	$44,971	$46,067	$47,188	$48,338
Contracted Services - Alarm Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Janitorial Services (All Sites)	Overall Inflation Rate:	$46,096	$47,219	$48,369	$49,547	$50,753	$51,989	$53,255	$54,552	$55,881	$57,242
Contracted Services - Pest Control Svcs (Contracted)	Overall Inflation Rate:	$6,146	$6,296	$6,449	$6,606	$6,767	$6,932	$7,101	$7,274	$7,451	$7,632
Contracted Services - Pest Control Svcs (Plm Dam)	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Contracted Services - Elevator Services	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Contracted Services - SCADA Software	No Escalation:	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000
Contracted Services - SCADA Hardware	No Escalation:	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Contracted Services - Seismic Valve Controllers	Overall Inflation Rate:	$7,683	$7,870	$8,061	$8,258	$8,459	$8,665	$8,876	$9,092	$9,314	$9,540
Contracted Services - Annual Tank Service	Overall Inflation Rate:	$102,435	$104,930	$107,486	$110,103	$112,785	$115,532	$118,345	$121,228	$124,180	$127,204
Contracted Services - Fire Extinguisher Servicing	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Contracted Services - Firetide Radio	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Clearscada	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Contracted Services - Fenway	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Miscellaneous	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Permits (District Facilities including Dams)	Overall Inflation Rate:	$40,974	$41,972	$42,994	$44,041	$45,114	$46,213	$47,338	$48,491	$49,672	$50,882
Natural Gas - Wells & Boosters	Utility/Chemical Inflation Rate:	$218,350	$227,008	$236,005	$245,440	$255,439	$265,895	$276,779	$288,060	$299,773	$311,991
Natural Gas - Buildings	Utility/Chemical Inflation Rate:	$9,371	$9,757	$10,158	$10,577	$11,013	$11,466	$11,938	$12,430	$12,942	$13,475
Electricity - Wells & Boosters	Utility/Chemical Inflation Rate:	$827,487	$860,298	$894,397	$930,150	$968,043	$1,007,671	$1,048,919	$1,091,670	$1,136,060	$1,182,362
Electricity - Buildings	Utility/Chemical Inflation Rate:	$91,624	$95,398	$99,327	$103,418	$107,678	$112,113	$116,730	$121,538	$126,544	$131,756
Maint. & Repair - Vehicles	Construction Inflation Rate:	$33,479	$34,487	$35,526	$36,596	$37,698	$38,834	$40,003	$41,208	$42,449	$43,728
Maint. & Rep. Operations - Office Building	Construction Inflation Rate:	$25,753	$26,529	$27,328	$28,151	$28,999	$29,872	$30,772	$31,699	$32,653	$33,637
Maint. & Rep. Office - Equipment	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maint. & Rep. Operations - Equipment	Construction Inflation Rate:	$12,361	$12,734	$13,117	$13,512	$13,919	$14,339	$14,770	$15,215	$15,674	$16,146
Maint. & Rep. Operations - Wells	Construction Inflation Rate:	$82,297	$84,650	$87,070	$89,588	$92,247	$95,002	$97,840	$100,745	$103,727	$106,807
Maint. & Rep. Operations - Boosters	Construction Inflation Rate:	$51,435	$52,906	$54,419	$55,993	$57,654	$59,376	$61,150	$62,966	$64,829	$66,754
Maint. & Rep. Operations - Shop Bldgs	Construction Inflation Rate:	$25,753	$26,529	$27,328	$28,151	$28,999	$29,872	$30,772	$31,699	$32,653	$33,637
Maint. & Rep. Operations - Facilities	Construction Inflation Rate:	$51,506	$53,057	$54,655	$56,301	$57,997	$59,744	$61,543	$63,397	$65,306	$67,273
Maint. & Rep. Operations - Water Lines	Construction Inflation Rate:	$309,036	$318,343	$327,932	$337,809	$347,983	$358,464	$369,260	$380,382	$391,839	$403,640
Maint. & Rep. Operations - Littlerock Dam	Construction Inflation Rate:	$15,452	$15,917	$16,397	$16,890	$17,399	$17,923	$18,463	$19,019	$19,592	$20,182
Maint. & Rep. Operations - Palmdale Dam	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maint. & Rep. Operations - Palmdale Canal	Construction Inflation Rate:	$10,301	$10,611	$10,931	$11,260	$11,599	$11,949	$12,309	$12,679	$13,061	$13,455
Maint. & Rep. Operations - Large Meters	Construction Inflation Rate:	$15,452	$15,917	$16,397	$16,890	$17,399	$17,923	$18,463	$19,019	$19,592	$20,182
Maint. & Rep. Operations - Telemetry	Construction Inflation Rate:	$5,151	$5,306	$5,466	$5,630	$5,800	$5,974	$6,154	$6,340	$6,531	$6,727
Maint. & Rep. Operations - Hypo Generators	Construction Inflation Rate:	$7,726	$7,959	$8,198	$8,445	$8,700	$8,962	$9,232	$9,510	$9,796	$10,091
Maint. & Rep. Operations - Heavy Equipment	Construction Inflation Rate:	$43,780	$45,099	$46,457	$47,856	$49,298	$50,782	$52,312	$53,887	$55,510	$57,182
Maint. & Rep. Operations - Storage Reservoirs	Construction Inflation Rate:	$5,151	$5,306	$5,466	$5,630	$5,800	$5,974	$6,154	$6,340	$6,531	$6,727
Maint. & Rep. Operations - Fire Hydrants	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Maint. & Rep. Operations - Air Vacs	Construction Inflation Rate:	$5,151	$5,306	$5,466	$5,630	$5,800	$5,974	$6,154	$6,340	$6,531	$6,727
Maint. & Rep. Operations - Meter Exchanges	Construction Inflation Rate:	$154,518	$159,172	$163,966	$168,904	$173,991	$179,232	$184,630	$190,191	$195,919	$201,820
Materials - Hot Tapping	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Telecommunication - Other	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Testing - Regulatory Compliance	Overall Inflation Rate:	$20,487	$20,986	$21,497	$22,021	$22,557	$23,106	$23,669	$24,246	$24,836	$25,441
Testing - Large Meter Testing	Overall Inflation Rate:	$12,804	$13,116	$13,436	$13,763	$14,098	$14,441	$14,793	$15,153	$15,523	$15,901
Testing - Edison Testing	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Service Costs Construction	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Groundwater Adjudication - Pumping Assessment	Purchased Water Inflation Rate	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Waste Disposal	Utility/Chemical Inflation Rate:	$20,824	$21,681	$22,574	$23,504	$24,472	$25,480	$26,530	$27,622	$28,760	$29,944
Fuel - Gas and Diesel	Fuels and Automobile Inflation Rate:	$138,809	$143,790	$148,951	$154,296	$159,834	$165,570	$171,511	$177,667	$184,043	$190,647
Lubricates District Wide	Fuels and Automobile Inflation Rate:	$25,897	$26,827	$27,789	$28,787	$29,820	$30,890	$31,998	$33,147	$34,336	$35,569
Uniforms	Equipment Inflation Rate:	$28,237	$28,476	$28,717	$28,960	$29,205	$29,452	$29,701	$29,952	$30,206	$30,461
Supplies	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - General	Equipment Inflation Rate:	$75,635	$76,275	$76,920	$77,571	$78,227	$78,889	$79,557	$80,230	$80,909	$81,593
Supplies - Hypo Generators	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Electrical	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Supplies - Telemetry	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Construction Materials	Equipment Inflation Rate:	$35,296	$35,595	$35,896	$36,200	$36,506	$36,815	$37,126	$37,441	$37,757	$38,077
Tools	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tools - Facilities	Equipment Inflation Rate:	$35,296	$35,595	$35,896	$36,200	$36,506	$36,815	$37,126	$37,441	$37,757	$38,077
Tools - Vehicles	Equipment Inflation Rate:	$10,085	$10,170	$10,256	$10,343	$10,430	$10,519	$10,608	$10,697	$10,788	$10,879
Equipment - Firetide Radios	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Equipment - GF Signet Flow Meters	Equipment Inflation Rate:	$7,563	$7,627	$7,692	$7,757	$7,823	$7,889	$7,956	$8,023	$8,091	$8,159
Equipment - SCADA Workstations	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Equipment - Compound Meters	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Leases - Equipment	Equipment Inflation Rate:	$15,127	$15,255	$15,384	$15,514	$15,645	$15,778	$15,911	$16,046	$16,182	$16,319
Leases - Fleet	Equipment Inflation Rate:	$141,185	$142,379	$143,584	$144,799	$146,024	$147,260	$148,506	$149,762	$151,029	$152,307
Salaries	Employee Expenses Inflation Rate:	$1,032,669	$1,059,518	$1,087,066	$1,115,330	$1,144,328	$1,174,081	$1,204,607	$1,235,927	$1,268,061	$1,301,030
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$75,411	$77,372	$79,383	$81,447	$83,565	$85,738	$87,967	$90,254	$92,601	$95,008
Payroll Taxes	Employee Expenses Inflation Rate:	$83,106	$85,267	$87,484	$89,758	$92,092	$94,486	$96,943	$99,464	$102,050	$104,703
Health Insurance	Employee Expenses Inflation Rate:	$183,654	$188,429	$193,328	$198,355	$203,512	$208,803	$214,232	$219,802	$225,517	$231,380
PERS	Employee Expenses Inflation Rate:	$104,652	$107,373	$110,165	$113,029	$115,968	$118,983	$122,076	$125,250	$128,507	$131,848
Staff Travel	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Staff Conferences & Seminars	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Training - Lab Equipment	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Training - SCADA Network Equipment	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Landscape Services	Overall Inflation Rate:	$3,585	$3,673	$3,762	$3,854	$3,947	$4,044	$4,142	$4,243	$4,346	$4,452
Contracted Services - Alarm Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Janatorial Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Pest Control Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Wind Turbine Services	Overall Inflation Rate:	$30,731	$31,479	$32,246	$33,031	$33,835	$34,660	$35,504	$36,368	$37,254	$38,161
Contracted Services - CMMS Software	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - SCADA Software	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Lab Software	Overall Inflation Rate:	$7,683	$7,870	$8,061	$8,258	$8,459	$8,665	$8,876	$9,092	$9,314	$9,540
Contracted Services - Lab Equipment Services	Overall Inflation Rate:	$26,633	$27,282	$27,946	$28,627	$29,324	$30,038	$30,770	$31,519	$32,287	$33,073
Contracted Services - Water Quality Svcs (SolarBee)	Overall Inflation Rate:	$30,731	$31,479	$32,246	$33,031	$33,835	$34,660	$35,504	$36,368	$37,254	$38,161
Contracted Services - SCADA Hardware	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Seismic Valve Controllers	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Miscellaneous	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Permits (WTP Facilities Inclusive)	Overall Inflation Rate:	$69,656	$71,353	$73,090	$74,870	$76,694	$78,562	$80,475	$82,435	$84,442	$86,499
Natural Gas - Wells & Boosters	Utility/Chemical Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Natural Gas - Water Treatment Plant	Utility/Chemical Inflation Rate:	$3,124	$3,252	$3,386	$3,526	$3,671	$3,822	$3,979	$4,143	$4,314	$4,492
Electricity - Wells & Boosters	Utility/Chemical Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Electricity - Water Treatment Plant	Utility/Chemical Inflation Rate:	$208,237	$216,814	$225,744	$235,042	$244,722	$254,802	$265,296	$276,223	$287,600	$299,445
Maint. & Rep. Office - Equipment	Construction Inflation Rate:	$5,151	$5,306	$5,466	$5,630	$5,800	$5,974	$6,154	$6,340	$6,531	$6,727
Maint. & Rep. Operations - Equipment	Construction Inflation Rate:	$20,602	$21,223	$21,862	$22,521	$23,199	$23,898	$24,617	$25,359	$26,123	$26,909
Maint. & Rep. Operations - Shop Bldgs	Construction Inflation Rate:	$6,181	$6,367	$6,559	$6,756	$6,960	$7,169	$7,385	$7,608	$7,837	$8,073
Maint. & Rep. Operations - Facilities	Construction Inflation Rate:	$72,108	$74,280	$76,517	$78,822	$81,196	$83,642	$86,161	$88,756	$91,429	$94,183
Maint. & Rep. Operations - Telemetry	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maint. & Rep. Operations - Hypo Generators	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maint. & Repair - Wind Turbine	Construction Inflation Rate:	$10,301	$10,611	$10,931	$11,260	$11,599	$11,949	$12,309	$12,679	$13,061	$13,455
Palmdale Lake Management	Employee Expenses Inflation Rate:	$102,600	$105,268	$108,005	$110,813	$113,694	$116,650	$119,683	$122,794	$125,987	$129,263
General Material & Supplies	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Telecommunication - Other	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Testing - Edison Testing	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Emergency Repair & Recovery	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Filter Media Testing/Inspection	Utility/Chemical Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
EPA / Regulatory Compliance	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Waste Disposal	Utility/Chemical Inflation Rate:	$20,824	$21,681	$22,574	$23,504	$24,472	$25,480	$26,530	$27,622	$28,760	$29,944

