



DESERT WATER AGENCY

Final Report

Water, Reclaimed Water and Wastewater Rate Study

October 2016

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SECTION 1. PURPOSE AND OVERVIEW OF THE STUDY

A. PURPOSE

Desert Water Agency (DWA or “the Agency”) retained NBS in February 2016 to conduct a comprehensive Water, Reclaimed Water and Sewer Rate Study. The Agency had a number of objectives to address in the study, such as: ensure adequate funding for operating and capital costs, build reasonable reserves, provide more revenue stability in water rates, and develop drought rates that will allow the water utility to meet revenue requirements at various stages of water conservation. The rates developed in this study were developed in a manner that is consistent with industry standard cost of service principles. In addition to documenting the rate study methodology, this report is provided with the intent of assisting DWA to maintain transparent communications with its residents and businesses.

NBS worked cooperatively with DWA staff and the Board of Directors throughout this study to develop rate alternatives that would best meet the Agency’s goals and objectives. In the end, the Board of Directors selected the rates described in this report, to proceed with the public approval process.

B. DESERT WATER AGENCY BACKGROUND

DWA is the water utility for Palm Springs and outlying county areas such as Desert Hot Springs, and part of Cathedral City. DWA was formed in 1961 to import water from the State Water Project (SWP) to create a reliable local water supply, and currently serves an area of 325 square miles.

Potable Water Utility

DWA provides potable water service to approximately 22,635 metered customers. The majority (about 83%) of the water utility’s customers are single and multi-family residential users. Recent consumption records indicate that residential households use 56% of total water sold; businesses, commercial, government, institutional, and landscape customers use the remaining 44%.

The primary source of water is ground water, provided through 29 wells which represents 95% of the agency’s potable water supply. The aquifer is replenished with water from the SWP. Additional supply comes from local mountain streams (Chino Creek, Snow Creek and Falls Creek). The water system includes over 369 miles of water pipeline and 28 reservoirs.

Reclaimed Water Utility

DWA provides reclaimed water service to 12 metered customers. These customers use reclaimed water to irrigate golf courses, parks, medians and Palm Springs High School fields. The DWA reclamation plant provides the additional treatment to wastewater from the City of Palm Springs, that is necessary to distribute it for irrigation use.

Using reclaimed water for irrigation saves electricity, using one quarter of the energy needed to pump groundwater, and dramatically reduces the consumption of potable water. The additional treatment of wastewater at the reclamation plant also reduces nitrates which could otherwise impact the groundwater basin.

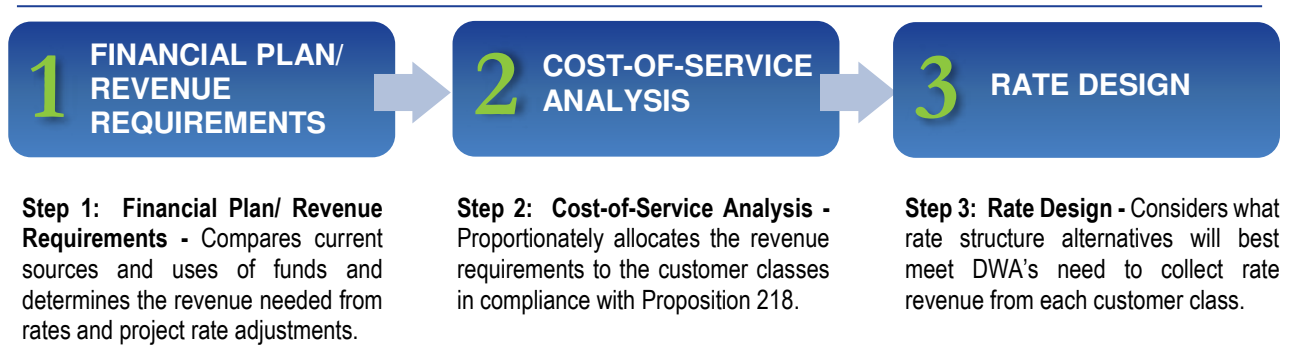
Wastewater Utility

The Wastewater Operations Division protects public health and safety by ensuring that wastewater is properly collected and transported to one of two treatment facilities in the area: Coachella Valley Water District or the City of Palm Springs. The wastewater utility is smaller than the water utility with approximately 2,200 connections; the vast majority (90%) of which are single or multi-family residential users. The remainder of the customers are commercial or government. The sewer system includes 23.21 miles of pipeline with mains ranging from 6 to 18 inches in size and two lift stations.

C. OVERVIEW OF THE STUDY

Comprehensive rate studies such as this one typically include three components: (1) preparation of a financial plan which identifies the net revenue requirements for the utility; (2) analysis of the cost to serve each customer class, and; (3) the rate structure design. These steps are shown in **Figure 1** and are intended to follow industry standards and reflect the fundamental principles of cost-of-service rate making embodied in the American Water Works Association (AWWA) Principles of Water Rates, Fees, and Charges¹, also referred to as Manual M1. They also address requirements under Proposition 218 that rates not exceed the cost of providing the service and be proportionate to the cost of providing service for all customers. In terms of the chronology of the study, these three steps represent the order they were performed in this Study.

Figure 1. Primary Components of a Rate Study



In this rate study, NBS projected revenues and expenditures, developed net revenue requirements, performed cost-of-service rate analyses, and developed new potable water, reclaimed water and wastewater rates for DWA using this approach. The following sections in this report present an overview of the methodologies, assumptions, and data used along with the financial plans and rates developed during this study; Appendix A provides the rate schedule necessary for the Proposition 218 notices, and more detailed tables and figures documenting the development of proposed rates are provided in Appendices B through D.

Rate Design Criteria – It is important for the water utility to send proper price signals to its customers about the actual cost of their water usage. This objective is typically addressed through both the magnitude of the rates and the rate structure design. In other words, both the amount of revenue collected and the way in which the revenue is collected from customers are important.

Several criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in a number of rate-setting manuals, such as the AWWA Manual M1. The foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*² which outlines pricing policies, theories, and economic concepts along with various rate designs. The following is a simplified list of the attributes of a sound structure:

- Rates should be easy to understand from the customer's perspective.
- Rates should be easy to administer from the utility's perspective.
- Rates should promote the efficient allocation of the resource.

¹ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, sixth edition, 2012.*

² *James C. Bonbright; Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates, (Arlington, VA: Public Utilities Report, Inc., Second Edition, 1988), p. 383-384.*

- Rates should be equitable and non-discriminating (that is, cost based).
- There should be continuity in the rate making philosophy over time.
- Rates should address other utility policies (for example, encouraging conservation & economic development).
- Rates should provide month-to-month and year-to-year revenue stability.

This section covers basic rate design criteria that NBS and DWA staff considered as a part of their review of the rate structure alternatives.

Rate Structure Issues – The starting point in considering rate structures is the relationship between fixed costs and variable costs. Fixed costs typically do not vary with the amount of water consumed. Debt service payments and personnel costs are examples of fixed costs. In contrast, variable costs such as the cost of purchased water, chemicals and electricity tend to change with the quantity of water sold. The vast majority of rate structures contain a fixed or minimum charge in combination with a volumetric charge.

Fixed Charges – Fixed charges can be called base charges, minimum monthly charges, customer charges, fixed meter charges, etc. Fixed charges for water utilities typically increase by meter size. For example, a customer with a 2-inch meter has a fixed meter charge that is more than five times greater than the typical residential customer charge (which in DWA’s case is a 3/4-inch or 1-inch meter, which when combined represents 87% of all meters in the potable system) based on the meter’s safe operating capacity.³ Because a large portion of water utilities’ costs are typically related to meeting capacity requirements, reflecting individual demands for capacity are an important factor in establishing rates for customers.

Volumetric (Consumption-Based) Charges – In contrast to fixed charges, variable costs such as purchased water and the cost of electricity used in pumping water and chemicals for treatment tend to change with the quantity of water produced. For a water utility, variable charges are generally based on metered consumption and charged on a dollar-per-unit cost (for example, per 100 cubic feet, or hcf). There are significant variations in the basic philosophy of variable charge rate structure alternatives. Under a uniform (single tier) rate structure, the cost per unit does not change with consumption, and provides a simple and straightforward approach from the perspective of customer understanding and rate administration/billing.

Drought and Water Conservation – On January 17, 2014, Governor Jerry Brown declared a State of Emergency throughout California due to severe drought conditions, and on April 1, 2015, the Governor issued Executive Order B-29-15 mandating statewide water conservation of 25 percent. The specific conservation mandate for each community in California varied from 4 to 36 percent. DWA was originally mandated to conserve 36 percent (which was later adjusted to 32 percent). Beginning in June 2016, communities, like DWA, could “self-certify” that they had sufficient supply to meet customer demand for three years under the current drought conditions, were no longer mandated by the state to achieve a specific conservation target. While no longer under a mandate, DWA continues to ask customers to conserve, and while the level of conservation DWA is achieving is beneficial from a supply standpoint, it places financial pressure on the utility. The rates proposed in this Study account for various stages of water conservation to allow DWA to continue meeting its financial obligations going forward.

Modifications to Rate Structure – NBS recommends that DWA make some modifications to the water rate structure. The primary changes relate to DWA’s desire to increase the percentage of revenue collected from the fixed monthly meter charge, and specifically:

- Over the 5-year rate period, transition from a fixed charge collecting 17% of potable water rate revenue to one which collects 30% of expected potable rate revenue.
- Develop separate rates for the reclaimed water system; new rates will have unique fixed and variable charges, that are different than potable water rates.

³ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, sixth edition, 2012, p. 274.*

- For both potable and reclaimed water rates, update the hydraulic capacity factors used to develop monthly fixed meter charges to factors that are consistent with published AWWA standards.

NBS believes that these key changes are reasonable, will continue to encourage water conservation, and will collect sufficient revenue to cover costs over the next 5 years.

Key Financial Assumptions – The following are the key financial assumptions used in the water rate analyses:

- **Funding of Water Utility Capital Projects** – DWA will fund all planned capital costs using incoming rate revenue and existing reserves. The capital projects listed in the financial plan are from DWA’s projection of costs through FY 2020/21.
- **Reserve Targets** – For each utility (potable water, reclaimed water and wastewater) DWA maintains reserves for operations, capital and other specific needs. The details for each utility’s reserve targets are covered in their respective section of this report.
- **Inflation and Growth Projections** – Assumptions were made in the analysis with regard to cost inflation in order to project future revenues and expenses for the study period. The following inflation factors were used in the analysis:
 - ✓ Potable water system customer growth is projected to be approximately 210 new connections per year.
 - ✓ No growth is expected in the Reclaimed water system.
 - ✓ Wastewater Customer growth is projected to be approximately 15 new customers per year through FY 2018/19 and 4 new customers per year thereafter.
 - ✓ General cost inflation is 2 percent annually.
 - ✓ Labor cost inflation is 4 percent annually.
 - ✓ Energy cost inflation is 4.4 percent annually.
 - ✓ Transportation cost inflation is 4 percent annually.
 - ✓ Utilities cost inflation is 6 percent annually.
 - ✓ Construction cost inflation is 3 percent annually.

SECTION 2. POTABLE WATER RATE STUDY

A. KEY POTABLE WATER RATE STUDY ISSUES

DWA's water rate analysis was undertaken with a few specific objectives, including:

- Generating additional revenue needed to meet projected operating and planned capital costs.
- Improving revenue stability.
- Developing drought rates to coincide with potential future conservation requirements.
- Updating fixed meter charges to reflect AWWA hydraulic capacity factors, using the hydraulic capacity of the 1-inch meter as the base for calculating meter equivalency⁴.

NBS developed various water rate alternatives as requested by DWA staff over the course of this study. All rate structure alternatives were developed based on industry standards and cost-of-service principles. The rate alternative that will be implemented is ultimately the decision of DWA's Board of Directors. The fixed and volume-based charges were calculated based on the net revenue requirements, number of customer accounts, water consumption, and other DWA-provided information. The following are the basic components included in this analysis:

- **Developing Functionalized Costs:** The potable water system revenue requirements were "functionalized" into five categories: (1) commodity (or volume-based) costs; (2) fixed capacity costs; (3) customer service costs; and (4) fire protection costs.
- **Determining Revenue Requirements by Customer Class:** Costs for each of these functional categories were then allocated to customer classes based on allocation factors, such as water consumption, peaking factors, and number of accounts by meter size. The total revenue collected from each customer class was determined using these functional costs and allocation factors. For example:
 - ✓ Volume-related costs are allocated based on the water consumption for each class.
 - ✓ Fixed capacity costs are allocated based on peaking requirements.
 - ✓ Customer costs are allocated based on number of meters.

Once the costs are allocated and the revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is addressed in the rate design task.

- **Rate Design and Fixed vs. Variable Charges:** The revenue requirements for each customer class are collected from both fixed monthly service charges and volumetric rates. Based on direction from DWA staff, the rates proposed in this report are designed to transition to rates which collect 30 percent of rate revenue from the fixed charge and 70 percent from the variable charges⁵.

B. POTABLE WATER UTILITY REVENUE REQUIREMENTS

It is important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. Rate increases are governed by the need to meet operating and capital costs, provide for greater revenue stability, and build reasonable reserve funds. The current state of DWA, with regard to these objectives, is as follows:

⁴ Per DWA staff, the base meter for all new connections will be the 1-inch meter, which is why it was chosen as the base meter.

⁵ The California Urban Water Conservation Council recommends recovering at least 70 percent of rate revenue through volume-based rates. However, water utilities are allowed to develop their own allocations that accurately reflect their actual cost allocations.

- **Meeting Net Revenue Requirements:** For FY 2016/17 through FY 2020/21, the projected net revenue requirement (that is, total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) for the potable system range from approximately \$22.2 million to \$32.2 million. If no rate adjustment is implemented, the water utility is projected to run an annual deficit of \$2 million in FY 2016/17 which increases to over \$11 million in FY 2020/21. Most of the increase in rates is needed to fund the Agency’s planned capital projects.
- **Funding Capital Improvement Projects:** In order to maintain current service levels, DWA must ensure sufficient funding is available to fund necessary capital improvement and rehabilitation projects. For the Potable Water Utility, DWA has identified roughly \$44.8 million in expected capital expenditures for FY 2016/17 through 2020/21, and an average of over \$15 million in capital expenditures every year thereafter are expected (future year value).
- **Building and Maintaining Reserve Funds:** DWA has an established reserve policy⁶, which documents the purpose of and target balances for the Agency’s various reserve funds. NBS evaluated existing and projected cash balances through FY 2024/25, and identified the reserves that will be fully-funded vs. those that are projected to fall short of their target balance.

NBS also identified those reserves that should be of highest priority to fund, which are for: Operations, Capital Replacements and the State Water Contract, and are referred to as “primary reserve funds,” for purposes of this report. In the primary reserve funds, NBS recommends that DWA target a minimum of \$77.8 million, by the end of FY 2021/22. These reserves are considered unrestricted, and have the following minimum target ending fund balances:

- **Operating Reserve** should equal approximately 6 months of operating expenses, or \$14.7 million in FY 2020/21. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures, such as those caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (such as volumetric charges), and particularly in periods of economic distress – changes or trends in age of receivables.
- **Reserve for Capital Replacements** at a minimum, should equal 3 percent of net capital assets, or approximately \$6.7 million in FY 2020/21. This reserve is intended to be a cash resource set aside to address long-term capital system replacement and rehabilitation needs.
- **State Water Contract Reserve** should equal 2.5 times the annual State Water Contract costs or approximately \$56.4 million in FY 2020/21.

Under the proposed rate increases, it is projected that the Potable Water Utility will be slightly under these targets at the end of FY 2020/21, but well positioned to achieve those targets the following Fiscal Year.

- **Building and Maintaining Additional Reserve Funds:** DWA maintains additional reserves which have been approved by the Board of Directors, and consists of the following:
 - **Disaster Response Reserve** should equal 15 percent of net capital assets, or approximately \$33.4 million in FY 2020/21.
 - **Land Acquisition Reserve** should equal \$5 million in FY 2020/21.
 - **Reserve for Additional Water** should equal one year of SWP costs or approximately \$23 million in FY 2020/21.
 - **Reserve for Regulatory Compliance** should equal \$10 million in FY 2020/21.
 - **Reserve for Retirement Benefits** should equal approximately \$27.4 million in FY 2020/21.

⁶ Resolution No. 926.

- **Reserve for Replacements (fully-funded, per DWA policy)** should equal accumulated depreciation or approximately \$118.7 million in FY 2020/21, which is set aside to address long-term capital system replacement and rehabilitation needs⁷.

At the end of the five-year rate period it is projected that the Potable Water Utility will have \$105 million in unrestricted reserves, which is \$183 million below the total reserve target of \$288 million.

- **Maintain an Expansion Reserve Fund:** NBS recommends that DWA maintain a separate reserve fund to hold connection fee revenue pursuant to California Government Code §66013(6)(c), which states:

A local agency receiving payment of a charge as specified in paragraph (3) of subdivision (b) [the connection fee] shall deposit it in a separate capital facilities fund with other charges received, and account for the charges in a manner to avoid any commingling with other moneys of the local agency, except for investments, and shall expend those charges solely for the purposes for which the charges were collected. Any interest income earned from the investment of moneys in the capital facilities fund shall be deposited in that fund.

- **Maintaining Adequate Bond Coverage:** DWA is required by its bond covenants to maintain a debt service coverage ratio of at least 1.15 for the outstanding 2007 Certificates of Participation. The benefit of exceeding the minimum debt coverage ratio is that it strengthens DWA's credit rating, which can help lower the interest rates for debt-funded capital projects in the future, and in turn reduce annual debt service payments. If DWA adopts the proposed rate increases, the debt coverage requirement will be met during the 5-year period.

Figure 2 summarizes the sources and uses of funds, net revenue requirements, and the recommended 13 percent annual increases in total potable rate revenue proposed for the next 5 years.

⁷ The \$118.7 million represented here is in addition to the \$6.7 million, or 3% of net assets listed above.

Figure 2. Summary of Potable Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget		Projected		
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Sources of Water Funds					
<u>Operating Fund</u>					
Rate Revenue Under Prevailing Rates (1)	\$ 20,227,500	\$ 20,412,871	\$ 20,598,242	\$ 20,783,613	\$ 20,968,984
Power Sales	21,000	57,750	57,750	57,750	57,750
Other Revenue	1,565,150	1,779,451	1,098,925	1,085,212	1,129,026
<i>Subtotal: Operating Fund Revenue</i>	<i>\$ 21,813,650</i>	<i>\$ 22,250,072</i>	<i>\$ 21,754,917</i>	<i>\$ 21,926,575</i>	<i>\$ 22,155,760</i>
<u>General Fund</u>					
Property Tax Revenue	\$ 21,118,200	\$ 21,540,564	\$ 21,971,375	\$ 22,410,803	\$ 22,859,019
Groundwater Replenishment	4,351,300	5,148,895	5,629,302	6,071,312	6,675,900
Power Sales - Whitewater Hydro	24,000	66,000	66,000	66,000	66,000
Other Revenue	1,154,200	239,675	359,513	479,350	599,188
<i>Subtotal: General Fund Revenue</i>	<i>\$ 26,647,700</i>	<i>\$ 26,995,134</i>	<i>\$ 28,026,190</i>	<i>\$ 29,027,465</i>	<i>\$ 30,200,106</i>
Total Sources of Funds	\$ 48,461,350	\$ 49,245,206	\$ 49,781,107	\$ 50,954,039	\$ 52,355,866
Uses of Water Funds					
Operating Fund - O&M Expenses	\$ 22,520,644	\$ 22,968,051	\$ 23,996,049	\$ 25,022,024	\$ 26,198,150
General Fund - O&M Expenses	23,288,325	27,354,706	27,581,497	26,346,770	25,745,765
Debt Service	1,646,780	1,646,580	1,645,380	1,647,500	1,646,438
Rate-Funded Capital Expenses	3,023,798	-	2,752,861	11,258,090	9,996,758
Total Use of Funds	\$ 50,479,547	\$ 51,969,337	\$ 55,975,787	\$ 64,274,384	\$ 63,587,110
Surplus (Deficiency) before Rate Increase	\$ (2,018,197)	\$ (2,724,130)	\$ (6,194,681)	\$ (13,320,344)	\$ (11,231,244)
Additional Revenue from Rate Increases	1,314,788	5,652,324	9,122,900	13,103,519	17,665,010
Surplus (Deficiency) after Rate Increase	\$ (703,409)	\$ 2,928,194	\$ 2,928,219	\$ (216,825)	\$ 6,433,765
Projected Annual Rate Increase (2)	13.00%	13.00%	13.00%	13.00%	13.00%
<i>Cumulative Rate Increases</i>	<i>13.00%</i>	<i>27.69%</i>	<i>44.29%</i>	<i>63.05%</i>	<i>84.24%</i>
Net Revenue Requirement	\$ 22,245,697	\$ 23,883,141	\$ 26,830,686	\$ 34,103,957	\$ 32,200,228
<i>Debt Coverage Ratio (After Rate Increases)</i>	<i>2.40</i>	<i>2.77</i>	<i>4.45</i>	<i>7.70</i>	<i>10.97</i>

1. Fiscal Year 2015/16 and 2016/17 revenues and expenses are per the Agency's Adopted Budgets.

2. Initial rate increases are anticipated to be effective 1/1/2017 and July 1st, each year thereafter.

Figure 3 summarizes the projected primary reserve fund balances and reserve targets. A summary of the utility's proposed 5-year financial plan is included on pages 1 – 4 of Appendix B. The appendix tables include the revenue requirement analysis, reserve fund projections, capital improvement program and proposed rate increases needed to meet DWA's funding requirements. As can be seen in Figure 3, given the proposed rate increases, reserves do not quite meet the minimum target by the end of the five year rate period, however, it is expected that DWA will be well positioned to achieve the reserve targets in the following year.

Figure 3. Summary of Primary Potable Water Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Projected				
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Operating Reserve					
Ending Balance	\$ 11,855,026	\$ 12,965,390	\$ 13,513,221	\$ 13,296,396	\$ 14,684,522
<i>Recommended Minimum Target</i>	<i>12,327,533</i>	<i>12,965,390</i>	<i>13,513,221</i>	<i>14,060,894</i>	<i>14,684,522</i>
Reserve for Replacements					
Ending Balance (1)	\$ 12,284,802	\$ 5,941,243	\$ 2,396,829	\$ 2,396,829	\$ 7,442,469
<i>Recommended Minimum Target</i>	<i>6,300,000</i>	<i>6,360,000</i>	<i>6,430,000</i>	<i>6,570,000</i>	<i>6,670,000</i>
State Water Contract Reserve					
Ending Balance	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000
<i>Recommended Minimum Target</i>	<i>54,476,348</i>	<i>60,979,940</i>	<i>61,377,758</i>	<i>58,117,513</i>	<i>56,437,178</i>
Total Ending Balance	\$ 72,074,828	\$ 66,841,634	\$ 63,845,051	\$ 63,628,226	\$ 70,061,991
Total Recommended Minimum Target	\$ 73,103,880	\$ 80,305,330	\$ 81,320,979	\$ 78,748,407	\$ 77,791,700

1. Metrics described in Desert Water Agency Resolution No. 926 are used to calculate actual amounts from budget data within this analysis. source file: 2015 2016 BUDGET.pdf.

C. CHARACTERISTICS OF POTABLE WATER CUSTOMERS BY CUSTOMER CLASS

The amount of consumption, the peaking factors, and the number of meters by size are used in allocating costs as a part of the cost-of-service analysis. DWA's most recent consumption data is summarized in **Figure 4**, peaking factors in **Figure 5**, and number of customers by customer class is shown in **Figure 6**.

In Figure 4, the impact of continued customer conservation has been included. Staff expects that for FY 2016/17, standard potable water customers will consume 11,473,591 hcf (26,340 AF) of water. This represents a decrease (i.e., conservation) of 23% since calendar year 2013, and is assumed to be the “new normal”. Aside for slight adjustments to consumption which have been made to account for customer growth⁸, this figure represents the expected consumption over the 5-year rate period.

Figure 4. Water Consumption by Customer Class

Development of the BASE COMMODITY Allocation Factor		
Meter Size	April 15 - March 16 Volume (1)	Percent of Total Volume
Potable Water		
Residential	5,801,532	50.6%
Multi-Family	241,981	2.1%
Condo	423,764	3.7%
Commercial	3,275,825	28.6%
Irrigation/Condo	1,109,106	9.7%
Fire Private	1,223	0.0%
Public Authority	454,198	4.0%
Public Authority Mains	15,203	0.1%
Other Water		
Construction	150,759	1.3%
Potable Total	11,473,591	100%

Peaking factors for each customer class are shown in Figure 5. A “peaking factor” is the relationship of each meter size’s average use to its peak use. Both operating costs and capital infrastructure costs incurred to accommodate peak system capacity events are generally allocated to each meter size according to its contribution to peak capacity events. These peaking factors are used to allocate capacity-related costs to each customer class, which is described in more detail, in Section 2D of this Study.

Figure 5. Peaking Factors by Customer Class

Development of the PEAK CAPACITY (MAX MONTH) Allocation Factors				
Meter Size	Average Monthly Use (hcf)	Peak Monthly Use (1) (hcf)	Peak Month Factor	Max Month Capacity Factor
Potable Water				
Residential	483,461	604,949	1.25	50.3%
Multi-Family	20,165	23,628	1.17	2.0%
Condo	35,314	43,216	1.22	3.6%
Commercial	272,985	331,341	1.21	27.6%
Irrigation/Condo	92,426	119,883	1.30	10.0%
Fire Private	102	205	2.01	0.0%
Public Authority	37,850	48,004	1.27	4.0%
Public Authority Mains	1,267	1,882	1.49	0.2%
Other Water				
Construction	12,563	29,189	2.32	2.4%
Potable Total	956,133	1,202,297	1.26	100.0%

⁸ See Table 9 (make sure the right table is referenced here) in Appendix B for specific growth assumptions.

The number of customers for each customer class are shown in Figure 6. Customer costs are those costs associated with having customers connected to the water system, for example: meter reading, postage and billing. Customer costs are allocated to each customer class by the customer allocation factors shown in Figure 6.

Figure 6. Number of Meters by Customer Class

Development of the CUSTOMER Allocation Factor		
Meter Size	Number of Meters (1)	Percent of Total
Potable Water		
Residential	14,739	64.9%
Multi-Family	310	1.4%
Condo	3,834	16.9%
Commercial	2,595	11.4%
Irrigation/Condo	377	1.7%
Fire Private	516	2.3%
Public Authority	260	1.1%
Public Authority Mains	3	0.0%
Other Water		
Construction	71	0.3%
Potable Total	22,705	100%

D. COST OF SERVICE ANALYSIS

Once the revenue requirements are determined, as described in Section 2B of this report, the cost of service analysis distributes those revenue requirements to each component of the water rate structure by allocating costs through the functionalization and classification process.

Functionalization, Classification and Allocations

Most costs are not typically allocated 100 percent to fixed or variable categories and, therefore, are allocated to multiple functions of water service, such as supply, treatment, and distribution. Those costs are then classified for the purpose of allocating costs to the following cost causation components:

- **Commodity** related costs are those costs associated with the total consumption of water over a specified period of time (such as annual).
- **Capacity** related costs are those costs associated with the maximum demand required or the maximum size of facilities required to meet this demand.
- **Customer** related costs are costs associated with having a customer on the water system, such as meter reading, postage and billing.
- **Fire Protection** costs are those costs associated with providing sufficient capacity in the system for fire meters and other operations and maintenance costs of providing water to properties for private fire service protection.

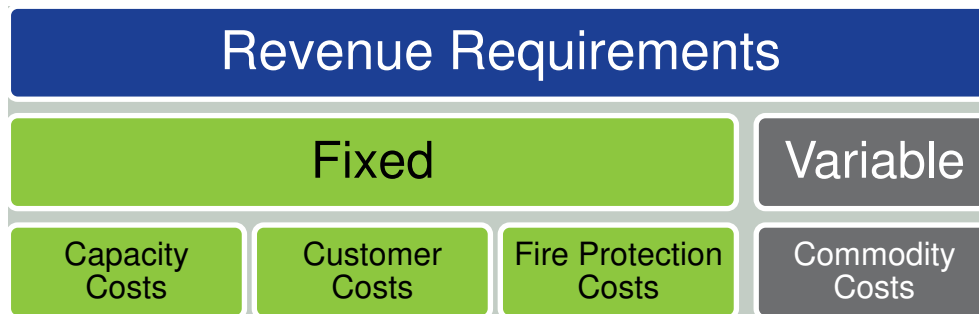
Once costs have been organized in DWA's functional categories and allocated to these cost causation components, they are used to establish new water rates in the form of fixed and variable charges. Pages 30 through 36 in Appendix B show how DWA's expenses were allocated to these cost causation components.

Fixed costs generally consist of costs that a utility incurs to serve customers irrespective of the amount of water they use. These include (1) the infrastructure (capacity-related facilities) required to provide service to customers; (2) costs associated with the peaking requirements, or maximum demand which affects the maximum size of the water supply system, treatment and delivery system, operations and maintenance costs; and (3) administrative and billing costs associated with meter reading, postage and billing.

Variable costs are those that change as the volume of water produced and delivered changes. These commonly include the costs of chemicals used in the treatment process, energy related to pumping for transmission and distribution, and source of supply.

Figure 7 below summarizes how cost components are grouped with respect to fixed and variable components.

Figure 7. Cost Functionalization Summary



Ideally, utilities should recover all of their fixed costs from fixed charges and all of their variable costs from volumetric charges; when this is the case, fluctuations in water sales revenues would be directly offset by reductions or increases in variable expenses. When rates are set in this manner, they provide greater revenue stability for the utility. However, other factors are often considered when designing water rates such as community values, water conservation goals, ease of understanding, ease of administration and

the impact on customer bills.⁹ Further, revenue losses resulting from decreased consumption can be mitigated by developing drought or water shortage rates, as was done in this Study.

NBS allocated DWA's costs into categories that can be more generally grouped into fixed and variable costs. This analysis resulted in a cost distribution that is approximately 63 percent fixed and 37 percent variable¹⁰. Under the current rate structure, DWA collected 17 percent of revenue through fixed charges and 83 percent through variable charges in FY 2015/16. To improve revenue stability, DWA has decided to transition to a rate structure which collects 30 percent of revenue through fixed charges and 70 percent of revenue through volumetric charges, which more closely matches the cost of service analysis and will provide more revenue stability for the Agency. The proposed rates transition from the current revenue allocation of 17% fixed, 83% variable to 30% fixed, 70% variable over the next five years. The transition is shown in **Figure 8**.

Figure 8. Transition of Rate Revenue Allocation

Proposed Rates (Transition to 30% Fixed / 70% Variable)					
Classification Components	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Percentage Revenue Variable	79%	77%	74%	72%	70%
Percentage Revenue Fixed	21%	23%	26%	28%	30%

Figure 9 summarizes how the percentage of costs are allocated to each cost component and used to establish new water rates. The top line (Commodity Related Costs) in Figure 9 matches the top line (percentage revenue variable) in Figure 8. The remaining revenue requirements are allocated to capacity, customer and fire protection cost categories. **Figure 10** shows the resulting projected costs allocated to each cost classification component.

Figure 9. Adjusted Percentage Rate Revenue

Classification Component	Adjusted Percentage Revenue (2016/17)	Adjusted Percentage Revenue (2017/18)	Adjusted Percentage Revenue (2018/19)	Adjusted Percentage Revenue (2019/20)	Adjusted Percentage Revenue (2020/21)
Commodity Related Costs	79%	77%	74%	72%	70%
Capacity-Related Costs	19%	21%	23%	25%	27%
Customer-Related Costs	2%	2%	2%	2%	2%
Fire Protection-Related Costs	1%	1%	1%	1%	1%
Total	100%	100%	100%	100%	100%

Figure 10. Allocated Net Revenue Requirements

Classification Component	Adjusted Revenue Requirements (2016/17)	Adjusted Revenue Requirements (2017/18)	Adjusted Revenue Requirements (2018/19)	Adjusted Revenue Requirements (2019/20)	Adjusted Revenue Requirements (2020/21)
Commodity Related Costs	\$ 18,013,538	\$ 19,951,035	\$ 22,095,102	\$ 24,467,604	\$ 27,118,732
Capacity-Related Costs	4,255,707	5,398,186	6,759,099	8,375,100	10,264,566
Customer-Related Costs	356,263	451,905	565,833	701,115	859,291
Fire Protection-Related Costs	231,567	264,068	301,107	343,313	391,404
Total	\$ 22,857,075	\$ 26,065,195	\$ 29,721,141	\$ 33,887,132	\$ 38,633,993

⁹ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, American Water Works Association, Sixth Edition, see pp. 5 and 96.*

¹⁰ *This analysis is presented in Appendix B, pages 30-36.*

E. PROPOSED POTABLE WATER RATE STRUCTURE

The process of evaluating the water rate structure provides the opportunity to incorporate a number of rate-design objectives and policies, including revenue stability, equity among customers, and water conservation. NBS discussed several water rate alternatives and methodologies with DWA staff over the course of this study, such as the percentage of revenue collected from fixed vs. variable charges, differentiating rates by customer class and different variable rate structures. The following sections describe how the proposed water rates were developed.

Volumetric Rates

Currently, DWA uses a flat uniform rate for all customers. The proposed volumetric rates maintain this structure. To transition from the current allocation between fixed and variable revenue to the target of 30% fixed, 70% variable, volumetric rates are increased at less than the proposed 13% (meaning, in balance, fixed rate revenue must increase more than 13%). **Figure 11** summarizes the annual increase to variable rates and shows the expected rate revenue. Please note that expected consumption increases slightly each year to account for expected customer growth.

Figure 11. Volumetric Rates

Volumetric Revenue Projection	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Proposed Volumetric rate	\$1.57	\$1.72	\$1.89	\$2.08	\$2.28
<i>Annual Increase to Volumetric Rate</i>	<i>0.00%</i>	<i>9.75%</i>	<i>9.75%</i>	<i>9.75%</i>	<i>9.86%</i>
<i>Consumption (hcf)</i>	<i>11,473,591</i>	<i>11,578,738</i>	<i>11,683,886</i>	<i>11,789,033</i>	<i>11,894,181</i>
Expected Volumetric Revenue	\$ 18,013,538	\$ 19,951,035	\$ 22,095,102	\$ 24,467,604	\$ 27,118,732

Fixed Charges

Given the projected variable rate revenue shown in Figure 11, the remaining rate revenue must be collected from fixed charges, **Figure 12** summarizes the amount of revenue that will be collected from fixed charges over the next five years.

Figure 12. Annual Revenue Required from Fixed Charge

Fixed Revenue Projection	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Total Required Rate Revenue	\$ 22,857,075	\$ 26,065,195	\$ 29,721,141	\$ 33,887,132	\$ 38,633,993
Less: Volumetric Revenue	\$ (18,013,538)	\$ (19,951,035)	\$ (22,095,102)	\$ (24,467,604)	\$ (27,118,732)
Net Revenue Required from Fixed Rates	\$ 4,843,537	\$ 6,114,160	\$ 7,626,039	\$ 9,419,529	\$ 11,515,261
<i>% Increase in Fixed Charge Revenue</i>	<i>--</i>	<i>25%</i>	<i>24%</i>	<i>22%</i>	<i>21%</i>

The fixed meter charge recognizes that the water utility incurs fixed costs regardless of whether customers actually use water. There are two components that comprise the fixed meter charge: the customer component and the capacity component. The customer component is comprised of those costs relating to reading and maintaining meters, customer billing and collection, and other customer service related costs. The customer service costs do not differ among the various meter sizes, therefore, the rate for this component of the fixed meter charge is the same for each meter size.

The capacity component recovers costs associated with sizing the water system to ensure there is sufficient capacity in the system to meet peak demand. The utility must construct and operate the system to deliver water at peak times. A user class with higher peaking (capacity) needs is allocated a proportionately higher share of the capacity related costs compared to customer classes with lower peaking needs. Meter sizes have different fixed charges based on their capacity requirements: larger meters have the potential to use more of the system's capacity,¹¹ or said differently, they can have higher peaking factors compared to smaller meters. The potential capacity demanded (peaking) is proportional to the maximum hydraulic flow

¹¹ System capacity is the system's ability to supply water to all delivery points at the time when demanded.

through each meter size as established by the AWWA hydraulic capacity ratios¹². The AWWA capacity ratios used for this report are shown in the second column of Figure 13 and Figure 14.

As an example, a 2-inch meter has a greater capacity, or potential peak demand than a 3/4-inch meter; therefore, the fixed charge for a 2-inch meter is larger than a 3/4-inch meter based on the proportionate capacity requirements for this size meter¹³. A “hydraulic capacity factor” is calculated by dividing the maximum capacity or flow of large meters by the capacity of the base meter size, which is typically the most common residential meter size (in this case a 3/4-inch or 1-inch meter).

The actual number of meters by size is multiplied by the corresponding capacity ratios to calculate equivalent meters. The number of equivalent meters is used as a proxy for the potential demand that each customer can place on the water system. A significant portion of a water system’s peak capacity, and in turn, the utility’s fixed operating and capital costs, are related to meeting system capacity requirements.

DWA’s existing rates have different fixed charges for commercial fire meters than for standard water service customers, and new rates will maintain this same structure. Fire service customers differ from other water service customers because their service is more of a standby nature, where a readiness-to-serve charge is appropriate. Except in the event of a fire, these users are not intended to use water on a regular basis. However, DWA still needs to provide sufficient capacity for fire meters and recover other operations and maintenance costs. Based on the cost of service analysis and the standby nature of fire meters, the overall cost to serve these users is less than that of a standard service; therefore, the fixed charges are less.

For FY 2016/17, **Figure 13** shows how fixed monthly service charges were calculated for standard water meters and **Figure 14** shows the same for private fire meters. The customer component of the rate is \$1.31 per meter, and does not vary by meter size because it represents costs to the utility for having connections to the water system. Capacity costs vary by meter size and are based on the hydraulic capacity of each size meter. The ratios shown are the ratio of potential flow through each meter size, compared to the flow through a 1-inch meter¹⁴. The 1-inch meter is the base meter size for new connections and is used to compare the capacities of the larger meters. For example, column 2 in Figure 13 shows the hydraulic capacity of a four-inch meter is 10 times that of a 1-inch meter and therefore the capacity component of the fixed meter charge is 10 times that of the 1-inch meter. The rate for the meter capacity component for a 1-inch meter is derived in column 6 of Figure 13 and Figure 14, and is scaled using the AWWA hydraulic meter capacity ratios shown in column 2 of each figure. DWA has decided set the fixed charge for all 3/4 and 1 inch meters to be the same, since 1 inch meters are now the new standard meter size and 3/4-inch meters will be phased out over time. This is shown in Figure 13 and Figure 14 by adjusting the hydraulic capacity ratio to 1.0, for the following reasons:

- The desire for a single fixed meter charge across all customer class.
- The overwhelming number of meters between 3/4 inch and 1 inch being single family residential.
- The similar consumption pattern for single family residential customers regardless with meter sizes 3/4 & 1 inch.

¹² See: American Water Works Association, *Principles of Water Rates, Fees and Charges: Manual of Water Supply Practices M1*, p. 326, (6th ed. 2012) and American Water Works Association, *Water Meters – Selection, Installation, Testing and Maintenance M6*, p. 65 (5th ed. 2012).

¹³ This is reflected in the fixed charge calculations by using the AWWA hydraulic capacity factors to represent the maximum volume each meter size is capable of delivering.

¹⁴ Meter Equivalency Factors Table on page 41 in Appendix B shows potential flow or meter capacity for each meter size, from which the hydraulic capacity factor was derived.

Figure 13. Calculation of FY 2016/17 Standard Fixed Meter Charges

Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Fixed Meter Charge	Estimated Revenue
				Customer Component	Capacity Component		
3/4 inch	1.00	12,430	12,430	\$1.31	\$13.10	\$14.41	\$2,149,736
1 inch	1.00	6,768	6,768	\$1.31	\$13.10	\$14.41	1,170,508
1.5 inch	2.00	1,712	3,424	\$1.31	\$26.21	\$27.52	565,309
2 inch	3.20	1,190	3,808	\$1.31	\$41.94	\$43.24	617,505
3 inch	6.40	84	538	\$1.31	\$83.87	\$85.18	85,859
4 inch	10.00	1	10	\$1.31	\$131.05	\$132.35	1,588
6 inch	20.00	4	80	\$1.31	\$262.09	\$263.40	12,643
8 inch	32.00	0	0	\$1.31	\$419.35	\$420.66	-
10 inch	84.00	0	0	\$1.31	\$1,100.79	\$1,102.10	-
12 inch	106.00	0	0	\$1.31	\$1,389.10	\$1,390.41	-
Total		22,189	27,058				\$ 4,603,148

Figure 14. Calculation of FY 2016/17 Private Fire Protection Meter Fixed Charges

Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Fixed Meter Charge	Estimated Revenue
				Customer Component	Capacity Component		
2 inch	3.20	2	6	\$1.31	\$3.79	\$5.10	\$ 122
3 inch	7.00	0	0	\$1.31	\$8.30	\$9.61	-
4 inch	14.00	212	2,968	\$1.31	\$16.60	\$17.91	45,560
6 inch	32.00	168	5,376	\$1.31	\$37.95	\$39.25	79,135
8 inch	56.00	121	6,776	\$1.31	\$66.41	\$67.71	98,319
10 inch	88.00	10	880	\$1.31	\$104.35	\$105.66	12,679
12 inch	106.00	3	318	\$1.31	\$125.70	\$127.00	4,572
Total		516	16,324				\$ 240,389

It should be noted that the sum of the total revenue in Figure 13 and Figure 14 matches the target revenue in the second column of Figure 12.

F. CURRENT AND PROPOSED WATER RATES

Figure 15 provides a comparison of the current and proposed water rates for FY 2016/17 through 2020/21. Projected rates for each Fiscal Year¹⁵ reflect adjustments based on the cost-of-service analysis, the transition to a 30% fixed rate structure and also reflect the recommended percent increases in rate revenue planned for each year. More detailed tables on the development of the proposed water rates are documented on pages 39-46 in Appendix B.

¹⁵ Following the initial adjustment which is schedule to be effective January 1st, 2017, all rate future adjustments are scheduled to be effective on July 1st of each year.

Figure 15. Current and Proposed Water Rates

Water Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		13.00%	13.00%	13.00%	13.00%	13.00%
Fixed %	17%	21%	23%	26%	28%	30%
Variable %	83%	79%	77%	74%	72%	70%
Fixed Monthly Service Charge						
Meter Size (Standard Meters):						
3/4 inch	\$10.75	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1 inch	\$13.25	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1.5 inch	\$19.75	\$27.52	\$34.59	\$42.92	\$52.70	\$64.02
2 inch	\$27.75	\$43.24	\$54.35	\$67.44	\$82.82	\$100.61
3 inch	\$34.00	\$85.18	\$107.06	\$132.85	\$163.14	\$198.18
4 inch	\$73.00	\$132.35	\$166.36	\$206.43	\$253.50	\$307.94
6 inch	\$185.50	\$263.40	\$331.08	\$410.82	\$504.50	\$612.85
8 inch	\$330.75	\$420.66	\$528.74	\$656.08	\$805.69	\$978.73
10 inch	--	\$1,102.10	\$1,385.28	\$1,718.90	\$2,110.87	\$2,564.22
12 inch	--	\$1,390.41	\$1,747.66	\$2,168.56	\$2,663.06	\$3,235.01
Monthly Fixed Service Charge - Fire Service Meters:						
2 inch	--	\$5.10	\$5.93	\$6.89	\$7.99	\$9.24
3 inch	--	\$9.61	\$11.03	\$12.65	\$14.49	\$16.59
4 inch	\$12.00	\$17.91	\$20.41	\$23.25	\$26.48	\$30.15
6 inch	\$24.00	\$39.25	\$44.54	\$50.53	\$57.31	\$64.99
8 inch	\$36.00	\$67.71	\$76.71	\$86.89	\$98.42	\$111.46
10 inch	\$48.00	\$105.66	\$119.60	\$135.38	\$153.23	\$173.41
12 inch	\$60.00	\$127.00	\$143.73	\$162.65	\$184.06	\$208.26
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$1.57	\$1.57	\$1.72	\$1.89	\$2.08	\$2.28

The increases in rate revenue, shown in Figure 2, will be accomplished by implementing the proposed water rates shown in Figure 15. The primary change in the rate structure, is the increased percentage of rate revenue that will be collected from the fixed charges over the five-year rate period. For fixed charges, the hydraulic capacity factors were updated to be consistent with industry standards as described in Section 2E of this report, and shown previously in Figure 13 and Figure 14. This has resulted in a greater spread in monthly fixed charges between small and large meter sizes.