Uniforms	Equipment Inflation Rate:	$16,135	$16,272	$16,410	$16,548	$16,688	$16,830	$16,972	$17,116	$17,260	$17,407
Supplies - General	Equipment Inflation Rate:	$15,127	$15,255	$15,384	$15,514	$15,645	$15,778	$15,911	$16,046	$16,182	$16,319
Supplies - Hypo Generators	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Electrical	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Telemetry	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Lab	Utility/Chemical Inflation Rate:	$62,471	$65,044	$67,723	$70,512	$73,417	$76,440	$79,589	$82,867	$86,280	$89,833
Outside Lab Work	Utility/Chemical Inflation Rate:	$104,119	$108,407	$112,872	$117,521	$122,361	$127,401	$132,648	$138,111	$143,800	$149,722
Tools	Equipment Inflation Rate:	$6,051	$6,102	$6,154	$6,206	$6,258	$6,311	$6,365	$6,418	$6,473	$6,527
Chemicals	Utility/Chemical Inflation Rate:	$883,797	$918,841	$955,260	$993,446	$1,033,918	$1,076,242	$1,120,297	$1,165,957	$1,213,368	$1,262,821
Leases -Equipment	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Salaries	Employee Expenses Inflation Rate:	$730,256	$749,242	$768,722	$788,709	$809,216	$830,255	$851,842	$873,990	$896,714	$920,028
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$3,078	$3,158	$3,240	$3,324	$3,411	$3,499	$3,590	$3,684	$3,780	$3,878
Payroll Taxes	Employee Expenses Inflation Rate:	$56,430	$57,897	$59,403	$60,947	$62,532	$64,157	$65,826	$67,537	$69,293	$71,095
Health Insurance	Employee Expenses Inflation Rate:	$103,883	$106,583	$109,355	$112,198	$115,115	$118,108	$121,179	$124,329	$127,562	$130,879
PERS	Employee Expenses Inflation Rate:	$74,385	$76,319	$78,303	$80,339	$82,428	$84,571	$86,770	$89,026	$91,341	$93,716
Staff Travel	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Staff Conferences & Seminars	Overall Inflation Rate:	$1,537	$1,574	$1,612	$1,652	$1,692	$1,733	$1,775	$1,818	$1,863	$1,908
Contracted Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Infosend	Overall Inflation Rate:	$276,576	$283,311	$290,211	$297,279	$304,519	$311,936	$319,533	$327,315	$335,286	$343,452
Contracted Services - Infosend Drought Related	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Vendors	Overall Inflation Rate:	$4,354	$4,460	$4,568	$4,679	$4,793	$4,910	$5,030	$5,152	$5,278	$5,406
Contracted Services - Assessor Data (Realquest)	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Credit Reporting Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - AMR Services (Itron)	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Letter Extractor (OPEX)	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Contracted Services - GASB Actuarial Reports	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Memberships/Subscriptions	Overall Inflation Rate:	$512	$525	$537	$551	$564	$578	$592	$606	$621	$636
Office Furniture	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Natural Gas - Office Building	Utility/Chemical Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Electricity - Office Building	Utility/Chemical Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance & Repair - Office Building	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance & Repair - Office Equipment	Construction Inflation Rate:	$515	$531	$547	$563	$580	$597	$615	$634	$653	$673
Maint. & Rep. Operations - Large Meters	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maint. & Rep. Operations - Meter Exchanges	Construction Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
General Material & Supplies	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Business Forms	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Telecommunication - Office	Overall Inflation Rate:	$25,609	$26,233	$26,871	$27,526	$28,196	$28,883	$29,586	$30,307	$31,045	$31,801
Telecommunication - Cellular Stipend	Overall Inflation Rate:	$25,097	$25,708	$26,334	$26,975	$27,632	$28,305	$28,995	$29,701	$30,424	$31,165
Telecommunication - Cellular (District On-Call)	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Testing - Meter Testing	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Testing - Large Meter Testing	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Leases - Equipment	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Salaries	Employee Expenses Inflation Rate:	$160,826	$165,007	$169,297	$173,699	$178,215	$182,849	$187,603	$192,480	$197,485	$202,619
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$3,078	$3,158	$3,240	$3,324	$3,411	$3,499	$3,590	$3,684	$3,780	$3,878
Payroll Taxes	Employee Expenses Inflation Rate:	$12,825	$13,158	$13,501	$13,852	$14,212	$14,581	$14,960	$15,349	$15,748	$16,158
Health Insurance	Employee Expenses Inflation Rate:	$41,450	$42,528	$43,634	$44,768	$45,932	$47,127	$48,352	$49,609	$50,899	$52,222
PERS	Employee Expenses Inflation Rate:	$16,416	$16,843	$17,281	$17,730	$18,191	$18,664	$19,149	$19,647	$20,158	$20,682
Staff Travel	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Staff Conferences & Seminars	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Public Relations - Landscape Workshop/Training	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Public Relations - Contests	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Public Relations - Education Programs	Overall Inflation Rate:	$122,923	$125,916	$128,983	$132,124	$135,342	$138,638	$142,015	$145,473	$149,016	$152,645
Public Relations - General Media (Public Outreach)	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Relations - Other	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Drought Enforcement Expense	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - General	Equipment Inflation Rate:	$7,059	$7,119	$7,179	$7,240	$7,301	$7,363	$7,425	$7,488	$7,551	$7,615
Salaries	Employee Expenses Inflation Rate:	$228,542	$234,484	$240,580	$246,835	$253,253	$259,838	$266,593	$273,525	$280,636	$287,933
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$1,026	$1,053	$1,080	$1,108	$1,137	$1,166	$1,197	$1,228	$1,260	$1,293
Salaries - Intern Program	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payroll Taxes	Employee Expenses Inflation Rate:	$17,442	$17,895	$18,361	$18,838	$19,328	$19,830	$20,346	$20,875	$21,418	$21,975
Health Insurance	Employee Expenses Inflation Rate:	$32,576	$33,422	$34,291	$35,183	$36,098	$37,036	$37,999	$38,987	$40,001	$41,041
Pers	Employee Expenses Inflation Rate:	$18,468	$18,948	$19,441	$19,946	$20,465	$20,997	$21,543	$22,103	$22,678	$23,267
Staff Travel	Overall Inflation Rate:	$1,537	$1,574	$1,612	$1,652	$1,692	$1,733	$1,775	$1,818	$1,863	$1,908
Staff Conferences & Seminars	Overall Inflation Rate:	$1,537	$1,574	$1,612	$1,652	$1,692	$1,733	$1,775	$1,818	$1,863	$1,908
Employee Expense	Employee Expenses Inflation Rate:	$51,300	$52,634	$54,002	$55,406	$56,847	$58,325	$59,841	$61,397	$62,994	$64,631
Succession Planning	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Temporary Staffing	Employee Expenses Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Employee Recruitment	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Employee Retention	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Employee Relations	Overall Inflation Rate:	$3,585	$3,673	$3,762	$3,854	$3,947	$4,044	$4,142	$4,243	$4,346	$4,452
Consultants	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Training - Safety	Overall Inflation Rate:	$35,852	$36,726	$37,620	$38,536	$39,475	$40,436	$41,421	$42,430	$43,463	$44,522
Training - Specialty	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Safety/HR Program	Overall Inflation Rate:	$1,024	$1,049	$1,075	$1,101	$1,128	$1,155	$1,183	$1,212	$1,242	$1,272
Memberships/Subscriptions	Overall Inflation Rate:	$1,639	$1,679	$1,720	$1,762	$1,805	$1,849	$1,894	$1,940	$1,987	$2,035
HR/Safety Publications	Overall Inflation Rate:	$1,024	$1,049	$1,075	$1,101	$1,128	$1,155	$1,183	$1,212	$1,242	$1,272
Office Furniture	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Supplies - Safety	Equipment Inflation Rate:	$30,254	$30,510	$30,768	$31,028	$31,291	$31,556	$31,823	$32,092	$32,363	$32,637

Salaries	Employee Expenses Inflation Rate:	$219,051	$224,746	$230,590	$236,585	$242,736	$249,047	$255,523	$262,166	$268,983	$275,976
Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$3,078	$3,158	$3,240	$3,324	$3,411	$3,499	$3,590	$3,684	$3,780	$3,878
Payroll Taxes	Employee Expenses Inflation Rate:	$17,442	$17,895	$18,361	$18,838	$19,328	$19,830	$20,346	$20,875	$21,418	$21,975
Health Insurance	Employee Expenses Inflation Rate:	$25,394	$26,054	$26,731	$27,426	$28,139	$28,871	$29,621	$30,392	$31,182	$31,993
PERS	Employee Expenses Inflation Rate:	$22,316	$22,896	$23,491	$24,102	$24,728	$25,371	$26,031	$26,708	$27,402	$28,115
Staff Travel	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Staff Conferences & Seminars	Overall Inflation Rate:	$10,244	$10,493	$10,749	$11,010	$11,278	$11,553	$11,835	$12,123	$12,418	$12,720
Cogsdale Reimplementation and Templates	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - ACS	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Computer Vendors	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Cloud Services-MS-Office 360	Overall Inflation Rate:	$30,731	$31,479	$32,246	$33,031	$33,835	$34,660	$35,504	$36,368	$37,254	$38,161
Cloud Services-MS-Project	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Cloud Services-MS-Visio	Overall Inflation Rate:	$1,024	$1,049	$1,075	$1,101	$1,128	$1,155	$1,183	$1,212	$1,242	$1,272
Cloud Services-Adobe-Creative Suite	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Cloud Services-SeamlessDocs	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Cloud Services-IPSwitch-Moveit	Overall Inflation Rate:	$6,146	$6,296	$6,449	$6,606	$6,767	$6,932	$7,101	$7,274	$7,451	$7,632
Cloud Services-GFI Fax	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Cloud Services-KnowBe4-Security Awareness	Overall Inflation Rate:	$1,537	$1,574	$1,612	$1,652	$1,692	$1,733	$1,775	$1,818	$1,863	$1,908
Cloud Services-Network Solutions-DNS, Web Registration	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Cloud Services-IBM-MaaS 360	Overall Inflation Rate:	$6,146	$6,296	$6,449	$6,606	$6,767	$6,932	$7,101	$7,274	$7,451	$7,632
Cloud Services-MSP Portal-Bit Defender	Overall Inflation Rate:	$3,227	$3,305	$3,386	$3,468	$3,553	$3,639	$3,728	$3,819	$3,912	$4,007
Cloud Services-Akins-WiFi	Overall Inflation Rate:	$3,175	$3,253	$3,332	$3,413	$3,496	$3,581	$3,669	$3,758	$3,850	$3,943
Cloud Services-FleetMate	Overall Inflation Rate:	$6,658	$6,820	$6,987	$7,157	$7,331	$7,510	$7,692	$7,880	$8,072	$8,268
Cloud Services-Security Metrics-PCI Compliance	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Cloud Services-Citrix	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Contracted Services - Offsite Services	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Contracted Services - Printer Services	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Contracted Services - Website Design Services	Overall Inflation Rate:	$3,688	$3,777	$3,869	$3,964	$4,060	$4,159	$4,260	$4,364	$4,470	$4,579
Contracted Services - Telephony Services	Overall Inflation Rate:	$5,122	$5,247	$5,374	$5,505	$5,639	$5,777	$5,917	$6,061	$6,209	$6,360
Contracted Services - Cloud Services	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contracted Services - Network Services	Overall Inflation Rate:	$35,852	$36,726	$37,620	$38,536	$39,475	$40,436	$41,421	$42,430	$43,463	$44,522
Contracted Services - Hardware Warranties	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Contracted Services - Access Control	Overall Inflation Rate:	$56,339	$57,712	$59,117	$60,557	$62,032	$63,542	$65,090	$66,675	$68,299	$69,962
Memberships/Subscriptions	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Maintenance & Repair - Computer	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Telecommunication - Office Phone	Overall Inflation Rate:	$17,926	$18,363	$18,810	$19,268	$19,737	$20,218	$20,710	$21,215	$21,732	$22,261
Telecommunication - Office Backbone	Overall Inflation Rate:	$22,536	$23,085	$23,647	$24,223	$24,813	$25,417	$26,036	$26,670	$27,320	$27,985
Telecommunication - WTP Backbone	Overall Inflation Rate:	$15,365	$15,740	$16,123	$16,516	$16,918	$17,330	$17,752	$18,184	$18,627	$19,081
Telecommunication - Cellular (Data & On-Call)	Overall Inflation Rate:	$46,096	$47,219	$48,369	$49,547	$50,753	$51,989	$53,255	$54,552	$55,881	$57,242
Computer Equipment - Computers	Equipment Inflation Rate:	$45,381	$45,765	$46,152	$46,542	$46,936	$47,333	$47,734	$48,138	$48,545	$48,956
Computer Equipment - Mobility	Equipment Inflation Rate:	$45,381	$45,765	$46,152	$46,542	$46,936	$47,333	$47,734	$48,138	$48,545	$48,956
Computer Equipment - Monitors	Equipment Inflation Rate:	$2,017	$2,034	$2,051	$2,069	$2,086	$2,104	$2,122	$2,139	$2,158	$2,176
Computer Equipment - Printers	Equipment Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Computer Equipment - Printer Supplies	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Computer Equipment - Telephony	Equipment Inflation Rate:	$3,025	$3,051	$3,077	$3,103	$3,129	$3,156	$3,182	$3,209	$3,236	$3,264
Computer Equipment - Other	Equipment Inflation Rate:	$25,212	$25,425	$25,640	$25,857	$26,076	$26,296	$26,519	$26,743	$26,970	$27,198
Computer Equiment - Warranty and Support	Equipment Inflation Rate:	$15,127	$15,255	$15,384	$15,514	$15,645	$15,778	$15,911	$16,046	$16,182	$16,319
Software - Maint. and Support	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Software M&S - Xtelesis-Phone	Overall Inflation Rate:	$10,244	$10,493	$10,749	$11,010	$11,278	$11,553	$11,835	$12,123	$12,418	$12,720
Software M&S- Tredent-Appassure	Overall Inflation Rate:	$8,195	$8,394	$8,599	$8,808	$9,023	$9,243	$9,468	$9,698	$9,934	$10,176
Software M&S- Condusive/V-locity-Diskeeper	Overall Inflation Rate:	$4,610	$4,722	$4,837	$4,955	$5,075	$5,199	$5,326	$5,455	$5,588	$5,724
Software M&S- FWI	Overall Inflation Rate:	$512	$525	$537	$551	$564	$578	$592	$606	$621	$636
Software M&S- Strategy 7	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Software M&S- Astria Solutions-Docstar	Overall Inflation Rate:	$16,390	$16,789	$17,198	$17,617	$18,046	$18,485	$18,935	$19,396	$19,869	$20,353
Software M&S- NemoQ-Ticketing	Overall Inflation Rate:	$2,561	$2,623	$2,687	$2,753	$2,820	$2,888	$2,959	$3,031	$3,105	$3,180
Software M&S- FMT-Management Reporter	Overall Inflation Rate:	$1,537	$1,574	$1,612	$1,652	$1,692	$1,733	$1,775	$1,818	$1,863	$1,908
Software M&S- Neogov	Overall Inflation Rate:	$8,195	$8,394	$8,599	$8,808	$9,023	$9,243	$9,468	$9,698	$9,934	$10,176
Software M&S- TruePoint	Overall Inflation Rate:	$37,901	$38,824	$39,770	$40,738	$41,730	$42,747	$43,788	$44,854	$45,947	$47,066
Software M&S- Technology Unlimited	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Software M&S- Sierra Workforce-Timesheet	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Software M&S- Tredent-SAN Manager	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Software M&S- Faranics-Powersaver	Overall Inflation Rate:	$205	$210	$215	$220	$226	$231	$237	$242	$248	$254
Software M&S- Netwrix-Monitoring	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Software M&S- VMWare-Virtualization	Overall Inflation Rate:	$1,024	$1,049	$1,075	$1,101	$1,128	$1,155	$1,183	$1,212	$1,242	$1,272
Software M&S- iPrism-Web Filter	Overall Inflation Rate:	$26,633	$27,282	$27,946	$28,627	$29,324	$30,038	$30,770	$31,519	$32,287	$33,073
Software M&S- Quest-VMWare Recovery	Overall Inflation Rate:	$8,707	$8,919	$9,136	$9,359	$9,587	$9,820	$10,059	$10,304	$10,555	$10,812
SoftwareM&S - Starnik	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Software M&S- Dynamics GP	Overall Inflation Rate:	$56,339	$57,712	$59,117	$60,557	$62,032	$63,542	$65,090	$66,675	$68,299	$69,962
Software - Software and Upgrades	Overall Inflation Rate:	$20,487	$20,986	$21,497	$22,021	$22,557	$23,106	$23,669	$24,246	$24,836	$25,441
Salaries	Employee Expenses Inflation Rate:	$945,459	$970,041	$995,262	$1,021,139	$1,047,688	$1,074,928	$1,102,876	$1,131,551	$1,160,972	$1,191,157

Salaries - Departmental Overtime	Employee Expenses Inflation Rate:	$7,695	$7,895	$8,100	$8,311	$8,527	$8,749	$8,976	$9,210	$9,449	$9,695
Payroll Taxes	Employee Expenses Inflation Rate:	$74,129	$76,056	$78,033	$80,062	$82,144	$84,280	$86,471	$88,719	$91,026	$93,392
Health Insurance	Employee Expenses Inflation Rate:	$222,899	$228,694	$234,640	$240,741	$247,000	$253,422	$260,011	$266,771	$273,707	$280,823
PERS	Employee Expenses Inflation Rate:	$96,444	$98,952	$101,524	$104,164	$106,872	$109,651	$112,502	$115,427	$118,428	$121,507
Staff Travel	Overall Inflation Rate:	$2,049	$2,099	$2,150	$2,202	$2,256	$2,311	$2,367	$2,425	$2,484	$2,544
Staff Conferences & Seminars	Overall Inflation Rate:	$3,073	$3,148	$3,225	$3,303	$3,384	$3,466	$3,550	$3,637	$3,725	$3,816
Contracted Services - Assessor Data (Realquest)	Overall Inflation Rate:	$10,244	$10,493	$10,749	$11,010	$11,278	$11,553	$11,835	$12,123	$12,418	$12,720
Contracted Services - Credit Reporting Services	Overall Inflation Rate:	$4,097	$4,197	$4,299	$4,404	$4,511	$4,621	$4,734	$4,849	$4,967	$5,088
Contracted Services - AMR Services (Itron)	Overall Inflation Rate:	$8,195	$8,394	$8,599	$8,808	$9,023	$9,243	$9,468	$9,698	$9,934	$10,176
Contracted Services - NEMO-Q System	Overall Inflation Rate:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mtce & Rep Office - Equipment	Equipment Inflation Rate:	$202	$203	$205	$207	$209	$210	$212	$214	$216	$218
General Material & Supplies	Equipment Inflation Rate:	$7,059	$7,119	$7,179	$7,240	$7,301	$7,363	$7,425	$7,488	$7,551	$7,615
Business Forms	Overall Inflation Rate:	$1,024	$1,049	$1,075	$1,101	$1,128	$1,155	$1,183	$1,212	$1,242	$1,272
Water Purchases	Purchased Water Inflation Rate	$2,142,064	$2,293,974	$2,456,623	$2,631,660	$2,821,242	$3,025,052	$3,243,579	$3,477,303	$3,727,530	$3,996,124
OAP Chrg (Prior Year)	No Escalation:	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Water Recovery	Purchased Water Inflation Rate	-$128,524	-$137,638	-$147,397	-$157,900	-$169,275	-$181,503	-$194,615	-$208,638	-$223,652	-$239,767
Water Quality (GAC Media)	Treatment Inflation Rate:	$16,414	$16,931	$17,463	$18,018	$18,605	$19,214	$19,844	$20,490	$21,156	$21,845
Plant Expenditures	No Escalation:	$212,000	$212,000	$212,000	$212,000	$212,000	$212,000	$212,000	$212,000	$212,000	$212,000
Annual Sediment Removal	Construction Inflation Rate:	$600,000	$618,071	$636,687	$655,863	$675,617	$0	$0	$0	$0	$0