G. COMPARISON OF CURRENT AND PROPOSED WATER BILLS

Figure 16 and Figure 17 compare a range of monthly water bills under the current and proposed water rates as a result of the initial rate adjustment for single-family residential (SFR) customers and commercial customers. These monthly bills are based on typical meter sizes, and the average consumption levels for each customer class are highlighted.

Figure 16. Monthly Water Bill Comparison for Single-Family Customers

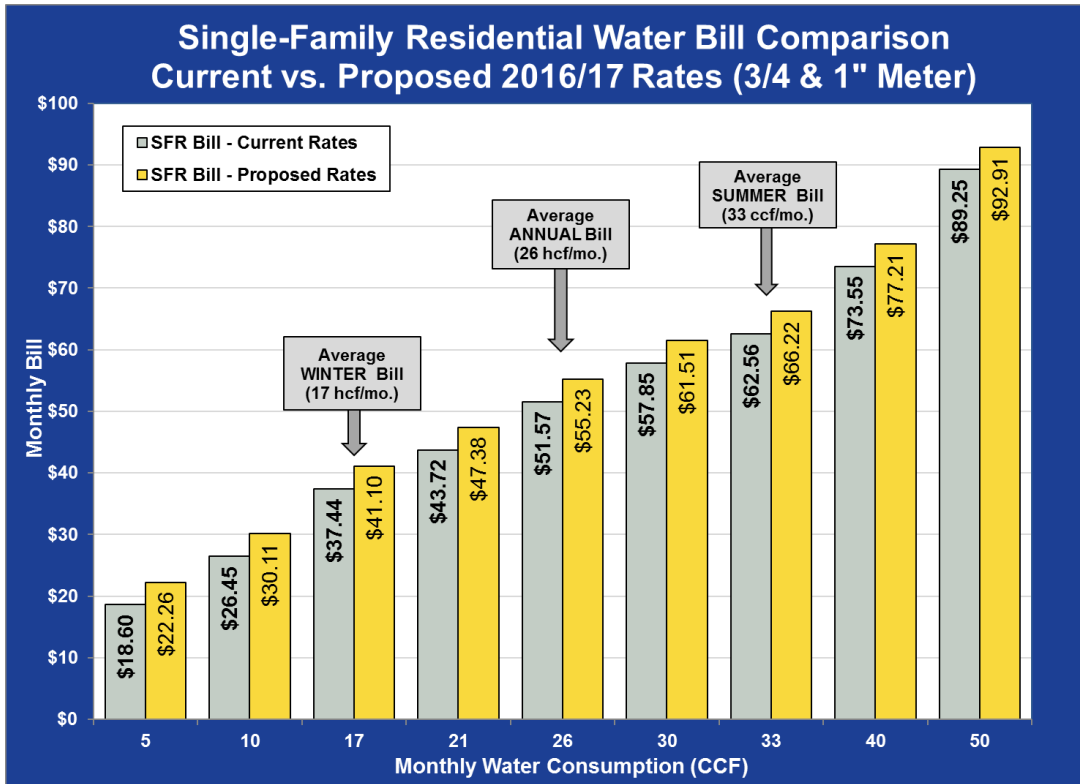


Figure 17. Monthly Water Bill Comparison for 1.5" Commercial Customers

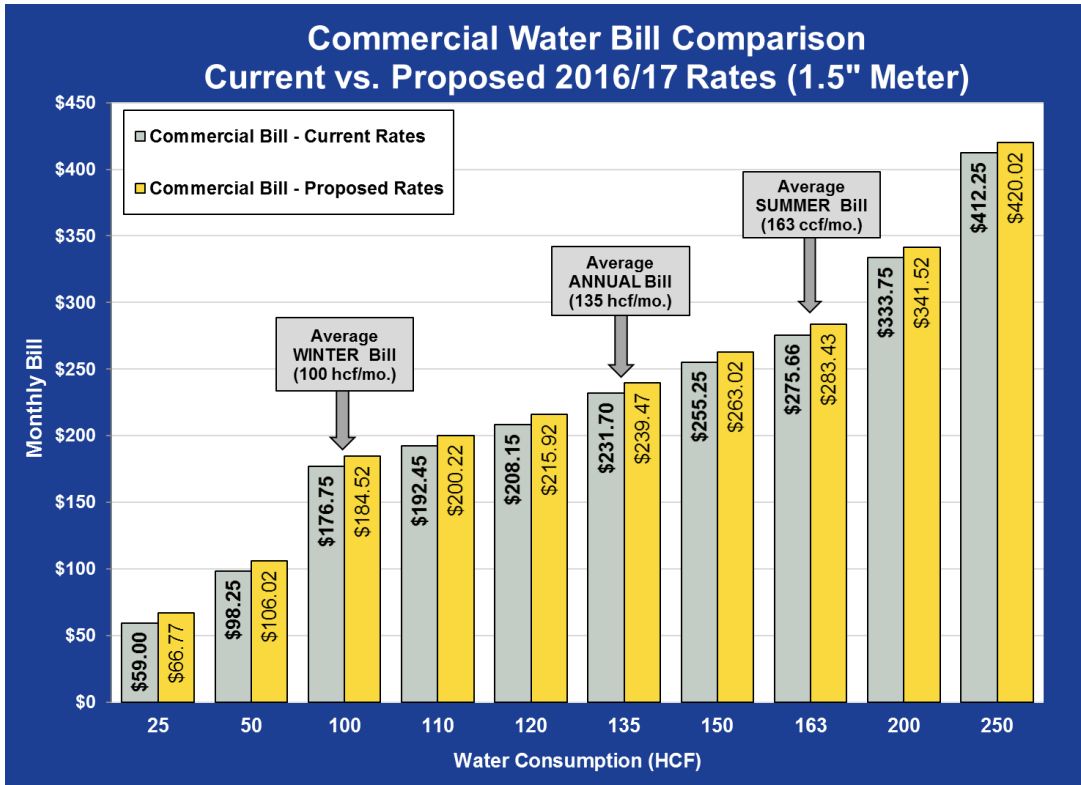
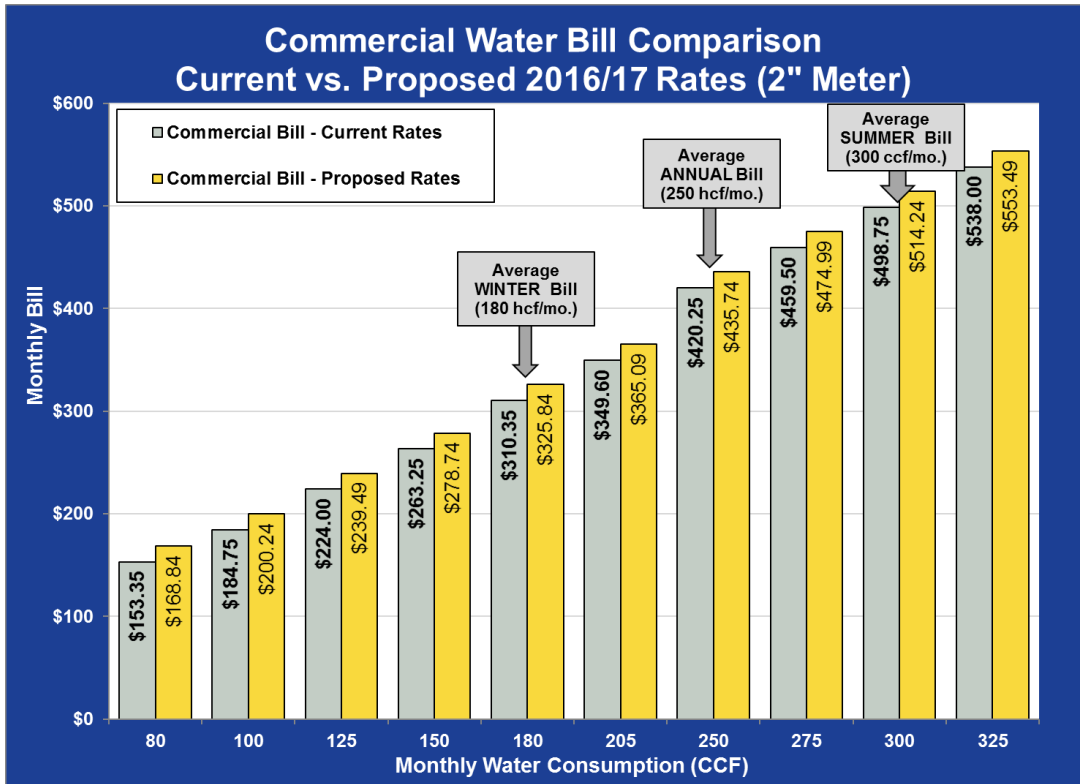


Figure 18. Monthly Water Bill Comparison for 2" Commercial Customers



H. DROUGHT RATES

Should conservation increase beyond currently expected levels, DWA is still obligated to meet its annual net revenue requirements. To this end, drought rates have been developed so that if total consumption should decrease further due to an increase in the conservation required by the state, another regulatory agency, or if the Board of Directors declares more severe drought stages, DWA would still be kept whole. In the event that consumption decreases beyond projected baseline consumption levels, some costs will also decrease and the proposed drought rates have taken this reduced revenue need into consideration¹⁶.

Figure 19 shows baseline consumption and consumption at each increased drought level for FY 2016/17. **Figure 20** shows the proposed drought rates through FY 2020/21.

¹⁶ Details regarding the calculation of the drought rates can be found in Appendix B, pages 47-49.

Figure 19. Projected Consumption at Baseline and Each Successive Drought Stage

2016/17 Consumption Assumptions			
Year	Potable Water Consumption (hcf/yr.)	Potable Water Consumption (AF/yr.)	Difference to Baseline (hcf)
2013 Consumption	15,072,270	34,601	3,598,679
Baseline Consumption (1)	11,473,591	26,340	0
10% Conservation	10,326,232	23,706	(1,147,359)
20% Conservation	9,178,873	21,072	(2,294,718)
30% Conservation	8,031,514	18,438	(3,442,077)
40% Conservation	6,884,155	15,804	(4,589,436)
50% Conservation	5,736,796	13,170	(5,736,796)
60% Conservation	4,589,436	10,536	(6,884,155)

1. Baseline consumption is the April 2015 - March 2016 consumption.
Conservation percentage for each drought stage is relative to the baseline consumption.

Figure 20. Proposed Drought Rates

Proposed Drought Rates										
Drought Rate Schedule (1)	FY 2016/17		FY 2017/18		FY 2018/19		FY 2019/20		FY 2020/21	
Uniform Rate, all customers	\$1.57		\$1.72		\$1.89		\$2.08		\$2.28	
Water Consumption Baseline (hcf/yr)	11,473,591 hcf (2)		11,578,738 hcf		11,683,886 hcf		11,789,033 hcf		11,894,181 hcf	
Conservation Target	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)
No Conservation	\$0.00	\$1.57	\$0.00	\$1.72	\$0.00	\$1.89	\$0.00	\$2.08	\$0.00	\$2.28
10% Conservation	\$0.09	\$1.66	\$0.10	\$1.82	\$0.12	\$2.01	\$0.14	\$2.22	\$0.16	\$2.44
20% Conservation	\$0.21	\$1.78	\$0.22	\$1.94	\$0.28	\$2.17	\$0.32	\$2.40	\$0.37	\$2.65
30% Conservation	\$0.36	\$1.93	\$0.38	\$2.10	\$0.48	\$2.37	\$0.55	\$2.63	\$0.63	\$2.91
40% Conservation	\$0.56	\$2.13	\$0.59	\$2.31	\$0.74	\$2.63	\$0.85	\$2.93	\$0.98	\$3.26
50% Conservation	\$0.85	\$2.42	\$0.88	\$2.60	\$1.11	\$3.00	\$1.28	\$3.36	\$1.46	\$3.74
60% Conservation	\$1.27	\$2.84	\$1.31	\$3.03	\$1.66	\$3.55	\$1.92	\$4.00	\$2.20	\$4.48

1. ACTIVATION - The Drought Surcharge will NOT be added on water bills unless approved by the Desert Water Agency Board. If the surcharge is activated, it will remain in effect as necessary and will be reviewed by the Agency Board a minimum of every six (6) months for a determination of necessity until the surcharge is deactivated.
2. Baseline water consumption for FY 2016/17 is based upon April 2015 through March 2016 consumption.
3. Drought Surcharge is added to the Uniform Rate on a per unit basis to cover the cost of water service during times of State Agency mandated conservation and/or extreme water supply shortage, resulting in water consumption below the established baseline.
4. The Drought Rate equals the Volumetric Rate plus Volumetric Surcharge. This does not include pumping charges which will apply where applicable.

SECTION 3. RECLAIMED WATER RATE STUDY

A. KEY RECLAIMED WATER RATE STUDY ISSUES

The primary issues addressed in this study for the reclaimed water system was (1) ensuring rates generate sufficient revenue to meet the needs of the system, (2) developing reserve targets that are consistent with the DWA's existing reserve policy, and (3) adjusting fixed meter charges to reflect AWWA standard hydraulic capacity factors for each meter size. DWA currently charges reclaimed water customers a reduced rate compared to potable customers, and that has been maintained in the updated rate structure given the reclaimed water utility's revenue needs.

B. RECLAIMED WATER UTILITY REVENUE REQUIREMENTS

A financial plan was developed for the Reclaimed Water system in the same manner as the potable system. In FY 2016/17, it is expected that the potable system will need to contribute funds to cover expenses; however, it is expected that by the end of FY 2018/19, the reclaimed water system will have paid back those funds in full. Revenue requirements range from approximately \$1.4 to \$0.6 million over the next five fiscal years, to cover said repayment, the cost of operating and maintaining the system and planned capital expenditures.

It is a goal of DWA to see reclaimed system customers fully-fund their costs and grow their reserves. This can be achieved with rate revenue from the reclaimed system following a proposed increase of 2.8% in FY 2016/17, and with no increase thereafter. The reclaimed water system benefits all of DWA's customers by reducing the demand for potable water, conserving energy and improving the quality of water in the groundwater basin.

Figure 21 summarizes the sources and uses of funds, net revenue requirements, and the recommended annual percent increases in total rate revenue recommended for the next 5 years.

Figure 21. Summary of Reclaimed Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget		Projected		
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Sources of Reclaimed Water Funds					
Rate Revenue Under Prevailing Rates (1)	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000
Contribution from Potable System	783,903	-	-	-	-
Interest Earnings	-	1,048	2,585	11,129	23,098
Total Sources of Funds	\$ 2,139,903	\$ 1,357,048	\$ 1,358,585	\$ 1,367,129	\$ 1,379,098
Uses of Reclaimed Water Funds					
Operating Expenses	\$ 2,047,881	\$ 513,936	\$ 590,579	\$ 670,233	\$ 693,019
Potable System Payback	-	746,140	37,763	-	-
Rate-Funded Capital Expenses	111,034	-	-	-	-
Total Use of Funds	\$ 2,158,915	\$ 1,260,076	\$ 628,343	\$ 670,233	\$ 693,019
Surplus (Deficiency) before Rate Increase	\$ (19,011)	\$ 96,972	\$ 730,242	\$ 696,896	\$ 686,079
Additional Revenue from Rate Increases	19,011	38,023	38,023	38,023	38,023
Surplus (Deficiency) after Rate Increase	\$ (0)	\$ 134,995	\$ 768,265	\$ 734,919	\$ 724,102
Projected Annual Rate Increase	2.80%	0.00%	0.00%	0.00%	0.00%
<i>Cumulative Rate Increases</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>
Net Revenue Requirement	\$ 1,375,011	\$ 1,259,028	\$ 625,758	\$ 659,104	\$ 669,921

1. FY 2016/17 Revenues and expenses are per the Agency's adopted budgets.

NBS recommends that DWA establish reserve fund targets for the reclaimed water utility that are consistent with the existing reserve policy, and establish the following two reserves:

- **Operating Reserve** should equal approximately six months of operating expenses, or \$347,000 by FY 2020/21.
- **Reserve for Replacements** should equal 3 percent of net capital assets or approximately \$340,000 by FY 2020/21, which is set aside to address long-term capital system replacement and rehabilitation needs.

Additionally, DWA plans to incur over \$1.5 million in filter and reservoir roof maintenance costs during FY 2016/17. These costs are expected to occur every 10 to 12 years, and the Agency should plan to set aside additional funds in reserves each year, so that there is a cash resource to fund these costs, when the maintenance is needed again. The financial plan developed in this study has taken these costs into account, therefore reserve balances are projected to be over the minimum reserve target recommended in this study, for the purpose of funding these maintenance costs in the future.

Figure 22 summarizes the projected reserve fund balances and reserve targets for the reclaimed water utility, through FY 2020/21.

Figure 22. Summary of Reclaimed Water Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget	Projected			
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Operating Reserve					
Ending Balance	\$ 209,674	\$ 256,968	\$ 295,290	\$ 335,117	\$ 346,509
<i>Recommended Minimum Target</i>	<i>256,968</i>	<i>256,968</i>	<i>295,290</i>	<i>335,117</i>	<i>346,509</i>
Reserves for Replacements					
Ending Balance	\$ -	\$ 87,701	\$ 817,645	\$ 1,512,737	\$ 1,988,259
<i>Recommended Minimum Target</i>	<i>380,000</i>	<i>370,000</i>	<i>360,000</i>	<i>350,000</i>	<i>340,000</i>
Total Ending Balance	\$ 209,674	\$ 344,669	\$ 1,112,934	\$ 1,847,853	\$ 2,334,768
<i>Total Recommended Minimum Target</i>	<i>\$ 636,968</i>	<i>\$ 626,968</i>	<i>\$ 655,290</i>	<i>\$ 685,117</i>	<i>\$ 686,509</i>

A summary of the utility's proposed 5-year financial plan is included in pages 1 and 2 of Appendix C. The appendix tables include revenue requirements, reserve funds, revenue sources, proposed rate increases, and DWA's capital improvement program.

C. PROPOSED RECLAIMED WATER RATE STRUCTURE

Variable Charges

Given the amount of consumption relative to the number of meters in the reclaimed water system, it is expected that 98% of rate revenue will be collected from the variable charge. **Figure 23** summarizes the variable rate calculation for FY 2016/17.

Figure 23. Reclaimed Water Variable Rate Calculation

Rate Structure Type	Number of Meters (1)	Water Consumption (hcf/yr.)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Proposed Rate Structure
Uniform Commodity Rate (\$/hcf)	12	1,722,221	\$1,360,555	\$0.79	Uniform

1. Meter counts, consumption rates and customer class from Source file: BILLHST2.xlsx.

Fixed Charges

Fixed charges have been adjusted to reflect the hydraulic capacity factors for each meter size, based on AWWA standards, in the same manner as potable water meter fixed charges were developed. **Figure 24** shows how the monthly fixed meter charges were developed for reclaimed water customers. In total, the fixed and variable charges collect the target revenue from reclaimed water customers as determined in the financial plan, shown previously in Figure 21.

Figure 24. Reclaimed Water Fixed Rate Calculation

Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Fixed Meter Charge	Estimated Revenue
				Customer Component	Capacity Component		
2 inch	3.20	5	16	\$3.03	\$11.97	\$15.00	\$ 900
3 inch	6.40	0	0	\$3.03	\$23.94	\$26.97	-
4 inch	10.00	0	0	\$3.03	\$37.40	\$40.43	-
6 inch	20.00	0	0	\$3.03	\$74.80	\$77.83	-
8 inch	32.00	0	0	\$3.03	\$119.68	\$122.71	-
10 inch	84.00	1	84	\$3.03	\$314.16	\$317.19	3,806
12 inch	106.00	6	636	\$3.03	\$396.44	\$399.47	28,762
Total		12	736				\$ 33,468

D. CURRENT VS. PROPOSED RECLAIMED WATER RATES

Figure 25 shows current and proposed reclaimed water rates for FY 2015/16 through FY 2020/21. As noted above the primary change in rates is due to the adjustment in developing fixed charges based on the hydraulic capacity for each meter size.

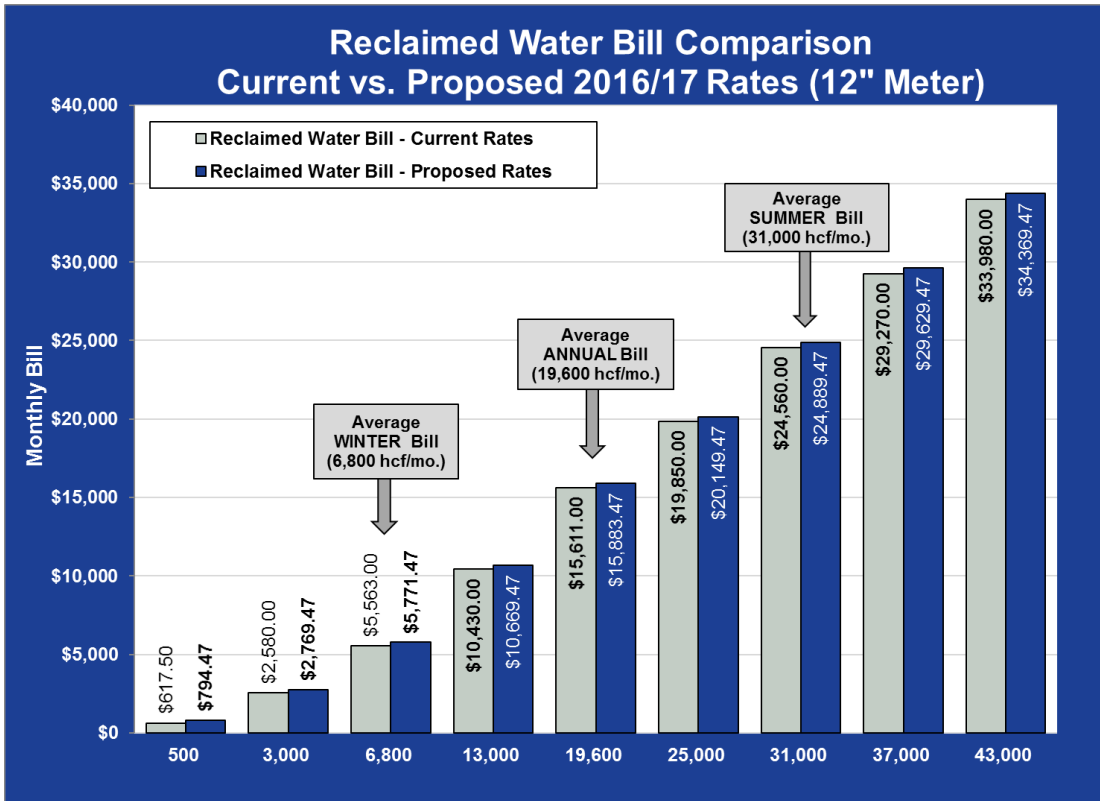
Figure 25. Current and Proposed Reclaimed Water Rates

Reclaimed Water Rate Schedule	Current Rates (1)	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		<i>2.80%</i>	<i>0.00%</i>	<i>0.00%</i>	<i>0.00%</i>	<i>0.00%</i>
Fixed Monthly Service Charge						
Fixed Monthly Service Charge:						
2 inch	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
3 inch	\$21.00	\$26.97	\$26.97	\$26.97	\$26.97	\$26.97
4 inch	\$45.00	\$40.43	\$40.43	\$40.43	\$40.43	\$40.43
6 inch	\$115.00	\$77.83	\$77.83	\$77.83	\$77.83	\$77.83
8 inch	\$205.00	\$122.71	\$122.71	\$122.71	\$122.71	\$122.71
10 inch	\$225.00	\$317.19	\$317.19	\$317.19	\$317.19	\$317.19
12 inch	\$225.00	\$399.47	\$399.47	\$399.47	\$399.47	\$399.47
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79

1. Current reclaimed water fixed charges set by Resolution No. 978, does not include \$35 flow control valve charge for meters 8" or larger.
 2. Initial adjustment to rates would be effective January 1, 2017.

Figure 26 shows the expected impact on the most common meter size for the reclaimed system, the 12 inch meter.

Figure 26. Monthly Water Bill Comparison for 12" Reclaimed Customers



SECTION 4. WASTEWATER RATE STUDY

A. KEY WASTEWATER RATE STUDY ISSUES

DWA manages a wastewater collection system for approximately 2,100 customers within its service area. While DWA bills all wastewater customers for services for collection and treatment, the portion of rate revenue that is retained by DWA represents only a small percentage to recover costs for collection and transmission. The remainder of the revenue is passed through to the agencies responsible for treatment. Depending on the customer's location, that is either the City of Palm Springs or Coachella Valley Water District.

B. REVENUE REQUIREMENTS

Similar to the water utilities, it is important for the wastewater utility to ensure rates provide sufficient funding to cover operating and maintenance costs, planned capital expenditures, and to maintain reasonable reserves. The wastewater utility's rate increases are governed by these needs, and the current state of DWA's Wastewater utility is as follows:

- **Meeting Net Revenue Requirements:** For FY 2016/17 through FY 2020/21, the projected net revenue requirement (that is, total annual operating expenses plus rate-funded capital costs, less non-rate revenues) for the wastewater utility range from approximately \$145,000 to \$180,000. Current rate revenue is sufficient to fund all operating costs, but not capital costs and maintain sufficient reserve funds, in the long run. Minor increases to DWA's portion of the wastewater rate of 3.5% annually, are recommended to ensure rates keep pace with costs over the next five years, and set the utility up to be in a positive financial position at the end of FY 2020/21.
- **Building and Maintaining Reserve Funds:** For the Wastewater Utility, NBS recommends that DWA target a minimum of \$580,000 thousand, in reserve funds, by the end of FY 2020/21. The reserve funds which are considered unrestricted consist of the following:
 - **Operating Reserve** should equal approximately 6 months of operating expenses, or \$120,000 thousand in FY 2020/21, which is consistent with existing DWA policy for the potable water utility. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures.
 - **Reserve for Replacements** should equal 3 percent of net capital assets or approximately \$460,000 thousand in FY 2020/21, which is set aside to address long-term capital system replacement and rehabilitation needs.

Under the proposed rate increases, it is projected that the Wastewater utility will meet these targets at the end of FY 2020/21.

- **Maintain a Capacity Fee Reserve:** As with the Potable Water Utility, NBS recommends that DWA maintain a separate reserve fund to hold connection fee revenue pursuant to California Government Code §66013(6)(c).
- **Funding Capital Improvement Projects:** DWA must also be able to fund necessary capital improvements for the Wastewater utility in order to maintain current service levels. DWA staff has identified roughly \$400,000 thousand in expected capital expenditures for FY 2016/17 through 2020/21, and an average of \$110 thousand in capital expenditures every year thereafter are expected (future year value).

Figure 27 summarizes the sources and uses of funds, net revenue requirements, and the recommended annual increases in wastewater rate revenue proposed for the next 5 years.

Figure 27. Summary of Wastewater Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements (1)	Budget	Projected			
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Sources of Wastewater Funds					
Net Rate Revenue to DWA Under Prevailing Rates	\$ 271,500	\$ 257,833	\$ 253,167	\$ 248,500	\$ 243,833
Other Operating Revenue	1,800	1,800	1,800	1,800	1,800
Interest Earnings	4,500	4,317	6,273	8,066	9,671
Total Sources of Funds	\$ 277,800	\$ 263,950	\$ 261,240	\$ 258,366	\$ 255,304
Uses of Wastewater Funds					
Customer Account Expenses	\$ 76,729	\$ 78,399	\$ 80,109	\$ 81,860	\$ 83,654
Operations & Maintenance Expenses	139,100	142,380	145,752	149,218	152,782
Non-Operating Expenses	4,525	4,525	4,525	4,525	4,525
Rate-Funded Capital Expenses	-	-	-	-	-
Total Use of Funds	\$ 220,354	\$ 225,304	\$ 230,386	\$ 235,603	\$ 240,961
Surplus (Deficiency) before Rate Increase	\$ 57,446	\$ 38,646	\$ 30,854	\$ 22,763	\$ 14,343
Additional Revenue from Rate Increases	3,526	14,037	21,266	28,747	36,491
Surplus (Deficiency) after Rate Increase	\$ 60,972	\$ 52,683	\$ 52,120	\$ 51,510	\$ 50,834
Projected Annual Rate Increase (2)	3.50%	3.50%	3.50%	3.50%	3.50%
<i>Cumulative Rate Increases</i>	<i>3.50%</i>	<i>7.12%</i>	<i>10.87%</i>	<i>14.75%</i>	<i>18.77%</i>
Net Revenue Requirement	\$ 144,054	\$ 153,854	\$ 161,646	\$ 169,737	\$ 178,157

1. Fiscal Year 2015/16 and 2016/17 revenues and expenses are per the Agency's Adopted Budgets.
2. Initial rate increases are anticipated to be effective 1/1/2017 and July 1st, each year thereafter.

Figure 28 summarizes the projected primary reserve fund balances and reserve targets. A summary of the utility's proposed 5-year financial plan is included on page 1 of Appendix D. The appendix tables include revenue requirements, reserve funds, revenue sources, proposed rate increases, and DWA's capital improvement program. As can be seen in Figure 28, given proposed rate increases, reserves are projected to decline towards the minimum target.

Figure 28. Summary of Wastewater Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Projected				
	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Operating Reserve					
Ending Balance	\$ 110,177	\$ 112,652	\$ 115,193	\$ 117,802	\$ 120,481
<i>Recommended Minimum Target</i>	<i>110,177</i>	<i>112,652</i>	<i>115,193</i>	<i>117,802</i>	<i>120,481</i>
Reserves for Replacements					
Ending Balance (1)	\$ 753,138	\$ 723,778	\$ 691,402	\$ 655,891	\$ 617,101
<i>Recommended Minimum Target</i>	<i>509,000</i>	<i>496,000</i>	<i>484,000</i>	<i>472,000</i>	<i>460,000</i>
Total Ending Balance	\$ 863,315	\$ 836,430	\$ 806,595	\$ 773,692	\$ 737,581
Total Recommended Minimum Target	\$ 619,177	\$ 608,652	\$ 599,193	\$ 589,802	\$ 580,481

1. Metrics described in Desert Water Agency Resolution No. 926 are used to calculate actual amounts from budget data within this analysis.
Source file: 2015 2016 BUDGET.pdf.

C. CURRENT VS. PROPOSED WASTEWATER RATES

The current wastewater rate structure is based upon a rate per Equivalent Dwelling Unit (EDU) which is assigned to each customer based upon expected volume of flow and the strength of effluent produced by each customer. DWA currently collects a charge of \$5 per EDU each month to cover administrative, operation and maintenance costs. DWA has chosen to maintain the existing rate structure and increase existing rates by the percentage increases in an across-the-board manner.

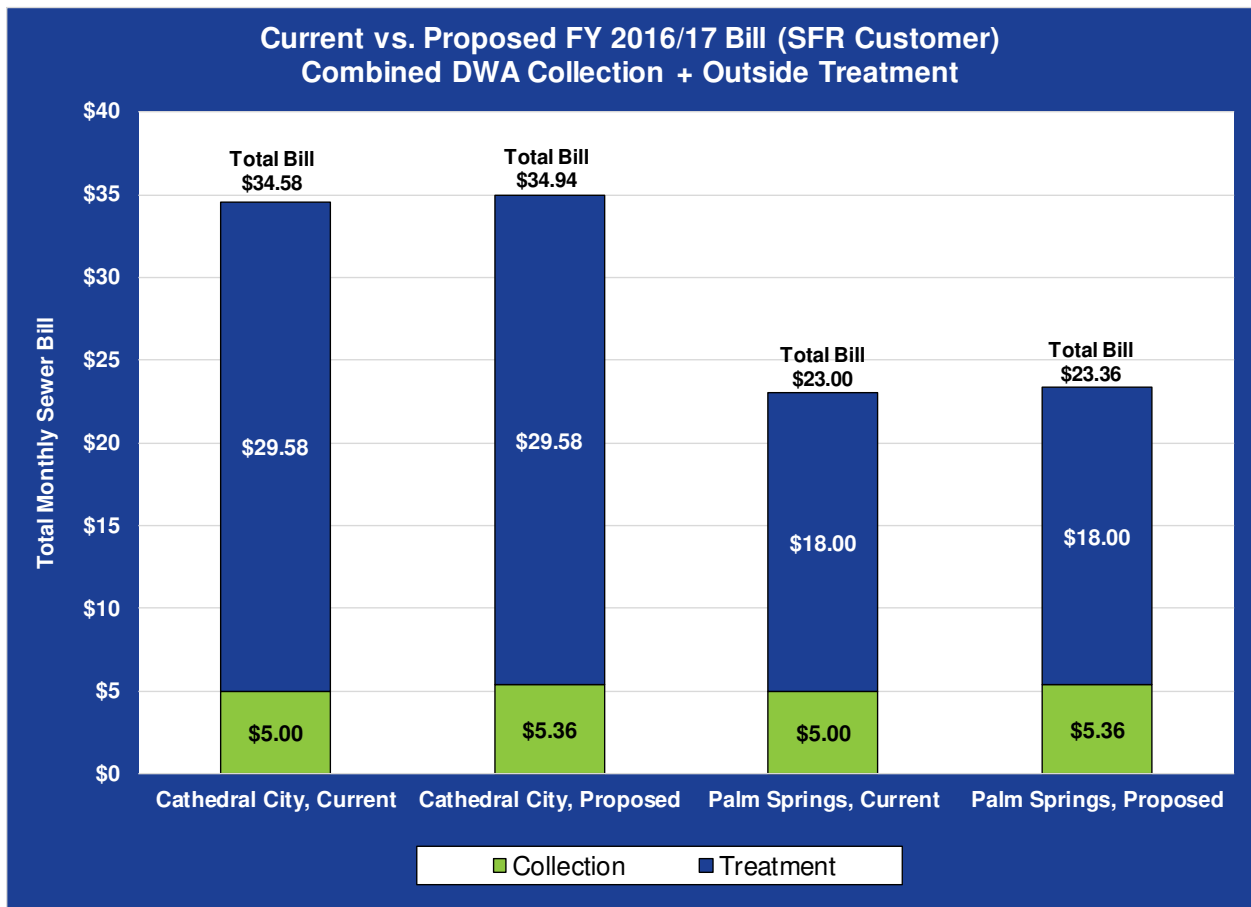
Figure 29 shows DWA's current and proposed wastewater rates for FY 2015/16 through FY 2020/21. The \$/EDU "rate" is the same for all customers, differences in charges are the result of how EDU's for each customer are developed, and the charges will differ based on the number of EDU's assigned to a customer.

Figure 29. Current vs. Proposed Wastewater Rates (for DWA only)

Wastewater Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		3.50%	3.50%	3.50%	3.50%	3.50%
Fixed Monthly Service Charge Per EDU	\$5.00	\$5.36	\$5.55	\$5.74	\$5.94	\$6.15

Because billing structure will remain exactly the same, where DWA collects their charges along with charges for treatment provided by outside agencies, all customers will see the same increase to the DWA component of their bill. **Figure 30** compares the total monthly bill for residential customers under current and proposed rates and includes the outside treatment component, depending on where the customer is located¹⁷.

Figure 30. Single Family Residential Sewer Bill Comparison



¹⁷ Coachella Valley Water District treats the wastewater for customers located in Cathedral City. The City of Palm Springs treats the wastewater for customers located in Palm Springs.

SECTION 5. RECOMMENDATIONS AND NEXT STEPS

A. CONSULTANT RECOMMENDATIONS

NBS recommends DWA take the following actions:

- **Approve and Accept this Study:** NBS recommends the DWA Board of Directors formally approve and adopt this Study and its recommendations, and proceed with the next steps outlined below to implement the proposed rates. This will provide documentation of the rate study analyses and the basis for analyzing potential changes to future rates.
- **Implement Recommended Levels of Rate Increases and Proposed Rates:** Based on successfully meeting the Proposition 218 procedural requirements, DWA should proceed with implementing the 5 year schedule of proposed rates (including drought rates) and rate increases¹⁸ previously shown in Figure 15, Figure 20, Figure 25 and Figure 29. This will help ensure the continued financial health of DWA's utilities.

B. NEXT STEPS

- **Annually Review Rates and Revenue –** Any time an agency adopts new utility rates or rate structures, those new rates should be closely monitored over the next several years to ensure the revenue generated is sufficient to meet the annual revenue requirements. Changing economic and water consumption patterns underscore the need for this review, as well as potential and unseen changing revenue requirements—particularly those related to environmental regulations that can significantly affect capital improvements and repair and replacement costs.

Note: The attached Technical Appendices provide more detailed information on the analysis of the financial plan, revenue requirements, cost-of-service, and the rate design analyses that have been summarized in this report.

C. NBS' PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this report and the opinions and recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, conditions, and events that may occur in the future. This information and these assumptions, including DWA's budgets, capital improvement costs, and information from DWA staff were provided by sources we believe to be reliable, although NBS has not independently verified this data.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report and its recommendations, some assumptions will invariably not materialize as stated herein and may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

¹⁸ A full rate schedule for Prop 218 purposes is shown in Appendix A at the end of this report.

SECTION 6. TECHNICAL APPENDICES

APPENDIX A – PROP 218 RATE TABLES

Potable Water Rates:

Water Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Fixed Monthly Service Charge						
Meter Size (Standard Meters):						
3/4 inch	\$10.75	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1 inch	\$13.25	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1.5 inch	\$19.75	\$27.52	\$34.59	\$42.92	\$52.70	\$64.02
2 inch	\$27.75	\$43.24	\$54.35	\$67.44	\$82.82	\$100.61
3 inch	\$34.00	\$85.18	\$107.06	\$132.85	\$163.14	\$198.18
4 inch	\$73.00	\$132.35	\$166.36	\$206.43	\$253.50	\$307.94
6 inch	\$185.50	\$263.40	\$331.08	\$410.82	\$504.50	\$612.85
8 inch	\$330.75	\$420.66	\$528.74	\$656.08	\$805.69	\$978.73
10 inch	--	\$1,102.10	\$1,385.28	\$1,718.90	\$2,110.87	\$2,564.22
12 inch	--	\$1,390.41	\$1,747.66	\$2,168.56	\$2,663.06	\$3,235.01
Monthly Fixed Service Charge - Fire Service Meters:						
2 inch	--	\$5.10	\$5.93	\$6.89	\$7.99	\$9.24
3 inch	--	\$9.61	\$11.03	\$12.65	\$14.49	\$16.59
4 inch	\$12.00	\$17.91	\$20.41	\$23.25	\$26.48	\$30.15
6 inch	\$24.00	\$39.25	\$44.54	\$50.53	\$57.31	\$64.99
8 inch	\$36.00	\$67.71	\$76.71	\$86.89	\$98.42	\$111.46
10 inch	\$48.00	\$105.66	\$119.60	\$135.38	\$153.23	\$173.41
12 inch	\$60.00	\$127.00	\$143.73	\$162.65	\$184.06	\$208.26
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$1.57	\$1.57	\$1.72	\$1.89	\$2.08	\$2.28

Drought Rates:

Proposed Drought Rates						
Drought Rate Schedule	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	
10% Conservation	\$1.66	\$1.82	\$2.01	\$2.22	\$2.44	
20% Conservation	\$1.78	\$1.94	\$2.17	\$2.40	\$2.65	
30% Conservation	\$1.93	\$2.10	\$2.37	\$2.63	\$2.91	
40% Conservation	\$2.13	\$2.31	\$2.63	\$2.93	\$3.26	
50% Conservation	\$2.42	\$2.60	\$3.00	\$3.36	\$3.74	
60% Conservation	\$2.84	\$3.03	\$3.55	\$4.00	\$4.48	

Detail of Rates and Drought Surcharge for Each Drought Stage:

Proposed Drought Rates										
Drought Rate Schedule (1)	FY 2016/17		FY 2017/18		FY 2018/19		FY 2019/20		FY 2020/21	
Uniform Rate, all customers	\$1.57		\$1.72		\$1.89		\$2.08		\$2.28	
Water Consumption Baseline (hcf/yr)	11,473,591 hcf (2)		11,578,738 hcf		11,683,886 hcf		11,789,033 hcf		11,894,181 hcf	
Conservation Target	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)	Drought Surcharge (3)	Drought Rate (4)
No Conservation	\$0.00	\$1.57	\$0.00	\$1.72	\$0.00	\$1.89	\$0.00	\$2.08	\$0.00	\$2.28
10% Conservation	\$0.09	\$1.66	\$0.10	\$1.82	\$0.12	\$2.01	\$0.14	\$2.22	\$0.16	\$2.44
20% Conservation	\$0.21	\$1.78	\$0.22	\$1.94	\$0.28	\$2.17	\$0.32	\$2.40	\$0.37	\$2.65
30% Conservation	\$0.36	\$1.93	\$0.38	\$2.10	\$0.48	\$2.37	\$0.55	\$2.63	\$0.63	\$2.91
40% Conservation	\$0.56	\$2.13	\$0.59	\$2.31	\$0.74	\$2.63	\$0.85	\$2.93	\$0.98	\$3.26
50% Conservation	\$0.85	\$2.42	\$0.88	\$2.60	\$1.11	\$3.00	\$1.28	\$3.36	\$1.46	\$3.74
60% Conservation	\$1.27	\$2.84	\$1.31	\$3.03	\$1.66	\$3.55	\$1.92	\$4.00	\$2.20	\$4.48

- ACTIVATION - The Drought Surcharge will NOT be added on water bills unless approved by the Desert Water Agency Board. If the surcharge is activated, it will remain in effect as necessary and will be reviewed by the Agency Board a minimum of every six (6) months for a determination of necessity until the surcharge is deactivated.
- Baseline water consumption for FY 2016/17 is based upon April 2015 through March 2016 consumption.
- Drought Surcharge is added to the Uniform Rate on a per unit basis to cover the cost of water service during times of State Agency mandated conservation and/or extreme water supply shortage, resulting in water consumption below the established baseline.
- The Drought Rate equals the Volumetric Rate plus Volumetric Surcharge. This does not include pumping charges which will apply where applicable.

Reclaimed Water Rates:

Reclaimed Water Rate Schedule	Current Rates (1)	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Fixed Monthly Service Charge						
Fixed Monthly Service Charge:						
2 inch	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
3 inch	\$21.00	\$26.97	\$26.97	\$26.97	\$26.97	\$26.97
4 inch	\$45.00	\$40.43	\$40.43	\$40.43	\$40.43	\$40.43
6 inch	\$115.00	\$77.83	\$77.83	\$77.83	\$77.83	\$77.83
8 inch	\$205.00	\$122.71	\$122.71	\$122.71	\$122.71	\$122.71
10 inch	\$225.00	\$317.19	\$317.19	\$317.19	\$317.19	\$317.19
12 inch	\$225.00	\$399.47	\$399.47	\$399.47	\$399.47	\$399.47
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79

1. Current reclaimed water fixed charges set by Resolution No. 978, does not include \$35 flow control valve charge for meters 8" or larger.
 2. Initial adjustment to rates would be effective January 1, 2017.