Detailed CIP Expense Projection

Description	Escalated by	CY 2020	CY 2021	CY 2022	CY 2023
dy	Overall Inflation Rate:	$122,923			
less apps across multiple platforms	No Escalation:			$50,000	
UPS System (Symmetra)	No Escalation:			$25,000	
ction Plan	Overall Inflation Rate:				
etrofit of CC workstation w/Expert Evaluation	Overall Inflation Rate:	$76,827			
p/Infrastructure Refresh (4 years roll-out)	No Escalation:		$50,000	$50,000	$50,000
ment (5-years Conversion)	No Escalation:	$75,000	$75,000	$75,000	$75,000
ation Plan	Overall Inflation Rate:	$102,435			
urces Information System	No Escalation:	$60,000			
esign	No Escalation:	$50,000			
diment Removal - Permitting	Overall Inflation Rate:				
nergency Notification System	Overall Inflation Rate:	$40,974			
nstruction & Monitor Wells/Test Basin	Overall Inflation Rate:				
nsulting Services (Kennedy/Jenks)	Overall Inflation Rate:				
ite Redesign	Overall Inflation Rate:	$76,827			
ation Study	Overall Inflation Rate:				
d Properties (Approved 10/22/2018)	Overall Inflation Rate:				
	Equipment Inflation Rate:	$15,127			
rine Tank @ WTP	Equipment Inflation Rate:				
gs @ Filter and GAC Pipe Gallery Entrance	Construction Inflation Rate:	$51,506			
#36 (2850 Zone, Capacity 2,150 gpm, head of 455 feet, refer to 2016 WSMP, Figure 10-5, FW-04)	Construction Inflation Rate:				
storage tank near 47 Street East and East & E. Ave. V4 (3250 Zone)	Construction Inflation Rate:			$0	
storage tank near Sierra Hwy and Rae Street (2950 Zone)	Construction Inflation Rate:	$0			
o 3600 Zone at 3600 Ft. Booster Pump Station (2016 WSMP, Section 10))	Construction Inflation Rate:		$0	$400,681	
ll on 70 St and Avenue S (2016 WSMP, Section 10)	Construction Inflation Rate:				
7 on 70 St. north of Well #25 (2016 WSMP, Section 10)	Construction Inflation Rate:				
4 on 60th St. E and half-way between Ave. S and Ave. T (2016 WSMP, Section 10)	Construction Inflation Rate:				
ign	Overall Inflation Rate:	$512,177			
r	Overall Inflation Rate:			$128,983	
e - 25th St East	Equipment Inflation Rate:				
@ Well #7 & Well #3	Equipment Inflation Rate:				
(Looking at Lease Option)	Equipment Inflation Rate:	$75,635			
Dam & Windmill	Equipment Inflation Rate:		$8,136		
for Fab Shop	Equipment Inflation Rate:		$4,576		
obile App	No Escalation:		$25,000		
uxing	No Escalation:		$60,000		
ift for WTP	Equipment Inflation Rate:				
upplies	Overall Inflation Rate:	$1,537			
	No Escalation:		$15,000		
ment (5-years Conversion)	No Escalation:				
ncrete Breaker w/attachment for skidsteer	Equipment Inflation Rate:	$7,059			
t Hole Digger (Skid Steer Attachment)	Equipment Inflation Rate:				$3,103
@ Well #15 & #11	Equipment Inflation Rate:				
ertion Mag Meter @ Well 5	Equipment Inflation Rate:				$33,097
unications	No Escalation:		$60,000		
g trailer	Equipment Inflation Rate:				
ments 25th St; 37th St; 40th St	Equipment Inflation Rate:				
ensor (3 year roll-out)	Equipment Inflation Rate:			$41,024	$41,371
for SCADA (4 year replacement schedule)	Equipment Inflation Rate:		$50,850	$51,280	$51,714
Oasis recorder	Equipment Inflation Rate:	$25,212			
DAPack 32 with SCADAPack 575 (4-year schedule)	Equipment Inflation Rate:		$44,491	$44,870	$45,250
t Diaphragm Pump (4 pumps) (1/yr.)	Equipment Inflation Rate:	$8,068	$8,136		$8,274
t Wackers - J Tamps (4-years schedule)	Equipment Inflation Rate:	$4,034	$4,068	$4,102	$4,137
itation Pump Skids	Equipment Inflation Rate:				
ted vac/pressure washer	Equipment Inflation Rate:	$146,227			
t Water Pressure Washer	Equipment Inflation Rate:				$20,686
ed welder for truck 115	Equipment Inflation Rate:	$5,012			

V-03 2000 Cat 4 416C Backhoe	Equipment Inflation Rate:				$165,484	
V-04 1991 Dump Truck	Equipment Inflation Rate:		$66,105			
V-100 Replacement	Equipment Inflation Rate:			$23,589		
V-101 2007 Cat 420E Backhoe	Equipment Inflation Rate:		$162,719			
V-119 2008 Cat 420E Backhoe	Equipment Inflation Rate:			$164,096		
V-24 1988 Crane - Newer Crane	Equipment Inflation Rate:					$156,454
V-35 Replacement	Equipment Inflation Rate:		$23,391			
V-43 1990 Flatbed w/liftgate	Equipment Inflation Rate:			$46,152		
V-60 1998 Utility	Equipment Inflation Rate:		$23,391			
V-66 1993 JD Loader	Equipment Inflation Rate:					$146,024
V-67 1999 Water Truck	Equipment Inflation Rate:	$65,550				
V-7 Replacement	Equipment Inflation Rate:	$23,195				
V-82 2004 PU - Traffic Control - Overload	Equipment Inflation Rate:	$55,465				
V-84 Replacement	Equipment Inflation Rate:	$23,195				
Ware House Conversion to Office & Fleet Shop Repairs	Construction Inflation Rate:		$53,057			
17TH FR P-4 TO P-8	Equipment Inflation Rate:	$355,785				
20TH FR P-8 TO Q	Equipment Inflation Rate:				$0	$844,853
25TH FR P TO P-8	Equipment Inflation Rate:			$846,119		
25th St. Booster #3	Equipment Inflation Rate:	$18,152				
26th St, Rudall, & 27th St @ Avenue Water Main Replacement	Equipment Inflation Rate:				$94,119	
2800 Zone Avenue P-8 from 32nd St to 37 St. (2,675 feet of 12" Dia. Pipe)	Equipment Inflation Rate:	$0	$791,888			
2800 Zone Avenue Q-6 between 12St East and 15th St. East (965 feet of 12" Dia. Pipe)	Equipment Inflation Rate:		$285,672			
2950 Zone 52nd St North and Fort Tejon Road (1,570 feet of 16" Dia. Pipe)	Equipment Inflation Rate:			$0	$630,226	
2950 Zone Avenue S-10 and 40St. East (48 feet of 8" Dia. Pipe)	Equipment Inflation Rate:				$9,634	
3400 Zone Camares Drive between Sierra Ancha Drive and Avenue S-14 (1,400 feet of 8" Dia. Pipe)	Equipment Inflation Rate:					$283,370
45th St. Booster #3 Zone 2800	Equipment Inflation Rate:	$23,195				
45th St. Booster #3 Zone 3000	Equipment Inflation Rate:	$25,212				
Ave. P-12, Division, 2nd, 3rd, Stanridge Water Main Repl.	Construction Inflation Rate:		$0	$1,465,854		
Ave. Q1, Q2, Q3, Q4, & Q5 @ 5th St. E. Wtr Main Repl. (Spec 1603)	Construction Inflation Rate:		$91,258			
Ave. Q10 and 12th Street East Water Main Replacement	Construction Inflation Rate:		$49,874			
Ave. Q14 and 15th Street East Water Main Replacement	Construction Inflation Rate:		$60,167			
Avenue V-5 Water Main Replacement (Spec 1504)	Construction Inflation Rate:					
Bathroom Remodel	Construction Inflation Rate:				$112,603	
Booster Building Rehab (5-years schedule)	Construction Inflation Rate:	$36,054	$37,140	$38,259	$39,411	$40,598
Brine Storage Tanks - Well Sites (Qty. 8) (2 each year)	Equipment Inflation Rate:	$32,775	$33,052	$33,332	$33,614	
CAMARES @ S	Equipment Inflation Rate:			$53,844		
Carpet, Tile and Painting of District Building	Construction Inflation Rate:		$159,172			
Cat C-7 enginer rehab (1 each year for total 2)	Overall Inflation Rate:		$31,479	$32,246		
CL2 Monitoring @ Well Sites	Overall Inflation Rate:	$112,679				
Clearwell #3 Booster	Equipment Inflation Rate:					
District Office - Stucco Repair & Painting	Construction Inflation Rate:	$221,476				
District Office Fire System upgrade w/control panel changeout	Overall Inflation Rate:	$43,023				
Emergency Power to NOB	Utility/Chemical Inflation Rate:					$30,590
Engine Swap for efficiency @Well 2	Equipment Inflation Rate:				$232,712	
Filter Influent Valve Replacements	Equipment Inflation Rate:			$205,120		
Fire Pump Deficiency at Existing 5MG Booster Pump Station (Zone 3250)	Equipment Inflation Rate:			$0	$713,633	
Fire Pump Deficiency at Existing Hilltop Pump Station (Zone 3250)	Equipment Inflation Rate:		$0			
Fire Pump Deficiency at Existing T-8 Pump Station (Zone 3250)	Equipment Inflation Rate:			$0	$970,094	
Fire Pump Deficiency at Existing V-5 Pump Station (zone 3400)	Equipment Inflation Rate:				$0	
FT TEJON	Equipment Inflation Rate:					$506,912
Hypo Generator	Equipment Inflation Rate:		$813,595			
Influent Mag Meter 30"	Equipment Inflation Rate:		$20,340			
Meter Replacement Program (Quantity = 2,700)	Equipment Inflation Rate:	$705,923	$711,896			
NaOCL Generator Replacement - (4 Wells) (1 each year)	Equipment Inflation Rate:	$66,811	$67,376	$67,946	$68,521	
P @ 10TH (LOCKHEED)	Equipment Inflation Rate:	$183,540				
Palmdale Ditch Improvements (5-years schedule)	Construction Inflation Rate:	$15,452	$15,917	$16,397	$16,890	$17,399
Parking Lot Re-Surfacing - Administration and N.O.B.	Construction Inflation Rate:		$137,949			
Parking Lot Resurfacing (Main Office)	Construction Inflation Rate:	$43,265				
Pipeline with Velocity Deficiency (1,350 feet of 24" diameter 2800 Zone)	Equipment Inflation Rate:			$0	$814,365	
Pipeline with Velocity Deficiency (23 feet of 20" diameter 2800 Zone)	Equipment Inflation Rate:	$11,341				
Pipeline with Velocity Deficiency (231 feet of 24" diameter 2950 Zone)	Equipment Inflation Rate:					$140,420
Pipeline with Velocity Deficiency (516 feet of 20" diameter 2950 Zone)	Equipment Inflation Rate:				$259,121	

Pipeline with Velocity Deficiency (96 feet of 16" diamter 2950 Zone)	Equipment Inflation Rate:		$37,873			
Radar Level Sensor (3 year roll-out)	Equipment Inflation Rate:			$0		
Radio System for SCADA (4 year replacement schedule)	Equipment Inflation Rate:			$0		
Radio System Upgrades for District	Equipment Inflation Rate:	$81,685				
Replacement Diaphragm Pump (4 pumps) (1/yr.)	Equipment Inflation Rate:			$8,205		
Sampling Dock at Inlet Structure	Equipment Inflation Rate:					
Sedimentation Basin Cleaning	Equipment Inflation Rate:			$1,025,599	$1,034,277	
Septic Tank	Equipment Inflation Rate:			$20,512		
Sierra Hwy. Tie-In and Abandonment (Harold Streets)	Equipment Inflation Rate:	$143,201				
Soft Starts (22 well & 11 booster) (5-years schedule)	Equipment Inflation Rate:	$32,271	$32,544	$32,819	$33,097	$33,377
Turbidimeter	Equipment Inflation Rate:	$100,846				
TX Plant GAC Staging Area Pavement	Equipment Inflation Rate:	$121,015				
Vault Access Issues - WTP	Equipment Inflation Rate:					
Vault/Large Meter (~ 15/yr @ $7500/setup for 5 years)	Equipment Inflation Rate:	$113,452	$114,412	$115,380	$116,356	$117,341
Water Main Replacement - Avenue P and 25th (Spec 1601)	Construction Inflation Rate:					
Water Main Replacement - Avenue P8 & 20th ST E	Construction Inflation Rate:					
Well 16 Rehabilitation	Construction Inflation Rate:	$123,614				
WELL 17 YARD PIPING	Construction Inflation Rate:	$64,897				
Well 2 Rehabilitation	Construction Inflation Rate:	$0	$196,312			
Well 23 Rehabilitation	Construction Inflation Rate:	$185,421				
Well 3 Rehabilitation	Construction Inflation Rate:	$195,723				
Well 33 Rehabilitation	Construction Inflation Rate:	$0	$196,312			
Well/Booster Rehab 2021 - 2024	Construction Inflation Rate:		$100,809	$508,294	$523,603	$539,374
WTP Kitchen Remodel	Construction Inflation Rate:				$56,301	
Recharge Project Design (PRGRRP) (3 years)	Overall Inflation Rate:	$512,177	$786,976	$806,143	$1,101,034	

RESOLUTION NO. 18-10

PALMDALE WATER DISTRICT'S RESERVE POLICY

WHEREAS, the Board of Directors recognizes the need to ensure that the District will have sufficient funding available to meet its operating, emergency capital, and debt service obligations.

WHEREAS, the Board of Directors recognizes the need for sound financial policies as stewards of our customers' funds.

WHEREAS, the Board of Directors recognizes the need for funds to be held in reserve for unanticipated and unforeseeable expenses.

WHEREAS, the Board of Directors recognizes the need to avoid significant water rate fluctuations.

WHEREAS, the Board of Directors recognizes a need for long term strategic financial policies.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Palmdale Water District hereby rescinds the District's existing Reserve Policy (Resolution No. 13-13) and establishes the Palmdale Water District Reserve Policy as follows:

Legally Restricted Funds:

The Capital Improvement Fees, as modified by District Resolution No. 13-12, to consist of fee components allocated for infrastructure and for water supply, and Water Supply Connection Fees are subject to the requirements of the Mitigation Fee Act (AB 1600). These funds are deposited in the Capital Improvement Fund described below. The funds may not be used to support ongoing operations of the District. The District is legally required to account for these funds separately. An annual report is required to show balance forward, fees collected, income earned, expenditures, and future commitments. All funds collected must be committed or expended within five years of being collected or they must be refunded. Other legally restricted funds, including bond proceeds funds, reserve funds or rate stabilization funds, are described below.

I. Capital Improvement Fund:

PWD will maintain a capital improvement fund with fees collected from developers to pay for the new facilities necessary to deliver water service to newly developed property and to pay for the additional water supplies necessitated to meet the demand for water created by such newly developed property. These fees are for offsite improvements, such as the development's fair share cost of wells, reservoirs, transmission mains, treatment plant capacity, and other necessary facilities, as well as to pay for water supply acquisitions and projects associated with new water supplies

necessitated by new development. The fees are collected at rates established by the Board of Directors based upon specific engineering studies. The rates charged are based on a project's equivalent capacity unit (ECU) basis. These funds are restricted to the design and construction of capital facilities for water delivery, and as otherwise provided in Resolution No. 13-12 and in

Appendix H to the District's Rules and Regulations.

2. Bond Proceeds Fund(s):

Bond proceeds fund(s) are monies derived from the proceeds of a bond issue or similar indebtedness like a private placement loan, certificate of participation or other indebtedness instrument. Typically, they consist of construction fund monies and a debt service reserve fund. The use of these proceeds is restricted by conditions set forth in the respective legal bond documents. These funds are usually held by the Trustee in favor of the bond holders. These funds should be tracked and accounted for in accordance with the bond documents and to ensure, if applicable, the tax• exempt nature of the applicable bonds. These funds shall also be invested as provided in the bond documents.

3. Debt Service Reserve Funds:

This fund is governed by legal bond covenants for the District's revenue bonds. Bond covenants may require that this fund be maintained at a level sufficient to fund maximum annual debt service payments or such other requirement of the Internal Revenue Code. These funds are held by the bond trustee during the term of the bonds and are to be used in the event the District is unable to meet its required semi-annual debt service obligation. Annual interest earnings on bond reserve funds shall be applied to each year's debt service payments or as otherwise required by the bond documents.

A Reserve Fund for the Palmdale Water District Public Financing Authority Water Revenue Bonds, Series 2013A (the"2013A Bonds") and the Palmdale Water District Public Financing Authority Water Revenue Refunding Bonds (the "2018A Bonds") is established pursuant to the Indentures for each of the bonds in an amount equal to the Reserve Requirement. Assured Guaranty Municipal Corp. ("AGM") has issued a municipal bond debt service reserve insurance policy in an amount equal to the initial Reserve Requirement for deposit in the Reserve Fund for the 2013A Bonds. Build America Mutual Assurance Company ("BAM") has issued a municipal bond debt service reserve insurance policy in an amount equal to the initial Reserve Requirement for deposit in the Reserve Fund for the 2018A Bonds.

4. Rate Stabilization Fund:

This fund is governed by legal bond covenants for the District's revenue bonds. The District may withdraw all or any portion of the amounts on deposit in the Rate Stabilization Fund and transfer such amounts to the Water Revenue Fund for application

in accordance with an Installment Purchase Agreement for each of the 2013A Bonds and the 2018A Bonds.

Board Designated Funds:

Board designated funds are set to accomplish systematic and strategic goals or provide for prudent management of operations. The Board of Directors has complete discretion in the management and designation of self-adopted funds. Such funds can be modified, transferred, or altered by Board action.

I. Dam Self Insurance:

The District shall make available $5 million for self-insurance of the Littlerock Darn as seed money for reconstruction under the terms of the agreement between Palmdale Water District, Littlerock Creek Irrigation District and Palmdale Water District Public Facilities Corporation. The money will be used to begin the reconstruction following an event during the time applications for FEMA reimbursement are in process following an event.

2. O&M Operating Reserve:

The O&M Operating Reserve will vary over time with a goal of maintaining three (3) months average cash operating expenses of $5.7 million. This reserve is considered a working cash requirement. It bridges the gap between the time expenses are paid and the time revenues from the same service are collected from customers.

3. O&M Emergency Reserve:

The O&M Emergency Reserve will vary over time with a goal of maintaining three (3) months average cash operating expenses of $5.7 million. This reserve rs considered a working cash requirement for use in an emergency situation.

4. Unrestricted Reserves:

Unrestricted reserves represent a remainder balance of cash that is not yet designated for some use by the Board of Directors.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Palmdale Water District as follows:

Each fiscal year budget will report on the status of the reserve over the previous year and budget for proposed sources and uses for each reserve.

PASSED AND ADOPTED by the Board of Directors of the Palmdale Water District at a regular meeting held on this 25thday of September , 2018 by the following vote:

Ayes: Vice President Mac Laren, Director Alvarado, Director Henriquez

Noes: None.

Absent: President Dino, Director Estes

Abstain: None.