Wastewater Rates:

Wastewater Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Fixed Monthly Service Charge Per EDU	\$5.00	\$5.36	\$5.55	\$5.74	\$5.94	\$6.15

APPENDIX B - DETAILED WATER RATE STUDY TABLES & FIGURES

DESERT WATER AGENCY

RATE STUDY - POTABLE & RECLAIMED WATER SYSTEMS

Financial Plan and Reserve Projections

**TABLE 1
FINANCIAL PLAN AND SUMMARY OF POTABLE WATER REVENUE REQUIREMENTS**

RATE REVENUE REQUIREMENTS SUMMARY	Budget	Budget	Projected							
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Water Funds										
<u>Operating Fund Revenues:</u>										
Water Sales	\$ 19,200,000	\$ 20,088,000	\$ 20,272,093	\$ 20,456,185	\$ 20,640,278	\$ 20,824,370	\$ 21,008,463	\$ 21,192,555	\$ 21,376,648	\$ 21,560,740
Power Sales (3)	30,000	21,000	57,750	57,750	57,750	57,750	57,750	57,750	57,750	57,750
Fire Protection	138,000	139,500	140,778	142,057	143,335	144,614	145,892	147,171	148,449	149,727
Interest Earnings (4)	85,500	99,600	120,699	141,800	159,101	196,165	331,905	551,775	744,744	894,388
Other Revenue	2,301,000	1,465,550	912,612	919,362	926,111	932,861	939,610	946,360	953,109	959,859
Reclaimed Water System Payback	-	-	746,140	37,763	-	-	-	-	-	-
Subtotal: Operating Fund Revenue	\$ 21,754,500	\$ 21,813,650	\$ 22,250,072	\$ 21,754,917	\$ 21,926,575	\$ 22,155,760	\$ 22,483,620	\$ 22,895,610	\$ 23,280,700	\$ 23,622,465
<u>General Fund Revenues:</u>										
Property Tax Revenue	\$ 17,025,000	\$ 21,118,200	\$ 21,540,564	\$ 21,971,375	\$ 22,410,803	\$ 22,859,019	\$ 23,316,199	\$ 23,782,523	\$ 24,258,174	\$ 24,743,337
Groundwater Replenishment Assessment	4,824,600	4,351,300	5,148,895	5,629,302	6,071,312	6,675,900	6,756,327	6,746,894	6,693,302	6,660,192
Power - Whitewater Hydro	2,100	24,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000
Interest Earnings in State Water Contract Reserve (5)	924,000	1,150,500	239,675	359,513	479,350	599,188	719,025	838,863	958,700	958,700
Other Revenue	4,950	3,700	-	-	-	-	-	-	-	-
Subtotal: General Fund Revenue	\$ 22,780,650	\$ 26,647,700	\$ 26,995,134	\$ 28,026,190	\$ 29,027,465	\$ 30,200,106	\$ 30,857,551	\$ 31,434,280	\$ 31,976,176	\$ 32,428,229
Total Sources of Funds	\$ 44,535,150	\$ 48,461,350	\$ 49,245,206	\$ 49,781,107	\$ 50,954,039	\$ 52,355,866	\$ 53,341,171	\$ 54,329,890	\$ 55,256,876	\$ 56,050,694
Uses of Water Funds (6)										
<u>Operating Fund Expenses:</u>										
Source of Supply	\$ 3,860,100	\$ 3,603,100	\$ 4,201,184	\$ 4,570,508	\$ 4,911,227	\$ 5,374,325	\$ 5,443,914	\$ 5,446,262	\$ 5,415,707	\$ 5,400,819
Pumping	2,789,100	3,163,500	3,327,810	3,501,368	3,684,712	3,878,413	4,083,075	4,299,338	4,527,880	4,769,419
Regulatory Water Treatment	518,700	505,200	519,384	534,015	549,108	564,680	580,746	597,325	614,434	632,092
Transmission & Distribution	3,263,600	3,445,100	3,523,062	3,602,946	3,684,804	3,768,691	3,854,664	3,942,780	4,033,099	4,125,684
Customer Account	772,271	814,840	832,723	851,032	869,776	888,969	908,621	928,746	949,357	970,465
Administrative & General	10,602,300	10,318,200	10,674,174	11,043,252	11,425,935	11,822,745	12,234,222	12,660,930	13,103,453	13,562,399
Regulatory	210,300	203,900	207,978	212,138	216,380	220,708	225,122	229,625	234,217	238,901
Snow Creek Hydro	40,200	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804
Reclamation Plant	-	-	-	-	-	-	-	-	-	-
Other Operating Expenditures	(724,800)	(706,800)	(720,936)	(735,355)	(750,062)	(765,063)	(780,364)	(795,972)	(811,891)	(828,129)
Non-Operating Expenditures	320,400	348,900	361,056	373,698	386,846	400,520	414,741	429,530	444,912	460,908
Subtotal: Operating Fund Expenditures	\$ 21,652,171	\$ 21,736,740	\$ 22,968,051	\$ 23,996,049	\$ 25,022,024	\$ 26,198,150	\$ 27,009,789	\$ 27,784,513	\$ 28,558,035	\$ 29,380,361
<u>General Fund Expenses:</u>										
Source of Supply	\$ 1,472,000	\$ 1,014,700	\$ 1,034,994	\$ 1,055,694	\$ 1,076,808	\$ 1,098,344	\$ 1,120,311	\$ 1,142,717	\$ 1,165,571	\$ 1,188,883
State Water Project	19,757,875	20,370,000	24,391,976	24,551,103	23,247,005	22,574,871	22,308,780	22,214,392	21,905,365	21,849,188
Whitewater Hydro	44,100	69,300	48,792	49,911	51,059	52,235	53,441	54,678	55,946	57,247
Administrative & General	1,957,600	1,848,425	1,893,326	1,939,458	1,986,862	2,035,577	2,085,646	2,137,111	2,190,019	2,244,415
Other Operating Expenditures	(9,000)	(14,100)	(14,382)	(14,670)	(14,963)	(15,262)	(15,568)	(15,879)	(16,196)	(16,520)
Non-Operating Expenditures	-	-	-	-	-	-	-	-	-	-
Subtotal: General Fund Expenditures	\$ 23,222,575	\$ 23,288,325	\$ 27,354,706	\$ 27,581,497	\$ 26,346,770	\$ 25,745,765	\$ 25,552,610	\$ 25,533,019	\$ 25,300,705	\$ 25,323,212
Total: Operating Expenses	\$ 44,874,746	\$ 45,025,065	\$ 50,322,757	\$ 51,577,546	\$ 51,368,794	\$ 51,943,915	\$ 52,562,399	\$ 53,317,532	\$ 53,858,739	\$ 54,703,573
<u>Other Expenses:</u>										
Reclaimed Water System	\$ -	\$ 783,903	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Debt Service	1,645,980	1,646,780	1,646,580	1,645,380	1,647,500	1,646,438	1,643,138	1,647,525	1,644,050	1,643,913
New Debt Service	-	-	-	-	-	-	-	-	-	-
Rate-Funded Capital Expenses	9,992,891	3,023,798	-	2,752,861	11,258,090	9,996,758	7,553,803	10,892,496	852,179	3,340,985
Subtotal: Other Expenditures	\$ 11,638,871	\$ 5,454,482	\$ 1,646,580	\$ 4,398,241	\$ 12,905,590	\$ 11,643,195	\$ 9,196,940	\$ 12,540,021	\$ 2,496,229	\$ 4,984,897
Total Uses of Water Funds	\$ 56,513,618	\$ 50,479,547	\$ 51,969,337	\$ 55,975,787	\$ 64,274,384	\$ 63,587,110	\$ 61,759,339	\$ 65,857,553	\$ 56,354,968	\$ 59,688,471
plus: Revenue from Rate Increases	-	1,314,788	5,652,324	9,122,900	13,103,519	17,665,010	17,821,173	17,977,336	18,133,499	18,289,662
Increase/Decrease to Reserves	\$ (11,978,468)	\$ (703,409)	\$ 2,928,194	\$ 2,928,219	\$ (216,825)	\$ 6,433,765	\$ 9,403,004	\$ 6,449,673	\$ 17,035,406	\$ 14,651,885
Net Revenue Req. (Total Uses less Non-Rate Revenue)	\$ 31,316,468	\$ 22,245,697	\$ 23,883,141	\$ 26,830,686	\$ 34,103,957	\$ 32,200,228	\$ 29,572,523	\$ 32,867,388	\$ 22,623,189	\$ 25,348,244
Total Rate Revenue After Rate Increases	\$ 19,338,000	\$ 21,542,288	\$ 26,065,195	\$ 29,721,141	\$ 33,887,132	\$ 38,633,993	\$ 38,975,527	\$ 39,317,061	\$ 39,658,595	\$ 40,000,129

DESERT WATER AGENCY
RATE STUDY - POTABLE & RECLAIMED WATER SYSTEMS
Financial Plan and Reserve Projections

Rate Adjustments	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Projected Annual Potable Rate Revenue Increase	0.00%	13.00%	13.00%	13.00%	13.00%	13.00%	0.00%	0.00%	0.00%	0.00%
Cumulative Increase from Annual Revenue Increases	0.00%	13.00%	27.69%	44.29%	63.05%	84.24%	84.24%	84.24%	84.24%	84.24%
Debt Coverage After Rate Increase (7)	(0.20)	2.40	2.77	4.45	7.70	10.97	11.31	11.52	11.88	11.94

Table 1 Notes:

1. FY 2015/16 Revenues and expenses are per the District's Annual Operating Budget (Source file: *Revenue-Expense December, 2015.xlsx*)
2. Initial rate increases are anticipated to be effective 1/1/2017 and July 1st, each year there after.
3. Power sales are projected to increase by 175% in FY 2017/18, per conference call with DWA staff 8/4/2016.
4. Interest income is budgeted for FY 2015/16 - 2016/17 and calculated in the Financial Plan for all future years. This is estimated interest income in the Operating Reserve and the Reserve for Replacements. Interest income for all other Operating Fund Reserves is calculated in Table 2 below for each reserve individually.
5. Interest income is budgeted for FY 2015/16 - 2016/17 and calculated here for all future years. This is estimated interest income in the State Water Contract Reserve only. Interest income for all other General Fund Reserves is calculated at the bottom of Table 2 for each reserve individually, in the "Additional Reserves" section.
6. Operating and General Fund expenses do not include depreciation, since it is a non-cash expense.
7. Debt coverage requirement (excluding the Franchise Fee) is 1.1 or greater (Water Revenue Refunding Bonds, Official Statement).
 Conditional formatting has been applied to highlight years where a 1.1 debt coverage ratio is not met.

DESERT WATER AGENCY

RATE STUDY - POTABLE & RECLAIMED WATER SYSTEMS

Financial Plan and Reserve Projections

TABLE 2
WATER RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY	Budget	Budget	Projected							
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Beginning Cash (1)	\$ 115,036,149									
Operating Reserve										
Beginning Reserve Balance	\$ 31,198,074	\$ 12,558,436	\$ 11,855,026	\$ 12,965,390	\$ 13,513,221	\$ 13,296,396	\$ 14,684,522	\$ 15,126,809	\$ 15,551,570	\$ 15,976,687
Plus: Net Cash Flow (After Rate Increases)	(11,978,468)	(703,409)	2,928,194	2,928,219	(216,825)	6,433,765	9,403,004	6,449,673	17,035,406	14,651,885
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Transfer Out to Capital Replacement Reserve	(6,661,171)	-	(1,817,830)	(2,380,388)	-	(5,045,640)	(8,960,717)	(6,024,912)	(16,610,289)	(14,201,380)
Ending Operating Reserve Balance	\$ 12,558,436	\$ 11,855,026	\$ 12,965,390	\$ 13,513,221	\$ 13,296,396	\$ 14,684,522	\$ 15,126,809	\$ 15,551,570	\$ 15,976,687	\$ 16,427,193
Target Ending Balance (6-months of O&M) (2)	\$ 12,558,436	\$ 12,327,533	\$ 12,965,390	\$ 13,513,221	\$ 14,060,894	\$ 14,684,522	\$ 15,126,809	\$ 15,551,570	\$ 15,976,687	\$ 16,427,193
Reserve for Replacements										
Beginning Reserve Balance	\$ 9,398,075	\$ 16,007,246	\$ 12,284,802	\$ 5,941,243	\$ 2,396,829	\$ 2,396,829	\$ 7,442,469	\$ 16,403,186	\$ 21,685,630	\$ 28,742,733
Plus: Grant Proceeds	-	-	-	-	-	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	6,661,171	-	1,817,830	2,380,388	-	5,045,640	8,960,717	6,024,912	16,610,289	14,201,380
Less: Use of Reserves for Capital Projects	(52,000)	(3,722,444)	(8,161,388)	(5,924,802)	-	-	-	(742,469)	(9,553,186)	(14,735,630)
Ending Reserve for Replacements Balance	\$ 16,007,246	\$ 12,284,802	\$ 5,941,243	\$ 2,396,829	\$ 2,396,829	\$ 7,442,469	\$ 16,403,186	\$ 21,685,630	\$ 28,742,733	\$ 28,208,483
Minimum Target Ending Balance (3% of Net Assets)	\$ 6,290,000	\$ 6,300,000	\$ 6,360,000	\$ 6,430,000	\$ 6,570,000	\$ 6,670,000	\$ 6,700,000	\$ 6,850,000	\$ 6,950,000	\$ 7,290,000
State Water Contract Reserve										
Beginning Reserve Balance	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000
Less: Use of Reserves	-	-	-	-	-	-	-	-	-	-
Ending State Water Contract Reserve Balance	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000	\$ 47,935,000
Target Ending Balance	\$ 51,769,928	\$ 54,476,348	\$ 60,979,940	\$ 61,377,758	\$ 58,117,513	\$ 56,437,178	\$ 55,771,950	\$ 55,535,980	\$ 54,763,413	\$ 54,622,970
Ending Balance - Minimum Reserves	\$ 76,500,682	\$ 72,074,828	\$ 66,841,634	\$ 63,845,051	\$ 63,628,226	\$ 70,061,991	\$ 79,464,996	\$ 85,172,200	\$ 92,654,420	\$ 92,570,675
Minimum Target Ending Balance	\$ 70,618,363	\$ 73,103,880	\$ 80,305,330	\$ 81,320,979	\$ 78,748,407	\$ 77,791,700	\$ 77,598,759	\$ 77,937,550	\$ 77,690,100	\$ 78,340,163
Ending Surplus/(Deficit) Compared to Min. Reserve Target	\$ 5,882,318	\$ (1,029,052)	\$ (13,463,697)	\$ (17,475,928)	\$ (15,120,181)	\$ (7,729,708)	\$ 1,866,236	\$ 7,234,650	\$ 14,964,320	\$ 14,230,513
Days Cash on Hand	601	564	470	438	439	478	536	566	610	600
Restricted Reserves:										
Bond Reserve										
Beginning Reserve Balance (3)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Interest Earnings	-	-	-	-	-	-	-	-	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-	-	-	-	-	-
Ending Bond Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Target Ending Balance (3)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capital Facilities Fees Reserve (Backup Facility & Supplemental Imported Water)										
Beginning Reserve Balance	\$ -	\$ 810,000	\$ 1,676,025	\$ 3,143,134	\$ 4,625,436	\$ 6,130,419	\$ 7,665,778	\$ 9,239,493	\$ 10,859,913	\$ 12,535,840
Plus: Interest Earnings	-	2,025	8,380	23,574	46,254	76,630	114,987	161,691	217,198	250,717
Plus: Supplemental Imported Water Fees	300,000	336,000	472,250	472,250	472,250	472,250	472,250	472,250	472,250	472,250
Plus: Backup Facility Charges	510,000	528,000	986,478	986,478	986,478	986,478	986,478	986,478	986,478	986,478
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-
Ending Capital Facilities Fees Reserve Balance	\$ 810,000	\$ 1,676,025	\$ 3,143,134	\$ 4,625,436	\$ 6,130,419	\$ 7,665,778	\$ 9,239,493	\$ 10,859,913	\$ 12,535,840	\$ 14,245,285
Additional Reserves:										
Beginning Reserve Balances		\$ 26,505,000	\$ 26,505,000	\$ 26,637,525	\$ 26,837,306	\$ 27,105,680	\$ 27,444,500	\$ 27,856,168	\$ 28,343,651	\$ 28,910,524
Disaster Response	\$ 505,000	--	--	--	--	--	--	--	--	--
Land Acquisitions	3,000,000	--	--	--	--	--	--	--	--	--
Regulatory Compliance	4,520,000	--	--	--	--	--	--	--	--	--
Retirement Benefits	1,000,000	--	--	--	--	--	--	--	--	--
Additional Water (4)	17,480,000	--	--	--	--	--	--	--	--	--
Plus: Interest Earnings	-	-	132,525	199,781	268,373	338,821	411,668	487,483	566,873	578,210
Ending Balance - Additional Reserves	\$ 26,505,000	\$ 26,505,000	\$ 26,637,525	\$ 26,837,306	\$ 27,105,680	\$ 27,444,500	\$ 27,856,168	\$ 28,343,651	\$ 28,910,524	\$ 29,488,734
Grand Total Ending Balance - All Reserves	\$ 103,815,682	\$ 100,255,853	\$ 96,622,292	\$ 95,307,793	\$ 96,864,324	\$ 105,172,269	\$ 116,560,657	\$ 124,375,763	\$ 134,100,783	\$ 136,304,695
Days Cash on Hand	815	771	679	654	667	716	785	826	882	883
Annual Interest Earnings Rate (5)	0.25%	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.00%

DESERT WATER AGENCY

RATE STUDY - POTABLE & RECLAIMED WATER SYSTEMS

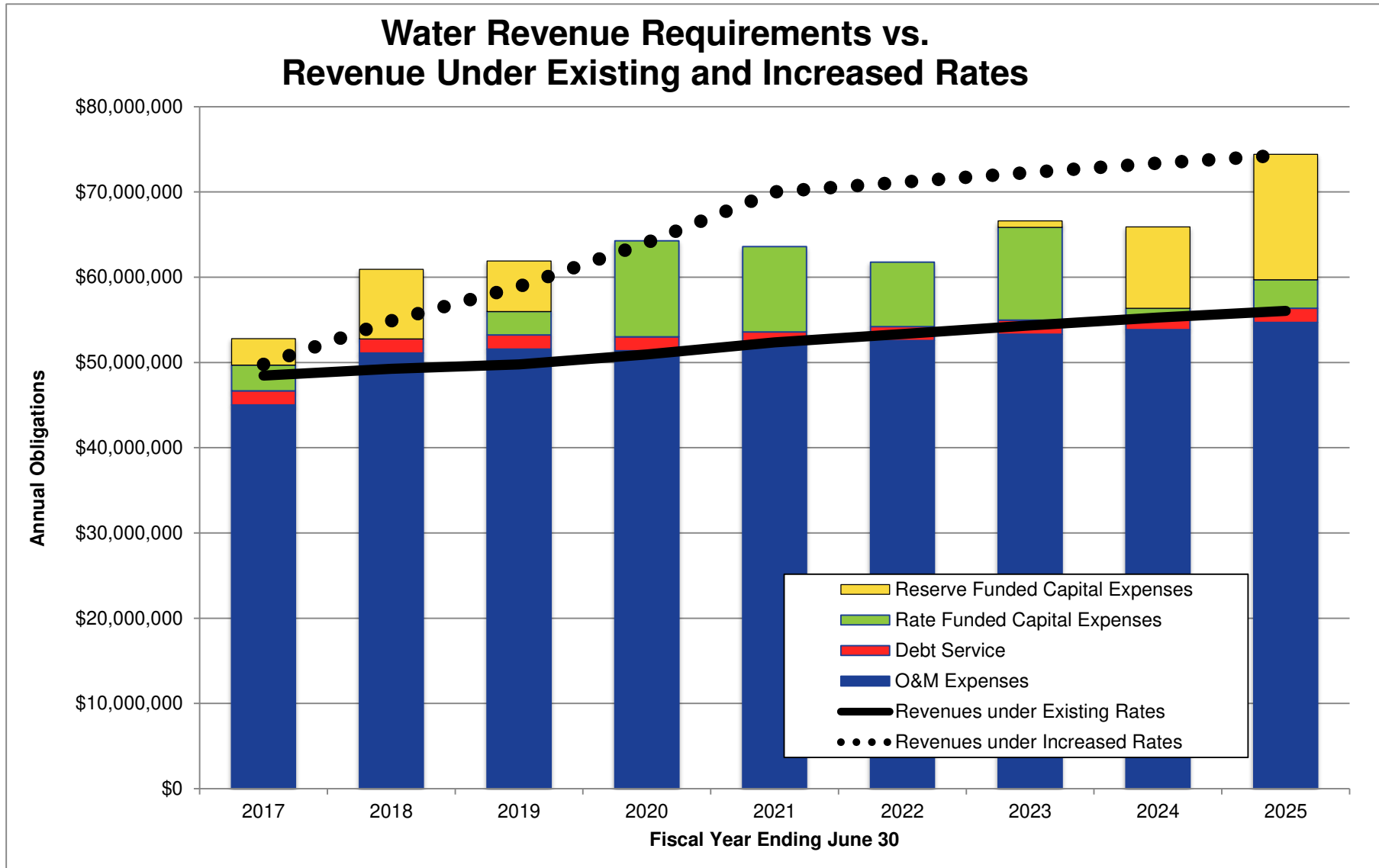
Financial Plan and Reserve Projections

Table 2 Notes:

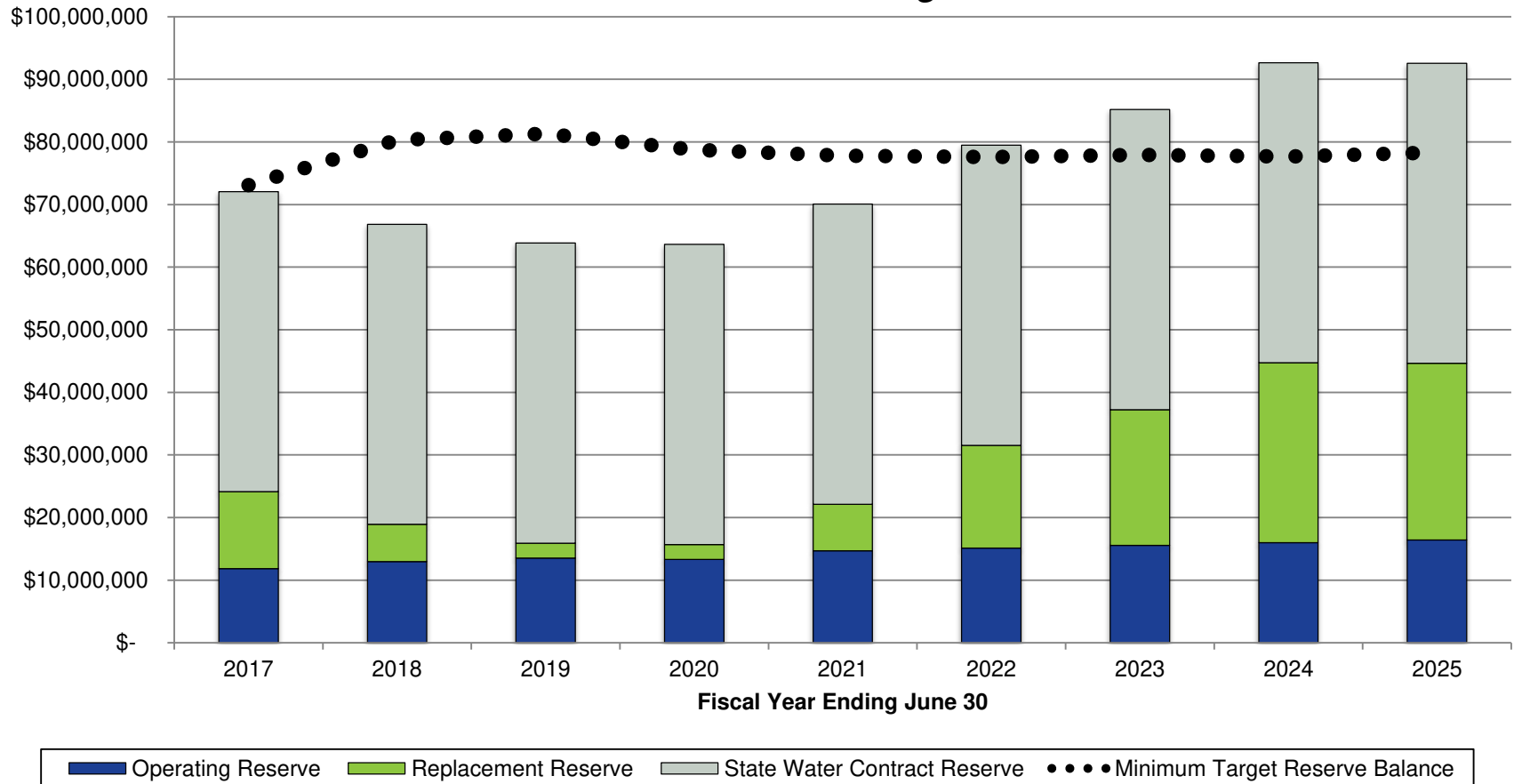
1. Beginning cash balance for Fiscal Year 2015-2016 is per *2015 2016 Budget.pdf* and *Beginning Cash & Invested Reserves 2015 2016.pdf*.
2. Target Operating reserve balance is set to 50% of annual operating expenditures net of the State Water Project costs, since there is a separate reserve designated for those costs.
3. DWA is in the process of refunding its outstanding 2007 COP's, and as a condition of the refunding, a bond reserve fund is no longer needed. The \$1,647,525 set aside for a debt reserve has been re-allocated to the Operating Reserve.
4. The reserve for additional water is funded with property taxes and the supplemental imported water fee.
5. Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.

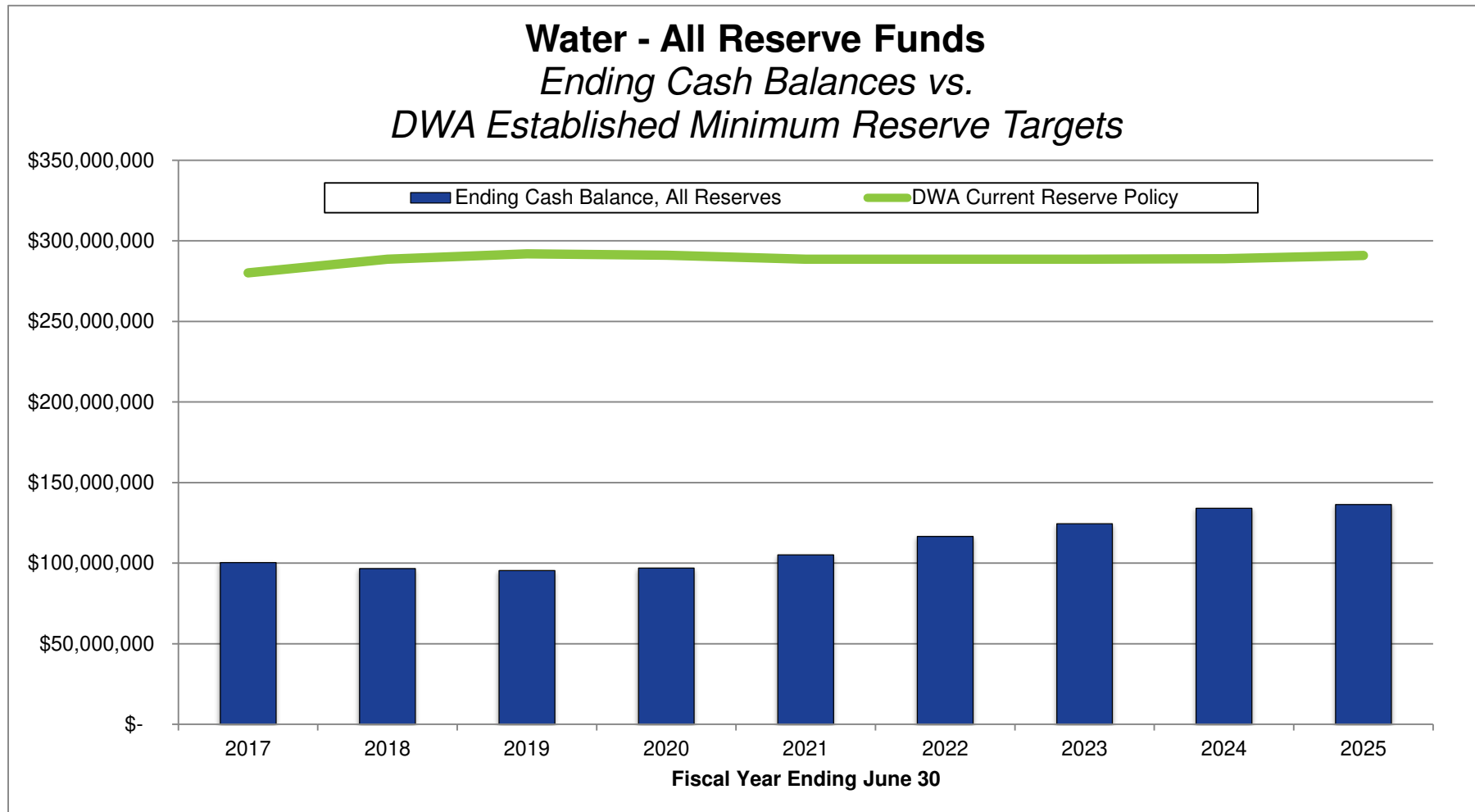
COMPARISON OF CASH BALANCES VS. RESERVE TARGETS

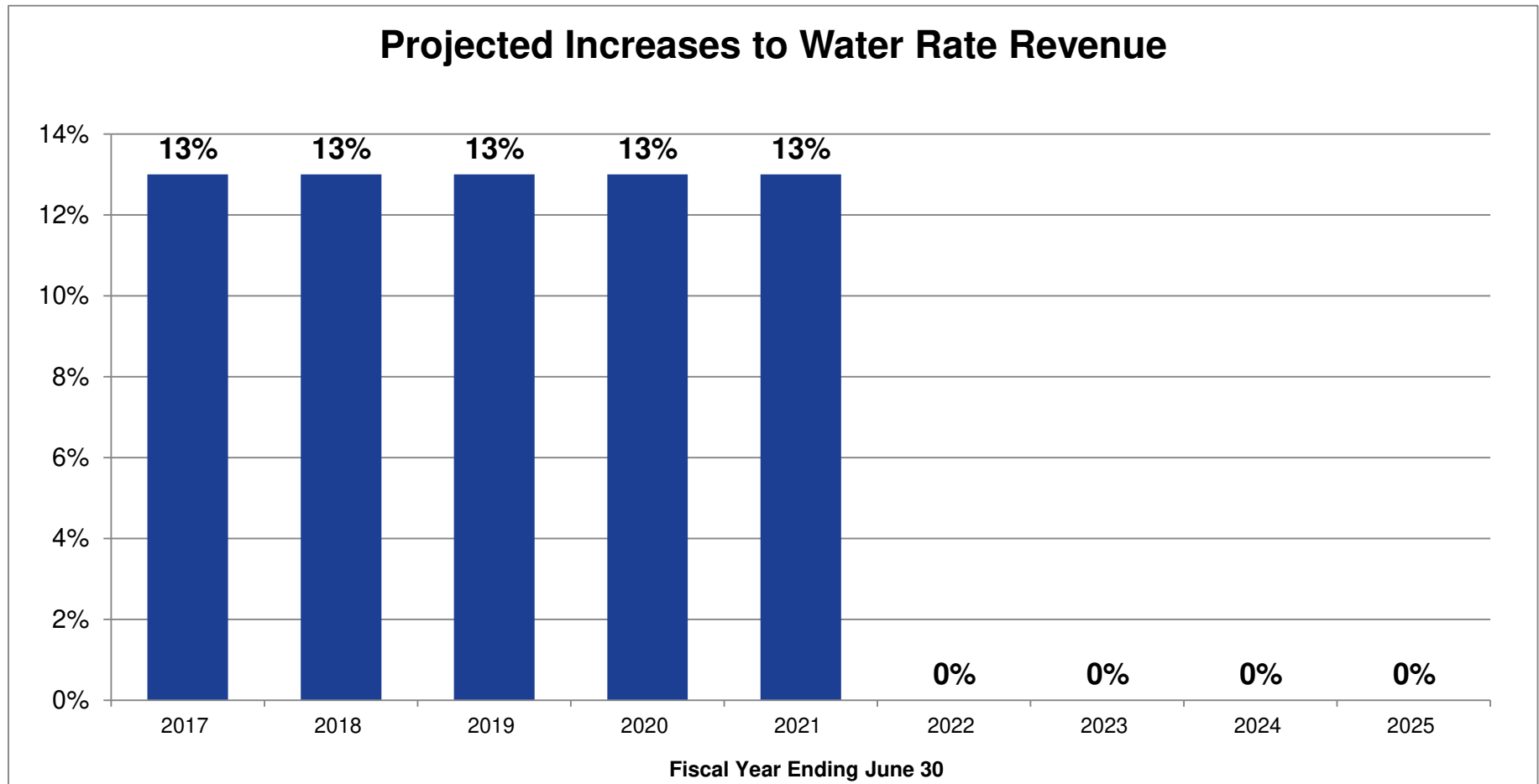
Test Cash Against All Reserve Targets	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Ending Cash and Investments	\$ 103,815,682	\$ 100,255,853	\$ 96,622,292	\$ 95,307,793	\$ 96,864,324	\$ 105,172,269	\$ 116,560,657	\$ 124,375,763	\$ 134,100,783	\$ 136,304,695
<i>Minimum Reserve Targets:</i>										
Bond Reserve	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
State Water Contract Reserve	\$ 51,769,928	\$ 54,476,348	\$ 60,979,940	\$ 61,377,758	\$ 58,117,513	\$ 56,437,178	\$ 55,771,950	\$ 55,535,980	\$ 54,763,413	\$ 54,622,970
Operations Reserve	\$ 12,558,436	\$ 12,327,533	\$ 12,965,390	\$ 13,513,221	\$ 14,060,894	\$ 14,684,522	\$ 15,126,809	\$ 15,551,570	\$ 15,976,687	\$ 16,427,193
Reserve for Replacements	\$ 118,316,818	\$ 118,433,078	\$ 118,446,891	\$ 118,502,745	\$ 118,572,410	\$ 118,717,399	\$ 118,820,198	\$ 118,846,624	\$ 118,994,693	\$ 119,101,431
Disaster Response Reserve	\$ 31,429,017	\$ 31,498,082	\$ 31,777,348	\$ 32,125,677	\$ 32,850,620	\$ 33,364,615	\$ 33,496,747	\$ 34,237,090	\$ 34,770,782	\$ 36,439,150
Land Acquisition Reserve	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000
Reserve for Additional Water	\$ 21,343,639	\$ 21,000,000	\$ 22,000,000	\$ 24,000,000	\$ 25,000,000	\$ 23,000,000	\$ 23,000,000	\$ 22,000,000	\$ 22,000,000	\$ 22,000,000
Reserve for Regulatory Compliance	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000	\$ 10,000,000
Reserve for Retirement Benefits	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800	\$ 27,411,800
Total Minimum Reserve Target	\$ 277,829,637	\$ 280,146,841	\$ 288,581,370	\$ 291,931,201	\$ 291,013,238	\$ 288,615,514	\$ 288,627,505	\$ 288,583,064	\$ 288,917,374	\$ 291,002,544
Total: Cash Above (Below) Minimum Reserves	\$ (174,013,955)	\$ (179,890,988)	\$ (191,959,078)	\$ (196,623,408)	\$ (194,148,914)	\$ (183,443,245)	\$ (172,066,848)	\$ (164,207,301)	\$ (154,816,591)	\$ (154,697,850)
<i>Are Minimum Reserve Targets Satisfied?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>Additional Cash Necessary to Meet Min. Reserve Targets</i>	\$ 174,013,955	\$ 179,890,988	\$ 191,959,078	\$ 196,623,408	\$ 194,148,914	\$ 183,443,245	\$ 172,066,848	\$ 164,207,301	\$ 154,816,591	\$ 154,697,850

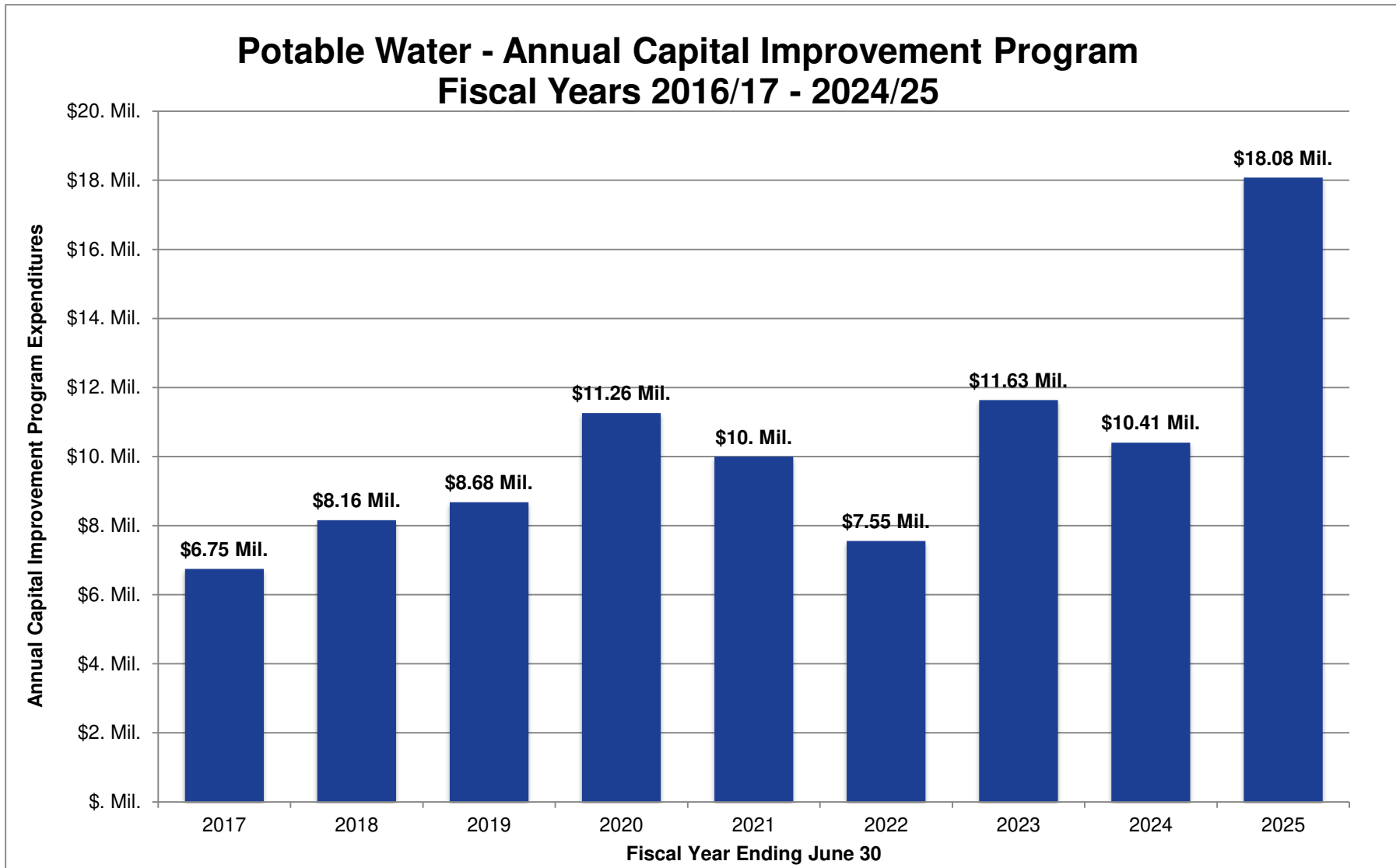


Potable Water - Select Reserve Funds Ending Cash Balances vs. Minimum Reserve Targets









DESERT WATER AGENCY

Rate Revenue Requirement Analysis

Estimate of Future Revenues from Various Increased Capacity Charges

FORECASTING ASSUMPTIONS:

Economic Variables (1)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water Customer Growth	0.00%	0.92%	0.92%	0.91%	0.90%	0.89%	0.88%	0.88%	0.87%	0.86%
Reclaimed Water Customer Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Wastewater Collection Customer Growth (2)	0.00%	0.70%	0.70%	0.69%	0.18%	0.18%	0.18%	0.18%	0.18%	0.00%

Estimated Number of Customers In Each Utility	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water (3)	22,693	22,903	23,113	23,323	23,533	23,742	23,952	24,162	24,372	24,582
Reclaimed Water (3)	12	12	12	12	12	12	12	12	12	12
Wastewater Collection (4)	2,138	2,153	2,168	2,183	2,187	2,191	2,195	2,199	2,203	2,203

REVENUE ESTIMATES:

Water Utility Revenue Estimates	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Increase in Number of Customers over previous year	-	210	210	210	210	210	210	210	210	210
Water System Backup Facility Charge (5)	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700	\$ 4,700
Estimated Annual Backup Facility Charges	-	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478
Supplemental Imported Water Capacity Charges (6)	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250	\$ 2,250
Est. Annual Supplemental Imported Water Capacity Charge	-	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250
Meter Installation Charge (7)	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335	\$ 335
Estimated Revenue for Installation of Service & Meters	-	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313

(1) Economic Variables are the same throughout the Exhibit 1 Series.

(2) Estimated customer growth is based on DWA Staff estimates of an average of 15 new sewer connections per year for FY 2016/17 - 2018/19, and approximately 4 per year for FY 2019/20 - 2023/24.

(3) Number of customers is as of March 1, 2016.

(4) Current number of active customers as of April 1, 2016.

(5) Charge for a 1 inch meter in the Base zone.

(6) Charge for a Residential property with a 1 inch meter.

(7) Charge for a 1 inch meter.

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Groundwater Replenishment Assessment

EXHIBIT 1.B

ASSESSMENT RATE FORECAST:

Projected Effective Replenishment Assessment Rates	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Anticipated Groundwater Replenishment Assessment Rate (1)	\$102.00	\$102.00	\$115.00	\$126.00	\$136.00	\$150.00	\$153.00	\$154.00	\$154.00	\$154.00
Estimated Assessable Production (in Acre Feet) (2)	42,810	42,810	44,773	44,677	44,642	44,506	44,159	43,811	43,463	43,248
Estimated Total Assessment	\$ 4,366,620	\$ 4,366,620	\$ 5,148,895	\$ 5,629,302	\$ 6,071,312	\$ 6,675,900	\$ 6,756,327	\$ 6,746,894	\$ 6,693,302	\$ 6,660,192

Assessment by Subbasin	\$-Amount (2)	Amount of Water (AF) (3)	%-Allocation (3)
Whitewater River Subbasin	\$ 3,433,520	33,760	79%
Mission Creek Subbasin	\$ 888,420	8,710	20%
Garnet Hill Subbasin	\$ 34,680	340	1%
Total Assessment	\$ 4,356,620	42,810	100%

Whitewater River Subbasin Assessable Production	Amount of Water (AF) (2)	Replenishment Assessment (2)	% of Production & Assessment
Desert Water Agency Assessable Production (AF)	32,160	\$ 3,280,320	95%
All Other Producers (AF)	1,600	\$ 163,200	5%
Total Whitewater River Subbasin Assessable Production	33,760	\$ 3,443,520	100%

Calculation of Replenishment Assessment Amounts	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<i>Assessment Levied by Desert Water Agency (Revenue to DWA):</i>										
Estimated Assessable Groundwater Production (AF)	42,810	42,810	44,773	44,677	44,642	44,506	44,159	43,811	43,463	43,248
Assessment Rate (per AF)	\$102.00	\$102.00	\$115.00	\$126.00	\$136.00	\$150.00	\$153.00	\$154.00	\$154.00	\$154.00
Revenue from Assessment	\$ 4,366,620	\$ 4,366,620	\$ 5,148,895	\$ 5,629,302	\$ 6,071,312	\$ 6,675,900	\$ 6,756,327	\$ 6,746,894	\$ 6,693,302	\$ 6,660,192
<i>Replenishment Assessment due from Desert Water Agency (Expense to DWA):</i>										
Estimated Assessable Groundwater Production (AF) (4)	32,160	32,160	33,634.66	33,563	33,536	33,434	33,173	32,912	32,651	32,489
Assessment Rate (per AF)	\$102.00	\$102.00	\$115.00	\$126.00	\$136.00	\$150.00	\$153.00	\$154.00	\$154.00	\$154.00
Expense from Assessment	\$ 3,280,320	\$ 3,280,320	\$ 3,867,986	\$ 4,228,880	\$ 4,560,930	\$ 5,015,112	\$ 5,075,531	\$ 5,068,445	\$ 5,028,185	\$ 5,003,312

1. Replenishment assessment rate for 2015/16 and 2016/17, per DWA Staff, for 2017/18 - 2021/22 per the Krieger & Stewart 2016/17 Groundwater Replenishment & Assessment Program Report (Table 7).
 For all future years, the rate is estimated at \$154/AF per direction from DWA Staff.
2. Per the Krieger & Stewart 2016/17 Groundwater Replenishment & Assessment Program Report, page VI-9 and Table 6.
3. Per Table 2 in the Krieger & Stewart 2016/17 Groundwater Replenishment & Assessment Program Report.
4. DWA assessable groundwater production per Table 2 of the Krieger and Stewart report for FY 2015/16 and 2016/17. For all future years, it is assumed to be 75% of the total assessable water (32,160/42,810 = 75%).
5. Calculated change from FY 2015/16 through 2021/22.

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Projection of State Water Project Charges

EXHIBIT 1.C

State Water Project Charges Forecast (Calendar Year) (1):

Description of Charge (2)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Operating & Maintenance Costs:										
Minimum OMP&R Component of Transportation Charge	\$ 4,901,893	\$ 5,443,278	\$ 5,265,432	\$ 5,318,087	\$ 5,368,999	\$ 5,422,689	\$ 5,476,916	\$ 5,531,685	\$ 5,587,002	\$ 5,642,872
Min. OMP&R Component of Transp. Charge for Off Aqueduct Power Facil	\$ 379,162	\$ 351,228	\$ 90,802	\$ 90,416	\$ 86,886	\$ 128,389	\$ 121,465	\$ 89,059	\$ 66,567	\$ 10,762
Variable OMP&R Component of Transportation Charge	\$ 5,735,630	\$ 6,084,127	\$ 7,228,669	\$ 6,401,248	\$ 6,410,245	\$ 6,594,491	\$ 6,524,941	\$ 6,549,875	\$ 6,413,558	\$ 6,615,427
Delta Water Charges (3)	\$ 3,987,255	\$ 3,987,255	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453	\$ 4,585,453
Water System Revenue Bond Surcharge	\$ 1,074,426	\$ 1,068,854	\$ 961,589	\$ 1,011,248	\$ 956,733	\$ 947,953	\$ 918,114	\$ 914,372	\$ 887,257	\$ 822,312
Subtotal: Operating & Maintenance Costs	\$ 16,078,366	\$ 16,934,742	\$ 18,131,945	\$ 17,406,452	\$ 17,408,316	\$ 17,678,975	\$ 17,626,889	\$ 17,670,444	\$ 17,539,837	\$ 17,676,826
Capital Costs:										
Capital Cost of Project Transportation Facilities	\$ 1,716,083	\$ 1,908,115	\$ 1,714,943	\$ 2,623,536	\$ 1,293,579	\$ 482,860	\$ 428,948	\$ 368,400	\$ 178,082	\$ -
Capital Cost Component of Transportation Charge	\$ 2,913,522	\$ 2,947,682	\$ 2,970,088	\$ 2,946,115	\$ 2,970,110	\$ 2,838,036	\$ 2,677,943	\$ 2,600,548	\$ 2,612,446	\$ 2,597,362
CA Water Fix (4)	\$ -	\$ -	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000	\$ 1,575,000
Subtotal: Capital Costs	\$ 4,629,605	\$ 4,855,797	\$ 6,260,031	\$ 7,144,651	\$ 5,838,689	\$ 4,895,896	\$ 4,681,891	\$ 4,543,948	\$ 4,365,528	\$ 4,172,362
Total: State Water Project Charges	\$ 20,707,971	\$ 21,790,539	\$ 24,391,976	\$ 24,551,103	\$ 23,247,005	\$ 22,574,871	\$ 22,308,780	\$ 22,214,392	\$ 21,905,365	\$ 21,849,188
State Water Contract Reserve Requirement (2.5 x State Water Project Charges)	\$ 51,769,928	\$ 54,476,348	\$ 60,979,940	\$ 61,377,758	\$ 58,117,513	\$ 56,437,178	\$ 55,771,950	\$ 55,535,980	\$ 54,763,413	\$ 54,622,970

- SWP Charges forecast listed in Revised Tables of the Water Supply Contract, updated 12/10/2015 by Department of Water Resources (file: 2016 SWP Statement of Charges.pdf).
- Costs are from the 2016 SWP Statement of Charges.pdf, file page 3 of 12, 3rd column for "Projected allocation of capital cost of project transportation facilities. Costs in FY 2017/18 and beyond are used in the projections for purposes of this analysis.
- Delta Water charges are expected to increase in FY 2017/18 by \$598,198 (this is in addition to the charges listed in the DWR documentation), per DWA email 7/29/2016. Anticipated increase is 14.3%, or from \$75.22/AF to \$85.95/AF, for Table A Allotment of 55,750 AF.
- The California Water Fix costs are estimated at \$1,575,000 per year are per email from DWA staff 7/29/2016.

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

FORECASTING ASSUMPTIONS:

Economic Variables		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Customer Growth (1)	0.00%	0.92%	0.92%	0.91%	0.90%	0.89%	0.88%	0.88%	0.87%	0.86%
2	General Cost Inflation (2)	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
3	Labor Cost Inflation (3)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
4	Energy Cost Inflation (4)	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%
5	Transportation (5)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
6	Utilities (6)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
7	Construction Cost Inflation (7)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
8	No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rate Revenue Policy		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
8	Adopted Rate Increase	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	Rate Increase plus Customer Growth	0.00%	0.92%	0.92%	0.91%	0.90%	0.89%	0.88%	0.88%	0.87%	0.86%
10	Other	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

OPERATING FUND:

Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water Sales	1	\$ 19,200,000	\$ 20,088,000	\$ 20,272,093	\$ 20,456,185	\$ 20,640,278	\$ 20,824,370	\$ 21,008,463	\$ 21,192,555	\$ 21,376,648	\$ 21,560,740
Power Sales	8	\$ 30,000	\$ 21,000	\$ 57,750	\$ 57,750	\$ 57,750	\$ 57,750	\$ 57,750	\$ 57,750	\$ 57,750	\$ 57,750
Reclamation Sales	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Operating Revenues		\$ 19,230,000	\$ 20,109,000	\$ 20,329,843	\$ 20,513,935	\$ 20,698,028	\$ 20,882,120	\$ 21,066,213	\$ 21,250,305	\$ 21,434,398	\$ 21,618,490

Water Services	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Fire Protection	1	\$ 138,000	\$ 139,500	\$ 140,778	\$ 142,057	\$ 143,335	\$ 144,614	\$ 145,892	\$ 147,171	\$ 148,449	\$ 149,727
Back-up Facility Charge	Ref Ex 1A	\$ 510,000	\$ 528,000	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478	\$ 986,478
Service Charges	1	\$ 399,000	\$ 403,500	\$ 407,198	\$ 410,896	\$ 414,593	\$ 418,291	\$ 421,989	\$ 425,687	\$ 429,385	\$ 433,082
Charge for Installation of Service & Meter	Ref Ex 1A	\$ 174,000	\$ 225,000	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313	\$ 70,313
Total: Other Operating Revenue - Water Services		\$ 1,221,000	\$ 1,296,000	\$ 1,604,767	\$ 1,609,744	\$ 1,614,720	\$ 1,619,696	\$ 1,624,672	\$ 1,629,648	\$ 1,634,625	\$ 1,639,601

Non-Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenue from Leases	8	\$ 72,000	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350	\$ 72,350
Interest	Ref to FP	\$ 85,500	\$ 99,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Gains/Loss Investments	8	\$ 19,200	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
Other Income	8	\$ 1,290,000	\$ 405,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DWA Front Footage Charges	8	\$ 18,000	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500	\$ 10,500
Gains on Retirements	8	\$ 1,200	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900
Discounts	8	\$ 3,600	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300	\$ 3,300
Revenue - Constr. W.O.'s	1	\$ 324,000	\$ 333,000	\$ 336,052	\$ 339,103	\$ 342,155	\$ 345,207	\$ 348,259	\$ 351,310	\$ 354,362	\$ 357,414
Total: Non-Operating Revenues		\$ 1,813,500	\$ 936,650	\$ 435,102	\$ 438,153	\$ 441,205	\$ 444,257	\$ 447,309	\$ 450,360	\$ 453,412	\$ 456,464

DESERT WATER AGENCY

**Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses**

Operating Expenditures - Source of Supply	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 37,200	\$ 38,400	\$ 39,936	\$ 41,533	\$ 43,195	\$ 44,923	\$ 46,719	\$ 48,588	\$ 50,532	\$ 52,553
Operating Labor & Expense	3	\$ 45,000	\$ 46,500	\$ 48,360	\$ 50,294	\$ 52,306	\$ 54,398	\$ 56,574	\$ 58,837	\$ 61,191	\$ 63,638
Misc. Source of Supply	2	\$ 9,900	\$ 10,500	\$ 10,710	\$ 10,924	\$ 11,143	\$ 11,366	\$ 11,593	\$ 11,825	\$ 12,061	\$ 12,302
Maintenance of Structures & Improvements	2	\$ 96,900	\$ 89,700	\$ 91,494	\$ 93,324	\$ 95,190	\$ 97,094	\$ 99,036	\$ 101,017	\$ 103,037	\$ 105,098
Maint. Rds., Coll, Impo, Res	2	\$ 18,000	\$ 24,600	\$ 25,092	\$ 25,594	\$ 26,106	\$ 26,628	\$ 27,160	\$ 27,704	\$ 28,258	\$ 28,823
Maintenance of Intakes	2	\$ 21,000	\$ 110,800	\$ 113,016	\$ 115,276	\$ 117,582	\$ 119,933	\$ 122,332	\$ 124,779	\$ 127,274	\$ 129,820
Maintenance of Wells	2	\$ 6,000	\$ 4,500	\$ 4,590	\$ 4,682	\$ 4,775	\$ 4,871	\$ 4,968	\$ 5,068	\$ 5,169	\$ 5,272
Groundwater Replenishment	Ref Ex 1B	\$ 3,626,100	\$ 3,278,100	\$ 3,867,986	\$ 4,228,880	\$ 4,560,930	\$ 5,015,112	\$ 5,075,531	\$ 5,068,445	\$ 5,028,185	\$ 5,003,312
Total: Source of Supply		\$ 3,860,100	\$ 3,603,100	\$ 4,201,184	\$ 4,570,508	\$ 4,911,227	\$ 5,374,325	\$ 5,443,914	\$ 5,446,262	\$ 5,415,707	\$ 5,400,819

Operating Expenditures - Pumping	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 96,000	\$ 93,000	\$ 96,720	\$ 100,589	\$ 104,612	\$ 108,797	\$ 113,149	\$ 117,675	\$ 122,382	\$ 127,277
Pumping Labor Expense	3	\$ 144,000	\$ 159,000	\$ 165,360	\$ 171,974	\$ 178,853	\$ 186,008	\$ 193,448	\$ 201,186	\$ 209,233	\$ 217,602
Misc. Exp & Care of Grounds	2	\$ 117,000	\$ 112,500	\$ 114,750	\$ 117,045	\$ 119,386	\$ 121,774	\$ 124,209	\$ 126,693	\$ 129,227	\$ 131,812
Maintenance of Structures	2	\$ 63,600	\$ 75,000	\$ 76,500	\$ 78,030	\$ 79,591	\$ 81,182	\$ 82,806	\$ 84,462	\$ 86,151	\$ 87,874
Maintenance of Pumping Equipment	2	\$ 264,000	\$ 324,000	\$ 330,480	\$ 337,090	\$ 343,831	\$ 350,708	\$ 357,722	\$ 364,877	\$ 372,174	\$ 379,618
Power Purchases	6	\$ 2,104,500	\$ 2,400,000	\$ 2,544,000	\$ 2,696,640	\$ 2,858,438	\$ 3,029,945	\$ 3,211,741	\$ 3,404,446	\$ 3,608,713	\$ 3,825,235
Total: Pumping		\$ 2,789,100	\$ 3,163,500	\$ 3,327,810	\$ 3,501,368	\$ 3,684,712	\$ 3,878,413	\$ 4,083,075	\$ 4,299,338	\$ 4,527,880	\$ 4,769,419

Operating Expenditures - Regulatory Water Treatment	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 108,300	\$ 108,000	\$ 112,320	\$ 116,813	\$ 121,485	\$ 126,345	\$ 131,399	\$ 136,654	\$ 142,121	\$ 147,805
Operating Labor Expense	3	\$ 90,000	\$ 96,000	\$ 99,840	\$ 103,834	\$ 107,987	\$ 112,306	\$ 116,799	\$ 121,471	\$ 126,329	\$ 131,383
Water Analysis/Health Dept.	2	\$ 195,300	\$ 180,000	\$ 183,600	\$ 187,272	\$ 191,017	\$ 194,838	\$ 198,735	\$ 202,709	\$ 206,763	\$ 210,899
Chemicals & Filtering Material	2	\$ 66,000	\$ 69,000	\$ 70,380	\$ 71,788	\$ 73,223	\$ 74,688	\$ 76,182	\$ 77,705	\$ 79,259	\$ 80,844
Maintenance of Structures	2	\$ 2,100	\$ 1,200	\$ 1,224	\$ 1,248	\$ 1,273	\$ 1,299	\$ 1,325	\$ 1,351	\$ 1,378	\$ 1,406
Maintenance of Water Treat Equipment	2	\$ 57,000	\$ 51,000	\$ 52,020	\$ 53,060	\$ 54,122	\$ 55,204	\$ 56,308	\$ 57,434	\$ 58,583	\$ 59,755
Permits/Testing/Regulatory	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Water Treatment		\$ 518,700	\$ 505,200	\$ 519,384	\$ 534,015	\$ 549,108	\$ 564,680	\$ 580,746	\$ 597,325	\$ 614,434	\$ 632,092

Operating Expenditures - Transmission & Distribution	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 396,000	\$ 453,000	\$ 471,120	\$ 489,965	\$ 509,563	\$ 529,946	\$ 551,144	\$ 573,190	\$ 596,117	\$ 619,962
Storage Facilities Expense	2	\$ 120,900	\$ 72,000	\$ 73,440	\$ 74,909	\$ 76,407	\$ 77,935	\$ 79,494	\$ 81,084	\$ 82,705	\$ 84,359
Transmission & Distribution Lines Expense	2	\$ 88,800	\$ 143,700	\$ 146,574	\$ 149,505	\$ 152,496	\$ 155,546	\$ 158,656	\$ 161,830	\$ 165,066	\$ 168,367
Meter Expense	2	\$ 82,500	\$ 76,500	\$ 78,030	\$ 79,591	\$ 81,182	\$ 82,806	\$ 84,462	\$ 86,151	\$ 87,874	\$ 89,632
Customer Install Expense	2	\$ 111,600	\$ 132,900	\$ 135,558	\$ 138,269	\$ 141,035	\$ 143,855	\$ 146,732	\$ 149,667	\$ 152,660	\$ 155,714
Cross Connect Expense	2	\$ 99,000	\$ 129,000	\$ 131,580	\$ 134,212	\$ 136,896	\$ 139,634	\$ 142,426	\$ 145,275	\$ 148,180	\$ 151,144
Misc. Supply Expense	2	\$ 33,300	\$ 33,000	\$ 33,660	\$ 34,333	\$ 35,020	\$ 35,720	\$ 36,435	\$ 37,163	\$ 37,907	\$ 38,665
Maintenance of Structures & Improvements	2	\$ 3,300	\$ 1,500	\$ 1,530	\$ 1,561	\$ 1,592	\$ 1,624	\$ 1,656	\$ 1,689	\$ 1,723	\$ 1,757
Maintenance of Reservoirs	2	\$ 1,368,000	\$ 1,275,000	\$ 1,300,500	\$ 1,326,510	\$ 1,353,040	\$ 1,380,101	\$ 1,407,703	\$ 1,435,857	\$ 1,464,574	\$ 1,493,866
Maintenance of Mains	2	\$ 495,000	\$ 600,000	\$ 612,000	\$ 624,240	\$ 636,725	\$ 649,459	\$ 662,448	\$ 675,697	\$ 689,211	\$ 702,996
Maintenance of Whitewater MWC	2	\$ 80,000	\$ 80,700	\$ 82,314	\$ 83,960	\$ 85,639	\$ 87,352	\$ 89,099	\$ 90,881	\$ 92,699	\$ 94,553
Maintenance of Fire Services	2	\$ 36,000	\$ 48,000	\$ 48,960	\$ 49,939	\$ 50,938	\$ 51,957	\$ 52,996	\$ 54,056	\$ 55,137	\$ 56,240
Maintenance of Services	2	\$ 177,000	\$ 224,000	\$ 228,480	\$ 233,050	\$ 237,711	\$ 242,465	\$ 247,314	\$ 252,260	\$ 257,306	\$ 262,452
Maintenance of Meters	2	\$ 76,200	\$ 88,800	\$ 90,576	\$ 92,388	\$ 94,235	\$ 96,120	\$ 98,042	\$ 100,003	\$ 102,003	\$ 104,043
Maintenance of Hydrants	2	\$ 96,000	\$ 87,000	\$ 88,740	\$ 90,515	\$ 92,325	\$ 94,172	\$ 96,055	\$ 97,976	\$ 99,936	\$ 101,934
Total: Transmission & Distribution		\$ 3,263,600	\$ 3,445,100	\$ 3,523,062	\$ 3,602,946	\$ 3,684,804	\$ 3,768,691	\$ 3,854,664	\$ 3,942,780	\$ 4,033,099	\$ 4,125,684

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

Operating Expenditures - Customer Account	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 86,874	\$ 87,970	\$ 91,489	\$ 95,148	\$ 98,954	\$ 102,912	\$ 107,029	\$ 111,310	\$ 115,762	\$ 120,393
Meter Reading Expense	2	\$ 87,696	\$ 95,917	\$ 97,836	\$ 99,792	\$ 101,788	\$ 103,824	\$ 105,900	\$ 108,018	\$ 110,179	\$ 112,382
Customer Rec & Coll Exp	2	\$ 575,504	\$ 611,678	\$ 623,912	\$ 636,390	\$ 649,118	\$ 662,100	\$ 675,342	\$ 688,849	\$ 702,626	\$ 716,679
Information Systems Supplies	2	\$ 3,015	\$ 3,289	\$ 3,354	\$ 3,421	\$ 3,490	\$ 3,560	\$ 3,631	\$ 3,703	\$ 3,778	\$ 3,853
Uncollectible Accounts	1	\$ 19,183	\$ 15,986	\$ 16,133	\$ 16,279	\$ 16,426	\$ 16,572	\$ 16,719	\$ 16,865	\$ 17,012	\$ 17,158
Total: Customer Account		\$ 772,271	\$ 814,840	\$ 832,723	\$ 851,032	\$ 869,776	\$ 888,969	\$ 908,621	\$ 928,746	\$ 949,357	\$ 970,465

Operating Expenditures - Administrative & General	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Administrative & Gen Salaries	3	\$ 874,200	\$ 862,800	\$ 897,312	\$ 933,204	\$ 970,533	\$ 1,009,354	\$ 1,049,728	\$ 1,091,717	\$ 1,135,386	\$ 1,180,801
Office Supplies & Expense	2	\$ 212,700	\$ 223,500	\$ 227,970	\$ 232,529	\$ 237,180	\$ 241,924	\$ 246,762	\$ 251,697	\$ 256,731	\$ 261,866
Legal	2	\$ 51,000	\$ 54,000	\$ 55,080	\$ 56,182	\$ 57,305	\$ 58,451	\$ 59,620	\$ 60,813	\$ 62,029	\$ 63,270
Engineering	2	\$ 39,000	\$ 21,000	\$ 21,420	\$ 21,848	\$ 22,285	\$ 22,731	\$ 23,186	\$ 23,649	\$ 24,122	\$ 24,605
Auditing	2	\$ 31,500	\$ 28,500	\$ 29,070	\$ 29,651	\$ 30,244	\$ 30,849	\$ 31,466	\$ 32,096	\$ 32,738	\$ 33,392
Appraisals & Consultants	2	\$ 93,900	\$ 205,500	\$ 209,610	\$ 213,802	\$ 218,078	\$ 222,440	\$ 226,889	\$ 231,426	\$ 236,055	\$ 240,776
Insurance & Claims	2	\$ 175,500	\$ 165,000	\$ 168,300	\$ 171,666	\$ 175,099	\$ 178,601	\$ 182,173	\$ 185,817	\$ 189,533	\$ 193,324
Injuries & Safety	2	\$ 255,300	\$ 308,100	\$ 314,262	\$ 320,547	\$ 326,958	\$ 333,497	\$ 340,167	\$ 346,971	\$ 353,910	\$ 360,988
Pension	3	\$ 1,363,500	\$ 1,388,100	\$ 1,443,624	\$ 1,501,369	\$ 1,561,424	\$ 1,623,881	\$ 1,688,836	\$ 1,756,389	\$ 1,826,645	\$ 1,899,711
Health Care Benefits	3	\$ 1,167,000	\$ 1,199,400	\$ 1,247,376	\$ 1,297,271	\$ 1,349,162	\$ 1,403,128	\$ 1,459,253	\$ 1,517,624	\$ 1,578,329	\$ 1,641,462
OPEB Benefits	3	\$ 2,054,100	\$ 2,054,100	\$ 2,136,264	\$ 2,221,715	\$ 2,310,583	\$ 2,403,006	\$ 2,499,127	\$ 2,599,092	\$ 2,703,055	\$ 2,811,178
Other Employee Benefits	3	\$ 464,100	\$ 402,000	\$ 418,080	\$ 434,803	\$ 452,195	\$ 470,283	\$ 489,094	\$ 508,658	\$ 529,005	\$ 550,165
Payroll Taxes - FICA	3	\$ 448,500	\$ 450,600	\$ 468,624	\$ 487,369	\$ 506,864	\$ 527,138	\$ 548,224	\$ 570,153	\$ 592,959	\$ 616,677
Unemployment Insurance	3	\$ 3,000	\$ 3,000	\$ 3,120	\$ 3,245	\$ 3,375	\$ 3,510	\$ 3,650	\$ 3,796	\$ 3,948	\$ 4,106
Vacation Pay	3	\$ 699,000	\$ 654,000	\$ 680,160	\$ 707,366	\$ 735,661	\$ 765,087	\$ 795,691	\$ 827,519	\$ 860,619	\$ 895,044
Maintenance - Operations Center	2	\$ 222,900	\$ 235,500	\$ 240,210	\$ 245,014	\$ 249,914	\$ 254,913	\$ 260,011	\$ 265,211	\$ 270,515	\$ 275,926
Maintenance - Solar Facilities	2	\$ 8,700	\$ 4,500	\$ 4,590	\$ 4,682	\$ 4,775	\$ 4,871	\$ 4,968	\$ 5,068	\$ 5,169	\$ 5,272
Information Systems	2	\$ 272,100	\$ 321,000	\$ 327,420	\$ 333,968	\$ 340,648	\$ 347,461	\$ 354,410	\$ 361,498	\$ 368,728	\$ 376,103
Maintenance - Office Equipment	2	\$ 16,200	\$ 6,300	\$ 6,426	\$ 6,555	\$ 6,686	\$ 6,819	\$ 6,956	\$ 7,095	\$ 7,237	\$ 7,381
Maintenance - Information Systems Equipment	2	\$ 123,900	\$ 126,000	\$ 128,520	\$ 131,090	\$ 133,712	\$ 136,386	\$ 139,114	\$ 141,896	\$ 144,734	\$ 147,629
Maintenance - Telemetry Equipment	2	\$ 24,000	\$ 18,000	\$ 18,360	\$ 18,727	\$ 19,102	\$ 19,484	\$ 19,873	\$ 20,271	\$ 20,676	\$ 21,090
Maintenance - Communications Equipment	2	\$ 9,900	\$ 8,400	\$ 8,568	\$ 8,739	\$ 8,914	\$ 9,092	\$ 9,274	\$ 9,460	\$ 9,649	\$ 9,842
Supervision & Engineering	3	\$ 156,000	\$ 160,500	\$ 166,920	\$ 173,597	\$ 180,541	\$ 187,762	\$ 195,273	\$ 203,084	\$ 211,207	\$ 219,655
Storeroom Expense	2	\$ 60,000	\$ 57,000	\$ 58,140	\$ 59,303	\$ 60,489	\$ 61,699	\$ 62,933	\$ 64,191	\$ 65,475	\$ 66,785
Transportation	5	\$ 314,100	\$ 306,000	\$ 318,240	\$ 330,970	\$ 344,208	\$ 357,977	\$ 372,296	\$ 387,188	\$ 402,675	\$ 418,782
Tools & Work Equipment Expense	2	\$ 75,000	\$ 78,000	\$ 79,560	\$ 81,151	\$ 82,774	\$ 84,430	\$ 86,118	\$ 87,841	\$ 89,597	\$ 91,389
Heavy Equipment Maintenance	2	\$ 600	\$ 5,700	\$ 5,814	\$ 5,930	\$ 6,049	\$ 6,170	\$ 6,293	\$ 6,419	\$ 6,548	\$ 6,678
Director's Fees	2	\$ 54,000	\$ 55,500	\$ 56,610	\$ 57,742	\$ 58,897	\$ 60,075	\$ 61,276	\$ 62,502	\$ 63,752	\$ 65,027
Public Information	2	\$ 120,900	\$ 175,700	\$ 179,214	\$ 182,798	\$ 186,454	\$ 190,183	\$ 193,987	\$ 197,867	\$ 201,824	\$ 205,861
Water Conservation	2	\$ 144,900	\$ 176,500	\$ 180,030	\$ 183,631	\$ 187,303	\$ 191,049	\$ 194,870	\$ 198,768	\$ 202,743	\$ 206,798
Water Conservation - Turf Buy Back	2	\$ 1,066,800	\$ 564,000	\$ 575,280	\$ 586,786	\$ 598,521	\$ 610,492	\$ 622,702	\$ 635,156	\$ 647,859	\$ 660,816
Total: Administrative & General		\$ 10,602,300	\$ 10,318,200	\$ 10,674,174	\$ 11,043,252	\$ 11,425,935	\$ 11,822,745	\$ 12,234,222	\$ 12,660,930	\$ 13,103,453	\$ 13,562,399

DESERT WATER AGENCY

**Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses**

Operating Expenditures - Regulatory	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Certificates/Training/School	2	\$ 15,600	\$ 29,400	\$ 29,988	\$ 30,588	\$ 31,200	\$ 31,824	\$ 32,460	\$ 33,109	\$ 33,771	\$ 34,447
Health Department/Services	2	\$ 46,800	\$ 44,000	\$ 44,880	\$ 45,778	\$ 46,693	\$ 47,627	\$ 48,580	\$ 49,551	\$ 50,542	\$ 51,553
State - Regulatory	2	\$ 27,000	\$ 30,000	\$ 30,600	\$ 31,212	\$ 31,836	\$ 32,473	\$ 33,122	\$ 33,785	\$ 34,461	\$ 35,150
Federal - Regulatory	2	\$ 15,000	\$ 6,000	\$ 6,120	\$ 6,242	\$ 6,367	\$ 6,495	\$ 6,624	\$ 6,757	\$ 6,892	\$ 7,030
Reclamation - Regulatory	2	\$ 69,000	\$ 60,000	\$ 61,200	\$ 62,424	\$ 63,672	\$ 64,946	\$ 66,245	\$ 67,570	\$ 68,921	\$ 70,300
AQMD Compliance	2	\$ 1,800	\$ 900	\$ 918	\$ 936	\$ 955	\$ 974	\$ 994	\$ 1,014	\$ 1,034	\$ 1,054
RMP/OSHA/Misc.	2	\$ 34,200	\$ 33,000	\$ 33,660	\$ 34,333	\$ 35,020	\$ 35,720	\$ 36,435	\$ 37,163	\$ 37,907	\$ 38,665
Legal	2	\$ 900	\$ 600	\$ 612	\$ 624	\$ 637	\$ 649	\$ 662	\$ 676	\$ 689	\$ 703
Total: Regulatory		\$ 210,300	\$ 203,900	\$ 207,978	\$ 212,138	\$ 216,380	\$ 220,708	\$ 225,122	\$ 229,625	\$ 234,217	\$ 238,901

Operating Expenditures - Snow Creek Hydro	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Snow Creek Hydro	2	\$ 40,200	\$ 40,800	\$ 41,616	\$ 42,448	\$ 43,297	\$ 44,163	\$ 45,046	\$ 45,947	\$ 46,866	\$ 47,804
Total: Snow Creek Hydro		\$ 40,200	\$ 40,800	\$ 41,616	\$ 42,448	\$ 43,297	\$ 44,163	\$ 45,046	\$ 45,947	\$ 46,866	\$ 47,804

Operating Expenditures - Reclamation Plant (Full Cost) ¹	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Pumping Expense	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Treatment Expense	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transportation/Distribution	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Administrative & General	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Reclamation Plant		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Expenditures - Other	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Depreciation (Including Reclamation)	Ref below	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Services Rendered Customers	2	\$ 138,000	\$ 166,200	\$ 169,524	\$ 172,914	\$ 176,373	\$ 179,900	\$ 183,498	\$ 187,168	\$ 190,912	\$ 194,730
Dir Costs App to W.O.'s	2	\$ 625,200	\$ 675,000	\$ 688,500	\$ 702,270	\$ 716,315	\$ 730,642	\$ 745,255	\$ 760,160	\$ 775,363	\$ 790,870
Indirect Admin & General Expense Cap	2	\$ (1,488,000)	\$ (1,548,000)	\$ (1,578,960)	\$ (1,610,539)	\$ (1,642,750)	\$ (1,675,605)	\$ (1,709,117)	\$ (1,743,299)	\$ (1,778,165)	\$ (1,813,729)
Total: Other		\$ (724,800)	\$ (706,800)	\$ (720,936)	\$ (735,355)	\$ (750,062)	\$ (765,063)	\$ (780,364)	\$ (795,972)	\$ (811,891)	\$ (828,129)

Non-Operating Expenditures	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
OPEB Interest	3	\$ 303,900	\$ 303,900	\$ 316,056	\$ 328,698	\$ 341,846	\$ 355,520	\$ 369,741	\$ 384,530	\$ 399,912	\$ 415,908
Expense Applied to Prior Years	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Services to Others	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Losses on Retirements	8	\$ 16,500	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 45,000
Total: Non-Operating Expenditures		\$ 320,400	\$ 348,900	\$ 361,056	\$ 373,698	\$ 386,846	\$ 400,520	\$ 414,741	\$ 429,530	\$ 444,912	\$ 460,908

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

GENERAL FUND:

Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Groundwater Replenishment Assessment	Ref Ex 1B	\$ 4,824,600	\$ 4,351,300	\$ 5,148,895	\$ 5,629,302	\$ 6,071,312	\$ 6,675,900	\$ 6,756,327	\$ 6,746,894	\$ 6,693,302	\$ 6,660,192
Power Sales - Whitewater Hydro (8)	8	\$ 2,100	\$ 24,000	\$ 66,000	\$ 66,000	\$ 66,000	\$ 66,000	\$ 66,000	\$ 66,000	\$ 66,000	\$ 66,000
Total: Operating Revenues		\$ 4,826,700	\$ 4,375,300	\$ 5,214,895	\$ 5,695,302	\$ 6,137,312	\$ 6,741,900	\$ 6,822,327	\$ 6,812,894	\$ 6,759,302	\$ 6,726,192

Non-Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Property Taxes (9)	2	\$ 17,025,000	\$ 21,118,200	\$ 21,540,564	\$ 21,971,375	\$ 22,410,803	\$ 22,859,019	\$ 23,316,199	\$ 23,782,523	\$ 24,258,174	\$ 24,743,337
Interest - Invested Reserves	Ref to FP	\$ 924,000	\$ 1,150,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest - Wastewater Fund	Ref to FP	\$ 4,950	\$ 3,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest - CPV Energy Project	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Supplemental Imported Water Fees	Ref Ex 1A	\$ 300,000	\$ 336,000	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250	\$ 472,250
Gains/Loss Investments	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Non-Operating Revenues		\$ 18,253,950	\$ 22,608,400	\$ 22,012,814	\$ 22,443,626	\$ 22,883,053	\$ 23,331,269	\$ 23,788,449	\$ 24,254,773	\$ 24,730,424	\$ 25,215,587

Operating Expenditures - Source of Supply	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Watershed Management - West Fork	2	\$ 1,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Whitewater Basin Management	2	\$ 250,000	\$ 250,000	\$ 255,000	\$ 260,100	\$ 265,302	\$ 270,608	\$ 276,020	\$ 281,541	\$ 287,171	\$ 292,915
Mission Creek Basin Management	2	\$ 60,000	\$ 60,000	\$ 61,200	\$ 62,424	\$ 63,672	\$ 64,946	\$ 66,245	\$ 67,570	\$ 68,921	\$ 70,300
Mission Creek-Garnett Hill Mgmt. Plan	2	\$ 90,000	\$ 21,000	\$ 21,420	\$ 21,848	\$ 22,285	\$ 22,731	\$ 23,186	\$ 23,649	\$ 24,122	\$ 24,605
U.S.G.S. Water Quality Monitoring Program	2	\$ 6,000	\$ 6,300	\$ 6,426	\$ 6,555	\$ 6,686	\$ 6,819	\$ 6,956	\$ 7,095	\$ 7,237	\$ 7,381
U.S.G.S. Stream Gauging Study	2	\$ 53,700	\$ 82,200	\$ 83,844	\$ 85,521	\$ 87,231	\$ 88,976	\$ 90,755	\$ 92,571	\$ 94,422	\$ 96,310
Monitoring Wells	2	\$ 1,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #6 Monitoring	2	\$ 600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Salt Nutrient Plan	2	\$ 244,000	\$ 90,000	\$ 91,800	\$ 93,636	\$ 95,509	\$ 97,419	\$ 99,367	\$ 101,355	\$ 103,382	\$ 105,449
Groundwater Rights DWA/CVWD	2	\$ 540,000	\$ 330,000	\$ 336,600	\$ 343,332	\$ 350,199	\$ 357,203	\$ 364,347	\$ 371,634	\$ 379,066	\$ 386,648
MWD Area Of Origin Lawsuit	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
USDOL Federal Rule Litigation	2	\$ 225,000	\$ 175,200	\$ 178,704	\$ 182,278	\$ 185,924	\$ 189,642	\$ 193,435	\$ 197,304	\$ 201,250	\$ 205,275
Total: Source of Supply		\$ 1,472,000	\$ 1,014,700	\$ 1,034,994	\$ 1,055,694	\$ 1,076,808	\$ 1,098,344	\$ 1,120,311	\$ 1,142,717	\$ 1,165,571	\$ 1,188,883

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

Operating Expenditures - State Water Project	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Operating & Maintenance Costs:											
Delta O.M.P. & R.	Ref Ex 1C	\$ 2,206,800	\$ 2,801,300								
Transportation O.M.P.& R.	Ref Ex 1C	\$ 5,677,200	\$ 5,172,600								
Variable	Ref Ex 1C	\$ 5,961,900	\$ 5,822,950								
Off-Aqueduct Power Facilities	Ref Ex 1C	\$ 368,250	\$ 365,200								
East Branch Enlargement	Ref Ex 1C	\$ 323,850	\$ 291,800	\$ 18,131,945	\$ 17,406,452	\$ 17,408,316	\$ 17,678,975	\$ 17,626,889	\$ 17,670,444	\$ 17,539,837	\$ 17,676,826
Replacement Component	Ref Ex 1C	\$ 18,000	\$ 18,000								
Water Purchases	Ref Ex 1C	\$ -	\$ -								
Lake Perris Seepage Recovery Project	Ref Ex 1C	\$ -	\$ 17,700								
CVWD Reimb (Delta, Var, OAP)	Ref Ex 1C	\$ (1,115,600)	\$ (1,059,250)								
MWD Reimb (Delta, Trans, Var, OAP)	Ref Ex 1C	\$ -	\$ -								
Capital Costs:											
SWP Capital Expenditures ²	Ref Ex 1C	\$ 6,317,475	\$ 6,939,700	\$ 6,260,031	\$ 7,144,651	\$ 5,838,689	\$ 4,895,896	\$ 4,681,891	\$ 4,543,948	\$ 4,365,528	\$ 4,172,362
Total: State Water Project		\$ 19,757,875	\$ 20,370,000	\$ 24,391,976	\$ 24,551,103	\$ 23,247,005	\$ 22,574,871	\$ 22,308,780	\$ 22,214,392	\$ 21,905,365	\$ 21,849,188

Operating Expenditures - Whitewater Hydro	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Labor	3	\$ 5,100	\$ 6,900	\$ 7,176	\$ 7,463	\$ 7,762	\$ 8,072	\$ 8,395	\$ 8,731	\$ 9,080	\$ 9,443
Miscellaneous/SCE	2	\$ 7,500	\$ 8,100	\$ 8,262	\$ 8,427	\$ 8,596	\$ 8,768	\$ 8,943	\$ 9,122	\$ 9,304	\$ 9,490
Tools & Work Equipment	2	\$ 4,500	\$ 4,800	\$ 4,896	\$ 4,994	\$ 5,094	\$ 5,196	\$ 5,300	\$ 5,406	\$ 5,514	\$ 5,624
Maintenance Structures & Improvements	2	\$ 12,000	\$ 12,600	\$ 12,852	\$ 13,109	\$ 13,371	\$ 13,639	\$ 13,911	\$ 14,190	\$ 14,473	\$ 14,763
Maintenance of Equipment	2	\$ 15,000	\$ 15,300	\$ 15,606	\$ 15,918	\$ 16,236	\$ 16,561	\$ 16,892	\$ 17,230	\$ 17,575	\$ 17,926
Whitewater Hydro Contract Management	2	\$ -	\$ 21,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Whitewater Hydro		\$ 44,100	\$ 69,300	\$ 48,792	\$ 49,911	\$ 51,059	\$ 52,235	\$ 53,441	\$ 54,678	\$ 55,946	\$ 57,247

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

Operating Expenditures - Administrative & General	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Salaries	3	\$ 336,000	\$ 354,600	\$ 368,784	\$ 383,535	\$ 398,877	\$ 414,832	\$ 431,425	\$ 448,682	\$ 466,629	\$ 485,295
Office Supplies & Expense	2	\$ 14,400	\$ 15,000	\$ 15,300	\$ 15,606	\$ 15,918	\$ 16,236	\$ 16,561	\$ 16,892	\$ 17,230	\$ 17,575
Legal	2	\$ 96,000	\$ 93,000	\$ 94,860	\$ 96,757	\$ 98,692	\$ 100,666	\$ 102,680	\$ 104,733	\$ 106,828	\$ 108,964
State Water - Audit Fees	2	\$ 15,900	\$ 16,500	\$ 16,830	\$ 17,167	\$ 17,510	\$ 17,860	\$ 18,217	\$ 18,582	\$ 18,953	\$ 19,332
Engineering	2	\$ 60,000	\$ 69,000	\$ 70,380	\$ 71,788	\$ 73,223	\$ 74,688	\$ 76,182	\$ 77,705	\$ 79,259	\$ 80,844
Appraisals & Consultants	2	\$ 330,000	\$ 255,000	\$ 260,100	\$ 265,302	\$ 270,608	\$ 276,020	\$ 281,541	\$ 287,171	\$ 292,915	\$ 298,773
Auditing	2	\$ 11,100	\$ 9,900	\$ 10,098	\$ 10,300	\$ 10,506	\$ 10,716	\$ 10,930	\$ 11,149	\$ 11,372	\$ 11,599
Conferences & Seminars	2	\$ 60,000	\$ 63,000	\$ 64,260	\$ 65,545	\$ 66,856	\$ 68,193	\$ 69,557	\$ 70,948	\$ 72,367	\$ 73,815
Membership Dues & Subscriptions	2	\$ 78,100	\$ 81,700	\$ 83,334	\$ 85,001	\$ 86,701	\$ 88,435	\$ 90,203	\$ 92,007	\$ 93,848	\$ 95,725
Bay-Delta Hearings	2	\$ 55,800	\$ 65,025	\$ 66,326	\$ 67,652	\$ 69,005	\$ 70,385	\$ 71,793	\$ 73,229	\$ 74,693	\$ 76,187
SWC Energy Fund	2	\$ 6,000	\$ 8,500	\$ 8,670	\$ 8,843	\$ 9,020	\$ 9,201	\$ 9,385	\$ 9,572	\$ 9,764	\$ 9,959
Transportation	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Utilities	6	\$ 19,500	\$ 21,000	\$ 22,260	\$ 23,596	\$ 25,011	\$ 26,512	\$ 28,103	\$ 29,789	\$ 31,576	\$ 33,471
Property & Liability Insurance	2	\$ 51,000	\$ 48,000	\$ 48,960	\$ 49,939	\$ 50,938	\$ 51,957	\$ 52,996	\$ 54,056	\$ 55,137	\$ 56,240
Other Employee Benefits	2	\$ 171,000	\$ 184,800	\$ 188,496	\$ 192,266	\$ 196,111	\$ 200,033	\$ 204,034	\$ 208,115	\$ 212,277	\$ 216,523
Payroll Taxes	2	\$ 30,000	\$ 30,300	\$ 30,906	\$ 31,524	\$ 32,155	\$ 32,798	\$ 33,454	\$ 34,123	\$ 34,805	\$ 35,501
Uncollectible Accounts	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LAFCO Expenses	2	\$ 9,600	\$ 10,500	\$ 10,710	\$ 10,924	\$ 11,143	\$ 11,366	\$ 11,593	\$ 11,825	\$ 12,061	\$ 12,302
Integrated Regional Water Mgmt. Plan	2	\$ 51,000	\$ 36,000	\$ 36,720	\$ 37,454	\$ 38,203	\$ 38,968	\$ 39,747	\$ 40,542	\$ 41,353	\$ 42,180
IRWMP Conservation Program	2	\$ 51,900	\$ 15,000	\$ 15,300	\$ 15,606	\$ 15,918	\$ 16,236	\$ 16,561	\$ 16,892	\$ 17,230	\$ 17,575
Operations Center Maintenance	2	\$ 75,000	\$ 81,000	\$ 82,620	\$ 84,272	\$ 85,958	\$ 87,677	\$ 89,431	\$ 91,219	\$ 93,044	\$ 94,904
Operations Center Security	2	\$ 1,500	\$ 6,000	\$ 6,120	\$ 6,242	\$ 6,367	\$ 6,495	\$ 6,624	\$ 6,757	\$ 6,892	\$ 7,030
Director's Fees	2	\$ 54,000	\$ 55,500	\$ 56,610	\$ 57,742	\$ 58,897	\$ 60,075	\$ 61,276	\$ 62,502	\$ 63,752	\$ 65,027
Public Information	2	\$ 120,900	\$ 171,600	\$ 175,032	\$ 178,533	\$ 182,103	\$ 185,745	\$ 189,460	\$ 193,249	\$ 197,114	\$ 201,057
Water Conservation	2	\$ 144,900	\$ 157,500	\$ 160,650	\$ 163,863	\$ 167,140	\$ 170,483	\$ 173,893	\$ 177,371	\$ 180,918	\$ 184,536
Election Expense	2	\$ 114,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Administrative & General		\$ 1,957,600	\$ 1,848,425	\$ 1,893,326	\$ 1,939,458	\$ 1,986,862	\$ 2,035,577	\$ 2,085,646	\$ 2,137,111	\$ 2,190,019	\$ 2,244,415

Operating Expenditures - Other	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Depreciation	Ref below	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Direct/Indirect Costs	2	\$ (9,000)	\$ (14,100)	\$ (14,382)	\$ (14,670)	\$ (14,963)	\$ (15,262)	\$ (15,568)	\$ (15,879)	\$ (16,196)	\$ (16,520)
Total: Other		\$ (9,000)	\$ (14,100)	\$ (14,382)	\$ (14,670)	\$ (14,963)	\$ (15,262)	\$ (15,568)	\$ (15,879)	\$ (16,196)	\$ (16,520)

Non-Operating Expenditures	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Prior Year - State Water Project	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prior Year Expenses	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Non-Operating Expenses		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Operating Revenues and Expenses

EXHIBIT 1.E

ALL FUNDS:

Summary of Revenues and Expenditures	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues:										
Water Sales	\$ 19,200,000	\$ 20,088,000	\$ 20,272,093	\$ 20,456,185	\$ 20,640,278	\$ 20,824,370	\$ 21,008,463	\$ 21,192,555	\$ 21,376,648	\$ 21,560,740
Fire Protection	138,000	139,500	140,778	142,057	143,335	144,614	145,892	147,171	148,449	149,727
Property Tax Revenue	17,025,000	21,118,200	21,540,564	21,971,375	22,410,803	22,859,019	23,316,199	23,782,523	24,258,174	24,743,337
Backup Facility Charges	510,000	528,000	986,478	986,478	986,478	986,478	986,478	986,478	986,478	986,478
Supplemental Imported Water Fees	300,000	336,000	472,250	472,250	472,250	472,250	472,250	472,250	472,250	472,250
All Other Revenues Included in this Module	8,172,150	7,115,650	6,185,257	6,672,414	7,121,173	7,732,511	7,819,687	7,817,004	7,770,161	7,743,801
Total Revenue	\$ 45,345,150	\$ 49,325,350	\$ 49,597,421	\$ 50,700,760	\$ 51,774,318	\$ 53,019,242	\$ 53,748,970	\$ 54,397,981	\$ 55,012,160	\$ 55,656,334
Expenditures:										
State Water Project Expenditures	\$ 19,757,875	\$ 20,370,000	\$ 24,391,976	\$ 24,551,103	\$ 23,247,005	\$ 22,574,871	\$ 22,308,780	\$ 22,214,392	\$ 21,905,365	\$ 21,849,188
All Other Operating Expenditures Included in this Module	25,116,871	24,655,065	25,930,781	27,026,443	28,121,789	29,369,044	30,253,619	31,103,140	31,953,374	32,854,385
Total Expenditures	\$ 44,874,746	\$ 45,025,065	\$ 50,322,757	\$ 51,577,546	\$ 51,368,794	\$ 51,943,915	\$ 52,562,399	\$ 53,317,532	\$ 53,858,739	\$ 54,703,573

DEPRECIATION EXPENSE FORECAST:

Depreciation Expense	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Existing Depreciation Expense - Operating Fund	\$ 4,957,318	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947	\$ 4,812,947
Existing Depreciation Expense - General Fund	\$ 4,998,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000	\$ 5,154,000
Existing Depreciation Expense - Wastewater Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Forecasted Additions to the Depreciation Expense	\$ 301,347	\$ 202,387	\$ 244,842	\$ 260,330	\$ 337,743	\$ 299,903	\$ 226,614	\$ 349,049	\$ 312,161	\$ 542,298
Total: Annual Depreciation Expense	\$ 10,256,664	\$ 10,169,335	\$ 10,211,789	\$ 10,227,277	\$ 10,304,690	\$ 10,266,850	\$ 10,193,562	\$ 10,315,996	\$ 10,279,108	\$ 10,509,246

- (1) Customer growth rate is based on discussion with DWA Staff and DWA's 2008 Water System General Plan and is estimated at 210 new connections per year.
- (2) General cost inflation is based on the 5-year average annual change in the Consumer Price Index for all Urban Consumers in the Los Angeles-Riverside-Orange County, CA area.
- (3) Labor cost inflation is based on the 5-year average annual change in the Quarterly Census of Employment and Wages (Riverside County, CA).
- (4) Energy cost inflation is based on the following report from UC Davis: "The Future of Electricity Prices in California: Understanding Market Drivers and Forecasting Prices to 2040," by Johnathan Cook, Ph.D., page 31, table 7.
- (5) Transportation cost inflation is based on the 5-year average annual change in the Consumer Price Index for All Urban Consumers, for Transportation Costs (US City Average).
- (6) Utilities cost inflation is based on the 5-year average annual change in the Consumer Price Index - Average Price Data for Fuels and related products and power. This factor is used for utility costs other than electricity.
- (7) Construction cost Inflation is the 10 year average change in the Construction Cost Index for 2000-2015. Source: Engineering News Record website (<http://enr.construction.com>).
- (8) Due to a new power contract revenue is expected to increase 175% in FY 2017/18 (source: conference call 8.4.16)
- (9) Inflation due to property value increases and expected turnover (source: conference call 8.4.16)

Potable Water Utility Debt Service

EXISTING DEBT OBLIGATIONS	Budget		Projected							
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Annual Repayment Schedules:										
Water COP Bonds - 2007 A - \$26,860,000 (1)										
Principal Payment (2)	\$ 605,000	\$ 630,000	\$ 655,000	\$ 680,000	\$ 710,000	\$ 740,000	\$ 770,000	\$ 810,000	\$ 845,000	\$ 885,000
Interest Payment	\$ 1,040,980	\$ 1,016,780	\$ 991,580	\$ 965,380	\$ 937,500	\$ 906,438	\$ 873,138	\$ 837,525	\$ 799,050	\$ 758,913
Subtotal: Annual Debt Service	\$ 1,645,980	\$ 1,646,780	\$ 1,646,580	\$ 1,645,380	\$ 1,647,500	\$ 1,646,438	\$ 1,643,138	\$ 1,647,525	\$ 1,644,050	\$ 1,643,913
Coverage Requirement (\$-Amnt above annual payment)	\$ 1,892,877	\$ 1,893,797	\$ 1,893,567	\$ 1,892,187	\$ 1,894,625	\$ 1,893,403	\$ 1,889,608	\$ 1,894,654	\$ 1,890,658	\$ 1,890,499
Reserve Requirement (total fund balance) (4)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Issue:										
Principal Payment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Payment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal: Annual Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Coverage Requirement (\$-Amnt above annual payment)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reserve Requirement (total fund balance)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total: Existing Annual Debt Service	\$ 1,645,980	\$ 1,646,780	\$ 1,646,580	\$ 1,645,380	\$ 1,647,500	\$ 1,646,438	\$ 1,643,138	\$ 1,647,525	\$ 1,644,050	\$ 1,643,913
Grand Total: Existing Annual Coverage Req't.	\$ 1,892,877	\$ 1,893,797	\$ 1,893,567	\$ 1,892,187	\$ 1,894,625	\$ 1,893,403	\$ 1,889,608	\$ 1,894,654	\$ 1,890,658	\$ 1,890,499
Grand Total: Existing Debt Reserve Target	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

- 2007 A Bonds - Official Statement describes the bond was used primarily to fund the Water System Improvement Project; source file: *DESERT WATER AGENCY 2007 COPS - OFFICIAL STATEMENT.doc, page 1.*
- 2007 A Bonds - debt schedule source file: 9. *Bond Cashflows 11-28-07 (2).pdf, pg. 2.*
- The City must have net revenues that are at least equal to 1.15 times the annual debt service payment; source file: *DESERT WATER AGENCY 2007 COPS - OFFICIAL STATEMENT.doc, pg. 9.*
- Per DWA Staff, the Agency is in the process of refunding its outstanding 2007 COP's, and as a condition of the refunding, a bond reserve fund is no longer needed.