Vice President, Board of Directors

ATTEST:

Assistant Secretary, Board of Directors

APPROVED AS TO FORM:

Aleshire & Wynder, LLP

Palmdale Water District

2022 Water Revenue Bonds

(Capital Improvement Project Financing)

Sources & Uses

Dated 06/01/2022 | Delivered 06/01/2022

Sources Of Funds	
Par Amount of Bonds	$20,550,000.00
Total Sources	**$20,550,000.00**

Uses Of Funds	
Deposit to Project Construction Fund	20,000,000.00
Costs of Issuance	240,000.00
Total Underwriter's Discount (0.800%)	164,400.00
Gross Bond Insurance Premium (30.0 bp)	105,156.00
Reserve Surety (3%)	35,724.00
Rounding Amount	4,720.00
Total Uses	**$20,550,000.00**

Palmdale Water District

2022 Water Revenue Bonds

(Capital Improvement Project Financing)

Debt Service Schedule

Date	Principal	Coupon	Interest	Total P+I
06/30/2022	-	-	-	-
06/30/2023	495,000.00	4.000%	675,100.00	1,170,100.00
06/30/2024	375,000.00	4.000%	794,700.00	1,169,700.00
06/30/2025	390,000.00	4.000%	779,400.00	1,169,400.00
06/30/2026	405,000.00	4.000%	763,500.00	1,168,500.00
06/30/2027	420,000.00	4.000%	747,000.00	1,167,000.00
06/30/2028	440,000.00	4.000%	729,800.00	1,169,800.00
06/30/2029	455,000.00	4.000%	711,900.00	1,166,900.00
06/30/2030	475,000.00	4.000%	693,300.00	1,168,300.00
06/30/2031	495,000.00	4.000%	673,900.00	1,168,900.00
06/30/2032	515,000.00	4.000%	653,700.00	1,168,700.00
06/30/2033	535,000.00	4.000%	632,700.00	1,167,700.00
06/30/2034	555,000.00	4.000%	610,900.00	1,165,900.00
06/30/2035	580,000.00	4.000%	588,200.00	1,168,200.00
06/30/2036	605,000.00	4.000%	564,500.00	1,169,500.00
06/30/2037	630,000.00	4.000%	539,800.00	1,169,800.00
06/30/2038	655,000.00	4.000%	514,100.00	1,169,100.00
06/30/2039	680,000.00	4.000%	487,400.00	1,167,400.00
06/30/2040	710,000.00	4.000%	459,600.00	1,169,600.00
06/30/2041	740,000.00	4.000%	430,600.00	1,170,600.00
06/30/2042	770,000.00	4.000%	400,400.00	1,170,400.00
06/30/2043	800,000.00	4.000%	369,000.00	1,169,000.00
06/30/2044	830,000.00	4.000%	336,400.00	1,166,400.00
06/30/2045	865,000.00	4.000%	302,500.00	1,167,500.00
06/30/2046	900,000.00	4.000%	267,200.00	1,167,200.00
06/30/2047	940,000.00	4.000%	230,400.00	1,170,400.00
06/30/2048	975,000.00	4.000%	192,100.00	1,167,100.00
06/30/2049	1,015,000.00	4.000%	152,300.00	1,167,300.00
06/30/2050	1,055,000.00	4.000%	110,900.00	1,165,900.00
06/30/2051	1,100,000.00	4.000%	67,800.00	1,167,800.00
06/30/2052	1,145,000.00	4.000%	22,900.00	1,167,900.00
Total	**$20,550,000.00**	**-**	**$14,502,000.00**	**$35,052,000.00**

Yield Statistics

Bond Year Dollars	$362,550.00
Average Life	17.642 Years
Average Coupon	4.0000000%
Net Interest Cost (NIC)	4.0453455%
True Interest Cost (TIC)	4.0684292%
Bond Yield for Arbitrage Purposes	4.0586409%
All Inclusive Cost (AIC)	4.2293709%

IRS Form 8038

Net Interest Cost	4.0000000%
Weighted Average Maturity	17.642 Years

2022 Revenue Bonds 190716 | SINGLE PURPOSE | 7/16/2019 | 5:32 PM

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Financial & Policy Strategies. Delivered.

Palmdale Water District

2022 Water Revenue Bonds

(Capital Improvement Project Financing)

Pricing Summary

Maturity	Type of Bond	Coupon	Yield	Maturity Value	Price	Dollar Price
10/01/2022	Serial Coupon	4.000%	4.000%	495,000.00	100.000%	495,000.00
10/01/2023	Serial Coupon	4.000%	4.000%	375,000.00	100.000%	375,000.00
10/01/2024	Serial Coupon	4.000%	4.000%	390,000.00	100.000%	390,000.00
10/01/2025	Serial Coupon	4.000%	4.000%	405,000.00	100.000%	405,000.00
10/01/2026	Serial Coupon	4.000%	4.000%	420,000.00	100.000%	420,000.00
10/01/2027	Serial Coupon	4.000%	4.000%	440,000.00	100.000%	440,000.00
10/01/2028	Serial Coupon	4.000%	4.000%	455,000.00	100.000%	455,000.00
10/01/2029	Serial Coupon	4.000%	4.000%	475,000.00	100.000%	475,000.00
10/01/2030	Serial Coupon	4.000%	4.000%	495,000.00	100.000%	495,000.00
10/01/2031	Serial Coupon	4.000%	4.000%	515,000.00	100.000%	515,000.00
10/01/2032	Serial Coupon	4.000%	4.000%	535,000.00	100.000%	535,000.00
10/01/2033	Serial Coupon	4.000%	4.000%	555,000.00	100.000%	555,000.00
10/01/2034	Serial Coupon	4.000%	4.000%	580,000.00	100.000%	580,000.00
10/01/2035	Serial Coupon	4.000%	4.000%	605,000.00	100.000%	605,000.00
10/01/2036	Serial Coupon	4.000%	4.000%	630,000.00	100.000%	630,000.00
10/01/2037	Serial Coupon	4.000%	4.000%	655,000.00	100.000%	655,000.00
10/01/2038	Serial Coupon	4.000%	4.000%	680,000.00	100.000%	680,000.00
10/01/2039	Serial Coupon	4.000%	4.000%	710,000.00	100.000%	710,000.00
10/01/2040	Serial Coupon	4.000%	4.000%	740,000.00	100.000%	740,000.00
10/01/2041	Serial Coupon	4.000%	4.000%	770,000.00	100.000%	770,000.00
10/01/2046	Term 1 Coupon	4.000%	4.000%	4,335,000.00	100.000%	4,335,000.00
10/01/2051	Term 2 Coupon	4.000%	4.000%	5,290,000.00	100.000%	5,290,000.00
Total	-	-	-	**$20,550,000.00**	-	**$20,550,000.00**

Bid Information

Par Amount of Bonds	$20,550,000.00
Gross Production	$20,550,000.00
Total Underwriter's Discount (0.800%)	$(164,400.00)
Bid (99.200%)	20,385,600.00
Total Purchase Price	$20,385,600.00
Bond Year Dollars	$362,550.00
Average Life	17.642 Years
Average Coupon	4.0000000%
Net Interest Cost (NIC)	4.0453455%
True Interest Cost (TIC)	4.0684292%

Palmdale Water District

2022 Water Revenue Bonds

(Capital Improvement Project Financing)

Bond Summary Statistics

Maturity	Type	Par Value	Price	Average Coupon	Average Life
10/01/2041	Total Serial 1	10,925,000.00	100.000%	4.000%	11.018 Years
10/01/2046	Term 1	4,335,000.00	100.000%	4.000%	22.414 Years
10/01/2051	Term 2	5,290,000.00	100.000%	4.000%	27.414 Years
Total	-	**$20,550,000.00**	-	-	-

Bond Statistics	
Dated	6/01/2022
Delivery Date	6/01/2022
Last Maturity	10/01/2051
Arbitrage Yield	4.0586409%
True Interest Cost (TIC)	4.0684292%
Net Interest Cost (NIC)	4.0453455%
All Inclusive Cost (AIC)	4.2293709%
Average Coupon	4.0000000%
Average Life (years)	17.642 Years
Par Amount	20,550,000.00
Bond Proceeds	20,409,120.00
Total Interest	14,502,000.00
Net Interest	14,666,400.00
Bond Years from Dated Date	362,550,000.00
Bond Years from Delivery Date	362,550,000.00
Total Debt Service	35,052,000.00
Maximum Annual Debt Service	1,170,600.00
Average Annual Debt Service	1,168,400.00
Total Underwriter's Discount (0.800%)	164,400.00
Bid (99.200%)	20,385,600.00

Derivation of True Interest Cost	
Par Amount of Bonds	$20,550,000.00
Total Underwriter's Discount (0.800%)	(164,400.00)
Total Purchase Price	$20,385,600.00
True Interest Cost (TIC)	4.0684292%

Derivation of All Inclusive Cost	
Par Amount of Bonds	$20,550,000.00
Bond Insurance Premium..... (30.0 bp)	(105,156.00)
Total Underwriter's Discount (0.800%)	(164,400.00)
Costs of Issuance	(240,000.00)
Other Credit Enhancement Fees	(35,724.00)
Net Issue Proceeds	$20,004,720.00
All Inclusive Cost (AIC)	4.2293709%

Derivation of Arbitrage Yield	
Par Amount of Bonds	$20,550,000.00
Bond Insurance Premium..... (30.0 bp)	(105,156.00)
Other Credit Enhancement Fees	(35,724.00)
Original Issue Proceeds	$20,409,120.00
Bond Yield for Arbitrage Purposes	4.0586409%