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

FORECASTING ASSUMPTIONS:

Economic Variables	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Construction Cost Inflation (Annual) (1)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Construction Cost Inflation (Annual from 2016)	0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Cumulative Construction Cost Multiplier from 2016	1.00	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30
Cumulative Construction Cost Multiplier from 2008 (for General Plan Proj)	1.24	1.28	1.32	1.35	1.40	1.44	1.48	1.53	1.57	1.62

1. Annual Construction Cost Inflation percentage is the 10 year average change in the Construction Cost Index for 2000-2015. Source: Engineering News Record website (<http://enr.construction.com>).

CAPITAL PROJECTS AND ACQUISITIONS:

Pipelines - Routine	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Contingency Mains	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Main Replacements (12" Indian Canyon - Tahquitz/Alejo/Stevens)	\$ 1,200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency Mains	\$ -	\$ 103,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Main Replacements	\$ -	\$ 3,473,778	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Placeholder for Future Pipeline Projects (1)	\$ -	\$ -	\$ 3,394,880	\$ 4,228,853	\$ 4,355,719	\$ 4,486,391	\$ 4,620,982	\$ 4,759,612	\$ 4,902,400	\$ 5,049,472
Total: Pipelines	\$ 1,300,000	\$ 3,576,778	\$ 3,394,880	\$ 4,228,853	\$ 4,355,719	\$ 4,486,391	\$ 4,620,982	\$ 4,759,612	\$ 4,902,400	\$ 5,049,472

Transportation Equipment - Routine	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Ford F250 Service Body Truck (Operations)	\$ 45,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F450 Service Body Trucks (Replace Units #3, 5 & 7)	\$ 203,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Arrow Board Trailer	\$ 8,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Jeep Wranglers 4x4 Sport (Replace Unit #7)	\$ -	\$ 38,110	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ford F350 Service Body Truck (Replace Unit #22)	\$ -	\$ 50,470	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ford F350 Service Body Truck (Replace Unit #34)	\$ -	\$ 50,470	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Jeep Wranglers 4x4 Sport (Replace Unit #35)	\$ -	\$ 38,110	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Confined Space Rescue Trailer	\$ -	\$ 118,708	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
[other]	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Placeholder for Future Transportation Equipment (1)	\$ -	\$ -	\$ 227,817	\$ 234,651	\$ 241,691	\$ 248,941	\$ 256,410	\$ 264,102	\$ 272,025	\$ 280,186
Total: Transportation Equipment	\$ 256,800	\$ 295,868	\$ 227,817	\$ 234,651	\$ 241,691	\$ 248,941	\$ 256,410	\$ 264,102	\$ 272,025	\$ 280,186

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

Miscellaneous - Routine	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1" Service Replacements	\$ 276,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Service Replacements	\$ 48,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Influent Motor Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Composite Sampler Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Air Compressor Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #20 - Electrical Panel Equipment	\$ 34,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #23 - Electrical Panel Equipment	\$ 71,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #36 - Chlorine Building	\$ 34,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operations Center Equipment - Roof Ladder System	\$ 4,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
I/S Department - Blinds/Window Tinting	\$ 5,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
I-Series Server Upgrade	\$ 17,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
I-Series Server - Storage Upgrade	\$ 20,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wireless Network Upgrade - Snow Creek	\$ 23,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CVAG Imagery Software (Engineering)	\$ 17,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Invoiced Services	\$ 60,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Invoiced Services	\$ 45,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Radio Read Meter Purchases	\$ 36,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Radio Read Meter Purchases	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 1/2" Radio Read Meter Purchases	\$ 6,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3/4" Radio Read Meter Purchases	\$ 63,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Meter Purchases	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Meter Purchases	\$ 48,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3" Meter Purchases	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6" Meter Purchases	\$ 3,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 1/2" Meter Purchases	\$ 45,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3/4" Meter Purchases	\$ 132,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency - Other	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Service Replacements	\$ -	\$ 278,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Service Replacements	\$ -	\$ 46,350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land Purchase - Sunrise/Mesquite	\$ -	\$ 573,813	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Control Valve City West Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Filter Spray Wash Arm (Upgrade)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant Equipment - Chlorine Gas Detector (Upgrade)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #30 - Control Valve	\$ -	\$ 16,995	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #38 - Control Valve	\$ -	\$ 16,995	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #27 - Switch Gear & MCC	\$ -	\$ 59,508	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #28 - Switch Gear	\$ -	\$ 56,418	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #30 - Switch Gear	\$ -	\$ 40,376	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #31 - Switch Gear	\$ -	\$ 41,741	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino Booster - Main Switch Gear	\$ -	\$ 41,741	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #31 - Chlorine Injection	\$ -	\$ 37,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #40 - Chlorine Injection	\$ -	\$ 37,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SGRW Pipe Chlorine Injection: Pad/Bldg.	\$ -	\$ 26,420	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Vista/Miller - Fence Replacement	\$ -	\$ 22,866	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well #27 - Fence Replacement	\$ -	\$ 31,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Plant - Fence @ Crossley Rd. Access	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Carpet - AGM/HR/Board Conf./Mail Room/Entrance Hallways/Breakro	\$ -	\$ 17,819	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operations Center - Break Room A/V Project	\$ -	\$ 5,459	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Vacuum Regulator Upgrade	\$ -	\$ 20,858	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GPS Potholing Equipment	\$ -	\$ 17,768	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2 - Multi QIIP Rammers	\$ -	\$ 9,476	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 - RF Line Tracer w/Cable Clamp	\$ -	\$ 4,635	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

Miscellaneous - Routine, continued	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Plotter/Scanner - Engineering Dept.	\$ -	\$ 13,030	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Computer Upgrades (7) - Engineering Dept.	\$ -	\$ 45,603	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Invoiced Services	\$ -	\$ 46,350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Invoiced Services	\$ -	\$ 33,990	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Radio Read Meter Purchases	\$ -	\$ 77,250	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Radio Read Meter Purchases	\$ -	\$ 6,180	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 1/2" Radio Read Meter Purchases	\$ -	\$ 6,180	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3/4" Radio Read Meter Purchases	\$ -	\$ 49,440	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1" Meter Purchases	\$ -	\$ 67,980	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2" Meter Purchases	\$ -	\$ 49,440	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3" Meter Purchases	\$ -	\$ 6,489	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6" Meter Purchases	\$ -	\$ 4,017	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 1/2" Meter Purchases	\$ -	\$ 37,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3/4" Meter Purchases	\$ -	\$ 154,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency - Other	\$ -	\$ 154,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Collection System Projects:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lift Station - Spare Chopper Pump	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Generator @ CC Lift Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Future Wastewater Collection System Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other General Fund Capital Projects:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lake Perris Seepage Recovery Project	\$ -	\$ 87,936	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sites Reservoir Project	\$ -	\$ 432,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Op. Cntr - Carpet Replacement (Phase II)	\$ -	\$ 8,755	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Op. Cntr - Roof Ladder System	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Op. Cntr - Breakroom A/V Project	\$ -	\$ 2,678	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Whitewater Hydro - Relay Switches	\$ -	\$ 30,900	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency	\$ 50,000	\$ 51,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Placeholder for Future Miscellaneous Water Projects (1)	\$ -	\$ -	\$ 1,495,239	\$ 1,540,096	\$ 1,586,299	\$ 1,633,888	\$ 1,682,904	\$ 1,733,392	\$ 1,785,393	\$ 1,838,955
Total: Miscellaneous Projects	\$ 1,282,400	\$ 2,770,597	\$ 1,495,239	\$ 1,540,096	\$ 1,586,299	\$ 1,633,888	\$ 1,682,904	\$ 1,733,392	\$ 1,785,393	\$ 1,838,955

General Plan Projects	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Main Oversizing	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Zone 1040 - Booster (Desert Palisades)	\$ 950,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Placeholder for Future General Plan Projects (1)	\$ -	\$ -	\$ 557,127	\$ 573,841	\$ 591,056	\$ 608,788	\$ 627,052	\$ 645,863	\$ 665,239	\$ 685,196
Total: General Plan Projects	\$ 1,050,000	\$ 103,000	\$ 557,127	\$ 573,841	\$ 591,056	\$ 608,788	\$ 627,052	\$ 645,863	\$ 665,239	\$ 685,196

1. Placeholder for future projects is per DWA Staff Estimates (file: CIP List.pdf), assuming projects start in 2017, not 2018.

UN-PROGRAMMED GENERAL PLAN PROJECTS:

Stream Water Disinfection and Filtration Facilities	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Snow Creek and Falls Creek UV Disinfection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino Creek West UV Disinfection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Placeholder for Future Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Stream Water Disinfection and Filtration Facilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Well Pumping Facilities (Normal Operation)	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<u>Chino East Well Field</u>										
Well Plant 42	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 1	\$ -	\$ -	\$ -	\$ -	2,093,446	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 2	\$ -	\$ -	\$ -	\$ -	\$ -	2,156,250	\$ -	\$ -	\$ -	\$ -
Well Plant 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collection Piping 1	\$ -	\$ -	52,621	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Springs North Well Field</u>										
Well Plant 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2,287,565	\$ -	\$ -
Collection Piping 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	164,933	\$ -
<u>Palm Springs Main Well Fields</u>										
<i>Northerly Unit:</i>										
Well Plant 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2,356,192	\$ -
Collection Piping 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	291,225
<i>Main Unit:</i>										
Well Plant 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collection Piping 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Southerly Unit:</i>										
Well Plant 44 (Plant)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,941,502
Well Plant 45 (Plant)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Springs South</u>										
Well Plant 39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 40	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Blending Pipelines for Uranium	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	970,751
Restore Well 6	\$ -	\$ -	1,578,619	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Well 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Springs East Well Fields</u>										
Well Plant 41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Individual Wells</u>										
<i>Palm Oasis:</i>										
Well Plant 43	\$ 2,460,491	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Plant 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collection Piping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collection Piping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Snow Creek:</i>										
Well Plant 1	\$ -	\$ -	\$ -	1,761,476	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Well Pumping Facilities (Normal Operation)	\$ 2,460,491	\$ -	\$ 1,631,240	\$ 1,761,476	\$ 2,093,446	\$ 2,156,250	\$ -	\$ 2,287,565	\$ 2,521,126	\$ 3,203,479

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

Booster Pumping Facilities (Normal Operation)	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Booster 4 (Janis Tuscany)	\$ 285,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 6 (Terrace)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 7 (Vista Miller)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 13 (Palm Oasis)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 15 (Zone 860)	\$ -	\$ -	\$ -	\$ -	1,395,631	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 16 (Zone 1040)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,525,044	\$ -	\$ -
Booster 17 (Zone 1240)	\$ 1,178,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 18 (Zone 1440)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 19 (Zone 1640)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster 20 (Zone 1840)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Booster Pumping Facilities (Normal Operation)	\$ 1,463,200	\$ -	\$ -	\$ -	\$ 1,395,631	\$ -	\$ -	\$ 1,525,044	\$ -	\$ -

Storage Reservoir (Normal Operation)	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<u>Palm Oasis System</u>										
Palm Oasis No. 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,103,294
Palm Oasis No. 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Chino System</u>										
Chino East (860)	\$ -	\$ -	\$ -	\$ -	\$ -	862,500	\$ -	\$ -	\$ -	\$ -
Chino West (1040)	\$ 2,232,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino West (1240)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino West (1440)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino West (1640)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino West (1840)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chino West (2040)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Storage Reservoir (Normal Operation)	\$ 2,232,000	\$ -	\$ -	\$ -	\$ -	\$ 862,500	\$ -	\$ -	\$ -	\$ 2,103,294

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

Pipeline Projects (Normal Operation)	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<u>Chino East Zone</u>										
24" McCarthy Road	\$ -	\$ -	\$ -	\$ -	\$ 453,580	\$ -	\$ -	\$ -	\$ -	\$ -
24" San Rafael Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 419,387	\$ -	\$ -
24" 33/4 Section Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" Hwy 111	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16" Las Vegas Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16" 860 Zone Piping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Chino West Zone 1040</u>										
24" 1040 Zone Piping	\$ -	\$ -	\$ -	\$ 338,745	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16" 1040 Zone Piping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Chino West Zone 1240</u>										
16" Tramview Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Springs Main Zone</u>										
30' Avenida Caballeros	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" Ramon Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" La Mirada Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" Belardo Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" LaVerne Way	\$ -	\$ -	\$ 855,085	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24" South Palm Canyon Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20" Indian Canyon Drive	\$ -	\$ -	\$ -	\$ -	\$ 540,667	\$ -	\$ -	\$ -	\$ -	\$ -
16" Amado Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 366,455	\$ -	\$ -	\$ -
16" Tahquitz Canyon Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 259,181	\$ -
16" Sunny Dunes Road (3,900')	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Racquet Club Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 504,791
12" Via Miralestie Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Via Miralestie Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Tachevah Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Tachevah Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Alejo Road (800')	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 336,527
12" Tahquitz Canyon Way North	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Tahquitz Canyon Way South	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,776,784
12" Arenas Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 178,456
12" Calle Amigos	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 315,494
12" Indian Trail	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 315,494
12" South Palm Canyon Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 97,075
12" Mesquite Avenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 485,376
<u>Palm Springs East Zone</u>										
16" Crossley Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 906,034
16" Golf Club Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Recycling Plant to Crossley	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Foothill and Foothill (Reduced) Zone</u>										
12" Vista Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Elna Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Foothill Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Oasis Zone</u>										
16" from 111 to Airport Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Palm Oasis Avenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Pipeline Projects (Normal Operation)	\$ -	\$ -	\$ 855,085	\$ 338,745	\$ 994,247	\$ -	\$ 366,455	\$ 419,387	\$ 259,181	\$ 4,916,032

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Projects and Acquisitions

EXHIBIT 3A-1

Pipeline Projects (Time of Use Operation), Continued	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<u>Palm Springs East Zone</u>										
24" Crossley Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,617,919
24" Golf Club Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Recycling Plant to Crossley	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Foothill and Foothill (Reduced) Zone</u>										
12" Vista Drive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Elna Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Foothill Road	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Palm Oasis Zone</u>										
16" from 111 to Airport Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12" Palm Oasis Avenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Pipeline Projects (Time of Use Operation)	\$ -	\$ -	\$ 855,085	\$ 673,453	\$ 5,750,080	\$ 955,937	\$ 858,762	\$ -	\$ -	\$ 5,187,083

Totals for Un-Programmed General Plan Projects	Total Estimated Cost (Future Values)									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total: Un-Programmed General Plan Projects (Normal)	\$ 6,155,691	\$ -	\$ 2,486,325	\$ 2,100,221	\$ 4,483,325	\$ 3,018,750	\$ 366,455	\$ 4,231,996	\$ 2,780,307	\$ 10,222,805

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Potable Water Utility Capital Funding Plan

EXHIBIT 3A-2

SUMMARY OF CAPITAL EXPENDITURES:

Forecasted Expenditures by Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Pipelines - Routine	\$ 1,300,000	\$ 3,576,778	\$ 3,394,880	\$ 4,228,853	\$ 4,355,719	\$ 4,486,391	\$ 4,620,982	\$ 4,759,612	\$ 4,902,400	\$ 5,049,472
Transportation Equipment - Routine	256,800	295,868	227,817	234,651	241,691	248,941	256,410	264,102	272,025	280,186
Miscellaneous - Routine	1,230,400	2,156,228	1,495,239	1,540,096	1,586,299	1,633,888	1,682,904	1,733,392	1,785,393	1,838,955
Miscellaneous - General Fund Projects	52,000	614,369	-	-	-	-	-	-	-	-
General Plan Projects	1,050,000	103,000	557,127	573,841	591,056	608,788	627,052	645,863	665,239	685,196
Un-Programmed General Plan Projects	6,155,691	-	2,486,325	2,100,221	4,483,325	3,018,750	366,455	4,231,996	2,780,307	10,222,805
Grand Total: Forecasted Expenditures	\$ 10,044,891	\$ 6,746,243	\$ 8,161,388	\$ 8,677,663	\$ 11,258,090	\$ 9,996,758	\$ 7,553,803	\$ 11,634,965	\$ 10,405,365	\$ 18,076,615

CAPITAL FUNDING FORECAST:

Forecasted Funding Sources (Assumes Forecasted Rate Increases Are Implemented)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Grants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Connection Fee Reserves	-	-	-	-	-	-	-	-	-	-
Use of New SRF Loan Financing	-	-	-	-	-	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
Use of General Fund Reserve for Replacements	52,000	614,369	-	-	-	-	-	-	-	-
Use of Operating Fund Reserve for Replacements	-	3,108,075	8,161,388	5,924,802	-	-	-	742,469	9,553,186	14,735,630
Rate Revenue	9,992,891	3,023,798	-	2,752,861	11,258,090	9,996,758	7,553,803	10,892,496	852,179	3,340,985
Grand Total: Funding Sources	\$ 10,044,891	\$ 6,746,243	\$ 8,161,388	\$ 8,677,663	\$ 11,258,090	\$ 9,996,758	\$ 7,553,803	\$ 11,634,965	\$ 10,405,365	\$ 18,076,615

Uses of Capital Funds:										
Total Project Costs	\$ 10,044,891	\$ 6,746,243	\$ 8,161,388	\$ 8,677,663	\$ 11,258,090	\$ 9,996,758	\$ 7,553,803	\$ 11,634,965	\$ 10,405,365	\$ 18,076,615
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

New SRF Loan Financing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

10-Year CIP Total (FY 2015/16 - 2024/25)	\$ 102,555,779
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DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Water									
OPERATING FUND:									
Source of Supply									
Supervision & Engineering	\$ 38,400	\$ 38,400	\$ -	\$ -	\$ -	100%	0%	0%	0%
Operating Labor & Expense	46,500	46,500	-	-	-	100%	0%	0%	0%
Misc. Source of Supply	10,500	10,500	-	-	-	100%	0%	0%	0%
Maintenance of Structures & Improvements	89,700	89,700	-	-	-	100%	0%	0%	0%
Maint. Rds., Coll, Impo, Res	24,600	24,600	-	-	-	100%	0%	0%	0%
Maintenance of Intakes	110,800	110,800	-	-	-	100%	0%	0%	0%
Maintenance of Wells	4,500	4,500	-	-	-	100%	0%	0%	0%
Groundwater Replenishment	3,278,100	3,278,100	-	-	-	100%	0%	0%	0%
Total: Source of Supply	\$ 3,603,100	\$ 3,603,100	\$ -	\$ -	\$ -	100%	0%	0%	0%
Pumping									
Supervision & Engineering	\$ 93,000	\$ 27,900	\$ 63,555	\$ -	\$ 1,545	30%	68%	0%	2%
Pumping Labor Expense	159,000	47,700	108,658	-	2,642	30%	68%	0%	2%
Misc. Exp & Care of Grounds	112,500	33,750	76,881	-	1,869	30%	68%	0%	2%
Maintenance of Structures	75,000	22,500	51,254	-	1,246	30%	68%	0%	2%
Maintenance of Pumping Equipment	324,000	97,200	221,416	-	5,384	30%	68%	0%	2%
Power Purchases	2,400,000	2,400,000	-	-	-	100%	0%	0%	0%
Total: Pumping	\$ 3,163,500	\$ 2,629,050	\$ 521,763	\$ -	\$ 12,687	83%	16%	0%	0%
Water Treatment									
Supervision & Engineering	\$ 108,000	\$ 63,005	\$ 43,200	\$ -	\$ 1,795	58%	40%	0%	2%
Operating Labor Expense	96,000	56,005	38,400	-	1,595	58%	40%	0%	2%
Water Analysis/Health Dept.	180,000	177,009	-	-	2,991	98%	0%	0%	2%
Chemicals & Filtering Material	69,000	69,000	-	-	-	100%	0%	0%	0%
Maintenance of Structures	1,200	700	480	-	20	58%	40%	0%	2%
Maintenance of Water Treat Equipment	51,000	29,753	20,400	-	847	58%	40%	0%	2%
Permits/Testing/Regulatory	-	-	-	-	-	98%	0%	0%	2%
Total: Water Treatment	\$ 505,200	\$ 395,472	\$ 102,480	\$ -	\$ 7,248	78%	20%	0%	1%
Transmission & Distribution									
Supervision & Engineering	\$ 453,000	\$ 226,500	\$ 218,972	\$ -	\$ 7,528	50%	48%	0%	2%
Storage Facilities Expense	72,000	36,000	34,804	-	1,196	50%	48%	0%	2%
Transmission & Distribution Lines Expense	143,700	71,850	69,462	-	2,388	50%	48%	0%	2%
Meter Expense	76,500	38,250	36,979	-	1,271	50%	48%	0%	2%
Customer Install Expense	132,900	66,450	64,242	-	2,208	50%	48%	0%	2%
Cross Connect Expense	129,000	64,500	62,356	-	2,144	50%	48%	0%	2%
Misc. Supply Expense	33,000	16,500	15,952	-	548	50%	48%	0%	2%
Maintenance of Structures & Improvements	1,500	750	725	-	25	50%	48%	0%	2%
Maintenance of Reservoirs	1,275,000	637,500	616,313	-	21,187	50%	48%	0%	2%
Maintenance of Mains	600,000	300,000	290,030	-	9,970	50%	48%	0%	2%
Maintenance of Whitewater MWC	80,700	40,350	39,009	-	1,341	50%	48%	0%	2%
Maintenance of Fire Services	48,000	24,000	23,202	-	798	50%	48%	0%	2%
Maintenance of Services	224,000	112,000	108,278	-	3,722	50%	48%	0%	2%
Maintenance of Meters	88,800	44,400	42,924	-	1,476	50%	48%	0%	2%
Maintenance of Hydrants	87,000	43,500	42,054	-	1,446	50%	48%	0%	2%
Total: Transmission & Distribution	\$ 3,445,100	\$ 1,722,550	\$ 1,665,302	\$ -	\$ 57,248	50%	48%	0%	2%
Sub-Total: Water - Operating Expenditures	\$ 10,716,900	\$ 8,350,172	\$ 2,289,545	\$ -	\$ 77,184	77.9%	21.4%	0.0%	0.7%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Water									
OPERATING FUND:									
Customer Account									
Supervision & Engineering	\$ 87,970	\$ -	\$ -	\$ 87,970	\$ -	0%	0%	100%	0%
Meter Reading Expense	95,917	-	-	95,917	-	0%	0%	100%	0%
Customer Rec & Coll Exp	611,678	-	-	611,678	-	0%	0%	100%	0%
Information Systems Supplies	3,289	-	-	3,289	-	0%	0%	100%	0%
Uncollectible Accounts	15,986	-	-	15,986	-	0%	0%	100%	0%
Total: Customer Account	\$ 814,840	\$ -	\$ -	\$ 814,840	\$ -	0%	0%	100%	0%
Administrative & General									
Administrative & Gen Salaries	\$ 862,800	\$ 258,840	\$ 546,483	\$ 43,140	\$ 14,337	30%	63%	5%	2%
Office Supplies & Expense	223,500	67,050	141,561	11,175	3,714	30%	63%	5%	2%
Legal	54,000	16,200	34,203	2,700	897	30%	63%	5%	2%
Engineering	21,000	6,300	13,301	1,050	349	30%	63%	5%	2%
Auditing	28,500	8,550	18,051	1,425	474	30%	63%	5%	2%
Appraisals & Consultants	205,500	61,650	130,160	10,275	3,415	30%	63%	5%	2%
Insurance & Claims	165,000	49,500	104,508	8,250	2,742	30%	63%	5%	2%
Injuries & Safety	308,100	92,430	195,145	15,405	5,120	30%	63%	5%	2%
Pension	1,388,100	416,430	879,199	69,405	23,066	30%	63%	5%	2%
Health Care Benefits	1,199,400	359,820	759,679	59,970	19,931	30%	63%	5%	2%
OPEB Benefits	2,054,100	616,230	1,301,032	102,705	34,133	30%	63%	5%	2%
Other Employee Benefits	402,000	120,600	254,620	20,100	6,680	30%	63%	5%	2%
Payroll Taxes - FICA	450,600	135,180	285,402	22,530	7,488	30%	63%	5%	2%
Unemployment Insurance	3,000	900	1,900	150	50	30%	63%	5%	2%
Vacation Pay	654,000	196,200	414,232	32,700	10,868	30%	63%	5%	2%
Maintenance - Operations Center	235,500	70,650	149,162	11,775	3,913	30%	63%	5%	2%
Maintenance - Solar Facilities	4,500	1,350	2,850	225	75	30%	63%	5%	2%
Information Systems	321,000	96,300	203,316	16,050	5,334	30%	63%	5%	2%
Maintenance - Office Equipment	6,300	1,890	3,990	315	105	30%	63%	5%	2%
Maintenance - Information Systems Equipment	126,000	37,800	79,806	6,300	2,094	30%	63%	5%	2%
Maintenance - Telemetry Equipment	18,000	5,400	11,401	900	299	30%	63%	5%	2%
Maintenance - Communications Equipment	8,400	2,520	5,320	420	140	30%	63%	5%	2%
Supervision & Engineering	160,500	48,150	101,658	8,025	2,667	30%	63%	5%	2%
Storeroom Expense	57,000	17,100	36,103	2,850	947	30%	63%	5%	2%
Transportation	306,000	91,800	193,815	15,300	5,085	30%	63%	5%	2%
Tools & Work Equipment Expense	78,000	23,400	49,404	3,900	1,296	30%	63%	5%	2%
Heavy Equipment Maintenance	5,700	1,710	3,610	285	95	30%	63%	5%	2%
Director's Fees	55,500	16,650	35,153	2,775	922	30%	63%	5%	2%
Public Information	175,700	52,710	111,285	8,785	2,920	30%	63%	5%	2%
Water Conservation	176,500	176,500	-	-	-	100%	0%	0%	0%
Water Conservation - Turf Buy Back	564,000	564,000	-	-	-	100%	0%	0%	0%
Total: Administrative & General	\$ 10,318,200	\$ 3,613,810	\$ 6,066,350	\$ 478,885	\$ 159,155	35%	59%	5%	2%
Sub-Total: Water - Operating Expenditures	\$ 11,133,040	\$ 3,613,810	\$ 6,066,350	\$ 1,293,725	\$ 159,155	32.5%	54.5%	11.6%	1.4%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Water									
OPERATING FUND:									
Regulatory									
Certificates/Training/School	\$ 29,400	\$ 20,091	\$ 8,820	\$ -	\$ 489	68%	30%	0%	2%
Health Department/Services	44,000	30,069	13,200	-	731	68%	30%	0%	2%
State - Regulatory	30,000	20,501	9,000	-	499	68%	30%	0%	2%
Federal - Regulatory	6,000	4,100	1,800	-	100	68%	30%	0%	2%
Reclamation - Regulatory	60,000	41,003	18,000	-	997	68%	30%	0%	2%
AQMD Compliance	900	615	270	-	15	68%	30%	0%	2%
RMP/OSHA/Misc.	33,000	22,552	9,900	-	548	68%	30%	0%	2%
Legal	600	410	180	-	10	68%	30%	0%	2%
Total: Regulatory	\$ 203,900	\$ 139,342	\$ 61,170	\$ -	\$ 3,388	68%	30%	0%	2%
Snow Creek Hydro									
Snow Creek Hydro	\$ 40,800	\$ 12,240	\$ 28,560	\$ -	\$ -	30%	70%	0%	0%
Total: Snow Creek Hydro	\$ 40,800	\$ 12,240	\$ 28,560	\$ -	\$ -	30%	70%	0%	0%
Reclamation Plant									
Pumping Expense	\$ -	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%
Treatment Expense	-	-	-	-	-	100%	0%	0%	0%
Transportation/Distribution	-	-	-	-	-	100%	0%	0%	0%
Administrative & General	-	-	-	-	-	100%	0%	0%	0%
Total: Reclamation Plant	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	0%
Other									
Depreciation (Including Reclamation)	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%
Services Rendered Customers	166,200	-	-	166,200	-	0%	0%	100%	0%
Dir Costs App to W.O.'s	675,000	202,500	427,533	33,750	11,217	30%	63%	5%	2%
Indirect Admin & General Expense Cap	(1,548,000)	(464,400)	(980,477)	(77,400)	(25,723)	30%	63%	5%	2%
Total: Other	\$ (706,800)	\$ (261,900)	\$ (552,943)	\$ 122,550	\$ (14,507)	37%	78%	-17%	2%
Sub-Total: Water - Operating Expenditures	\$ (462,100)	\$ (110,318)	\$ (463,213)	\$ 122,550	\$ (11,119)	23.9%	100.2%	-26.5%	2.4%
Non-Operating Expenditures									
OPEB Interest	\$ 303,900	\$ 91,170	\$ 192,485	\$ 15,195	\$ 5,050	30%	63%	5%	2%
Expense Applied to Prior Years	-	-	-	-	-	30%	63%	5%	2%
Services to Others	-	-	-	-	-	30%	63%	5%	2%
Losses on Retirements	45,000	13,500	28,502	2,250	748	30%	63%	5%	2%
Total: Non-Operating Expenditures	\$ 348,900	\$ 104,670	\$ 220,987	\$ 17,445	\$ 5,798	30%	63%	5%	2%
Sub-Total: Water - Non-Operating Expenditures	\$ 348,900	\$ 104,670	\$ 220,987	\$ 17,445	\$ 5,798	30.0%	63.3%	5.0%	1.7%
GRAND TOTAL: WATER FUND - OPERATING FUND	\$ 21,736,740	\$ 11,958,333	\$ 8,113,669	\$ 1,433,720	\$ 231,017	55.0%	37.3%	6.6%	1.1%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Water									
GENERAL FUND:									
Source of Supply									
Watershed Management - West Fork	\$ -	\$ -	\$ -	\$ -	\$ -	0%	98%	0%	2%
Whitewater Basin Management	\$ 250,000	\$ -	\$ 245,846	\$ -	\$ 4,154	0%	98%	0%	2%
Mission Creek Basin Management	60,000	-	59,003	-	997	0%	98%	0%	2%
Mission Creek-Garnett Hill Mgmt. Plan	21,000	-	20,651	-	349	0%	98%	0%	2%
U.S.G.S. Water Quality Monitoring Program	6,300	-	6,195	-	105	0%	98%	0%	2%
U.S.G.S. Stream Gauging Study	82,200	-	80,834	-	1,366	0%	98%	0%	2%
Monitoring Wells	-	-	-	-	-	0%	98%	0%	2%
Well #6 Monitoring	-	-	-	-	-	0%	98%	0%	2%
Salt Nutrient Plan	90,000	-	88,504	-	1,496	0%	98%	0%	2%
Groundwater Rights DWA/CVWD	330,000	-	324,516	-	5,484	0%	98%	0%	2%
MWD Area Of Origin Lawsuit	-	-	-	-	-	0%	98%	0%	2%
USDOl Federal Rule Litigation	175,200	-	172,289	-	2,911	0%	98%	0%	2%
Total: Source of Supply	\$ 1,014,700	\$ -	\$ 997,839	\$ -	\$ 16,861	0%	98%	0%	2%
State Water Project									
Delta O.M.P. & R.	\$ 2,801,300	\$ 1,400,650	\$ 1,354,100	\$ -	\$ 46,550	50%	48%	0%	2%
Transportation O.M.P.& R.	5,172,600	2,586,300	2,500,346	-	85,954	50%	48%	0%	2%
Variable	5,822,950	5,822,950	-	-	-	100%	0%	0%	0%
Off-Aqueduct Power Facilities	365,200	182,600	176,531	-	6,069	50%	48%	0%	2%
East Branch Enlargement	291,800	-	286,951	-	4,849	0%	98%	0%	2%
Replacement Component	18,000	-	17,701	-	299	0%	98%	0%	2%
Water Purchases	-	-	-	-	-	100%	0%	0%	0%
Lake Perris Seepage Recovery Project	17,700	17,700	-	-	-	100%	0%	0%	0%
CVWD Reimb (Delta, Var, OAP)	(1,059,250)	(529,625)	(512,023)	-	(17,602)	50%	48%	0%	2%
MWD Reimb (Delta, Trans, Var, OAP)	-	-	-	-	-	50%	48%	0%	2%
SWP Capital Expenditures2	6,939,700	-	6,939,700	-	-	0%	100%	0%	0%
Total: State Water Project	\$ 20,370,000	\$ 9,480,575	\$ 10,763,306	\$ -	\$ 126,119	47%	53%	0%	1%
Whitewater Hydro									
Supervision & Labor	\$ 6,900	\$ 2,070	\$ 4,830	\$ -	\$ -	30%	70%	0%	0%
Miscellaneous/SCE	8,100	2,430	5,670	-	-	30%	70%	0%	0%
Tools & Work Equipment	4,800	1,440	3,360	-	-	30%	70%	0%	0%
Maintenance Structures & Improvements	12,600	3,780	8,820	-	-	30%	70%	0%	0%
Maintenance of Equipment	15,300	4,590	10,710	-	-	30%	70%	0%	0%
Whitewater Hydro Contract Management	21,600	6,480	15,120	-	-	30%	70%	0%	0%
Total: Whitewater Hydro	\$ 69,300	\$ 20,790	\$ 48,510	\$ -	\$ -	30%	70%	0%	0%
Sub-Total: Water - Non-Operating Expenditures	\$ 21,454,000	\$ 9,501,365	\$ 11,809,655	\$ -	\$ 142,980	44%	55%	0%	1%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Water									
GENERAL FUND:									
Administrative & General									
Salaries	\$ 354,600	\$ 106,380	\$ 224,598	\$ 17,730	\$ 5,892	30%	63%	5%	2%
Office Supplies & Expense	15,000	4,500	9,501	750	249	30%	63%	5%	2%
Legal	93,000	27,900	58,905	4,650	1,545	30%	63%	5%	2%
State Water - Audit Fees	16,500	4,950	10,451	825	274	30%	63%	5%	2%
Engineering	69,000	20,700	43,703	3,450	1,147	30%	63%	5%	2%
Appraisals & Consultants	255,000	76,500	161,513	12,750	4,237	30%	63%	5%	2%
Auditing	9,900	2,970	6,270	495	165	30%	63%	5%	2%
Conferences & Seminars	63,000	18,900	39,903	3,150	1,047	30%	63%	5%	2%
Membership Dues & Subscriptions	81,700	24,510	51,747	4,085	1,358	30%	63%	5%	2%
Bay-Delta Hearings	65,025	19,508	41,186	3,251	1,081	30%	63%	5%	2%
SWC Energy Fund	8,500	2,550	5,384	425	141	30%	63%	5%	2%
Transportation	-	-	-	-	-	30%	63%	5%	2%
Utilities	21,000	6,300	13,301	1,050	349	30%	63%	5%	2%
Property & Liability Insurance	48,000	14,400	30,402	2,400	798	30%	63%	5%	2%
Other Employee Benefits	184,800	55,440	117,049	9,240	3,071	30%	63%	5%	2%
Payroll Taxes	30,300	9,090	19,191	1,515	504	30%	63%	5%	2%
Uncollectible Accounts	-	-	-	-	-	30%	63%	5%	2%
LAFCO Expenses	10,500	3,150	6,651	525	174	30%	63%	5%	2%
Integrated Regional Water Mgmt. Plan	36,000	10,800	22,802	1,800	598	30%	63%	5%	2%
IRWMP Conservation Program	15,000	4,500	9,501	750	249	30%	63%	5%	2%
Operations Center Maintenance	81,000	24,300	51,304	4,050	1,346	30%	63%	5%	2%
Operations Center Security	6,000	1,800	3,800	300	100	30%	63%	5%	2%
Director's Fees	55,500	16,650	35,153	2,775	922	30%	63%	5%	2%
Public Information	171,600	51,480	108,688	8,580	2,852	30%	63%	5%	2%
Water Conservation	157,500	157,500	-	-	-	100%	0%	0%	0%
Election Expense	-	-	-	-	-	30%	63%	5%	2%
Total: Administrative & General	\$ 1,848,425	\$ 664,778	\$ 1,071,003	\$ 84,546	\$ 28,098	36%	58%	5%	2%
Other									
Depreciation	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%
Direct/Indirect Costs	(14,100)	(4,230)	(8,931)	(705)	(234)	30%	63%	5%	2%
Total: Other	\$ (14,100)	\$ (4,230)	\$ (8,931)	\$ (705)	\$ (234)	30%	63%	5%	2%
Sub-Total: Water - Operating Expenditures	\$ 1,834,325	\$ 660,548	\$ 1,062,072	\$ 83,841	\$ 27,864	36%	58%	5%	2%
Non-Operating Expenditures									
Prior Year - State Water Project	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%
Prior Year Expenses	-	-	-	-	-	30%	63%	5%	2%
Total: Non-Operating Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	0%
Sub-Total: Water - Non-Operating Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	0%
GRAND TOTAL: WATER - GENERAL FUND	\$ 23,288,325	\$ 10,161,913	\$ 12,871,727	\$ 83,841	\$ 170,844	44%	55%	0%	1%
TOTAL: WATER EXPENDITURES	\$ 45,025,065	\$ 22,120,246	\$ 20,985,396	\$ 1,517,562	\$ 401,862	49%	47%	3%	1%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Forecasted Add'l O&M Expense									
Reclaimed Water Subsidy	783,903	783,903	-	-	-	100%	0%	0%	0%
Total: Forecasted Add'l O&M Expense	\$ 783,903	\$ 783,903	\$ -	\$ -	\$ -	100%	0%	0%	0%
Sub-Total: Water - Forecasted Add'l O&M Expense	\$ 783,903	\$ 783,903	\$ -	\$ -	\$ -	100%	0%	0%	0%

Classification of Expenses, continued									
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Basis of Classification			
	FY 2016/17	COM	CAP	CA	FP	COM	CAP	CA	FP
Debt Service Payments									
Water COP Bonds - 2007 A - \$26,860,000 (1)	\$ 1,646,780	\$ -	\$ 1,646,780	\$ -	\$ -	0%	100%	0%	0%
Other Issue:	-	-	-	-	-	0%	100%	0%	0%
Future SRF Loan Funding	-	-	-	-	-	0%	100%	0%	0%
Future Revenue Bonds	-	-	-	-	-	0%	100%	0%	0%
Total: Debt Service Payments	\$ 1,646,780	\$ -	\$ 1,646,780	\$ -	\$ -	0%	100%	0%	0%
Capital Expenditures									
Rate Funded Capital Expenses	\$ 3,023,798	\$ -	\$ 3,023,798	\$ -	\$ -	0%	100%	0%	0%
TOTAL REVENUE REQUIREMENTS	\$ 50,479,547	\$ 22,904,149	\$ 25,655,974	\$ 1,517,562	\$ 401,862	45%	51%	3%	1%
Less: Non-Rate Revenues									
Operating Fund Revenues									
Power Sales	(21,000)	(6,300)	(14,700)	-	-	30%	70%	0%	0%
Reclamation Sales	-	-	-	-	-	100%	0%	0%	0%
Service Charges	(403,500)	-	(89,593)	(310,695)	(3,212)	0%	22%	77%	1%
Charge for Installation of Service & Meter	(225,000)	(102,090)	(114,355)	(6,764)	(1,791)	45%	51%	3%	1%
Revenue from Leases	(72,350)	(32,827)	(36,772)	(2,175)	(576)	45%	51%	3%	1%
Interest	(99,600)	(45,192)	(50,621)	(2,994)	(793)	45%	51%	3%	1%
Gains/Loss Investments	(12,000)	(5,445)	(6,099)	(361)	(96)	45%	51%	3%	1%
Other Income	(405,000)	(183,761)	(205,839)	(12,175)	(3,224)	45%	51%	3%	1%
DWA Front Footage Charges	(10,500)	-	(10,500)	-	-	0%	100%	0%	0%
Gains on Retirements	(900)	(408)	(457)	(27)	(7)	45%	51%	3%	1%
Discounts	(3,300)	(1,497)	(1,677)	(99)	(26)	45%	51%	3%	1%
Revenue - Constr. W.O.'s	(333,000)	(151,093)	(169,246)	(10,011)	(2,651)	45%	51%	3%	1%
General Fund Revenues									
Groundwater Replenishment Assessment	\$ (4,351,300)	\$ (4,351,300)	\$ -	\$ -	\$ -	100%	0%	0%	0%
Power Sales - Whitewater Hydro (8)	(24,000)	(7,200)	(16,800)	-	-	30%	70%	0%	0%
Property Taxes (9)	(21,118,200)	(9,214,974)	(11,672,274)	(76,028)	(154,924)	44%	55%	0%	1%
Interest - Invested Reserves	(1,150,500)	(522,018)	(584,736)	(34,587)	(9,159)	45%	51%	3%	1%
Interest - Wastewater Fund	(3,700)	(1,679)	(1,881)	(111)	(29)	45%	51%	3%	1%
Interest - CPV Energy Project	-	-	-	-	-	45%	51%	3%	1%
Gains/Loss Investments	-	-	-	-	-	45%	51%	3%	1%
Other	-	-	-	-	-	45%	51%	3%	1%
NET REVENUE REQUIREMENTS	\$ 22,245,697	\$ 8,278,366	\$ 12,680,425	\$ 1,061,533	\$ 225,373				
<i>Allocation of Revenue Requirements</i>	100%	37%	57%	5%	1%				

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis

Classification of Expenses, continued					
Adjustments to Classification of Expenses					
Adjustment for Current Rate Level:	Total	COM	CAP	CA	FP
Test Year FY 2016/17 Target Rate Rev. After Rate Increases	\$22,857,075				
FY 2016/17 Projected Rate Revenue at Current Rates	\$20,227,500				
Rate Increase (FY 2016/17)	13.0%				
Adjusted Net Revenue Req'ts	\$ 22,857,075	\$ 8,505,880	\$ 13,028,921	\$ 1,090,707	\$ 231,567
<i>Percent of Revenue</i>		<i>37.2%</i>	<i>57.0%</i>	<i>4.8%</i>	<i>1.0%</i>

**DESERT WATER AGENCY
WATER RATE STUDY
Water Cost of Service Analysis**

Development of the BASE COMMODITY Allocation Factor		
Meter Size	April 15 - March 16 Volume (1)	Percent of Total Volume
Potable Water		
Residential	5,801,532	50.6%
Multi-Family	241,981	2.1%
Condo	423,764	3.7%
Commercial	3,275,825	28.6%
Irrigation/Condo	1,109,106	9.7%
Fire Private	1,223	0.0%
Public Authority	454,198	4.0%
Public Authority Mains	15,203	0.1%
Other Water		
Construction	150,759	1.3%
Potable Total	11,473,591	100%
Reclaimed Water	1,722,221	13.0%

1. Consumption rates and customer class from Source file: BILLHST2.xlsx.

Commodity Related Costs: These costs are associated with the total consumption (flow) of water over a specified period of time (e.g. annual).