Sample Eagle Aerial Data

CI1	CI2	CI3	CI4	CI5	CI6	CI7	CI8	CI9	Coverage	Area
462.108698309814000	0.000000000000000	10.803242508704000	170.601204616617000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	643.513145435135000
364.782784901568000	0.000000000000000	7.746004815193800	140.779134024975000	131.592012034862000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	644.899935776600000
382.417466951512000	40.263973149285700	57.687620722855500	151.305872193280000	30.513952745422800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	662.188885762356000
181.492915490650000	0.000000000000000	0.000000000000000	136.435091390034000	144.815846673570000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	462.743853558669000
242.613747398425000	0.000000000000000	65.471490110859400	144.091312486073000	363.290221605511000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	815.466771600869000
488.836211972928000	19.074779484310800	116.158209029458000	77.558773186207200	31.581356599024000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	733.209330271929000
207.586185515212000	0.000000000000000	74.260679001302400	137.667178367822000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	419.514042884336000
414.094537990377000	0.000000000000000	124.868481410118000	79.068345268356400	10.638614300645400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	628.669978969497000
226.560490738962000	0.000000000000000	61.739990304960200	292.723375086236000	69.773410096102600	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	650.797266226261000
349.001188173094000	0.000000000000000	95.534122975142700	179.903089259505000	57.986781523083800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	682.425181930826000
472.573600084530000	0.000000000000000	127.109741028280000	13.009099295005200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	612.692440407816000
614.934753596038000	0.000000000000000	0.000000000000000	67.380185077386200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	682.314938673424000
320.188842603116000	0.000000000000000	147.544170235771000	209.440748968826000	12.415302129595400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	689.589063937310000
322.320740917309000	0.000000000000000	21.548409083797600	271.437522828678000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	615.306672829785000
83.973915136480500	0.000000000000000	154.897221811235000	94.234393513285200	198.909273795950000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	532.014804256952000
250.411959608951000	0.000000000000000	5.711786189487290	68.269444455300500	36.174645866752800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	360.567836120491000
460.449244297203000	0.000000000000000	119.776286097275000	215.399039708419000	9.282887485341930	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	804.907457588240000
432.335775180473000	0.000000000000000	54.098324318724500	149.221211245815000	32.639322338963700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	668.294633083976000
468.482169746979000	0.000000000000000	33.760403654486700	107.616943552774000	13.124017506435800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	622.983534460676000
304.053498618129000	0.000000000000000	7.646315793651180	181.622489263314000	158.863455195152000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	652.185758870247000
420.080600038042000	0.000000000000000	22.204518179922300	116.979900655200000	109.578394595226000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	668.843413468392000
483.198575497886000	0.000000000000000	17.279591450101300	63.358501983705000	94.407767870605800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	658.244436802298000
244.851143749002000	0.000000000000000	22.169076688352700	307.573409501414000	41.454371043261300	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	616.048000982031000
438.130871091751000	0.000000000000000	0.000000000000000	149.672036708362000	62.045862490011900	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	649.848770290125000
281.345339238320000	0.000000000000000	65.975617617723800	145.598246550894000	161.233564150711000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	654.152767557650000
359.477431263821000	0.000000000000000	12.043406326605100	214.774079491125000	65.417593455878000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	651.712510537429000
415.973155830868000	0.000000000000000	101.674243161108000	92.852774836754800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	610.500173828731000
365.826509647773000	0.000000000000000	144.476266728512000	140.245497547054000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	650.548273923341000
449.342110303436000	0.000000000000000	58.127890322044900	34.065647351524000	196.283015692114000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	737.818663669119000
451.779759882270000	3.717978754550990	81.342120556884000	76.445270489914400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	613.285129683619000
386.787602198265000	0.000000000000000	116.513129761980000	112.464410967162000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	615.765142927408000
420.384789712887000	0.000000000000000	71.999107636546700	198.087544885049000	34.469572780996700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	724.941015015479000
303.963119976258000	0.000000000000000	158.565762616835000	194.983214397677000	27.426609570609500	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	684.938706561380000
613.841573785360000	0.000000000000000	7.576064090210150	0.000000000000000	0.270573717507505	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	621.688211593078000
250.928652715104000	0.000000000000000	51.770353538279500	217.165378668400000	94.357096535855500	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	614.221481457640000
279.711751351919000	0.000000000000000	1.624656832634570	282.329254026719000	86.016553416708200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	649.682215627981000
390.412714670678000	25.158932130676600	59.123490507090000	38.007958183129300	18.689492439931200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	531.392587931505000
318.692690862605000	0.000000000000000	10.085781683134100	74.112485046601900	159.211267998046000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	562.102225590388000
1375.890802568170000	0.000000000000000	515.036449842674000	1898.038031777780000	876.966118632851000	423.586426592035000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	5089.517829413520000
1574.167531223880000	50.492166095860500	107.734621776729000	1009.483306472670000	1020.463777530950000	4893.239918241800000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	8655.581321341910000
546.738038285473000	0.000000000000000	70.424830495674500	57.456575263734500	193.803369855104000	6727.012229584910000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	7595.435043484900000
776.599642470316000	30.693147668333000	52.565390728171600	79.118113784354100	218.002356752793000	849.777147028541000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	2006.755798432510000
911.312890280191000	0.000000000000000	119.246452658626000	813.755792407020000	431.717157285609000	1554.073769440880000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	3830.106062072320000
760.192838382675000	0.000000000000000	88.258379530271500	173.364674077319000	418.957124055942000	3655.337865688430000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	5096.110881734630000
404.026846915098000	0.000000000000000	6.480270211157730	39.961666302139300	188.557862394103000	139.685824551622000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	778.712470374121000
829.336932616442000	0.000000000000000	52.649170437397600	486.802329736553000	883.786074692726000	2456.781289914660000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	4709.355797397780000
432.690319623777000	3.607255686734280	12.264669334896500	132.927372056158000	85.131234206929100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	666.620850908495000
586.011410568923000	0.000000000000000	2.524745267876570	216.677245668121000	120.556586541106000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	925.769988046027000
432.475004968526000	0.000000000000000	76.101911536527400	24.676832853264500	261.628465104866000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	794.882214463184000
570.743966148152000	0.000000000000000	27.654418814312300	158.900308757156000	71.342995768519100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	828.641689488140000
525.810131446705000	0.000000000000000	42.440453680225200	135.448256426250000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	703.698841553181000
0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	663.500007646103000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	663.500007646103000
542.939532018775000	0.000000000000000	12.804752291424300	75.926770629431800	238.961926565313000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	870.632981504945000
432.467701581830000	0.000000000000000	18.712977309968900	155.731556363251000	229.683803232455000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	836.596038487507000
600.916049806448000	0.000000000000000	39.343540286846000	2.080233164591860	68.014579990133800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	710.354403248020000
412.646980296716000	0.000000000000000	77.776394192051300	77.776394192051300	192.370549060663000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	760.570317741483000
291.336075227450000	0.000000000000000	39.301524999742700	278.175472819280000	119.527115022153000	17.307093577868300	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	745.647281646495000
251.128339803471000	0.000000000000000	0.000000000000000	173.316467441648000	181.801752826812000	76.367568466476100	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	682.614128538407000
435.439701761461000	0.000000000000000	24.276968129110500	143.297759443738000	10.638221989160700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	613.652651323471000

464.357723812119000	0.000000000000000	50.512883709166000	50.963891599426400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	565.834499120712000
404.129113532707000	0.000000000000000	43.431490016224000	323.483504477685000	73.166742516958300	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	844.210850543575000
181.165680358655000	0.000000000000000	111.507341263971000	1632.471076018700000	6324.509200955850000	5755.902758578310000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	14005.556057175500000
312.825917082747000	0.000000000000000	26.736488452827600	163.749739042738000	166.720459981941000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	670.032604560256000
403.014020508679000	0.000000000000000	53.146685762208500	188.535615763224000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	644.696322034113000
207.679168192020000	0.000000000000000	50.210128185072400	244.571914707933000	208.668973586349000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	711.130184671375000
283.964365690099000	0.000000000000000	54.452754751984100	322.486314506378000	55.712818498311000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	716.616253446773000
278.246967884241000	0.000000000000000	10.985802615494300	194.232592144436000	131.199298448977000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	614.664661093149000
317.804111016355000	0.000000000000000	98.454120952675100	174.104530067046000	24.885002998148500	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	615.247765034226000
334.496669795037000	0.000000000000000	133.654371700254000	145.468624529359000	67.638852075027700	2.976109491301220	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	684.234627590980000
412.906952498062000	27.533148341038200	104.806508930968000	188.669770599245000	26.449876930899000	3.340086847929230	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	763.706344148144000
235.211599690966000	0.000000000000000	228.971845604585000	120.906539325960000	189.091678182934000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	774.181662804447000
284.926085941263000	0.000000000000000	60.141044089500800	217.752056186123000	166.086661488546000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	728.905847705435000
499.552428823401000	0.000000000000000	61.915343367051000	131.660097886621000	78.744077683386100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	771.871947760460000
200.338498682132000	0.000000000000000	60.272471538854300	293.086137721772000	86.090679496542600	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	639.787787439301000
340.269805275392000	0.000000000000000	54.139984928463300	125.875464958677000	99.437105651944400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	619.722360814477000
284.984586661101000	0.000000000000000	156.750546874709000	10.738811213638700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	452.473944749450000
261.697138578944000	0.000000000000000	189.644756179021000	182.701034721206000	16.863323540407500	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	650.906253019580000
360.571739180711000	0.000000000000000	91.245256683114800	191.309088469725000	65.509415054543900	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	708.635499388095000
158.282330707586000	0.000000000000000	281.830733243980000	188.607029654975000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	628.720093606541000
417.540185278652000	0.000000000000000	20.440289423820100	174.507845389266000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	612.488320091739000
281.078702686517000	0.000000000000000	66.502408950228900	131.741542832204000	94.565162252157300	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	573.887816721107000
314.354647350607000	0.000000000000000	79.083495999194100	152.948740840307000	68.107174597713200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	614.494058787822000
344.194955483119000	0.000000000000000	86.453991958083300	133.823575051783000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	564.472522492986000
394.296286452101000	0.000000000000000	88.705373034585100	505.132837076781000	120.863329043049000	25.202443051577600	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	1134.200268658090000
563.383138546435000	0.000000000000000	63.399767312012700	24.440024098940900	0.721476726167997	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	651.944406683556000
279.470047455176000	0.000000000000000	153.254840958374000	19.145512991247400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	451.870401404798000
280.661912223626000	0.000000000000000	139.746056326800000	166.741431019679000	26.545451781330400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	613.694851351436000
1129.867556443980000	0.000000000000000	299.077292630033000	888.228949153495000	32.950719175975900	3601.621641079010000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	5951.746158482500000
335.199121827052000	0.000000000000000	5.514332910315580	16.271802030439400	209.183054991315000	7.051114213190420	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	573.219425972313000
672.683487962626000	0.000000000000000	256.487587955771000	421.957642944436000	785.577638645861000	200.040512614153000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	2336.746870122840000
315.750552363398000	0.000000000000000	110.824556884490000	213.513542708945000	1.898299914008400	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	641.986951870843000
361.836091572292000	0.000000000000000	90.233888440875200	70.061841523953000	82.939532189666800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	605.071353726787000
417.592753379112000	0.000000000000000	70.303931965744100	302.459937778361000	338.016984035043000	1023.052735967580000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	2151.426343125840000
242.747319372901000	0.000000000000000	29.530644879069500	372.248679484784000	23.389715668743100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	667.916359405498000
268.570965868947000	0.000000000000000	0.000000000000000	173.643468207689000	394.030172929793000	782.206183290344000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	1618.450790296770000
364.756798167293000	0.000000000000000	36.899710722340600	164.560079113812000	87.151884004354600	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	653.368472007801000
518.567846284857000	25.062910512376600	0.000000000000000	104.218433641393000	1.262160961054930	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	649.111351399682000
284.271939880517000	0.000000000000000	10.165420634967800	128.642048743398000	18.801530200958300	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	441.880939459842000
83.406059321235200	0.000000000000000	64.290292211935900	238.856920153461000	149.139050937646000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	535.692322624279000
247.260044351160000	0.000000000000000	86.085797431774700	245.907911407205000	86.806935001883800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	666.060688192024000
499.708116583999000	0.000000000000000	5.769676973006670	125.490474162895000	20.734776621742700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	651.703044341644000
439.095245916202000	0.000000000000000	16.556050255856800	202.451701498249000	94.927353369179000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	753.030351039487000
399.345074812334000	0.000000000000000	41.590943319048300	186.529079127853000	239.553030675298000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	867.018127934534000
7945.099396411770000	0.000000000000000	1329.418344352410000	2346.620031974850000	159.843408000128000	30.420648594618900	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	11811.401829333700000
250.220307986884000	0.000000000000000	45.568429691084200	106.296257774450000	27.070354271931200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	429.155349724350000
341.329972155180000	0.000000000000000	114.557183266857000	169.224015218887000	26.748021564667100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	651.859192205592000
404.874814398329000	0.000000000000000	117.904589999424000	126.551527081124000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	649.330931478878000
338.274382163220000	0.000000000000000	40.009010570183700	134.264472408950000	133.723810103947000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	646.271675246302000
431.314400244791000	42.707964427831800	0.901011907760166	55.412232327250100	126.952577803407000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	657.288186711040000
267.783829463588000	0.000000000000000	36.106696575285400	7.023247712898410	83.468597818677200	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	394.382371570449000
274.994686597614000	0.000000000000000	61.410964494705400	48.045048692916600	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	384.450699785236000
323.086172588918000	0.000000000000000	16.524045560495600	52.128342624547100	27.387920818501100	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	419.126481592462000
480.265871789824000	0.000000000000000	25.116059649364700	23.405646985071100	74.087874879667400	0.630152034213453	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	603.505605338141000
265.512690570404000	17.574023190262200	69.299627528611200	14.041101002529000	85.424246744418800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	451.851689036226000
367.552231690982000	0.000000000000000	74.321223319867700	151.254950247343000	0.000000000000000	10.450014430429800	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	603.578419688623000
219.329843069670000	0.000000000000000	0.000000000000000	90.754056352673000	120.251386732504000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	430.335286154848000
457.856410486343000	34.623249631105800	88.812241892289800	33.901931930457800	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	615.193833940196000
316.465655243828000	0.000000000000000	8.725744331623460	124.049499312461000	183.690411599743000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	632.931310487656000
391.822225083983000	0.000000000000000	115.518752127348000	142.859397223319000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	650.200374434651000
237.236141268474000	0.000000000000000	0.000000000000000	238.956556033398000	147.321832764812000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	623.514530066684000
380.059562676561000	0.000000000000000	145.885993629814000	442.607844954613000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	968.553401260989000
427.236672385471000	0.000000000000000	75.288755926276000	118.516749759544000	72.857181273154700	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	693.899359344446000
275.164447157574000	0.000000000000000	6.766338864530510	341.023478772337000	80.654759265203600	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000	1.000000000000000	703.609024059645000