Development of the PEAK CAPACITY (MAX MONTH) Allocation Factors				
Meter Size	Average Monthly Use (hcf)	Peak Monthly Use (1) (hcf)	Peak Month Factor	Max Month Capacity Factor
Potable Water				
Residential	483,461	604,949	1.25	50.3%
Multi-Family	20,165	23,628	1.17	2.0%
Condo	35,314	43,216	1.22	3.6%
Commercial	272,985	331,341	1.21	27.6%
Irrigation/Condo	92,426	119,883	1.30	10.0%
Fire Private	102	205	2.01	0.0%
Public Authority	37,850	48,004	1.27	4.0%
Public Authority Mains	1,267	1,882	1.49	0.2%
Other Water				
Construction	12,563	29,189	2.32	2.4%
Potable Total	956,133	1,202,297	1.26	100.0%
Reclaimed Water	143,518	205,865	1.43	15%

1. Based on peak monthly data (peak day data not available).

Capacity Related Costs: Costs associated with the maximum demand required at one point in time or the maximum size of facilities required to meet this demand.

DESERT WATER AGENCY
WATER RATE STUDY
Water Cost of Service Analysis

Development of the CUSTOMER Allocation Factor		
Meter Size	Number of Meters (1)	Percent of Total
Potable Water		
Residential	14,739	64.9%
Multi-Family	310	1.4%
Condo	3,834	16.9%
Commercial	2,595	11.4%
Irrigation/Condo	377	1.7%
Fire Private	516	2.3%
Public Authority	260	1.1%
Public Authority Mains	3	0.0%
Other Water		
Construction	71	0.3%
Potable Total	22,705	100%
Reclaimed Water	12	0.1%

1. Number of meters and customer class from Source file: BILLHST2.xlsx, as of March 1, 2016.

Customer Related Costs : Costs associated with having a customer on the water system. These costs vary with the addition or deletion of customers on the system. Examples: Meter-reading, Postage and billing.

DESERT WATER AGENCY

WATER RATE STUDY

Potable Water Cost of Service Analysis/Rate Design

Proposed Rates (Transition to 30% Fixed / 70% Variable)					
Volumetric Revenue Projection	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Previous Rate	\$1.57	\$1.57	\$1.72	\$1.89	\$2.08
Volumetric Rate Increase	0.00%	9.75%	9.75%	9.75%	9.86%
Proposed Volumetric rate	\$1.57	\$1.72	\$1.89	\$2.08	\$2.28
Consumption (hcf)	11,473,591	11,578,738	11,683,886	11,789,033	11,894,181
Expected Volumetric Revenue	\$ 18,013,538	\$ 19,951,035	\$ 22,095,102	\$ 24,467,604	\$ 27,118,732

Fixed Revenue Projection	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Total Required Rate Revenue	\$ 22,857,075	\$ 26,065,195	\$ 29,721,141	\$ 33,887,132	\$ 38,633,993
Less: Volumetric Revenue	\$ (18,013,538)	\$ (19,951,035)	\$ (22,095,102)	\$ (24,467,604)	\$ (27,118,732)
Net Revenue Required from Fixed Rate	\$ 4,843,537	\$ 6,114,160	\$ 7,626,039	\$ 9,419,529	\$ 11,515,261
% Increase in Fixed Charge Revenue	--	25%	24%	22%	21%

ALLOCATION OF WATER REVENUE REQUIREMENTS:

Proposed Rates (Transition to 30% Fixed / 70% Variable)					
Classification Components	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Percentage Revenue Variable	79%	77%	74%	72%	70%
Percentage Revenue Fixed	21%	23%	26%	28%	30%

ALLOCATION OF WATER REVENUE REQUIREMENTS FY 2016/17:

Classification Components	Unadjusted Net Revenue Requirements (2016/17)		Proposed Transition to 30% Fixed / 70% Variable	
	\$	%	\$	%
Commodity Related Costs	\$ 8,505,880	37.2%	\$ 18,013,538	78.8%
Capacity-Related Costs	\$ 13,028,921	57.0%	\$ 4,255,707	18.6%
Customer-Related Costs	\$ 1,090,707	4.8%	\$ 356,263	1.6%
Fire Protection-Related Costs	\$ 231,567	1.0%	\$ 231,567	1.0%
Net Revenue Requirement	\$ 22,857,075	100%	\$ 22,857,075	100%

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

Allocation of Adjusted Net Revenue Requirements - FY 2016/17:

Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Customer Class	Cost Classification Components				Cost of Service Net Rev. Reqts	% of COS Net Revenue
	Volumetric	Capacity	Customer	Fire Protection		
Potable Water						
Residential	\$ 9,108,405	\$ 2,141,306	\$ 231,269	\$ -	\$ 11,480,980	50.2%
Multi-Family	\$ 379,910	\$ 83,635	\$ 4,864	\$ -	\$ 468,409	2.0%
Condo	\$ 665,309	\$ 152,969	\$ 60,159	\$ -	\$ 878,438	3.8%
Commercial	\$ 5,143,045	\$ 1,172,830	\$ 40,718	\$ -	\$ 6,356,594	27.8%
Irrigation/Condo	\$ 1,741,296	\$ 424,344	\$ 5,915	\$ -	\$ 2,171,555	9.5%
Fire Private	\$ 1,920	\$ 726	\$ 8,097	\$ 231,567	\$ 242,309	1.1%
Public Authority	\$ 713,091	\$ 169,917	\$ 4,080	\$ -	\$ 887,088	3.9%
Public Authority Mains	\$ 23,869	\$ 6,662	\$ 47	\$ -	\$ 30,577	0.1%
Other Water						
Construction	\$ 236,692	\$ 103,319	\$ 1,114	\$ -	\$ 341,124	1.5%
Total	\$ 18,013,538	\$ 4,255,707	\$ 356,263	\$ 231,567	\$ 22,857,075	100.0%
Total Volumetric and Fixed Rate Rev.	\$ 18,013,538		\$4,843,537		\$ 22,857,075	

Proposed Rates (Transition to 30% Fixed / 70% Variable)					
Customer Class & Fixed Cost Classification Component	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Standard Meters					
Capacity	\$ 4,254,981	\$ 5,397,266	\$ 6,757,946	\$ 8,373,672	\$ 10,262,816
Customer	\$ 348,167	\$ 441,635	\$ 552,974	\$ 685,182	\$ 839,762
Fire Protection	\$ -	\$ -	\$ -	\$ -	\$ -
Fire Private					
Capacity	\$ 726	\$ 920	\$ 1,152	\$ 1,428	\$ 1,750
Customer	\$ 8,097	\$ 10,270	\$ 12,859	\$ 15,934	\$ 19,528
Fire Protection	\$ 231,567	\$ 264,068	\$ 301,107	\$ 343,313	\$ 391,404
Total	\$ 4,843,537	\$ 6,114,160	\$ 7,626,039	\$ 9,419,529	\$ 11,515,261

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

Customer Class	Rate Revenue*		Proposed Rates (Transition to 30% Fixed / 70% Variable)		
	April 2015 - March 2016		COS Allocated Costs		% of Current vs. 2016/17 Rates
	Rate Revenue* April 2015 -	% of Revenue	COS Rev. Req't	% of COS Rev. Req't.	
Potable Water					
Residential	\$ 11,359,939	52.1%	\$ 11,480,980	50.2%	-1.9%
Multi-Family	\$ 460,245	2.1%	\$ 468,409	2.0%	-0.1%
Condo	\$ 1,207,495	5.5%	\$ 878,438	3.8%	-1.7%
Commercial	\$ 5,726,009	26.3%	\$ 6,356,594	27.8%	1.5%
Irrigation/Condo	\$ 1,859,058	8.5%	\$ 2,171,555	9.5%	1.0%
Fire Private	\$ 132,493	0.6%	\$ 242,309	1.1%	0.5%
Public Authority	\$ 780,526	3.6%	\$ 887,088	3.9%	0.3%
Public Authority Mains	\$ 24,868	0.1%	\$ 30,577	0.1%	0.0%
Other Water					
Construction	\$ 239,398	1.1%	\$ 341,124	1.5%	0.4%
Total	\$ 21,790,031	100.0%	\$ 22,857,075	100.0%	0.0%

* Excludes Backflow Charges.

Meter Equivalency Factors Used in Fixed Charges Calculations:

Meter Size	Standard Meters		Fire Meters	
	Meter Capacity (gpm) (1)	Equivalency to 3/4 inch	Meter Capacity (gpm)	Equivalency to 3/4 inch
	<u>Displacement Meters</u>		<u>Displacement Meters (1)</u>	
3/4 inch (3)	30	1.00	30	1.00
1 inch (3)	50	1.00	50	1.00
1.5 inch	100	2.00	100	2.00
2 inch	160	3.20	160	3.20
	<u>Compound Class I Meters</u>		<u>Fire Service Type I & II Meters (2)</u>	
3 inch	320	6.40	350	7.00
4 inch	500	10.00	700	14.00
6 inch	1,000	20.00	1,600	32.00
8 inch	1,600	32.00	2,800	56.00
	<u>Turbine Class II Meters</u>			
10 inch	4,200	84.00	4,400	88.00
12 inch	5,300	106.00	N/A	--

1. Per AWWA M-1, Table B-1.

2. Per AWWA M-6, Table 5-3.

3. Per DWA Staff, base meter size going forward is 1-inch; therefore, the meter equivalency is set to 1.0 for 3/4 and 1-inch meters.

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2016/17:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2015/16										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Potable & Other Water Customers	12,430	6,768	1,712	1,190	84	1	4	-	-	-	22,189
Total Meters/Accounts	12,430	6,768	1,712	1,190	84	1	4	-	-	-	22,189
<i>Hydraulic Capacity Factor (2)</i>	<i>1.00</i>	<i>1.00</i>	<i>2.00</i>	<i>3.20</i>	<i>6.40</i>	<i>10.00</i>	<i>20.00</i>	<i>32.00</i>	<i>84.00</i>	<i>106.00</i>	
Total Equivalent Meters	12,430	6,768	3,424	3,808	538	10	80	-	-	-	27,058
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	
Capacity Costs (\$/Acct/mo.) (4)	\$13.10	\$13.10	\$26.21	\$41.94	\$83.87	\$131.05	\$262.09	\$419.35	\$1,100.79	\$1,389.10	
Total Monthly Meter Charge	\$14.41	\$14.41	\$27.52	\$43.24	\$85.18	\$132.35	\$263.40	\$420.66	\$1,102.10	\$1,390.41	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 348,167										
Capacity Costs	4,254,981										
Total Fixed Meter Costs	\$ 4,603,148										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 195,039	\$ 106,196	\$ 26,863	\$ 18,672	\$ 1,318	\$ 16	\$ 63	\$ -	\$ -	\$ -	\$ 348,167
Capacity Charges	\$ 1,954,697	\$ 1,064,311	\$ 538,446	\$ 598,832	\$ 84,541	\$ 1,573	\$ 12,581	\$ -	\$ -	\$ -	4,254,981
Total Revenue from Monthly Meter Ch	\$ 2,149,736	\$ 1,170,508	\$ 565,309	\$ 617,505	\$ 85,859	\$ 1,588	\$ 12,643	\$ -	\$ -	\$ -	\$ 4,603,148

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound Class I for 3 - 8 inch meters, Turbine Class II for 10 and 12 inch.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2016/17:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2015/16							Total
	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Private Fire Meter Customers	2	-	212	168	121	10	3	516
Total Meters/Accounts	2	-	212	168	121	10	3	516
<i>Hydraulic Capacity Factor (2)</i>	<i>3.20</i>	<i>7.00</i>	<i>14.00</i>	<i>32.00</i>	<i>56.00</i>	<i>88.00</i>	<i>106.00</i>	
Total Equivalent Meters	6	-	2,968	5,376	6,776	880	318	16,324
Monthly Fixed Service Charges								
Customer Costs (\$/Acct/mo.) (3)	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	\$1.31	
Capacity Costs (\$/Acct/mo.) (4)	\$3.79	\$8.30	\$16.60	\$37.95	\$66.41	\$104.35	\$125.70	
Total Monthly Meter Charge	\$5.10	\$9.61	\$17.91	\$39.25	\$67.71	\$105.66	\$127.00	
Annual Fixed Costs Allocated to Monthly Meter Charges								
Customer Costs	\$ 8,097							
Capacity and Fire Costs	232,292							
Total Fixed Meter Costs	\$ 240,389							
Annual Revenue from Monthly Meter Charges								
Customer Charges	\$ 31	\$ -	\$ 3,326	\$ 2,636	\$ 1,899	\$ 157	\$ 47	\$ 8,097
Capacity Charges	\$ 91	\$ -	\$ 42,234	\$ 76,499	\$ 96,421	\$ 12,522	\$ 4,525	232,292
Total Revenue from Monthly Meter Ch	\$ 122	\$ -	\$ 45,560	\$ 79,135	\$ 98,319	\$ 12,679	\$ 4,572	\$ 240,389

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M3, "Water Meters-Selection, Installation, Testing and Maintenance", Table 3, and M1, Table VI.2-5. Assumes Fire Service Type I & II for 2-10 inch meters, and Turbine Class II for 12 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2017/18:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2017/18										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Potable & Other Water Customers	12,544	6,830	1,728	1,201	85	1	4	-	-	-	22,392
Total Meters/Accounts	12,544	6,830	1,728	1,201	85	1	4	-	-	-	22,392
Hydraulic Capacity Factor (2)	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	106.00	
Total Equivalent Meters	12,544	6,830	3,455	3,843	543	10	81	-	-	-	27,306
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	
Capacity Costs (\$/Acct/mo.) (4)	\$16.47	\$16.47	\$32.94	\$52.71	\$105.42	\$164.72	\$329.44	\$527.10	\$1,383.63	\$1,746.01	
Total Monthly Meter Charge	\$18.12	\$18.12	\$34.59	\$54.35	\$107.06	\$166.36	\$331.08	\$528.74	\$1,385.28	\$1,747.66	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 441,635										
Capacity Costs	5,397,266										
Total Fixed Meter Costs	\$ 5,838,901										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 247,399	\$ 134,706	\$ 34,075	\$ 23,685	\$ 1,672	\$ 20	\$ 80	\$ -	\$ -	\$ -	\$ 441,635
Capacity Charges	\$ 2,479,452	\$ 1,350,035	\$ 682,996	\$ 759,594	\$ 107,237	\$ 1,995	\$ 15,958	\$ -	\$ -	\$ -	\$ 5,397,266
Total Revenue from Monthly Meter Ch	\$ 2,726,850	\$ 1,484,740	\$ 717,071	\$ 783,279	\$ 108,909	\$ 2,015	\$ 16,037	\$ -	\$ -	\$ -	\$ 5,838,901

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound Class I for 3 - 8 inch meters, Turbine Class II for 10 and 12 inch.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2017/18:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2017/18							Total
	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Private Fire Meter Customers	2	-	214	170	122	10	3	521
Total Meters/Accounts	2	-	214	170	122	10	3	521
Hydraulic Capacity Factor (2)	3.20	7.00	14.00	32.00	56.00	88.00	106.00	
Total Equivalent Meters	6	-	2,995	5,425	6,838	888	321	16,474
Monthly Fixed Service Charges								
Customer Costs (\$/Acct/mo.) (3)	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	\$1.64	
Capacity Costs (\$/Acct/mo.) (4)	\$4.29	\$9.38	\$18.77	\$42.89	\$75.06	\$117.96	\$142.09	
Total Monthly Meter Charge	\$5.93	\$11.03	\$20.41	\$44.54	\$76.71	\$119.60	\$143.73	
Annual Fixed Costs Allocated to Monthly Meter Charges								
Customer Costs	\$ 10,270							
Capacity and Fire Costs	264,989							
Total Fixed Meter Costs	\$ 275,259							
Annual Revenue from Monthly Meter Charges								
Customer Charges	\$ 40	\$ -	\$ 4,220	\$ 3,344	\$ 2,408	\$ 199	\$ 60	\$ 10,270
Capacity Charges	\$ 104	\$ -	\$ 48,179	\$ 87,267	\$ 109,993	\$ 14,285	\$ 5,162	\$ 264,989
Total Revenue from Monthly Meter Ch	\$ 144	\$ -	\$ 52,398	\$ 90,611	\$ 112,401	\$ 14,484	\$ 5,222	\$ 275,259

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M3, "Water Meters-Selection, Installation, Testing and Maintenance", Table 3, and M1, Table VI.2-5. Assumes Fire Service Type I & II for 2-10 inch meters, and Turbine Class II for 12 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2018/19: Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2018/19										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Potable & Other Water Customers	12,658	6,892	1,743	1,212	86	1	4	-	-	-	22,596
Total Meters/Accounts	12,658	6,892	1,743	1,212	86	1	4	-	-	-	22,596
Hydraulic Capacity Factor (2)	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	106.00	
Total Equivalent Meters	12,658	6,892	3,487	3,878	547	10	81	-	-	-	27,554
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	
Capacity Costs (\$/Acct/mo.) (4)	\$20.44	\$20.44	\$40.88	\$65.40	\$130.81	\$204.39	\$408.78	\$654.04	\$1,716.86	\$2,166.52	
Total Monthly Meter Charge	\$22.48	\$22.48	\$42.92	\$67.44	\$132.85	\$206.43	\$410.82	\$656.08	\$1,718.90	\$2,168.56	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 552,974										
Capacity Costs	6,757,946										
Total Fixed Meter Costs	\$ 7,310,920										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 309,769	\$ 168,666	\$ 42,665	\$ 29,656	\$ 2,093	\$ 25	\$ 100	\$ -	\$ -	\$ -	\$ 552,974
Capacity Charges	\$ 3,104,535	\$ 1,690,386	\$ 855,183	\$ 951,092	\$ 134,272	\$ 2,498	\$ 19,981	\$ -	\$ -	\$ -	\$ 6,757,946
Total Revenue from Monthly Meter Ch	\$ 3,414,304	\$ 1,859,052	\$ 897,848	\$ 980,748	\$ 136,365	\$ 2,523	\$ 20,081	\$ -	\$ -	\$ -	\$ 7,310,920

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound Class I for 3 - 8 inch meters, Turbine Class II for 10 and 12 inch.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2018/19: Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2018/19							Total
	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Private Fire Meter Customers	2	-	216	171	123	10	3	525
Total Meters/Accounts	2	-	216	171	123	10	3	525
Hydraulic Capacity Factor (2)	3.20	7.00	14.00	32.00	56.00	88.00	106.00	
Total Equivalent Meters	7	-	3,022	5,475	6,900	896	324	16,624
Monthly Fixed Service Charges								
Customer Costs (\$/Acct/mo.) (3)	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	\$2.04	
Capacity Costs (\$/Acct/mo.) (4)	\$4.85	\$10.61	\$21.21	\$48.49	\$84.85	\$133.34	\$160.61	
Total Monthly Meter Charge	\$6.89	\$12.65	\$23.25	\$50.53	\$86.89	\$135.38	\$162.65	
Annual Fixed Costs Allocated to Monthly Meter Charges								
Customer Costs	\$ 12,859							
Capacity and Fire Costs	302,259							
Total Fixed Meter Costs	\$ 315,119							
Annual Revenue from Monthly Meter Charges								
Customer Charges	\$ 50	\$ -	\$ 5,283	\$ 4,187	\$ 3,015	\$ 249	\$ 75	\$ 12,859
Capacity Charges	\$ 119	\$ -	\$ 54,955	\$ 99,541	\$ 125,463	\$ 16,294	\$ 5,888	\$ 302,259
Total Revenue from Monthly Meter Ch	\$ 168	\$ -	\$ 60,238	\$ 103,728	\$ 128,479	\$ 16,543	\$ 5,963	\$ 315,119

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M3, "Water Meters-Selection, Installation, Testing and Maintenance", Table 3, and M1, Table VI.2-5. Assumes Fire Service Type I & II for 2-10 inch meters, and Turbine Class II for 12 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2019/20:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2019/20										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Potable & Other Water Customers	12,772	6,954	1,759	1,223	86	1	4	-	-	-	22,799
Total Meters/Accounts	12,772	6,954	1,759	1,223	86	1	4	-	-	-	22,799
<i>Hydraulic Capacity Factor (2)</i>	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	106.00	
Total Equivalent Meters	12,772	6,954	3,518	3,913	552	10	82	-	-	-	27,801
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	
Capacity Costs (\$/Acct/mo.) (4)	\$25.10	\$25.10	\$50.20	\$80.32	\$160.64	\$251.00	\$501.99	\$803.19	\$2,108.37	\$2,660.56	
Total Monthly Meter Charge	\$27.60	\$27.60	\$52.70	\$82.82	\$163.14	\$253.50	\$504.50	\$805.69	\$2,110.87	\$2,663.06	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 685,182										
Capacity Costs	8,373,672										
Total Fixed Meter Costs	\$ 9,058,854										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 383,830	\$ 208,991	\$ 52,865	\$ 36,746	\$ 2,594	\$ 31	\$ 124	\$ -	\$ -	\$ -	\$ 685,182
Capacity Charges	\$ 3,846,784	\$ 2,094,532	\$ 1,059,645	\$ 1,178,484	\$ 166,374	\$ 3,095	\$ 24,758	\$ -	\$ -	\$ -	8,373,672
Total Revenue from Monthly Meter Ch	\$ 4,230,614	\$ 2,303,524	\$ 1,112,511	\$ 1,215,230	\$ 168,968	\$ 3,126	\$ 24,882	\$ -	\$ -	\$ -	\$ 9,058,854

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound Class I for 3 - 8 inch meters, Turbine Class II for 10 and 12 inch.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2019/20:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2019/20							Total
	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Private Fire Meter Customers	2	-	218	173	124	10	3	530
Total Meters/Accounts	2	-	218	173	124	10	3	530
<i>Hydraulic Capacity Factor (2)</i>	3.20	7.00	14.00	32.00	56.00	88.00	106.00	
Total Equivalent Meters	7	-	3,050	5,524	6,962	904	327	16,773
Monthly Fixed Service Charges								
Customer Costs (\$/Acct/mo.) (3)	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	
Capacity Costs (\$/Acct/mo.) (4)	\$5.48	\$11.99	\$23.98	\$54.81	\$95.91	\$150.72	\$181.55	
Total Monthly Meter Charge	\$7.99	\$14.49	\$26.48	\$57.31	\$98.42	\$153.23	\$184.06	
Annual Fixed Costs Allocated to Monthly Meter Charges								
Customer Costs	\$ 15,934							
Capacity and Fire Costs	344,741							
Total Fixed Meter Costs	\$ 360,675							
Annual Revenue from Monthly Meter Charges								
Customer Charges	\$ 62	\$ -	\$ 6,546	\$ 5,188	\$ 3,736	\$ 309	\$ 93	\$ 15,934
Capacity Charges	\$ 135	\$ -	\$ 62,679	\$ 113,531	\$ 143,097	\$ 18,584	\$ 6,716	344,741
Total Revenue from Monthly Meter Ch	\$ 197	\$ -	\$ 69,225	\$ 118,719	\$ 146,833	\$ 18,893	\$ 6,808	\$ 360,675

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
2. Source: AWWA Manual M3, "Water Meters-Selection, Installation, Testing and Maintenance", Table 3, and M1, Table VI.2-5. Assumes Fire Service Type I & II for 2-10 inch meters, and Turbine Class II for 12 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

DESERT WATER AGENCY
WATER RATE STUDY
 Potable Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2020/21:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2020/21										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Potable & Other Water Customers	12,886	7,016	1,775	1,234	87	1	4	-	-	-	23,002
Total Meters/Accounts	12,886	7,016	1,775	1,234	87	1	4	-	-	-	23,002
<i>Hydraulic Capacity Factor (2)</i>	<i>1.00</i>	<i>1.00</i>	<i>2.00</i>	<i>3.20</i>	<i>6.40</i>	<i>10.00</i>	<i>20.00</i>	<i>32.00</i>	<i>84.00</i>	<i>106.00</i>	
Total Equivalent Meters	12,886	7,016	3,550	3,948	557	10	83	-	-	-	28,049
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	
Capacity Costs (\$/Acct/mo.) (4)	\$30.49	\$30.49	\$60.98	\$97.57	\$195.14	\$304.90	\$609.80	\$975.69	\$2,561.18	\$3,231.97	
Total Monthly Meter Charge	\$33.53	\$33.53	\$64.02	\$100.61	\$198.18	\$307.94	\$612.85	\$978.73	\$2,564.22	\$3,235.01	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 839,762										
Capacity Costs	10,262,816										
Total Fixed Meter Costs	\$ 11,102,579										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 470,424	\$ 256,141	\$ 64,792	\$ 45,037	\$ 3,179	\$ 38	\$ 151	\$ -	\$ -	\$ -	\$ 839,762
Capacity Charges	\$ 4,714,639	\$ 2,567,070	\$ 1,298,707	\$ 1,444,356	\$ 203,909	\$ 3,793	\$ 30,344	\$ -	\$ -	\$ -	\$ 10,262,816
Total Revenue from Monthly Meter Ch	\$ 5,185,063	\$ 2,823,210	\$ 1,363,499	\$ 1,489,393	\$ 207,088	\$ 3,831	\$ 30,495	\$ -	\$ -	\$ -	\$ 11,102,579

- Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
- Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound Class I for 3 - 8 inch meters, Turbine Class II for 10 and 12 inch.
- Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
- Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED FIRE METER SERVICE CHARGES FOR FY 2020/21:

Proposed Rates (Transition to 30% Fixed / 70% Variable)

Number of Meters by Class and Size (1)	FY 2020/21							Total
	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Private Fire Meter Customers	2	-	220	174	125	10	3	535
Total Meters/Accounts	2	-	220	174	125	10	3	535
<i>Hydraulic Capacity Factor (2)</i>	<i>3.20</i>	<i>7.00</i>	<i>14.00</i>	<i>32.00</i>	<i>56.00</i>	<i>88.00</i>	<i>106.00</i>	
Total Equivalent Meters	7	-	3,077	5,573	7,024	912	330	16,923
Monthly Fixed Service Charges								
Customer Costs (\$/Acct/mo.) (3)	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	\$3.04	
Capacity Costs (\$/Acct/mo.) (4)	\$6.20	\$13.55	\$27.10	\$61.95	\$108.42	\$170.37	\$205.22	
Total Monthly Meter Charge	\$9.24	\$16.59	\$30.15	\$64.99	\$111.46	\$173.41	\$208.26	
Annual Fixed Costs Allocated to Monthly Meter Charges								
Customer Costs	\$ 19,528							
Capacity and Fire Costs	393,154							
Total Fixed Meter Costs	\$ 412,682							
Annual Revenue from Monthly Meter Charges								
Customer Charges	\$ 76	\$ -	\$ 8,023	\$ 6,358	\$ 4,579	\$ 378	\$ 114	\$ 19,528
Capacity Charges	\$ 154	\$ -	\$ 71,481	\$ 129,475	\$ 163,192	\$ 21,194	\$ 7,659	\$ 393,154
Total Revenue from Monthly Meter Ch	\$ 230	\$ -	\$ 79,504	\$ 135,833	\$ 167,771	\$ 21,572	\$ 7,772	\$ 412,682

- Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*. Unauthorized/Damaged Commercial Mains are excluded.
- Source: AWWA Manual M3, "Water Meters-Selection, Installation, Testing and Maintenance", Table 3, and M1, Table VI.2-5. Assumes Fire Service Type I & II for 2-10 inch meters, and Turbine Class II for 12 inch meters.
- Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
- Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

**DESERT WATER AGENCY
WATER RATE STUDY**
Water Cost of Service Analysis/Rate Design

Assumptions Used in Drought Rate Analysis:

2016/17 Consumption Assumptions			
Year	Potable Water Consumption (hcf/yr.)	Potable Water Consumption (AF/yr.)	Difference to Baseline (hcf)
2013 Consumption	15,072,270	34,601	3,598,679
Baseline Consumption (1)	11,473,591	26,340	0
10% Conservation	10,326,232	23,706	(1,147,359)
20% Conservation	9,178,873	21,072	(2,294,718)
30% Conservation	8,031,514	18,438	(3,442,077)
40% Conservation	6,884,155	15,804	(4,589,436)
50% Conservation	5,736,796	13,170	(5,736,796)
60% Conservation	4,589,436	10,536	(6,884,155)

Baseline consumption is the April 2015 - March 2016 consumption.

Conservation percentage for each drought stage is relative to the **Baseline** consumption.

1. Baseline consumption is the April 2015 - March 2016 consumption.
Conservation percentage for each drought stage is relative to the baseline consumption.

Note: For the length of rate period (FY 2016/17 - 2020/21), water consumption is assumed to increase slightly each year to account for new connections. There is no assumed change to basic consumption levels by existing customers. That is, we are not assuming that consumption will ever return to a "more normal" level.

**DESERT WATER AGENCY
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design**

Drought Rates:

Expenses Directly Effected By Consumption Changes							
Fund	Division	Expense Name	Commodity-Related Costs				
			2016/17	2017/18	2018/19	2019/20	2020/21
OPERATING FUND	Pumping	Power Purchases	\$ 2,400,000	\$ 2,544,000	\$ 2,696,640	\$ 2,858,438	\$ 3,029,945
OPERATING FUND	Water Treatment	Chemicals & Filtering Material	\$ 69,000	\$ 70,380	\$ 71,788	\$ 73,223	\$ 74,688
GENERAL FUND	State Water Project	Variable	\$ 5,822,950	\$ 7,228,669	\$ 6,401,248	\$ 6,410,245	\$ 6,594,491
Total:			\$ 8,291,950	\$ 9,843,049	\$ 9,169,676	\$ 9,341,907	\$ 9,699,124

Calculation of Drought Rates FY 2016/17:

Potable Water: Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Conservation Goal	Water Consumption (hcf/yr.)	Baseline Rev. Req't from Vol. Charges	Cost Reduction Due to Conservation (1)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Drought Surcharge (\$/hcf)
0%	11,473,591	\$ 18,013,538	\$ -	\$ 18,013,538	\$1.57	\$0.00
10%	10,326,232	\$ 18,013,538	\$ (829,195)	\$ 17,184,343	\$1.66	\$0.09
20%	9,178,873	\$ 18,013,538	\$ (1,658,390)	\$ 16,355,148	\$1.78	\$0.21
30%	8,031,514	\$ 18,013,538	\$ (2,487,585)	\$ 15,525,953	\$1.93	\$0.36
40%	6,884,155	\$ 18,013,538	\$ (3,316,780)	\$ 14,696,758	\$2.13	\$0.56
50%	5,736,796	\$ 18,013,538	\$ (4,145,975)	\$ 13,867,563	\$2.42	\$0.85
60%	4,589,436	\$ 18,013,538	\$ (4,975,170)	\$ 13,038,368	\$2.84	\$1.27

1. Cost reduction equals (conservation goal percentage) multiplied by (expenses directly effected by consumption charges)

Calculation of Drought Rates FY 2017/18:

Potable Water: Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Conservation Goal	Water Consumption (hcf/yr.) (1)	Baseline Rev. Req't from Vol. Charges	Cost Reduction Due to Conservation (2)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Drought Surcharge (\$/hcf)
0%	11,578,738	\$ 19,951,035	\$ -	\$ 19,951,035	\$1.72	\$0.00
10%	10,420,865	\$ 19,951,035	\$ (984,305)	\$ 18,966,730	\$1.82	\$0.10
20%	9,262,991	\$ 19,951,035	\$ (1,968,610)	\$ 17,982,425	\$1.94	\$0.22
30%	8,105,117	\$ 19,951,035	\$ (2,952,915)	\$ 16,998,120	\$2.10	\$0.38
40%	6,947,243	\$ 19,951,035	\$ (3,937,220)	\$ 16,013,815	\$2.31	\$0.59
50%	5,789,369	\$ 19,951,035	\$ (4,921,525)	\$ 15,029,510	\$2.60	\$0.88
60%	4,631,495	\$ 19,951,035	\$ (5,905,829)	\$ 14,045,205	\$3.03	\$1.31

1. Water consumption inflated by expected customer growth.

2. Cost reduction equals (conservation goal percentage) multiplied by (expenses directly effected by consumption charges)

**DESERT WATER AGENCY
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design**

Calculation of Drought Rates FY 2018/19:

Potable Water: Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Conservation Goal	Water Consumption (hcf/yr.) (1)	Baseline Rev. Req't from Vol. Charges	Cost Reduction Due to Conservation (2)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Drought Surcharge (\$/hcf)
0%	11,683,886	\$ 22,095,102	\$ -	\$ 22,095,102	\$1.89	\$0.00
10%	10,515,497	\$ 22,095,102	\$ (916,968)	\$ 21,178,135	\$2.01	\$0.12
20%	9,347,109	\$ 22,095,102	\$ (1,833,935)	\$ 20,261,167	\$2.17	\$0.28
30%	8,178,720	\$ 22,095,102	\$ (2,750,903)	\$ 19,344,200	\$2.37	\$0.48
40%	7,010,332	\$ 22,095,102	\$ (3,667,870)	\$ 18,427,232	\$2.63	\$0.74
50%	5,841,943	\$ 22,095,102	\$ (4,584,838)	\$ 17,510,265	\$3.00	\$1.11
60%	4,673,554	\$ 22,095,102	\$ (5,501,805)	\$ 16,593,297	\$3.55	\$1.66

1. Water consumption inflated by expected customer growth.
2. Cost reduction equals (conservation goal percentage) multiplied by (expenses directly effected by consumption charges)

Calculation of Drought Rates FY 2019/20:

Potable Water: Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Conservation Goal	Water Consumption (hcf/yr.) (1)	Baseline Rev. Req't from Vol. Charges	Cost Reduction Due to Conservation (2)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Drought Surcharge (\$/hcf)
0%	11,789,033	\$ 24,467,604	\$ -	\$ 24,467,604	\$2.08	\$0.00
10%	10,610,130	\$ 24,467,604	\$ (934,191)	\$ 23,533,413	\$2.22	\$0.14
20%	9,431,227	\$ 24,467,604	\$ (1,868,381)	\$ 22,599,222	\$2.40	\$0.32
30%	8,252,323	\$ 24,467,604	\$ (2,802,572)	\$ 21,665,032	\$2.63	\$0.55
40%	7,073,420	\$ 24,467,604	\$ (3,736,763)	\$ 20,730,841	\$2.93	\$0.85
50%	5,894,517	\$ 24,467,604	\$ (4,670,953)	\$ 19,796,650	\$3.36	\$1.28
60%	4,715,613	\$ 24,467,604	\$ (5,605,144)	\$ 18,862,460	\$4.00	\$1.92

1. Water consumption inflated by expected customer growth.
2. Cost reduction equals (conservation goal percentage) multiplied by (expenses directly effected by consumption charges)

Calculation of Drought Rates FY 2020/21:

Potable Water: Proposed Rates (Transition to 30% Fixed / 70% Variable)						
Conservation Goal	Water Consumption (hcf/yr.) (1)	Baseline Rev. Req't from Vol. Charges	Cost Reduction Due to Conservation (2)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Drought Surcharge (\$/hcf)
0%	11,894,181	\$ 27,118,732	\$ -	\$ 27,118,732	\$2.28	\$0.00
10%	10,704,763	\$ 27,118,732	\$ (969,912)	\$ 26,148,820	\$2.44	\$0.16
20%	9,515,345	\$ 27,118,732	\$ (1,939,825)	\$ 25,178,908	\$2.65	\$0.37
30%	8,325,927	\$ 27,118,732	\$ (2,909,737)	\$ 24,208,995	\$2.91	\$0.63
40%	7,136,509	\$ 27,118,732	\$ (3,879,649)	\$ 23,239,083	\$3.26	\$0.98
50%	5,947,090	\$ 27,118,732	\$ (4,849,562)	\$ 22,269,171	\$3.74	\$1.46
60%	4,757,672	\$ 27,118,732	\$ (5,819,474)	\$ 21,299,258	\$4.48	\$2.20

1. Water consumption inflated by expected customer growth.
2. Cost reduction equals (conservation goal percentage) multiplied by (expenses directly effected by consumption charges)

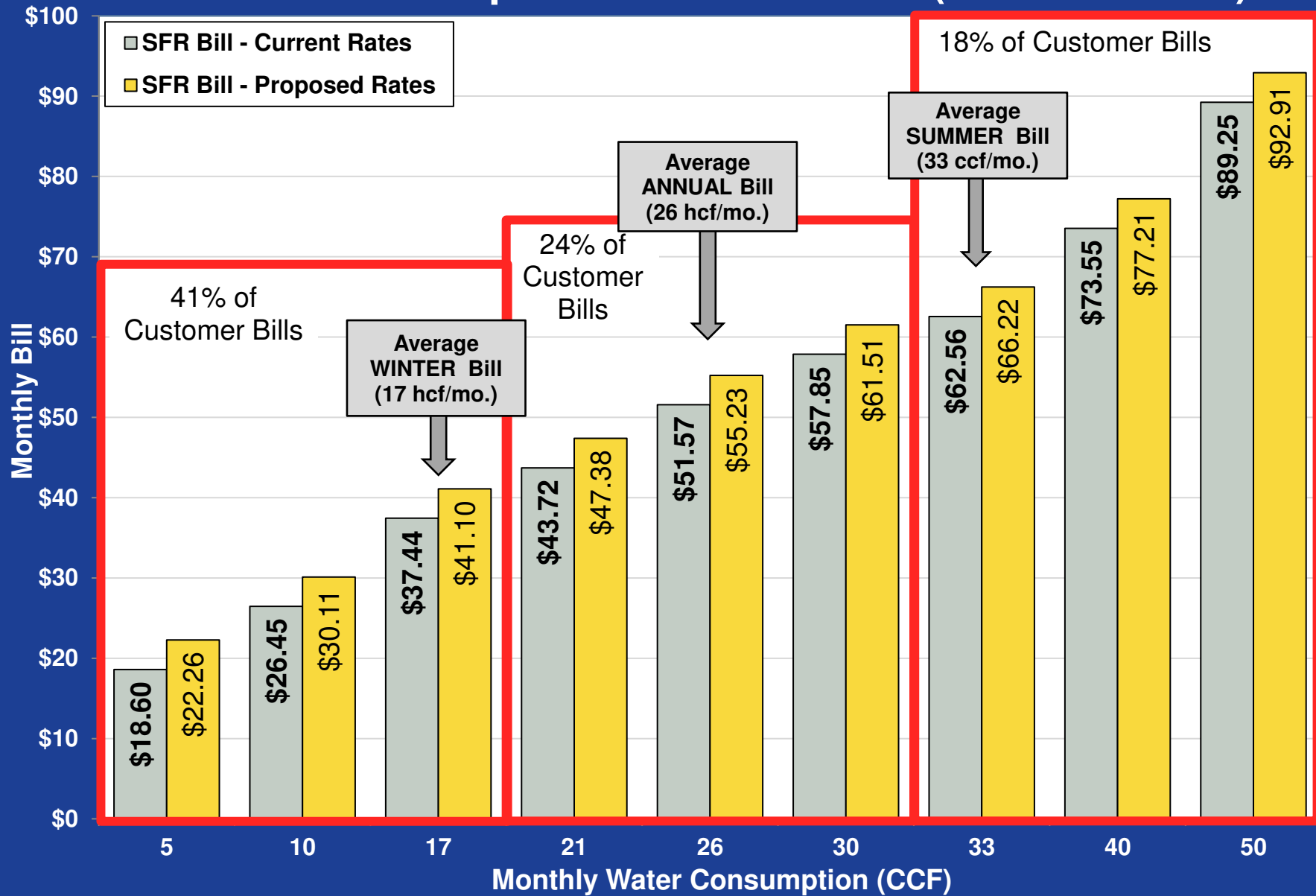
DESERT WATER AGENCY
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

CURRENT VS. PROPOSED WATER RATES:

Water Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		13.00%	13.00%	13.00%	13.00%	13.00%
Fixed %	17%	21%	23%	26%	28%	30%
Variable %	83%	79%	77%	74%	72%	70%
Fixed Monthly Service Charge						
Meter Size (Standard Meters):						
3/4 inch	\$10.75	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1 inch	\$13.25	\$14.41	\$18.12	\$22.48	\$27.60	\$33.53
1.5 inch	\$19.75	\$27.52	\$34.59	\$42.92	\$52.70	\$64.02
2 inch	\$27.75	\$43.24	\$54.35	\$67.44	\$82.82	\$100.61
3 inch	\$34.00	\$85.18	\$107.06	\$132.85	\$163.14	\$198.18
4 inch	\$73.00	\$132.35	\$166.36	\$206.43	\$253.50	\$307.94
6 inch	\$185.50	\$263.40	\$331.08	\$410.82	\$504.50	\$612.85
8 inch	\$330.75	\$420.66	\$528.74	\$656.08	\$805.69	\$978.73
10 inch	--	\$1,102.10	\$1,385.28	\$1,718.90	\$2,110.87	\$2,564.22
12 inch	--	\$1,390.41	\$1,747.66	\$2,168.56	\$2,663.06	\$3,235.01
Monthly Fixed Service Charge - Fire Service Meters:						
2 inch	--	\$5.10	\$5.93	\$6.89	\$7.99	\$9.24
3 inch	--	\$9.61	\$11.03	\$12.65	\$14.49	\$16.59
4 inch	\$12.00	\$17.91	\$20.41	\$23.25	\$26.48	\$30.15
6 inch	\$24.00	\$39.25	\$44.54	\$50.53	\$57.31	\$64.99
8 inch	\$36.00	\$67.71	\$76.71	\$86.89	\$98.42	\$111.46
10 inch	\$48.00	\$105.66	\$119.60	\$135.38	\$153.23	\$173.41
12 inch	\$60.00	\$127.00	\$143.73	\$162.65	\$184.06	\$208.26
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$1.57	\$1.57	\$1.72	\$1.89	\$2.08	\$2.28