3/11/2009

PALMDALE WATER DISTRICT
RESOLUTION NO. 09-04

RESOLUTION OF THE BOARD OF DIRECTORS OF PALMDALE WATER DISTRICT DECLARING A WATER SHORTAGE EMERGENCY CONDITION AND ADOPTING REGULATIONS AND RESTRICTIONS ON THE DELIVERY AND CONSUMPTION OF WATER FOR PUBLIC USE

WHEREAS, Palmdale Water District ("District") is a water district empowered to provide water service within District boundaries; and

WHEREAS, due to persistent inadequate rainfall, California is suffering from a chronic and continuing water shortage which is predicted to severely impact the District's service area; and

WHEREAS, precipitation remains substantially below normal locally, particularly in the watersheds of the sources of water supply serving Southern California and many communities in the state are suffering water shortages; and

WHEREAS, the District relies on rainfall and water supply from the State Water Project to meet its water needs; and

WHEREAS, State Water Project deliveries to the District have been reduced by eighty-five percent (85%) in response to the continuing arid conditions and could be exacerbated further by legal restrictions on the flow of State Water Project water through the Bay-Delta; and

WHEREAS, these arid conditions and reduced supplies from the State Water Project have led to a greater reliance on groundwater to meet the needs of District customers with the corresponding depletion of groundwater supplies in the District's service area; and

WHEREAS, the District's ability to rely upon and entitlement to utilize groundwater is under attack in a basin adjudication action now pending in the court system; and

WHEREAS, with increasing water demand and limitations on water supplies, it is anticipated that the District will not have enough water to meet customer demand for water for the remainder of this year; and

WHEREAS, the ordinary demands and requirements of the District customers cannot be satisfied without depleting the available water supply to such an extent that there would be insufficient available water for human consumption, sanitation and fire protection; and

WHEREAS, following due public notice, the conduct of a public hearing and the making of findings as required by law, the District has the power and authority to adopt mandatory water conservation measures within its boundaries; and

District, to conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection.

Section 3: Authorization to Implement Restrictions on Water Consumption: The Board of Directors of the District hereby authorizes the General Manager of the District to take specific steps to meet water conservation goals and avoid an imminent danger that the District will be unable to supply sufficient water for human consumption, sanitation, and fire protection, to implement the regulations and restrictions on water consumption as hereinafter set forth.

Section 4: Conservation Goal and Authorized Actions. The initial conservation goal of the District is a reduction in water use of ten percent (10%), which goal is subject to adjustment from time to time based upon demands, supplies, and conservation, with an ultimate conservation goal of a reduction in water use of 20% by 2020. The General Manager is authorized to implement Action 1, Paragraphs 1 through 9 of this resolution to meet said conservation goal.

Action 1. Mandatory Water Conservation Regulations. The General Manager shall take all steps necessary to advise the District's customers of the following mandatory regulations and to enforce them in accordance the District's existing Waste of Water Policy:

1. There shall be no hose washing of sidewalks, walkways, buildings, walls, patios, driveways, parking areas or other paved surfaces, or walls, except to eliminate conditions dangerous to public health or safety or when required as surface preparation for the application of architectural coating or painting.

2. Washing of motor vehicles, trailers, boats and other types of equipment shall be done only with a hand-held nozzle for quick rinses, except that washing may be done with reclaimed wastewater or by a commercial car wash using recycled water.

3. No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a closed recycling system.

4. No restaurant, hotel, cafe, cafeteria or other public place where food is sold, served or offered or sale, shall serve drinking water to any customer unless expressly requested and shall display a notice to that effect.

5. All water users shall promptly repair all leaks from indoor and outdoor plumbing fixtures.

6. No lawn, landscape, or other turf area shall be watered more often than three (3) days per week and no more often than every other day

nor during the hours between 10:00 a.m. and 8:00 p.m. Water days will be set as follows: addresses ending in an even number starting on Monday, and; addresses ending in an odd number starting on Tuesday.

Exemptions:

1. No watering hour restrictions during the months of November, December, January, February, and March. Watering can occur between the hours of 10:00 a.m. and 8:00 p.m.

2. The District will allow an exemption from the watering schedule if an ET based controller is installed and operating. *The ET Controller Exemption Form* must be completed and the installation verified by a licensed landscape architect or PWD staff.

7. No water users shall cause or allow the water to run off landscape areas into adjoining streets, sidewalks, or other paved areas due to incorrectly directed or maintained sprinklers or excessive watering. If cited, random acts of vandalism will be considered in any appeal.

8. The owner and manager of every hotel, motel, inn, guest house, bed and breakfast facility, and short-term commercial lodging shall post a notice of such shortage and any necessary compliance measures.

9. Commercial nurseries, golf courses, parks, school yards, and other public open space, and landscaped areas shall be prohibited from watering lawn, landscaping, and other turf areas more often than five days per week and between the hours of 10:00 a.m. and 8:00 p.m., except that there shall be no restriction on watering utilizing reclaimed water or where public use requires a modified and approved watering schedule.

Exemptions:

1. No watering hour restrictions during the months of November, December, January, February, and March. Watering can occur between the hours of 10:00 a.m. and 8:00 p.m.

2. The District will allow an exemption from the watering schedule if an ET based controller is installed and operating. *The ET Controller Exemption Form* must be completed and the installation verified by a licensed landscape architect or PWD staff.

3. Watering schedules must be adhered to at all times. The District requires advance written notice of any maintenance activities requiring water use between the hours of 10:00 a.m. and 8:00 p.m.

10. The use of water from fire hydrants shall be limited to fire fighting and related activities and other nses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety, and welfare. Ongoing water system improvement projects qualifying with the exemption available under Action 2 are also exempt under this section and may continue to use construction meters in accordance with standard District policy.

Action 2: Moratorium on New Connections: Upon specific authorization by the Board of Directors, the General Manager shall impose a moratorium on new connections to the District's water system. Such moratorium shall take effect immediately pursuant to the authority authorized by this Resolution. Water system improvement projects that include new connections, have begun construction, and have not been activated at the time this resolution is effective can be exempted. The exemption is based on certification of the installation, proper programming, and proper operation of District-approved E/T irrigation system controller(s) for all irrigation systems in the project. These include those irrigation systems with separate water service connections and those connected to water service connections used for both irrigation and domestic purposes.

Action 3: Mandatory Water Rationing: Upon specific authorization by the Board of Directors, the General Manager shall the General Manager shall implement a phased water rationing to protect the water supply of the District and to guarantee adequate supply for domestic use, sanitation, and fire protection, as follows:

1. Stage 1: Water Rationing: A twenty percent (20%) reduction in water deliveries to all District customers.

2. Stage 2: Water Rationing: A thirty percent (30%) reduction in water deliveries to all District customers.

3. Stage 3: Water Rationing: A forty percent (40%) reduction in water deliveries to all District customers.

a) A Base water use shall be established for each residential, commercial and industrial consumer of the Palmdale water District corresponding to the amount of water delivered to that consumer during the last annual water year ending on December 31, 2006.

b) Water consumption by a consumer which is in excess of the specified conservation percentage of the base water use, as described in section 5 will be charged at a rate of $3.00 per 100 cubic feet of water, or fraction thereof, in addition to the current base water rate.

Section 5: Duration of Water Emergency: The regulations, restrictions, and actions set forth herein shall take full force and effect immediately upon authorization by the Board of Directors and shall remain in full force and effect until the supply of water available for distribution within the District service area has been replenished or augmented, as determined by the General Manager such that a sufficient supply of water is available for human consumption, sanitation, and fire protection, or until further action by the Board of Directors.

Section 6: Appeal: Decisions made by the District under the regulations set forth in this Resolution may be appealed by consumers in accordance with the procedure set forth in the District Rules and Regulations.

Section 7: Violation: A violation of the regulations and restrictions set forth herein may result in a fine and/or result in the discontinuance of service to consumers willfully violating the conservation measures set forth herein or such other penalty or restriction as may be allowed by law.

Section 8: Severability: If any portion of this Resolution is found to be unconstitutional or invalid, the District hereby declares that it would have enacted the remainder of this Resolution regardless of the absence of any such valid part.

Section 9: Effective Date: This Resolution shall take effect immediately.

BE IT FURTHER RESOLVED, that the Board of Directors finds that the provisions of this Resolution are exempt from the provisions of the California Environmental Quality Act as an action to mitigate emergency conditions and as a rate setting measure pursuant to Public Resources Code §21080(b)(4) and (8); and

BE IT FURTHER RESOLVED, that this resolution supersedes and replaces Resolution No. 07-09 adopted by the District on November 14, 2007, which resolution is hereby rescinded and of no further force or effect.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Palmdale Water District held on March 11, 2009.

President
Palmdale Water District

Secretary
Palmdale Water District


RDN