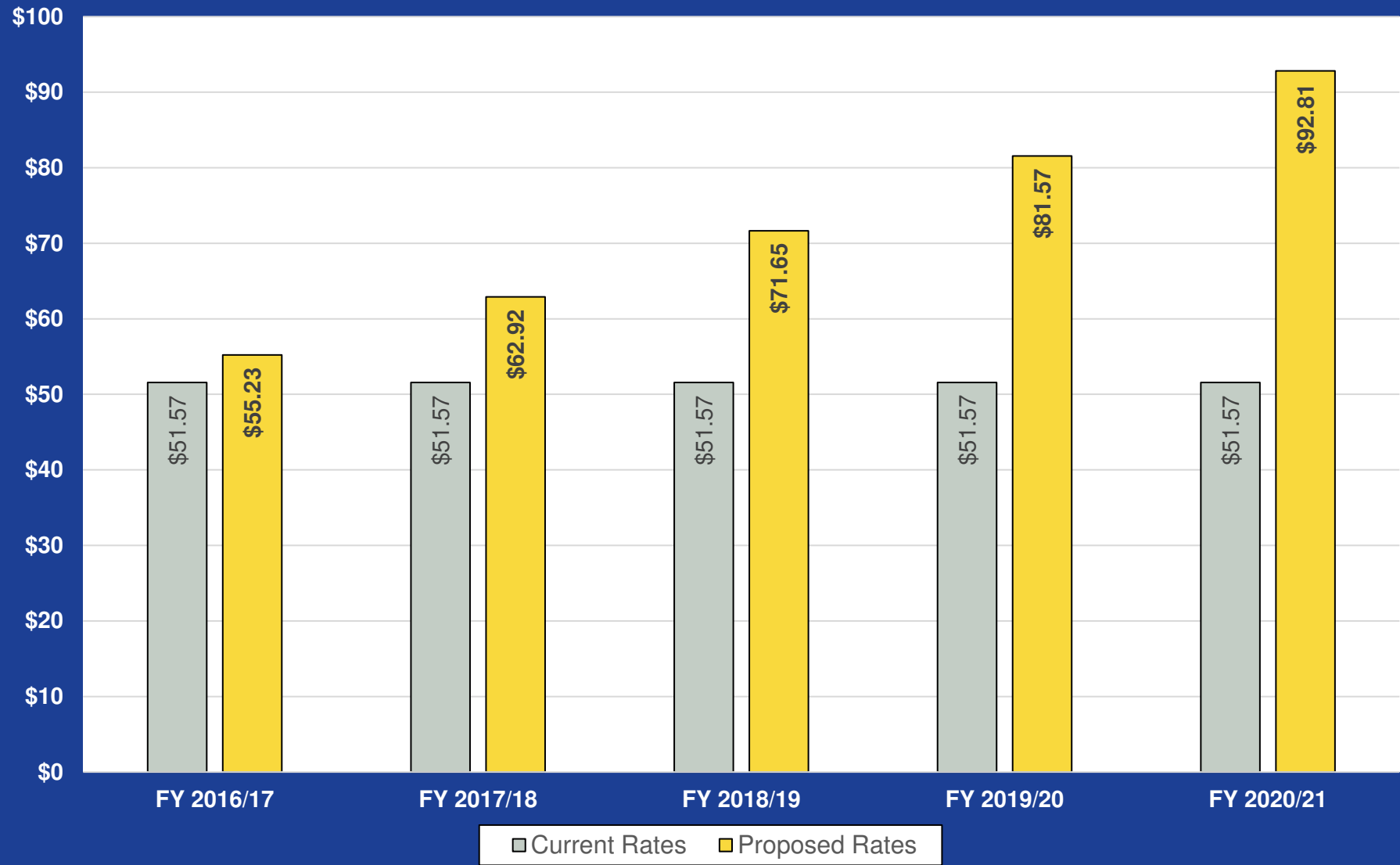
Proposed Drought Rates						
Drought Rate Schedule	Current Rates	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		13.00%	13.00%	13.00%	13.00%	13.00%
10% Conservation	--	\$1.66	\$1.82	\$2.01	\$2.22	\$2.44
20% Conservation	--	\$1.78	\$1.94	\$2.17	\$2.40	\$2.65
30% Conservation	--	\$1.93	\$2.10	\$2.37	\$2.63	\$2.91
40% Conservation	--	\$2.13	\$2.31	\$2.63	\$2.93	\$3.26
50% Conservation	--	\$2.42	\$2.60	\$3.00	\$3.36	\$3.74
60% Conservation	--	\$2.84	\$3.03	\$3.55	\$4.00	\$4.48

Single-Family Residential Water Bill Comparison Current vs. Proposed 2016/17 Rates (3/4 & 1" Meter)

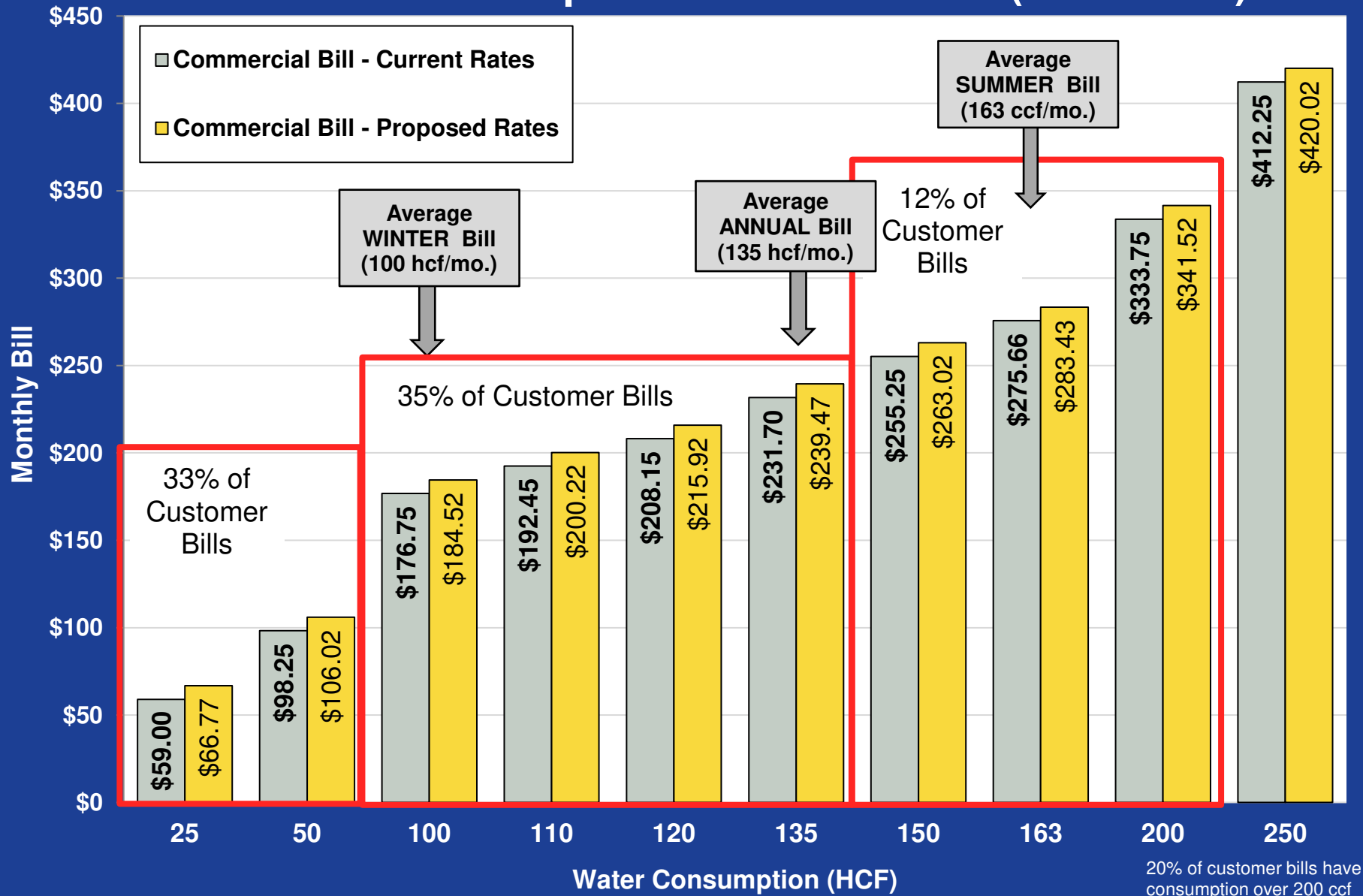


Average Single-Family Residential Customer Five Year Bill Projection

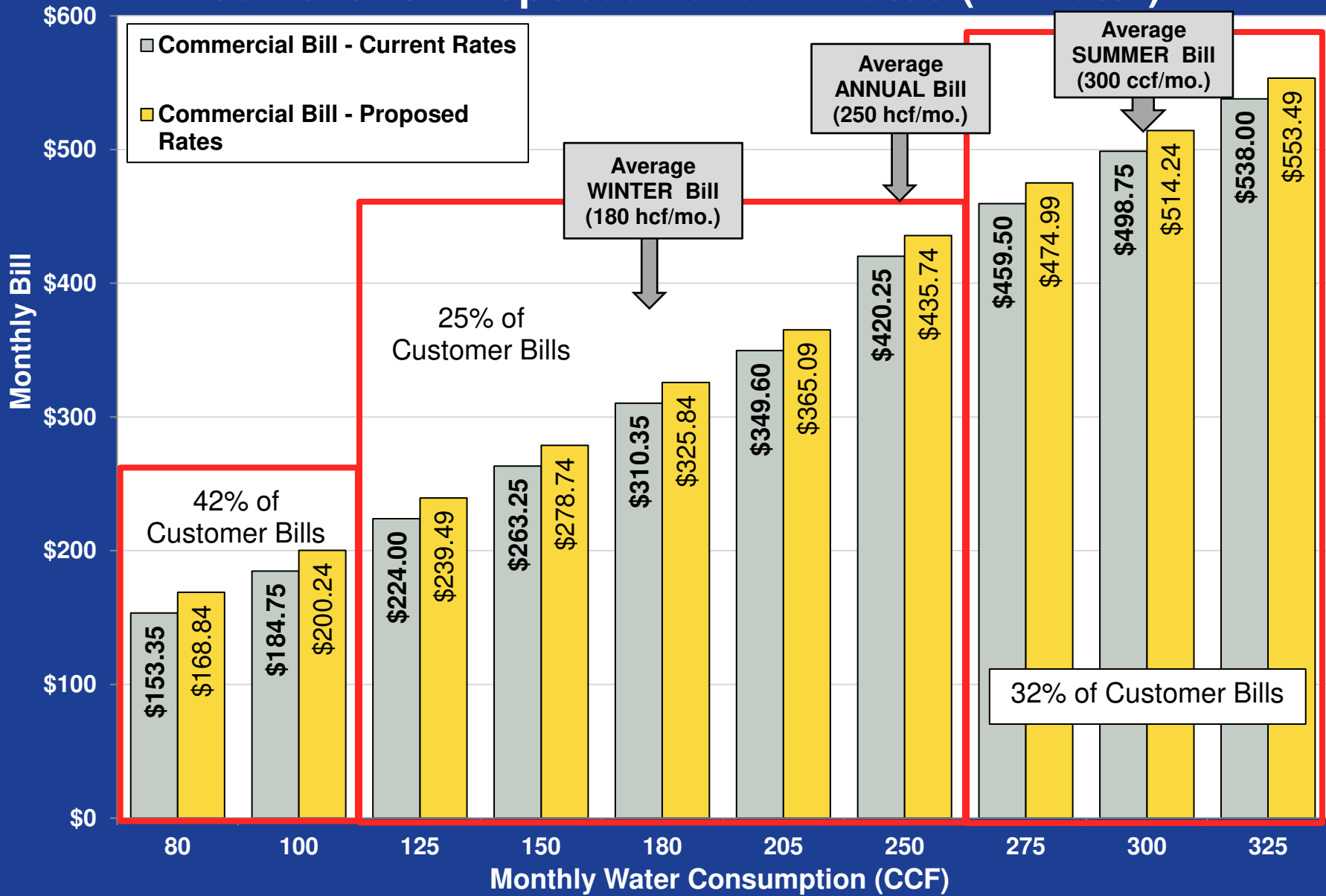
Assumes 26 hcf Consumption and 3/4"-1" Meter



Commercial Water Bill Comparison Current vs. Proposed 2016/17 Rates (1.5" Meter)



Commercial Water Bill Comparison Current vs. Proposed 2016/17 Rates (2" Meter)



APPENDIX C - DETAILED RECLAIMED WATER RATE STUDY TABLES & FIGURES

DESERT WATER AGENCY
RECLAIMED WATER RATE STUDY
Financial Plan and Reserve Projections

FINANCIAL PLAN AND SUMMARY OF RECLAIMED WATER REVENUE REQUIREMENTS

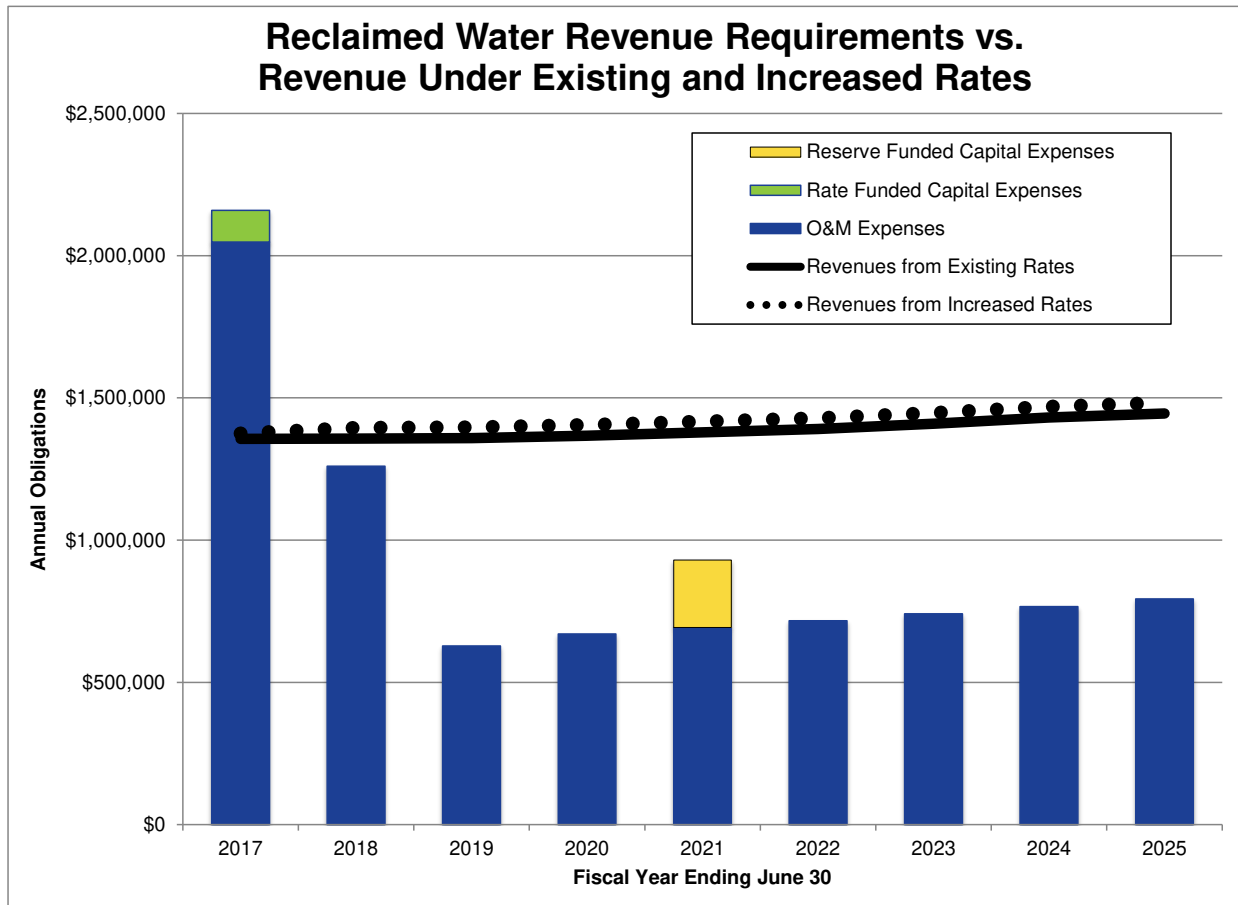
RATE REVENUE REQUIREMENTS SUMMARY	Budget	Projected								
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Reclaimed Water Funds										
<u>Operating Fund Revenues:</u>										
Reclamation Sales	\$ 1,398,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000
Potable System Contribution	-	783,903	-	-	-	-	-	-	-	-
Interest Earnings	-	-	1,048	2,585	11,129	23,098	35,022	53,325	75,066	89,115
Other Revenues	-	-	-	-	-	-	-	-	-	-
Subtotal Rate Revenue Under Prevailing Rates	\$ 1,398,000	\$ 2,139,903	\$ 1,357,048	\$ 1,358,585	\$ 1,367,129	\$ 1,379,098	\$ 1,391,022	\$ 1,409,325	\$ 1,431,066	\$ 1,445,115
Total Sources of Funds	\$ 1,398,000	\$ 2,139,903	\$ 1,357,048	\$ 1,358,585	\$ 1,367,129	\$ 1,379,098	\$ 1,391,022	\$ 1,409,325	\$ 1,431,066	\$ 1,445,115
Uses of Reclaimed Water Funds										
<u>Operating Fund Expenses:</u>										
Customer Account	\$ 408	\$ 431	\$ 440	\$ 450	\$ 459	\$ 470	\$ 480	\$ 490	\$ 501	\$ 512
Reclamation Plant:										
Pumping	\$ 338,387	\$ 234,300	\$ 244,609	\$ 255,372	\$ 266,608	\$ 278,339	\$ 290,586	\$ 303,372	\$ 316,720	\$ 330,656
Treatment	682,973	1,171,800	175,236	178,741	182,316	185,962	189,681	193,475	197,344	201,291
Transportation/Distribution	116,100	617,650	69,003	70,383	71,791	73,227	74,691	76,185	77,709	79,263
Administrative & General	15,258	23,700	24,648	85,634	149,059	155,022	161,223	167,671	174,378	181,353
Other Operating Expenditures	-	-	-	-	-	-	-	-	-	-
Subtotal: Operating Fund Expenses	\$ 1,153,126	\$ 2,047,881	\$ 513,936	\$ 590,579	\$ 670,233	\$ 693,019	\$ 716,661	\$ 741,193	\$ 766,652	\$ 793,075
<u>Other Expenses:</u>										
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Potable System Payback	-	-	746,140	37,763	-	-	-	-	-	-
Rate-Funded Capital Expenses	35,200	111,034	-	-	-	-	-	-	-	-
Subtotal: Other Expenditures	\$ 35,200	\$ 111,034	\$ 746,140	\$ 37,763	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Uses of Water Funds	\$ 1,188,326	\$ 2,158,915	\$ 1,260,076	\$ 628,343	\$ 670,233	\$ 693,019	\$ 716,661	\$ 741,193	\$ 766,652	\$ 793,075
plus: Revenue from Rate Increases	-	19,011	38,023	38,023	38,023	38,023	38,023	38,023	38,023	38,023
Increase/(Decrease) to Reserves	\$ 209,674	\$ -	\$ 134,995	\$ 768,265	\$ 734,919	\$ 724,102	\$ 712,384	\$ 706,155	\$ 702,436	\$ 690,062
Net Revenue Req. (Total Uses less Non-Rate Revenue)	\$ 1,188,326	\$ 1,375,011	\$ 1,259,028	\$ 625,758	\$ 659,104	\$ 669,921	\$ 681,639	\$ 687,868	\$ 691,586	\$ 703,961
Total Rate Revenue After Rate Increases	\$ 1,398,000	\$ 1,375,011	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023	\$ 1,394,023
Projected Annual Reclaimed Rate Revenue Increase	0.00%	2.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cumulative Increase from Annual Revenue Increases</i>	<i>0.00%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>	<i>2.80%</i>

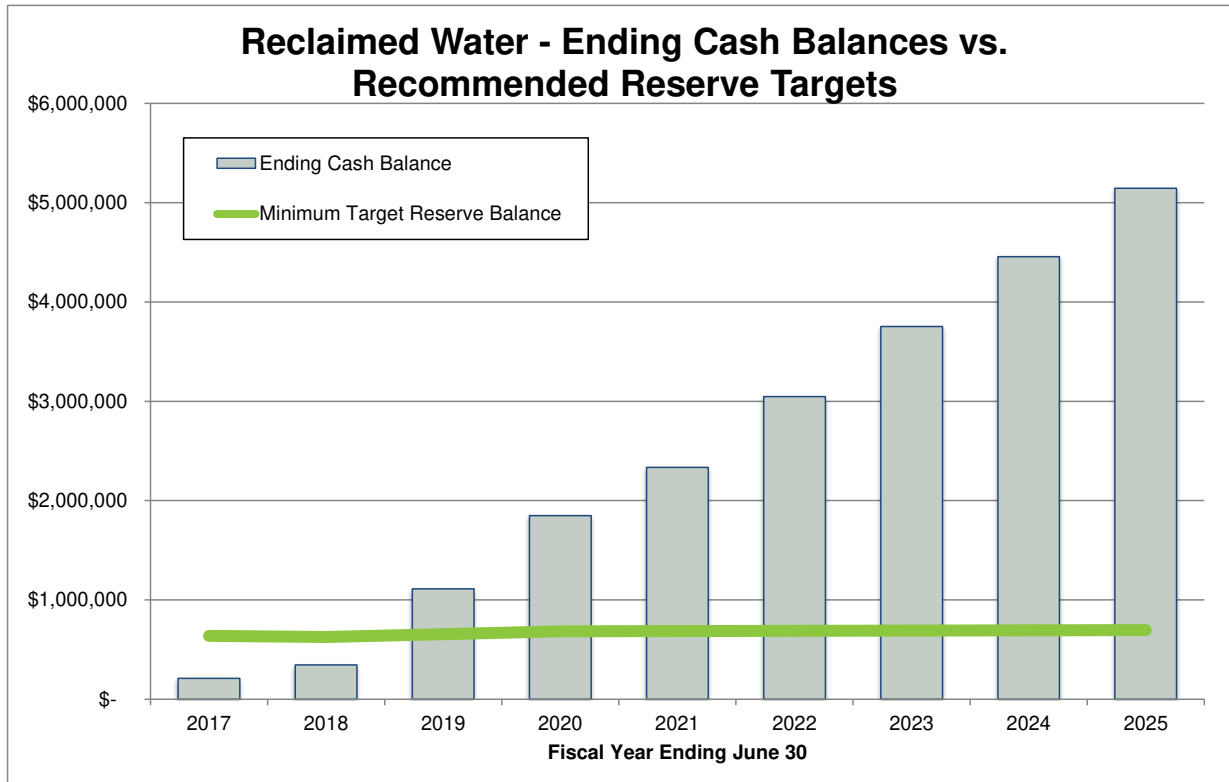
DESERT WATER AGENCY
RECLAIMED WATER RATE STUDY
Financial Plan and Reserve Projections

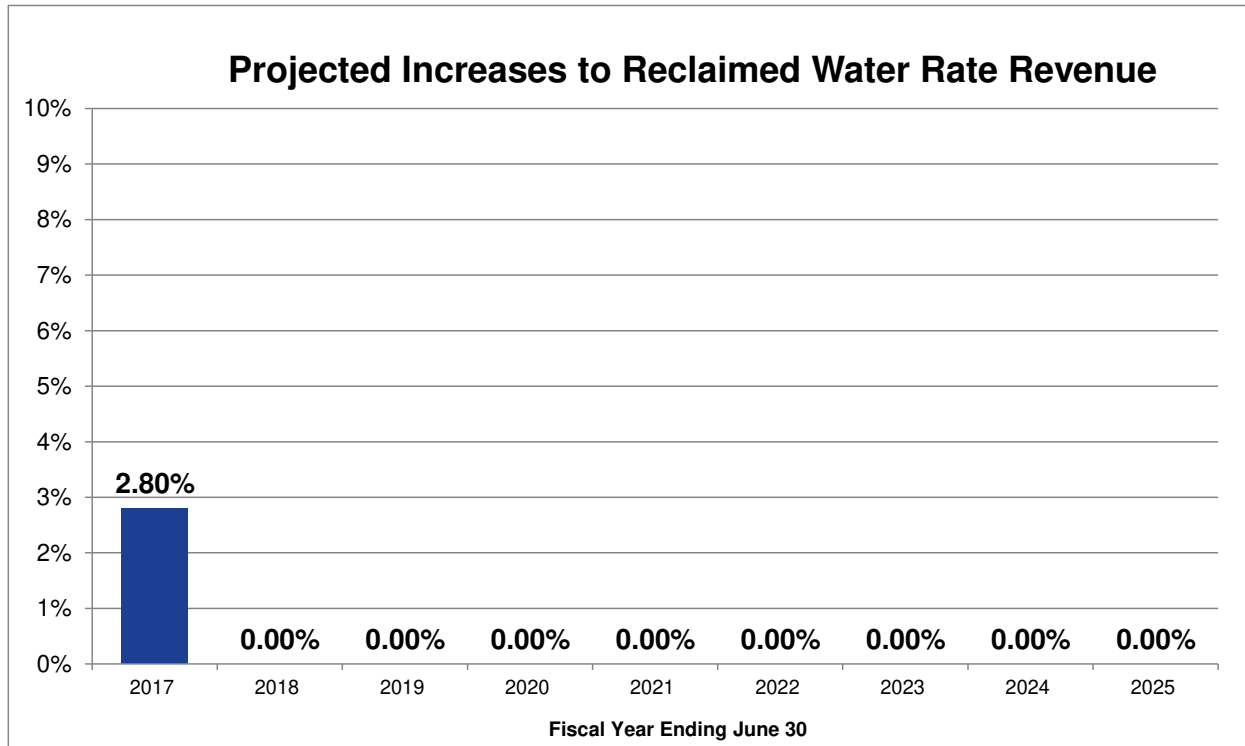
RECLAIMED WATER RESERVE FUND SUMMARY

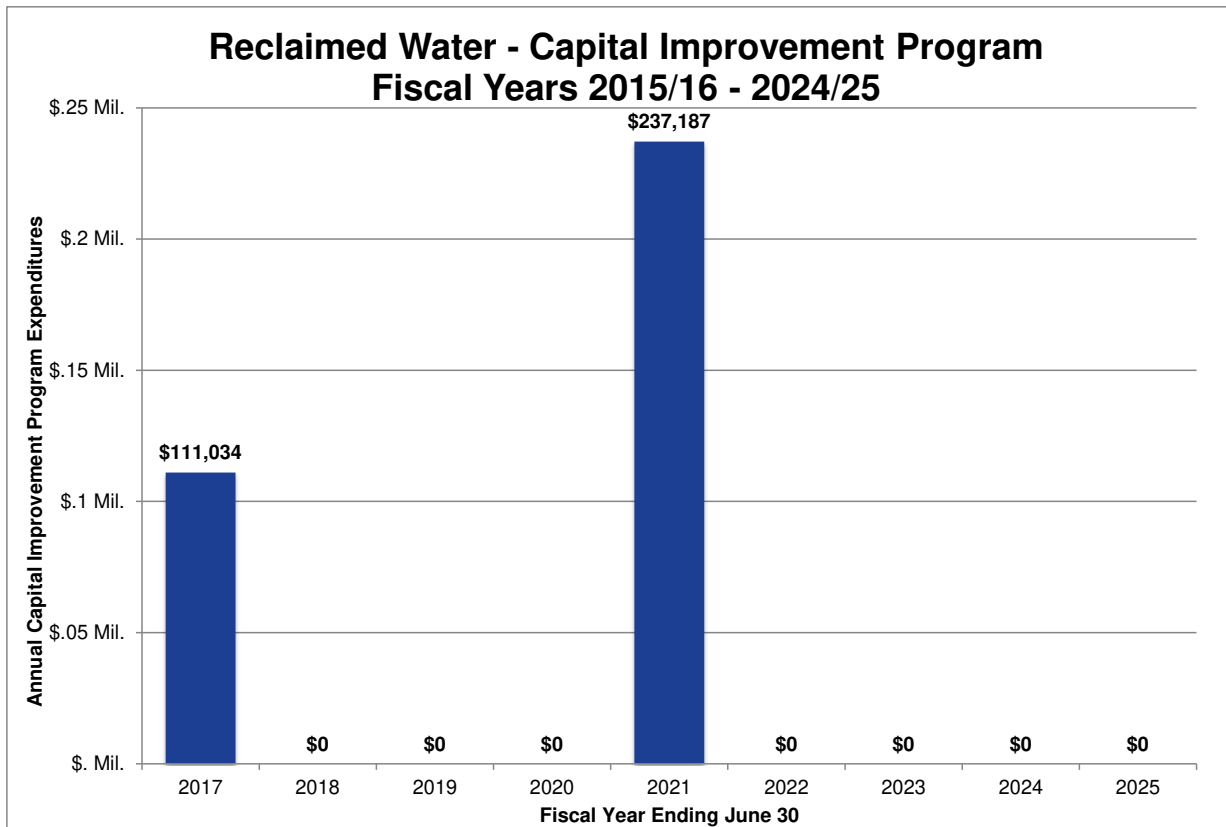
SUMMARY OF CASH ACTIVITY	Budget	Projected								
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Beginning Cash	\$ -									
Operating Reserve										
Beginning Reserve Balance	\$ -	\$ 209,674	\$ 209,674	\$ 256,968	\$ 295,290	\$ 335,117	\$ 346,509	\$ 358,330	\$ 370,597	\$ 383,326
Plus: Net Cash Flow (After Rate Increases)	209,674	-	134,995	768,265	734,919	724,102	712,384	706,155	702,436	690,062
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Transfer Out to Reserves for Replacements	-	-	(87,701)	(729,944)	(695,092)	(712,710)	(700,563)	(693,888)	(689,707)	(676,851)
Ending Operating Reserve Balance	\$ 209,674	\$ 209,674	\$ 256,968	\$ 295,290	\$ 335,117	\$ 346,509	\$ 358,330	\$ 370,597	\$ 383,326	\$ 396,538
<i>Target Ending Balance (6-months of O&M) (1)</i>	<i>\$ 256,968</i>	<i>\$ 256,968</i>	<i>\$ 256,968</i>	<i>\$ 295,290</i>	<i>\$ 335,117</i>	<i>\$ 346,509</i>	<i>\$ 358,330</i>	<i>\$ 370,597</i>	<i>\$ 383,326</i>	<i>\$ 396,538</i>
Reserve for Replacements										
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ 87,701	\$ 817,645	\$ 1,512,737	\$ 1,988,259	\$ 2,688,821	\$ 3,382,710	\$ 4,072,417
Plus: Grant Proceeds	-	-	-	-	-	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	-	-	87,701	729,944	695,092	712,710	700,563	693,888	689,707	676,851
Less: Use of Reserves for Projects	-	-	-	-	-	(237,187)	-	-	-	-
Ending Reserve for Replacements Balance	\$ -	\$ -	\$ 87,701	\$ 817,645	\$ 1,512,737	\$ 1,988,259	\$ 2,688,821	\$ 3,382,710	\$ 4,072,417	\$ 4,749,267
<i>Minimum Target Ending Balance (3% of Net Assets)</i>	<i>\$ 390,000</i>	<i>\$ 380,000</i>	<i>\$ 370,000</i>	<i>\$ 360,000</i>	<i>\$ 350,000</i>	<i>\$ 340,000</i>	<i>\$ 330,000</i>	<i>\$ 320,000</i>	<i>\$ 310,000</i>	<i>\$ 300,000</i>
Ending Balance	\$ 209,674	\$ 209,674	\$ 344,669	\$ 1,112,934	\$ 1,847,853	\$ 2,334,768	\$ 3,047,152	\$ 3,753,306	\$ 4,455,743	\$ 5,145,805
Recommended Minimum Target Ending Balance	\$ 646,968	\$ 636,968	\$ 626,968	\$ 655,290	\$ 685,117	\$ 686,509	\$ 688,330	\$ 690,597	\$ 693,326	\$ 696,538
Ending Surplus/(Deficit) Compared to Min. Reserve Target	\$ (437,294)	\$ (427,294)	\$ (282,299)	\$ 457,645	\$ 1,162,737	\$ 1,648,259	\$ 2,358,821	\$ 3,062,710	\$ 3,762,417	\$ 4,449,267
Days Cash on Hand	66	37	100	646	1006	1230	1552	1848	2121	2368

1. Target O&M balance is set to 6-months of O&M expenditures, except in FY 2015/16-2016/17 this is set equal to the 2017/18 target, since costs spike due to irregular costs.









DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Reclaimed Water Utility Operating Revenues and Expenses

EXHIBIT 1.F

FORECASTING ASSUMPTIONS:

Economic Variables		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Customer Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	General Cost Inflation	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
3	Labor Cost Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
4	Energy Cost Inflation	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%
5	Transportation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
6	Utilities	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
7	Construction Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
8	No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rate Revenue Policy		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
8	Adopted Rate Increase	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	Rate Increase plus Customer Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	Other	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

OPERATING FUND:

Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Water Sales	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Power Sales	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reclamation Sales	1	\$ 1,398,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000
Total: Operating Revenues		\$ 1,398,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000

Operating Expenditures - Customer Account	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 46	\$ 46	\$ 48	\$ 50	\$ 52	\$ 54	\$ 57	\$ 59	\$ 61	\$ 64
Meter Reading Expense	2	\$ 46	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 57	\$ 58	\$ 59
Customer Rec & Coll Exp	2	\$ 304	\$ 323	\$ 330	\$ 336	\$ 343	\$ 350	\$ 357	\$ 364	\$ 371	\$ 379
Information Systems Supplies	2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2
Uncollectible Accounts	1	\$ 10	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8
Total: Customer Account		\$ 408	\$ 431	\$ 440	\$ 450	\$ 459	\$ 470	\$ 480	\$ 490	\$ 501	\$ 512

Operating Expenditures Reclamation Plant (Full Cost)	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Pumping Expense	4	\$ 338,387	\$ 234,300	\$ 244,609	\$ 255,372	\$ 266,608	\$ 278,339	\$ 290,586	\$ 303,372	\$ 316,720	\$ 330,656
Treatment Expense	2	\$ 682,973	\$ 1,171,800	\$ 175,236	\$ 178,741	\$ 182,316	\$ 185,962	\$ 189,681	\$ 193,475	\$ 197,344	\$ 201,291
Transportation/Distribution	2	\$ 116,100	\$ 617,650	\$ 69,003	\$ 70,383	\$ 71,791	\$ 73,227	\$ 74,691	\$ 76,185	\$ 77,709	\$ 79,263
Administrative & General	3	\$ 15,258	\$ 23,700	\$ 24,648	\$ 85,634	\$ 149,059	\$ 155,022	\$ 161,223	\$ 167,671	\$ 174,378	\$ 181,353
Total: Reclamation Plant		\$ 1,152,718	\$ 2,047,450	\$ 513,496	\$ 590,130	\$ 669,774	\$ 692,549	\$ 716,181	\$ 740,703	\$ 766,151	\$ 792,563

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Reclaimed Water Utility Operating Revenues and Expenses

EXHIBIT 1.F

ALL FUNDS:

Summary of Revenues and Expenditures	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues:										
Reclamation Sales (Rate Revenue)	\$ 1,398,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000
All Other Revenues Included in this Module	-	-	-	-	-	-	-	-	-	-
Total Revenues	\$ 1,398,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000	\$ 1,356,000
Expenditures:										
State Water Project Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
All Other Operating Expenditures Included in this Module	1,153,126	2,047,881	513,936	590,579	670,233	693,019	716,661	741,193	766,652	793,075
Total Expenditures	\$ 1,153,126	\$ 2,047,881	\$ 513,936	\$ 590,579	\$ 670,233	\$ 693,019	\$ 716,661	\$ 741,193	\$ 766,652	\$ 793,075

DEPRECIATION EXPENSE FORECAST:

Depreciation Expense	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Existing Depreciation Expense - Operating Fund	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385
Existing Depreciation Expense - General Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Depreciation Expense - Wastewater Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Forecasted Additions to the Depreciation Expense	\$ 1,056	\$ 3,331	\$ -	\$ -	\$ -	\$ 7,116	\$ -	\$ -	\$ -	\$ -
Total: Annual Depreciation Expense	\$ 307,441	\$ 309,716	\$ 306,385	\$ 306,385	\$ 306,385	\$ 313,500	\$ 306,385	\$ 306,385	\$ 306,385	\$ 306,385

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Reclaimed Water Utility Capital Funding Plan

EXHIBIT 3B-2

SUMMARY OF CAPITAL EXPENDITURES:

Forecasted Expenditures by Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Pipelines - Routine	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transportation Equipment - Routine	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Miscellaneous - Routine	\$ 35,200	\$ 111,034	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
General Plan Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Un-Programmed General Plan Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 237,187	\$ -	\$ -	\$ -	\$ -
Grand Total: Forecasted Expenditures	\$ 35,200	\$ 111,034	\$ -	\$ -	\$ -	\$ 237,187	\$ -	\$ -	\$ -	\$ -

CAPITAL FUNDING FORECAST:

Forecasted Funding Sources (Assumes Forecasted Rate Increases Are Implemented)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Grants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Connection Fee Reserves	-	-	-	-	-	-	-	-	-	-
Use of New SRF Loan Financing	-	-	-	-	-	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
Use of Reserves for Replacements	-	-	-	-	-	237,187	-	-	-	-
Rate Revenue	35,200	111,034	-	-	-	-	-	-	-	-
Grand Total: Funding Sources	\$ 35,200	\$ 111,034	\$ -	\$ -	\$ -	\$ 237,187	\$ -	\$ -	\$ -	\$ -

Uses of Capital Funds:										
Total Project Costs	\$ 35,200	\$ 111,034	\$ -	\$ -	\$ -	\$ 237,187	\$ -	\$ -	\$ -	\$ -
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

New SRF Loan Financing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

10-Year CIP Total (FY 2015/16 - 2024/25)	\$ 383,421
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DESERT WATER AGENCY
WATER RATE STUDY
Reclaimed Water Cost of Service Analysis

Classification of Expenses							
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Basis of Classification		
	FY 2016/17	COM	CAP	CA	COM	CAP	CA
Reclaimed Water							
OPERATING FUND:							
Customer Account							
Supervision & Engineering	\$ 46	\$ -	\$ -	\$ 46	0%	0%	100%
Meter Reading Expense	51	-	-	51	0%	0%	100%
Customer Rec & Coll Exp	323	-	-	323	0%	0%	100%
Information Systems Supplies	2	-	-	2	0%	0%	100%
Uncollectible Accounts	8	-	-	8	0%	0%	100%
Total: Customer Account	\$ 431	\$ -	\$ -	\$ 431	0%	0%	100%
Sub-Total: Reclaimed Water - Operating Expenditures	\$ 431	\$ -	\$ -	\$ 431	0%	0%	100%

Classification of Expenses, continued							
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Basis of Classification		
	FY 2016/17	COM	CAP	CA	COM	CAP	CA
Reclaimed Water							
OPERATING FUND:							
Reclamation Plant							
Pumping Expense	\$ 234,300	\$ 234,300	\$ -	\$ -	100%	0%	0%
Treatment Expense	1,171,800	703,080	468,720	-	60%	40%	0%
Transportation/Distribution	617,650	308,825	308,825	-	50%	50%	0%
Administrative & General	23,700	7,110	16,590	-	30%	70%	0%
Total: Reclamation Plant	\$ 2,047,450	\$ 1,253,315	\$ 794,135	\$ -	61%	39%	0%
Sub-Total: Reclaimed Water - Operating Expenditures	\$ 2,047,450	\$ 1,253,315	\$ 794,135	\$ -	61%	39%	0%
TOTAL: RECLAIMED WATER OPERATING EXPENDITURES	\$ 2,047,881	\$ 1,253,315	\$ 794,135	\$ 431	61%	39%	0%

DESERT WATER AGENCY
WATER RATE STUDY
Reclaimed Water Cost of Service Analysis

Classification of Expenses, continued							
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Basis of Classification		
	FY 2016/17	COM	CAP	CA	COM	CAP	CA
Capital Expenditures							
Rate Funded Capital Expenses	\$ 111,034	\$ -	\$ 111,034	\$ -	0%	100%	0%
TOTAL REVENUE REQUIREMENTS	\$ 2,158,915	\$ 1,253,315	\$ 905,169	\$ 431	58%	42%	0%
<i>Less: Non-Rate Revenues</i>							
Other Revenue							
Subsidy from Potable Customers	(783,903)	(548,732)	(235,171)	-	70%	30%	0%
Interest Earnings	-	-	-	-	58%	42%	0%
NET REVENUE REQUIREMENTS	\$ 1,375,011	\$ 704,583	\$ 669,998	\$ 431			
<i>Allocation of Revenue Requirements</i>	100%	51%	49%	0%			

Classification of Expenses, continued				
Adjustments to Classification of Expenses				
Adjustment for Current Rate Level:	Total	COM	CAP	CA
Test Year FY 2016/17 Target Rate Rev. After Rate Increases	\$1,394,023			
FY 2016/17 Projected Rate Revenue at Current Rates	\$1,356,000			
Rate Increase (FY 2016/17)	2.8%			
Adjusted Net Revenue Req'ts	\$1,394,023	\$ 714,325	\$ 679,262	\$ 437
<i>Percent of Revenue</i>		51.2%	48.7%	0.0%

**DESERT WATER AGENCY
RECLAIMED WATER RATE STUDY
Reclaimed Water Cost of Service Analysis/Rate Design**

ALLOCATION OF WATER REVENUE REQUIREMENTS:

Classification Components	Proposed Alternative	
	Adjusted Net Revenue Requirements (2016/17)	
Commodity Related Costs	\$ 1,360,555	97.6%
Capacity-Related Costs	\$ 33,032	2.4%
Customer-Related Costs	\$ 437	0.0%
Net Revenue Requirement	\$ 1,394,023	100%

% Fixed 2%
% Variable 98%

PROPOSED VOLUMETRIC CHARGES FOR FY 2016/17 (RECLAIMED WATER):

Rate Structure Type	Number of Meters (1)	Water Consumption (hcf/yr.)	Target Rev. Req't from Vol. Charges	Uniform Commodity Rates (\$/hcf)	Proposed Rate Structure
Uniform Commodity Rate (\$/hcf)	12	1,722,221	\$1,360,555	\$0.79	Uniform

1. Meter counts, consumption rates and customer class from Source file: BILLHST2.xlsx.

Meter Equivalency Factors Used in Fixed Charges Calculations:

Meter Size	Standard Meters		
	Meter Capacity (gpm) (1)	Equivalency to 1 inch	DWA Current Equivalency Factors
<i>Displacement Meters</i>			
3/4 inch (3)	30	1.00	0.80
1 inch (3)	50	1.00	1.00
1.5 inch	100	2.00	1.12
2 inch	160	3.20	2.40
<i>Compound Class I Meters</i>			
3 inch	320	6.40	3.36
4 inch	500	10.00	7.20
6 inch	1,000	20.00	18.40
8 inch	1,600	32.00	32.80
<i>Turbine Class II Meters</i>			
10 inch	4,200	84.00	36.00
12 inch	5,300	106.00	36.00

1. Per AWWA M-1, Table B-1.

2. Per AWWA M-6, Table 5-3.

DESERT WATER AGENCY
RECLAIMED WATER RATE STUDY
 Reclaimed Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES FOR FY 2016/17:

Number of Meters by Class and Size (1)	FY 2015/16										Total
	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	12 inch	
Reclaimed Water	-	-	-	5	-	-	-	-	1	6	12
Total Meters/Accounts	-	-	-	5	-	-	-	-	1	6	12
Hydraulic Capacity Factor (2)	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	106.00	
Total Equivalent Meters	-	-	-	16	-	-	-	-	84	636	736
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) (3)	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	\$3.03	
Capacity Costs (\$/Acct/mo.) (4)	\$3.74	\$3.74	\$7.48	\$11.97	\$23.94	\$37.40	\$74.80	\$119.68	\$314.16	\$396.44	
Total Monthly Meter Charge	\$6.77	\$6.77	\$10.51	\$15.00	\$26.97	\$40.43	\$77.83	\$122.71	\$317.19	\$399.47	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 437										
Capacity Costs	33,032										
Total Fixed Meter Costs	\$ 33,468										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ -	\$ -	\$ -	\$ 182	\$ -	\$ -	\$ -	\$ -	\$ 36	\$ 218	\$ 437
Capacity Charges	\$ -	\$ -	\$ -	\$ 718	\$ -	\$ -	\$ -	\$ -	\$ 3,770	\$ 28,544	\$ 33,032
Total Revenue from Monthly M	\$ -	\$ -	\$ -	\$ 900	\$ -	\$ -	\$ -	\$ -	\$ 3,806	\$ 28,762	\$ 33,468

1. Number of meters by size and class are from the DWA utility billing system. Source file: *BILLHST2.xlsx*.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees and Charges", Table VI.2-5. Assumes displacement meters for 5/8 through 2 inch meters, Compound 3 - 8 inch meters, Turbine for 10 & 12 inch, unless noted otherwise.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

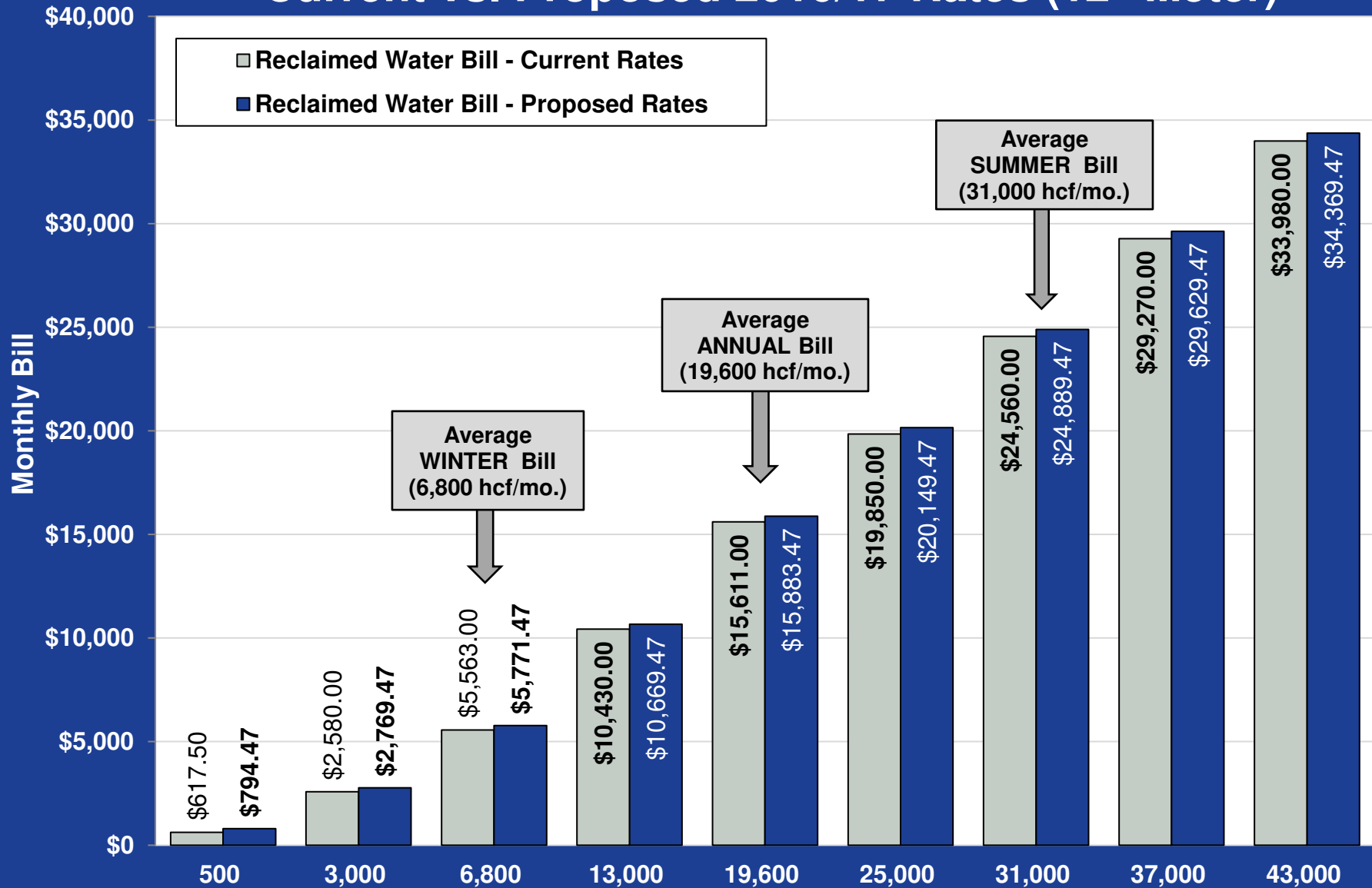
DESERT WATER AGENCY
RECLAIMED WATER RATE STUDY
 Reclaimed Water Cost of Service Analysis/Rate Design

CURRENT VS. PROPOSED RECLAIMED WATER RATES:

Reclaimed Water Rate Schedule	Current Rates (1)	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Fixed Monthly Service Charge						
Fixed Monthly Service Charge:						
2 inch	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
3 inch	\$21.00	\$26.97	\$26.97	\$26.97	\$26.97	\$26.97
4 inch	\$45.00	\$40.43	\$40.43	\$40.43	\$40.43	\$40.43
6 inch	\$115.00	\$77.83	\$77.83	\$77.83	\$77.83	\$77.83
8 inch	\$205.00	\$122.71	\$122.71	\$122.71	\$122.71	\$122.71
10 inch	\$225.00	\$317.19	\$317.19	\$317.19	\$317.19	\$317.19
12 inch	\$225.00	\$399.47	\$399.47	\$399.47	\$399.47	\$399.47
Commodity Charges for All Water Consumed						
Uniform Rate, all customers	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79	\$0.79

1. Current reclaimed water fixed charges set by Resolution No. 978, does not include \$35 flow control valve charge for meters 8" or larger.
2. Initial adjustment to rates would be effective January 1, 2017.

Reclaimed Water Bill Comparison Current vs. Proposed 2016/17 Rates (12" Meter)



APPENDIX D - DETAILED WASTEWATER RATE STUDY TABLES & FIGURES

DESERT WATER AGENCY
WASTEWATER RATE STUDY
Financial Plan and Reserve Projections

TABLE 1
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY (1)	Budget		Projected							
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Sources of Wastewater Funds										
<u>Wastewater Fund</u>										
Wastewater Service Charges	\$ 973,900	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000
Pass Through Payment to Other Agencies	(710,400)	(703,500)	(717,167)	(721,833)	(726,500)	(731,167)	(735,833)	(740,500)	(745,167)	(749,833)
Pass Through Payment to Other Agencies, withheld (2)	(70,000)	(70,000)	(65,333)	(60,667)	(56,000)	(51,333)	(46,667)	(42,000)	(37,333)	(32,667)
Net Wastewater Service Charge (DWA portion)	\$ 193,500	\$ 201,500	\$ 192,500	\$ 192,500	\$ 192,500	\$ 192,500	\$ 192,500	\$ 192,500	\$ 192,500	\$ 192,500
Interest Earnings (3)	\$ 3,900	\$ 4,500	\$ 4,317	\$ 6,273	\$ 8,066	\$ 9,671	\$ 11,064	\$ 12,237	\$ 13,172	\$ 12,311
Pass Through Payment to Other Agencies, withheld (2)	70,000	70,000	65,333	60,667	56,000	51,333	46,667	42,000	37,333	32,667
Other Operating Revenue	600	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Total: Sources of Funds	\$ 268,000	\$ 277,800	\$ 263,950	\$ 261,240	\$ 258,366	\$ 255,304	\$ 252,030	\$ 248,537	\$ 244,805	\$ 239,278
Uses of Wastewater Funds										
<u>Operating Fund Expenses:</u>										
Customer Account	\$ 72,720	\$ 76,729	\$ 78,399	\$ 80,109	\$ 81,860	\$ 83,654	\$ 85,491	\$ 87,372	\$ 89,299	\$ 91,273
<u>Wastewater Fund Expenses:</u>										
Maintenance	115,800	110,700	112,914	115,172	117,476	119,825	122,222	124,666	127,160	129,703
Other Operating Expenses	27,925	28,400	29,466	30,579	31,742	32,957	34,226	35,553	36,940	38,391
Non-Operating Expenses	5,775	4,525	4,525	4,525	4,525	4,525	4,525	4,525	4,525	4,525
Subtotal: Operating & Wastewater Fund Expenses	\$ 222,220	\$ 220,354	\$ 225,304	\$ 230,386	\$ 235,603	\$ 240,961	\$ 246,464	\$ 252,116	\$ 257,924	\$ 263,891
<u>Other Expenditures:</u>										
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Future Debt Service	-	-	-	-	-	-	-	-	-	-
Rate-Funded Capital Expenses (4)	37,200	-	-	-	-	-	-	-	-	29,262
Subtotal: Other Expenditures	\$ 37,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 29,262
Total Uses of Wastewater Funds	\$ 259,420	\$ 220,354	\$ 225,304	\$ 230,386	\$ 235,603	\$ 240,961	\$ 246,464	\$ 252,116	\$ 257,924	\$ 293,153
plus: Revenue from Rate Increases (5)	-	3,526	14,037	21,266	28,747	36,491	45,651	55,177	65,084	75,387
Increase/Decrease to Reserves	\$ 8,580	\$ 60,972	\$ 52,683	\$ 52,120	\$ 51,510	\$ 50,834	\$ 51,217	\$ 51,597	\$ 51,965	\$ 21,512
Net Revenue Req. (Total Uses less Non-Rate Revenue)	\$ 184,920	\$ 144,054	\$ 153,854	\$ 161,646	\$ 169,737	\$ 178,157	\$ 186,934	\$ 196,080	\$ 205,619	\$ 246,375
Total Rate Revenue After Rate Increases	\$ 193,500	\$ 205,026	\$ 206,537	\$ 213,766	\$ 221,247	\$ 228,991	\$ 238,151	\$ 247,677	\$ 257,584	\$ 267,887
Projected Annual Rate Revenue Increase	0.00%	3.50%	3.50%	3.50%	3.50%	3.50%	4.00%	4.00%	4.00%	4.00%
Overall Annual Increase to Rate Revenue (6)	0.00%	0.72%	0.71%	0.73%	0.75%	0.77%	0.91%	0.93%	0.96%	0.99%
Cumulative Increase from Annual Revenue Increases	0.00%	3.50%	7.12%	10.87%	14.75%	18.77%	23.52%	28.46%	33.60%	38.94%
Debt Coverage Without Rate Increase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Debt Coverage After Rate Increase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

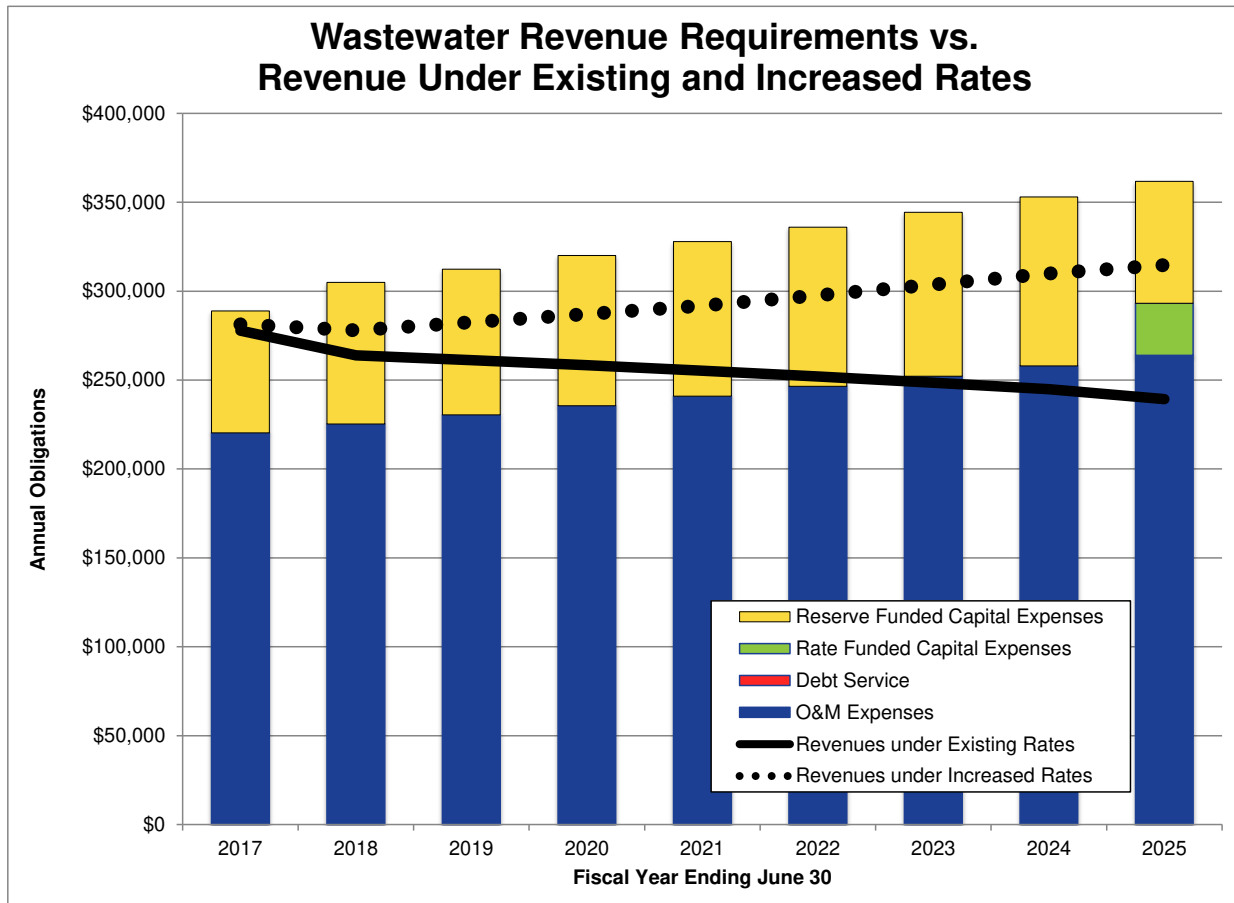
- Information derived from the Desert Water Agency Operating Fund, General Fund, and Wastewater Fund for Fiscal Year 2016 Budgets ending June 30. Source file: 1. 2015 2016 Budget.pdf.
- This is rate revenue collected on behalf of other agencies which isn't passed-thru, since those customers are not yet connected to the system, revenue is reduced as customers connect to the system. For purposes of this analysis, NBS has assumed that this revenue to DWA will be phased out over 15-years.
- Interest income is per the District's budget for FY 2014/15 - 2015/16, and calculated here for all future years.
- For purposes of this analysis, NBS has preliminarily assumed \$250,000 in capital expenditures on the wastewater system, annually.
- Initial rate increases are anticipated to be effective 01/01/2017 and July 1st, each year thereafter.
- Overall increase considers the revenue collected for wastewater treatment for CVWD and the City of Palm Springs.

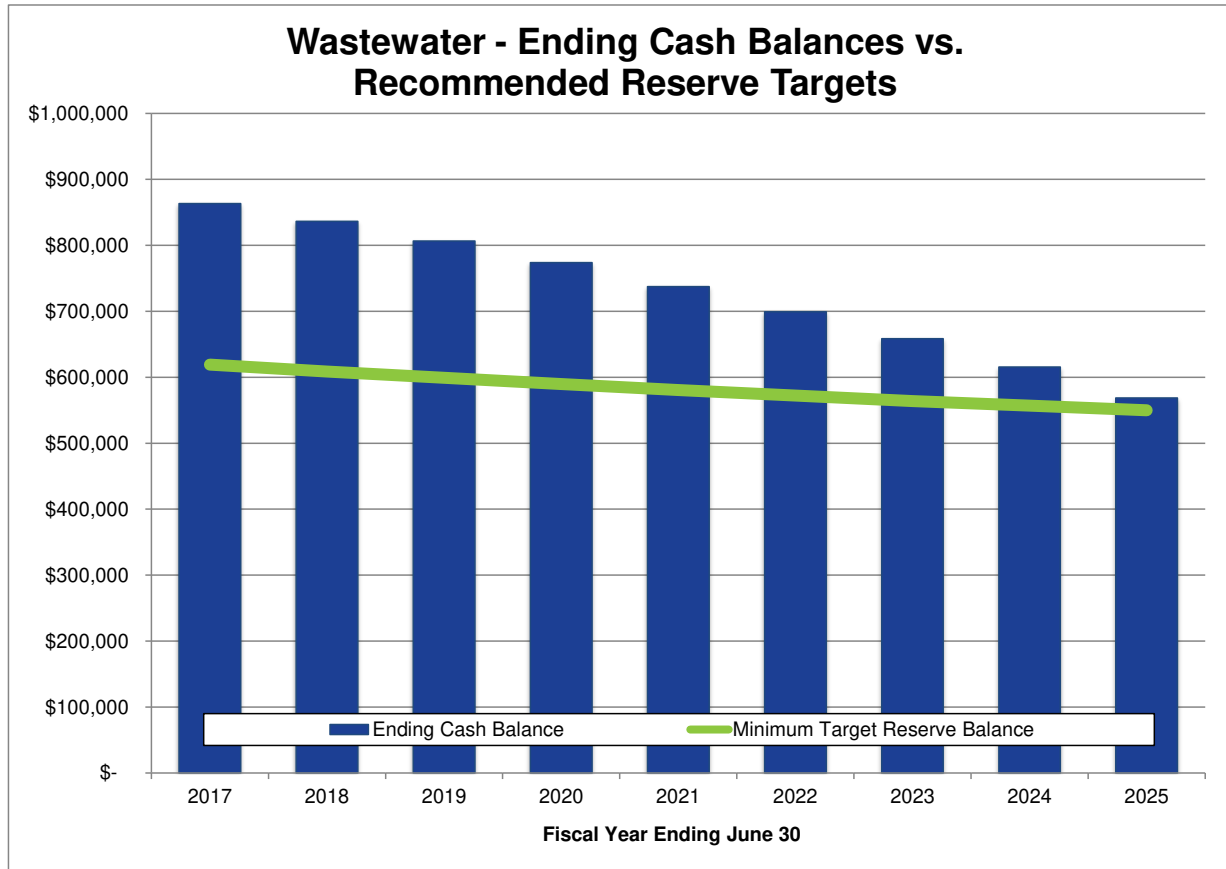
DESERT WATER AGENCY
WASTEWATER RATE STUDY
Financial Plan and Reserve Projections

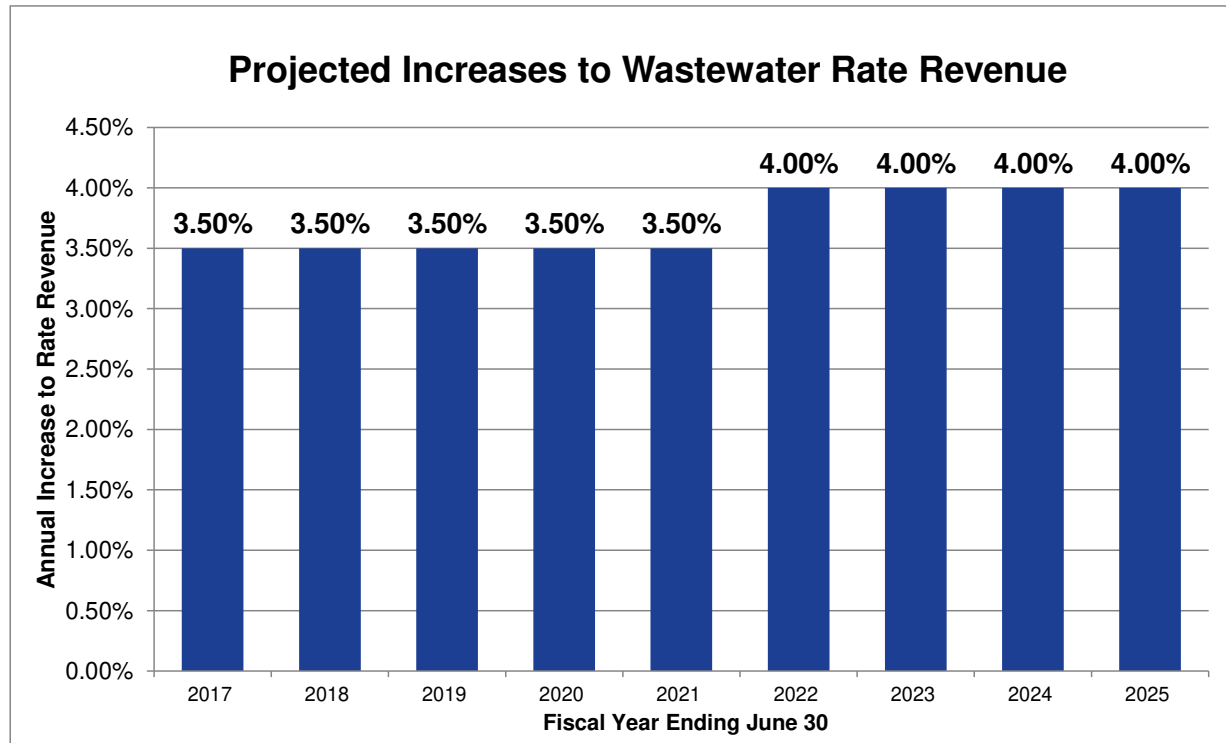
TABLE 2
RESERVE FUND SUMMARY

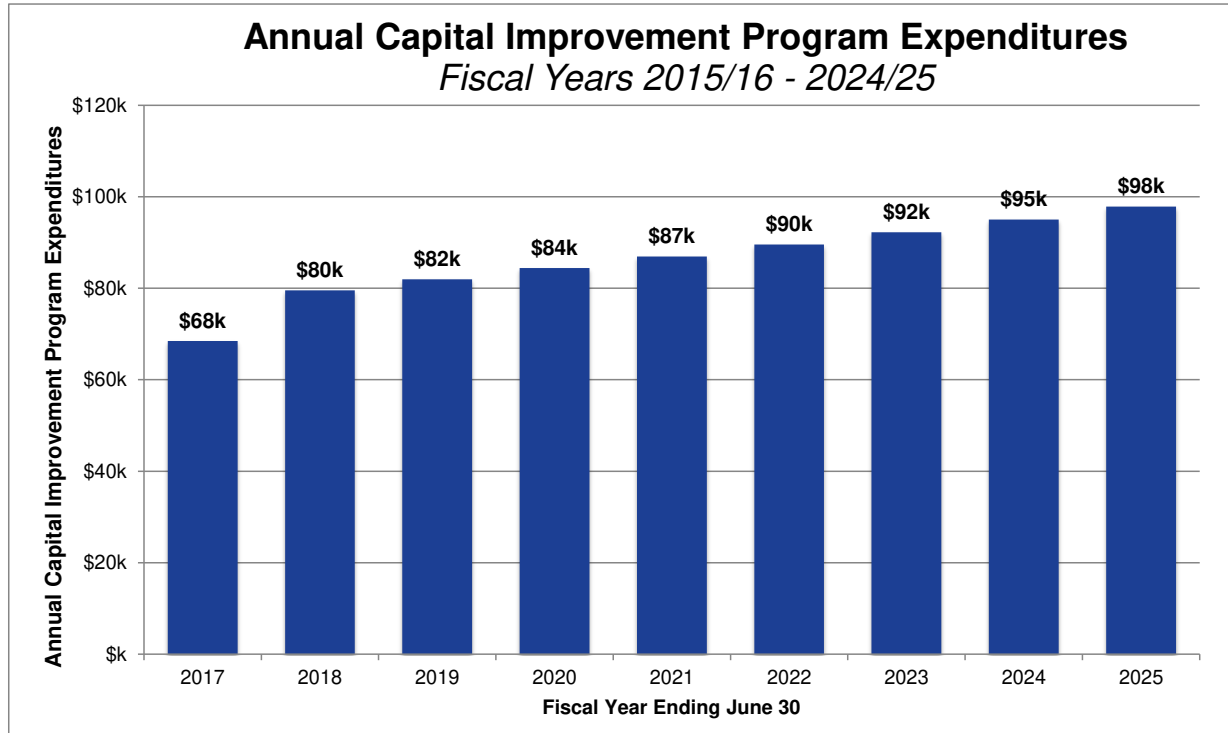
SUMMARY OF CASH ACTIVITY	Budget	Projected								
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Total Beginning Cash (1)	\$ 862,258									
Operating Reserve										
Beginning Reserve Balance	\$ 400,000	\$ 111,110	\$ 110,177	\$ 112,652	\$ 115,193	\$ 117,802	\$ 120,481	\$ 123,232	\$ 126,058	\$ 128,962
Plus: Net Cash Flow (After Rate Increases)	8,580	60,972	52,683	52,120	51,510	50,834	51,217	51,597	51,965	21,512
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Transfer Out to Reserves for Replacements	(297,469)	(61,906)	(50,208)	(49,579)	(48,901)	(48,156)	(48,466)	(48,771)	(49,062)	(18,528)
Ending Operating Reserve Balance	\$ 111,110	\$ 110,177	\$ 112,652	\$ 115,193	\$ 117,802	\$ 120,481	\$ 123,232	\$ 126,058	\$ 128,962	\$ 131,946
Target Ending Balance (6-months of O&M)	\$ 111,110	\$ 110,177	\$ 112,652	\$ 115,193	\$ 117,802	\$ 120,481	\$ 123,232	\$ 126,058	\$ 128,962	\$ 131,946
Reserves for Replacements										
Beginning Reserve Balance	\$ 462,258	\$ 759,727	\$ 753,138	\$ 723,778	\$ 691,402	\$ 655,891	\$ 617,101	\$ 576,012	\$ 532,543	\$ 486,596
Plus: Grant Proceeds	-	-	-	-	-	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	297,469	61,906	50,208	49,579	48,901	48,156	48,466	48,771	49,062	18,528
Less: Use of Reserves for Replacements	-	(68,495)	(79,568)	(81,955)	(84,413)	(86,946)	(89,554)	(92,241)	(95,008)	(68,596)
Ending Reserve for Replacements Reserve Balance	\$ 759,727	\$ 753,138	\$ 723,778	\$ 691,402	\$ 655,891	\$ 617,101	\$ 576,012	\$ 532,543	\$ 486,596	\$ 436,528
Minimum Target Ending Balance (2)	\$ 523,000	\$ 509,000	\$ 496,000	\$ 484,000	\$ 472,000	\$ 460,000	\$ 449,000	\$ 438,000	\$ 428,000	\$ 418,000
Ending Balance (Excludes Restricted Reserves)	\$ 870,837	\$ 863,315	\$ 836,430	\$ 806,595	\$ 773,692	\$ 737,581	\$ 699,244	\$ 658,601	\$ 615,558	\$ 568,474
Target Ending Balance (Excludes Restricted Reserves)	\$ 634,110	\$ 619,177	\$ 608,652	\$ 599,193	\$ 589,802	\$ 580,481	\$ 572,232	\$ 564,058	\$ 556,962	\$ 549,946
Ending Surplus/(Deficit) Compared to Min. Reserve Targets	\$ 236,727	\$ 244,138	\$ 227,778	\$ 207,402	\$ 183,891	\$ 157,101	\$ 127,012	\$ 94,543	\$ 58,596	\$ 18,528
Restricted Reserves:										
Debt Reserve										
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Interest Earnings	-	-	-	-	-	-	-	-	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-	-	-	-	-	-
Ending Debt Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Target Ending Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Fee Reserve										
Beginning Reserve Balance	\$ -	\$ 2,100	\$ 10,505	\$ 26,308	\$ 42,255	\$ 46,878	\$ 51,664	\$ 56,639	\$ 61,830	\$ 67,266
Plus: Interest Earnings	-	5	53	197	423	586	775	991	1,237	1,345
Plus: Capacity Fee Revenue	2,100	8,400	15,750	15,750	4,200	4,200	4,200	4,200	4,200	-
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-
Ending Capacity Fee Reserve Balance	\$ 2,100	\$ 10,505	\$ 26,308	\$ 42,255	\$ 46,878	\$ 51,664	\$ 56,639	\$ 61,830	\$ 67,266	\$ 68,612
Annual Interest Earnings Rate (3)		0.25%	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%

1. Beginning cash balance for Fiscal Year 2015-2016 is per 2015 2016 Budget.pdf and Beginning Cash & Invested Reserves 2015 2016.pdf.
2. Minimum target balance for the Reserve for Replacements is set to 3% of the Net Asset Value of the Wastewater System (per DWA Staff, current net value is \$22,802,000).
3. Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through 2021 and phase into the historical 10 year average interest earnings rate.









DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Wastewater Utility Operating Revenues and Expenses

EXHIBIT 1.G

FORECASTING ASSUMPTIONS:

Economic Variables		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Customer Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	General Cost Inflation	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
3	Labor Cost Inflation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
4	Energy Cost Inflation	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%
5	Transportation	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
6	Utilities	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
7	Construction Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
8	No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rate Revenue Policy		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
8	Adopted Rate Increase	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	Rate Increase plus Customer Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10	Other	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

OPERATING FUND:

Operating Expenditures - Customer Account	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Supervision & Engineering	3	\$ 8,180	\$ 8,284	\$ 8,615	\$ 8,960	\$ 9,318	\$ 9,691	\$ 10,078	\$ 10,481	\$ 10,901	\$ 11,337
Meter Reading Expense	2	\$ 8,258	\$ 9,032	\$ 9,213	\$ 9,397	\$ 9,585	\$ 9,777	\$ 9,972	\$ 10,171	\$ 10,375	\$ 10,582
Customer Rec & Coll Exp	2	\$ 54,192	\$ 57,598	\$ 58,750	\$ 59,925	\$ 61,124	\$ 62,346	\$ 63,593	\$ 64,865	\$ 66,162	\$ 67,486
Information Systems Supplies	2	\$ 284	\$ 310	\$ 316	\$ 322	\$ 329	\$ 335	\$ 342	\$ 349	\$ 356	\$ 363
Uncollectible Accounts	1	\$ 1,806	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505	\$ 1,505
Total: Customer Account		\$ 72,720	\$ 76,729	\$ 78,399	\$ 80,109	\$ 81,860	\$ 83,654	\$ 85,491	\$ 87,372	\$ 89,299	\$ 91,273

WASTEWATER FUND:

Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Capacity Charges	Ref Ex 1A	\$ 2,100	\$ 8,400	\$ 15,750	\$ 15,750	\$ 4,200	\$ 4,200	\$ 4,200	\$ 4,200	\$ 4,200	\$ -
Wastewater Service	1	\$ 973,900	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000
Plan Check Fees/Inspection/Service	8	\$ 600	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800	\$ 1,800
Total: Operating Revenues		\$ 976,600	\$ 985,200	\$ 992,550	\$ 992,550	\$ 981,000	\$ 981,000	\$ 981,000	\$ 981,000	\$ 981,000	\$ 976,800

Non-Operating Revenues	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Interest Short Term	8	\$ 3,900	\$ 4,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contributed Revenue - Customer	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Income	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Non-Operating Revenues		\$ 3,900	\$ 4,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Wastewater Utility Operating Revenues and Expenses

EXHIBIT 1.G

Operating Expenditures	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
C.V.W.D. Wastewater Service	8	\$ 614,400	\$ 598,200	\$ 609,821	\$ 613,789	\$ 617,757	\$ 621,726	\$ 625,694	\$ 629,662	\$ 633,630	\$ 637,598
City of P.S. - Wastewater Service	8	\$ 96,000	\$ 105,300	\$ 107,346	\$ 108,044	\$ 108,743	\$ 109,441	\$ 110,140	\$ 110,838	\$ 111,537	\$ 112,235
Office Supplies & Expense	2	\$ 2,225	\$ 2,100	\$ 2,142	\$ 2,185	\$ 2,229	\$ 2,273	\$ 2,319	\$ 2,365	\$ 2,412	\$ 2,460
Meetings & Seminars	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Legal	2	\$ 1,800	\$ 1,200	\$ 1,224	\$ 1,248	\$ 1,273	\$ 1,299	\$ 1,325	\$ 1,351	\$ 1,378	\$ 1,406
Engineering	2	\$ 1,500	\$ 1,800	\$ 1,836	\$ 1,873	\$ 1,910	\$ 1,948	\$ 1,987	\$ 2,027	\$ 2,068	\$ 2,109
Auditing	2	\$ 2,400	\$ 2,400	\$ 2,448	\$ 2,497	\$ 2,547	\$ 2,598	\$ 2,650	\$ 2,703	\$ 2,757	\$ 2,812
Programming	2	\$ 1,500	\$ 900	\$ 918	\$ 936	\$ 955	\$ 974	\$ 994	\$ 1,014	\$ 1,034	\$ 1,054
Utilities	6	\$ 8,100	\$ 7,500	\$ 7,950	\$ 8,427	\$ 8,933	\$ 9,469	\$ 10,037	\$ 10,639	\$ 11,277	\$ 11,954
Insurance	2	\$ 2,400	\$ 2,400	\$ 2,448	\$ 2,497	\$ 2,547	\$ 2,598	\$ 2,650	\$ 2,703	\$ 2,757	\$ 2,812
Maintenance of Pumps	2	\$ 1,800	\$ 1,500	\$ 1,530	\$ 1,561	\$ 1,592	\$ 1,624	\$ 1,656	\$ 1,689	\$ 1,723	\$ 1,757
Maintenance of Laterals	2	\$ 7,200	\$ 4,200	\$ 4,284	\$ 4,370	\$ 4,457	\$ 4,546	\$ 4,637	\$ 4,730	\$ 4,824	\$ 4,921
Maintenance of Lift Stations	2	\$ 22,800	\$ 30,000	\$ 30,600	\$ 31,212	\$ 31,836	\$ 32,473	\$ 33,122	\$ 33,785	\$ 34,461	\$ 35,150
Maintenance of Mains	2	\$ 84,000	\$ 75,000	\$ 76,500	\$ 78,030	\$ 79,591	\$ 81,182	\$ 82,806	\$ 84,462	\$ 86,151	\$ 87,874
Tools & Work Equipment	2	\$ 200	\$ 200	\$ 204	\$ 208	\$ 212	\$ 216	\$ 221	\$ 225	\$ 230	\$ 234
Transportation Expense	5	\$ 7,800	\$ 9,900	\$ 10,296	\$ 10,708	\$ 11,136	\$ 11,582	\$ 12,045	\$ 12,527	\$ 13,028	\$ 13,549
Depreciation	Ref below	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Wastewater Fund Operating Expenditures		\$ 854,125	\$ 842,600	\$ 859,547	\$ 867,585	\$ 875,718	\$ 883,949	\$ 892,282	\$ 900,720	\$ 909,267	\$ 917,927

Non-Operating Expenditures	Forecast Basis	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Interest - General Fund Loan	8	\$ 4,950	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700	\$ 3,700
Sewer Assessment Fees	8	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825	\$ 825
Loss on Retirement	Excl	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prior Year Expenses	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Non-Operating Expenditures		\$ 5,775	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525	\$ 4,525

ALL FUNDS:

Summary of Revenues and Expenditures	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues:										
Wastewater Service (Rate Revenue)	\$ 973,900	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000	\$ 975,000
Capacity Charges	2,100	8,400	15,750	15,750	4,200	4,200	4,200	4,200	4,200	-
All Other Revenues Included in this Module	4,500	14,700	17,550	17,550	6,000	6,000	6,000	6,000	6,000	1,800
Total Revenue	\$ 980,500	\$ 998,100	\$ 1,008,300	\$ 1,008,300	\$ 985,200	\$ 985,200	\$ 985,200	\$ 985,200	\$ 985,200	\$ 976,800
Expenditures:										
Services Provided by Other Agencies	\$ 710,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
All Other Operating Expenditures Included in this Module	222,220	923,854	942,471	952,219	962,103	972,128	982,297	992,616	1,003,091	1,013,725
Total Expenditures	\$ 932,620	\$ 923,854	\$ 942,471	\$ 952,219	\$ 962,103	\$ 972,128	\$ 982,297	\$ 992,616	\$ 1,003,091	\$ 1,013,725

DEPRECIATION EXPENSE FORECAST:

Depreciation Expense	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Existing Depreciation Expense - Operating Fund	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298	\$ 412,298
Existing Depreciation Expense - General Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Existing Depreciation Expense - Wastewater Fund	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000	\$ 558,000
Forecasted Additions to the Depreciation Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Annual Depreciation Expense	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298	\$ 970,298

DESERT WATER AGENCY
Rate Revenue Requirement Analysis
Wastewater Utility Capital Funding Plan

EXHIBIT 3C-2

SUMMARY OF CAPITAL EXPENDITURES:

Forecasted Expenditures by Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Pipelines - Routine	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transportation Equipment - Routine	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Collection System Projects (1)	\$ 37,200	\$ 68,495	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858
General Plan Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Un-Programmed General Plan Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total: Forecasted Expenditures	\$ 37,200	\$ 68,495	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858

1. For purposes of this analysis, NBS has preliminarily assumed \$250,000 (in 2016 values) annual in capital expenditures for the wastewater collection system. DAWN staff should confirm.

CAPITAL FUNDING FORECAST:

Forecasted Funding Sources (Assumes Forecasted Rate Increases Are Implemented)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Grants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Capacity Fee Reserves	-	-	-	-	-	-	-	-	-	-
Use of New SRF Loan Financing	-	-	-	-	-	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-	-	-	-	-	-
Use of Reserves for Replacements	-	68,495	79,568	81,955	84,413	86,946	89,554	92,241	95,008	68,596
Rate Revenue	37,200	-	-	-	-	-	-	-	-	29,262
Grand Total: Funding Sources	\$ 37,200	\$ 68,495	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858

Uses of Capital Funds:

Total Project Costs	\$ 37,200	\$ 68,495	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

New SRF Loan Financing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

10-Year CIP Total (FY 2015/16 - 2024/25)	\$ 813,236
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CAPITAL PROJECTS FUNDED:

Projected CIP Costs in Current Values:

Project Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<i>Wastewater Collection System Projects:</i>										
Lift Station - Spare Chopper Pump	\$ 13,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Generator @ CC Lift Station	\$ -	\$ 51,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency	\$ 24,000	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Future Wastewater Collection System Projects	\$ -	\$ -	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000
Total Project Costs (Current Value)	\$ 37,200	\$ 66,500	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000

Projected CIP Costs in Future Values:

Project Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<i>Wastewater Collection System Projects:</i>										
Lift Station - Spare Chopper Pump	\$ 13,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Generator @ CC Lift Station	\$ -	\$ 53,045	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contingency	\$ 24,000	\$ 15,450	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Future Wastewater Collection System Projects	\$ -	\$ -	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858
Total Project Costs (Future Value) (1)	\$ 37,200	\$ 68,495	\$ 79,568	\$ 81,955	\$ 84,413	\$ 86,946	\$ 89,554	\$ 92,241	\$ 95,008	\$ 97,858

1. Includes projected cost inflation of 3.0% per year.

**DESERT WATER AGENCY
WASTEWATER RATE STUDY
Sewer Cost of Service Analysis**

Development of the Volume Allocation Factor			
Customer Class	Apr.15 - Mar.16 Annual Water Consumption (hcf)¹	Apr.15 - Mar.16 Volume (MGD)	Percent of Volume
Residential	418,690	0.86	74.0%
Condo	11,439	0.02	2.0%
Commercial	128,564	0.26	22.7%
Public Authority	7,486	0.02	1.3%
Total	566,179	1.16	100%

1. Consumption data was provided in Source file: SEWER.xlsx. Customer data includes Active & Inactive classification; for the purpose of this analysis, all customer data records were used regardless of this classification.

Development of the Customer Allocation Factor				
Customer Class	Number of Accounts¹	Percent of Total Accounts	Number of Equivalent Dwelling Units (EDUs)²	Percent of Total Billing Units
Residential	1,628	76.1%	1,670	51.5%
Condo	292	13.7%	297	9.2%
Commercial	213	10.0%	1,200	37.0%
Public Authority	5	0.2%	75	2.3%
Total	2,138	100.0%	3,242	100.0%

1. Number of accounts and EDUs is from Source file: SEWER.xlsx, as of March 2016.

2. Per DWA's customer billing data; current EDU assignments per account.

Total Revenue by Customer Class		
Customer Class	Total Revenue Apr. '15 - Mar. '16	% of Total Revenue
Residential	\$ 598,549	61.8%
Condo	\$ 120,750	12.5%
Commercial	\$ 237,057	24.5%
Public Authority	\$ 12,494	1.3%
Total	\$ 968,850	100.0%

**DESERT WATER AGENCY
WASTEWATER RATE STUDY
Sewer Cost of Service Analysis**

Allocation of FY 2015/16 Revenue Requirements by Customer Class:

Customer Class	FY 2016/17 Total Revenue Requirement (1),(2)	% of Total Revenue Requirement
Residential	\$ 107,428	51.5%
Condo	\$ 19,106	9.2%
Commercial	\$ 77,194	37.0%
Public Authority	\$ 4,825	2.3%
Total	\$ 208,553	100%

1. Revenue requirement for each customer class is determined by multiplying the total revenue requirement by the customer allocation factor (Percent of Total Billing Units) for each customer class.

2. Total revenue requirement is for DWA's collection system only; treatment is addressed separately.

Development of Proposed Sewer Rates for FY 2016/17:

Customer Class	No. of EDUs	Total Revenue Requirement	Monthly Fixed Charge Per EDU
Residential	1,670	\$ 107,428	\$5.36
Condo	297	\$ 19,106	\$5.36
Commercial	1,200	\$ 77,194	\$5.36
Public Authority	75	\$ 4,825	\$5.36
Total	3,242	\$ 208,553	\$5.36

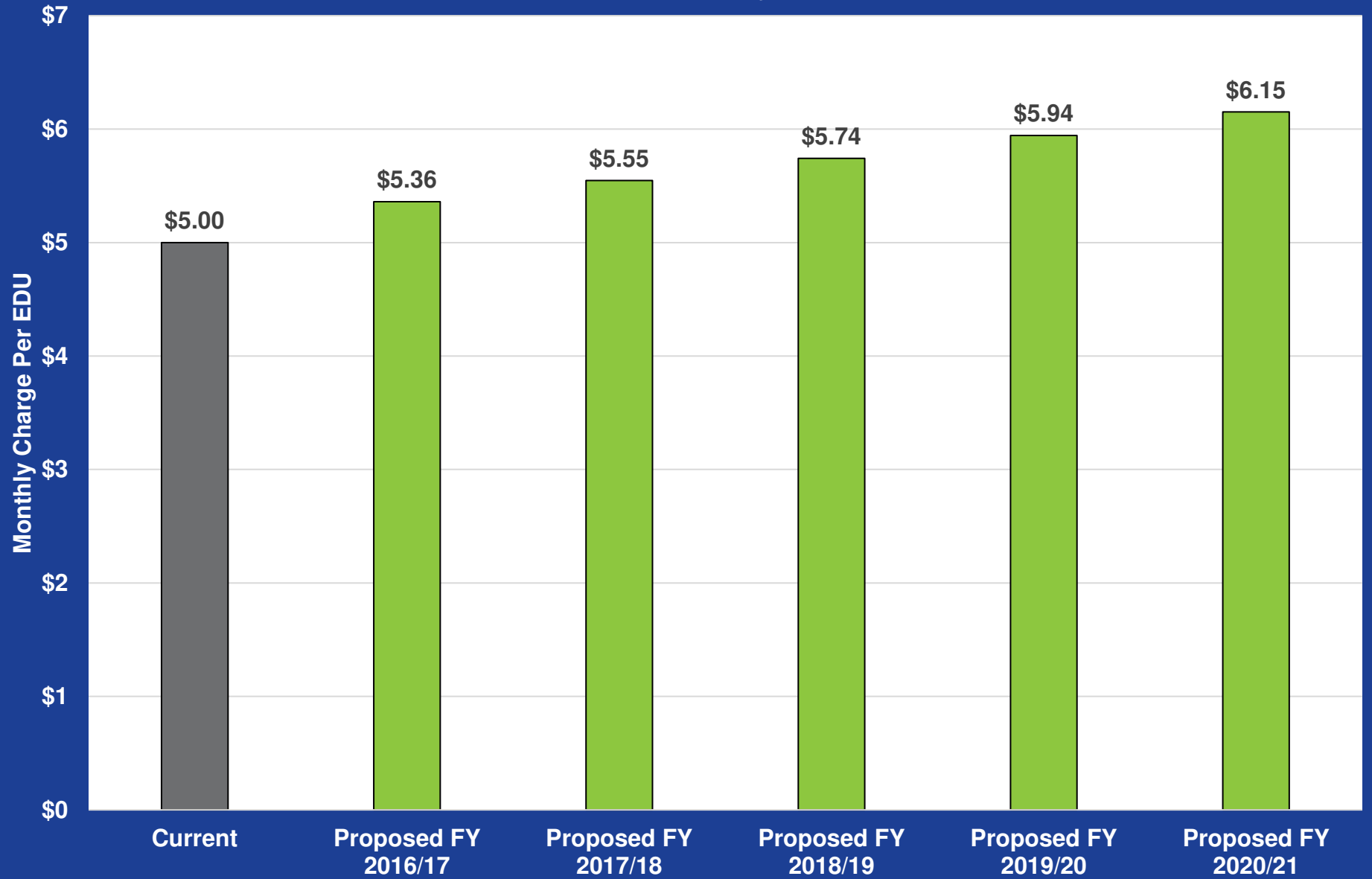
Proposed Five-Year Rate Schedule:

Wastewater Rate Schedule	Current Rates	Proposed Rates				
		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<i>Projected Increase in Rate Revenue per Financial Plan:</i>		<i>3.50%</i>	<i>3.50%</i>	<i>3.50%</i>	<i>3.50%</i>	<i>3.50%</i>
Fixed Monthly Service Charge Per EDU	\$5.00	\$5.36	\$5.55	\$5.74	\$5.94	\$6.15

Revenue Check:

Customer Class	No. of EDUs	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Residential	1,670	\$ 107,428	\$ 111,188	\$ 115,080	\$ 119,108	\$ 123,276
Condo	297	\$ 19,106	\$ 19,774	\$ 20,466	\$ 21,183	\$ 21,924
Commercial	1,200	\$ 77,194	\$ 79,896	\$ 82,692	\$ 85,586	\$ 88,582
Public Authority	75	\$ 4,825	\$ 4,993	\$ 5,168	\$ 5,349	\$ 5,536
Total	3,242	\$ 208,553	\$ 215,852	\$ 223,407	\$ 231,226	\$ 239,319
<i>Annual Revenue Requirement from Financial Plan</i>		<i>\$ 208,553</i>	<i>\$ 206,537</i>	<i>\$ 213,766</i>	<i>\$ 221,247</i>	<i>\$ 228,991</i>

Current vs. Proposed Sewer Charge Per EDU *Desert Water Agency Collection System* Five-Year Projection



Current vs. Proposed FY 2016/17 Wastewater Bill (SFR Customer) Combined DWA Collection + Outside Treatment

